

Dances With Ants Bonus Book Inside!

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Don't Panic, It's Organic!



# **Don't Panic! It's Organic! ©**

**By andy Lopez, aka Invisible Gardener™**

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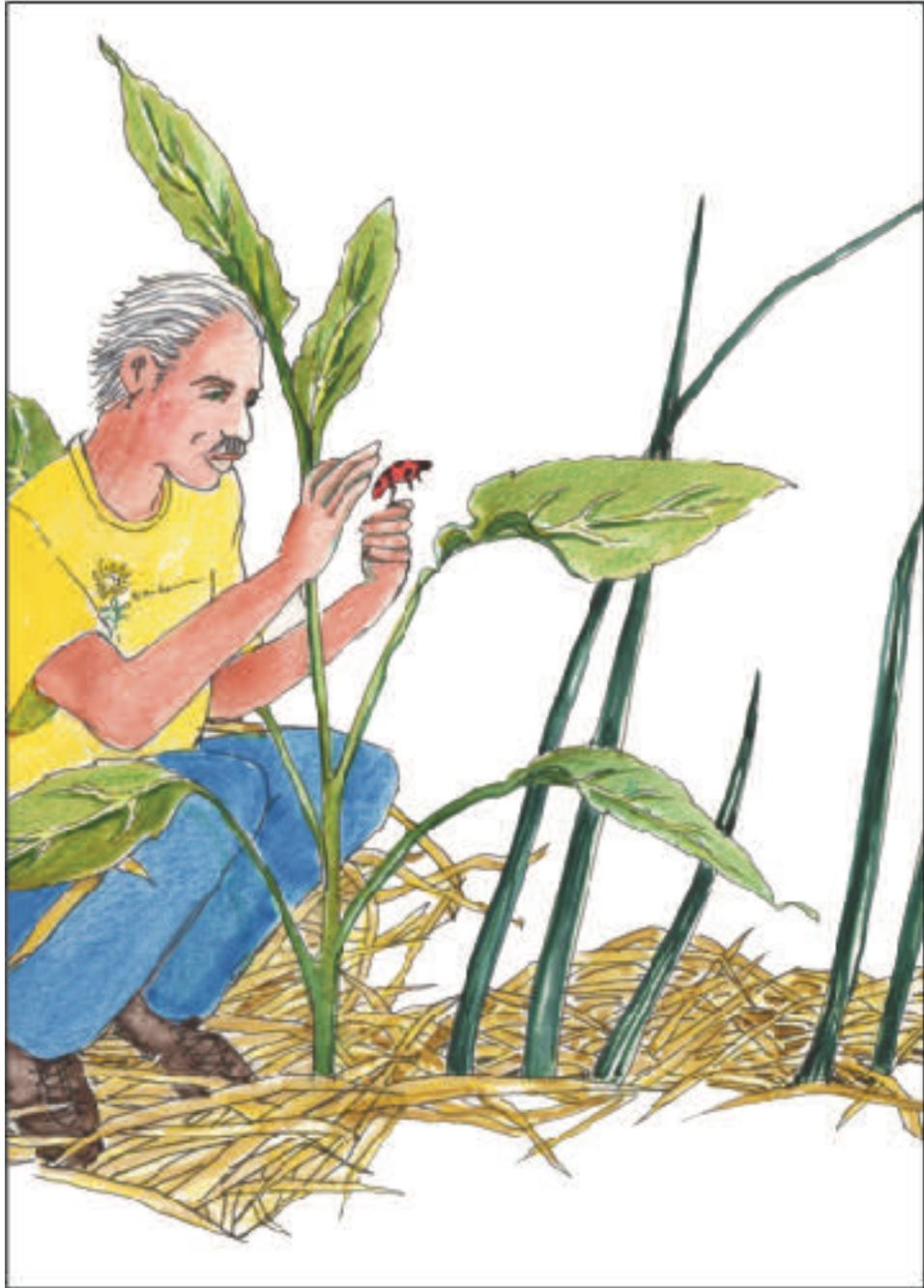
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Banish pesticides and chemical fertilizers  
from your garden.

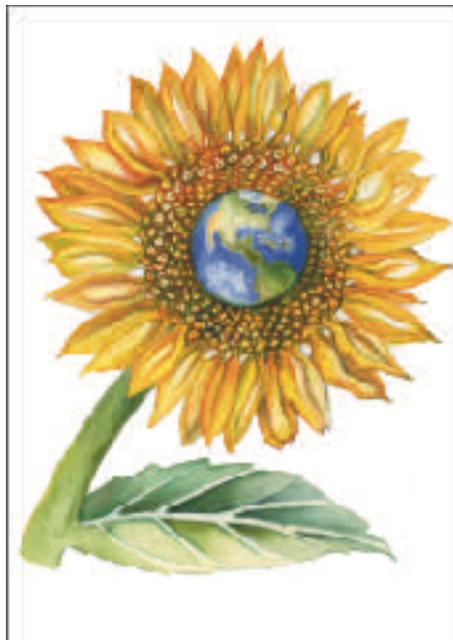
The Invisible Gardener is here  
to show you how to work with  
Mother Nature instead of against her.

## Dedication

This book is dedicated to my friends Eddie Albert, Edward Albert and Katie Albert. May they rest in Peace.

andy Lopez

*Invisible Gardener*



**“WE KNOW HOW TO MAKE OUR PLANET INTO A GARDEN OF EDEN. IT IS TIME WE DO IT. HERE IS A TOOL. I RECOMMEND WE ALL USE IT. EACH ONE OF US SHOULD HAVE OUR OWN GREEN ACRES.”**

**EDDIE ALBERT**

## INTRO

**W**hat are you putting in your soil? How are you dealing with garden pests and diseases? Conventional horticulture assaults the earth with pesticides and chemicals, sucking essential nutrients from the soil with each harvest. Organic gardening offers a healthier, more productive, and more sustainable alternative.

andy Lopez, a.k.a. the Invisible Gardener, reveals how to work in partnership with your garden while consuming less energy and producing fewer greenhouse gases.

Under Andy's expert tutelage, you'll discover:

- the importance of having a living soil
- natural tree care by understanding the Law of Cause and Effect and how you can control bark beetles and other pests and diseases
- natural disease control by using a Refractometer to get Brix readings
- you will know what Brix is and how you can use it for your garden
- the correct way to make use of compost and mulch, and why we make it in

the first place

- natural pest control, the *Greater the Stress, the Greater the Pest*
- organic lawn care and weed control
- natural spraying methods
- how to reduce your garden's water needs
- what the role of Mycelium is and how to help it
- what rock dust is and how to use it

Conventional horticulture still clings to the claim that organic and conventional growing methods yield the same results. Andy reveals the flaws in this argument, proving organic practices and heirloom seed use can actually increase harvests.

Even if organic and conventional growing methods had the same results, which would you prefer: dead soil killed by chemical overuse, or live soil rich in mineral and microbiological organisms?

A real gardener knows the answer instinctively. Don't Panic *Grow Organic*—you'll never regret it.

To subscribe to my free newsletter, visit my website at [InvisibleGardener.com](http://InvisibleGardener.com) and sign up! You will receive the latest information from Invisible Gardener as well as get information on my contest, radio shows, music and more! See Bonus at end of book!

**I love your feedback. I need your help to make this book the best I've ever done. Let me know what you think. Send me your ideas, comments and/or suggestions. I would love to hear from you.**

**:-)**

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## PREFACE

Don't Panic Its Organic takes on a new meaning with climate change, pollution, and the mess humankind has made for itself. I recently saw a great show on TV that basically said that humankind needs nature, but nature does not need humankind. How true.

Humans have not been living up to their full potential. They have not been good gardeners of the Earth. More and more, I see major problems occurring around the world in our Eco-System while humankind continues on its path of destruction and wasteful practices. This book is just one of many that points to nature and to her wisdom. She has already thought it through and has developed many natural systems to deal with climate change, healthy soil, healthy trees, and healthy beings living on it. These systems help to maintain balance as well as provide for a healthy ecosystem.

We can and must learn how to live in nature without destroying nature. We can try to destroy nature, but it is nature that will remove us from the picture if we do not behave. The removal process has already begun.

I often like to tell folks that Mother Nature has a disease and humankind is that disease. Thinking about that, I now understand that is not correct. Mother Nature is not sick, we are. We are our own disease. We are the cause and the effects are all around us in the form of pollution, radiation, plastic, toxins and much more. This book, I hope, will help you to start to become better gardeners of the Earth. It is never too late, so get started today!

andy Lopez Invisible Gardener



Chapter One

NO DIFFERENCE BETWEEN ORGANICALLY GROWN FOOD AND CHEMICALLY GROWN FOOD?

**I**n an LA Times article, a columnist wrote that there is no difference between Organically grown food and Conventionally grown food. He cites several studies that prove there is no difference between the nutritional levels, and he cites doctors who all say the same thing: "Eating conventionally grown produce is not only safe but just as nutritional."

It is besides the fact that conventionally grown produce totally ignores environmental issues, health issues of not just the consumer but the workers that pick it, as well as the fact that powerful business forces are at work here to keep the public confused.

Let's ignore these issues (for now) and take a look at what is wrong with the idea that organic food and conventionally grown food are equal. First off, not every organic farmer knows what they are doing, just like not everyone that makes compost knows what they are doing.

You are only as good a gardener (farmer) as the compost you make. Not all compost is equal just like not all organic farmers are equal. Some are actual organic farmers while others are in name only.

Many farmers have decided to "Go Organic" because they will then be able to sell their "products" for more, but if I were to ask them just one question and if they failed that question, they will have not only the same problems as the conventionally grown, but their "produce" will not be any more nutritional, especially if the conventional farmer either does not make or use compost, but also does not apply rock dust .

There is a basic law of nature that says, "You get out what you put in." You want trace minerals? Then put them into the soil; however, you cannot just throw rock dust everywhere and expect the minerals to then become available to the plants.

All rock dusts are not the same, some are rich in calcium but low in iron; it all depends from what part of the world and how it was made that determines what minerals it has.

The article as well as other studies do not even mention soil depletion. I wonder why? If your soil is depleted of minerals, then the produce grown on it will also be depleted in minerals.

There is a key to this problem in the article which mentions taste. The better the taste the more minerals it has.

Taste tells us if we should eat it or not. We have developed over the years to eat what tastes sweet and not which tastes bitter. Pests have developed along the same lines except that nature in her wisdom made it such that when a plant has high Brix, it will have higher sugar, which in turn means higher mineral content, which in turn means higher complex carbohydrates (insects cannot digest complex carbohydrates) and it is the simple carbohydrates that plants get if they are fed high nitrogen fertilizers; they grow fast but are weak and deficient in minerals.

When I started my business back in 1956, I heard the same (from **the Dark Forces**) that chemical and organic produce are equal in nutritional value and what's a little pesticide? That has not changed over the many years. If you really want to know, test real organic farmers like Rodale, or The Bio-Dynamic Institute and compare them. All of the studies, including the most recent one are flawed in that

they were not asking the right questions so they all found the same results and just passed them along. Did any study actually grow the different types of food and see for themselves? That takes knowledge of growing which most do not have and so the whole study is based on a false assumption.

This study looked at around 300 studies. It should be mentioned that these studies were mostly studies of other studies and that very few actually grew anything themselves. Those that did grow the food themselves were flawed in my opinion.

Here's why-

First off, in the studies that did grow their own, the researchers were not farmers, let alone organic farmers. They assumed that by merely picking a plot, dividing it up into two sections, one organic and one conventional and then buying plants from one source, and then growing them according to each system they reached the conclusion that there was no difference.

Sounds simple, right?

Wrong!

**Problem #1**

The Plants

Perhaps someone should have told them that there is a big difference between plants grown via different systems and the plants they bought in the nursery were not the same quality plants that you get when you start them from organic heirloom seeds of plants have been grown organically for centuries. These plants will

act differently if grown in dead soil and will not get any nutrients from these types of soil. The same is true for the chemically grown plants. They will start off weak and will never get the proper nutrients and therefore will not show any nutrients difference, other than what was given to them.

## Problem #2

### The Soil

If these researchers did not amend the soil with compost, the food grown will be different from the food grown in a living soil environment.

Let's say the soil was in good shape, and they picked a piece of land that has plenty of good rich soil. If they planted in that, then the results of both will almost be the same; they both will have whatever nutrients are in the soil. Actually the organic side will be able to uptake more of the nutrients than the conventional side over time as the soil becomes more efficient. But let's assume that they are planted in each plot, and gave one side chemical fertilizers, etc., and the other side organic fertilizers, etc. The results will favor the conventional side because on the organic side, organic seeds or organic plants were not used and the soil is not alive with the microorganisms that make the organic fertilizers work better in making nutrients available to the plants.

In the organic system, one practices sustainability while on the conventional side one cannot be sustainable. In the conventional method, soil depletion is a big factor in diminishing food quality and farmers have to use more chemicals and do more damage to the soil than if they were organic, which is sustainable where one can grow more and better-quality food while doing less and less damage to the en-

vironment.

### Problem #3

#### GMO (GEO) Foods

None of the studies mention GMO (GEO) foods. Most conventional farmers are using more and more GEO foods while organic farmers cannot use GEO if they want to be certified organic. We were never meant to eat Round Up, 2,4-d or whatever pesticide. Simple as that.

Yes, I feel that Organic farmers are keeping prices higher than they should be, but as the public wants more organic food, these prices will go down because a good organic farmer can compete with conventional farmers in price, just look at Deaf Smith Valley, over 40 organic acres.

Want to do a proper study? Grow each method for 10 years. Get real farmers on both sides. We will see then.

I know that as a good organic gardener, I can grow more nutritional food than a conventional farmer. I know that my produce will always test out better in nutrients, and I also know that the land will get more and more productive and sustainable.

The bottom line is for you to grow your own food as much as possible and for you to make sure you are doing it right.

While in the process of writing this book, a new report came to life and I thought it important to include it.

### **Organic Vs Conventional - The Proof that Organic is better is here**

After 30 years of side-by-side research in a study called the Farming Systems Trial (FST)®, Rodale Institute has proven once and for all that organic farming is better than conventional farming. For years now, the conventional farmers along with their conventional suppliers such as Monsanto have been paying for “studies” that prove that there is no difference between food grown organically and food grown “conventionally.” By the way, conventional farming is a nice family friendly way of saying business as usual: chemicals to meet every need of the modern farmer! Monsanto especially would like us to think their food is safe and as nutritious as organically grown food. Just like we are told that Nuclear Power is clean if we ignore the radiated waste and that coal burns clean. We just have to ignore everything it destroys through climate change. Conventional farmers would like us to ignore the chemical damage they are doing.

The public is already confused about *GMO* (not all *GMO*'s are bad — it's the *GEO*'s we must control, and now they want us to eat more *GEO* products without concern for the obvious damage it will do to the environment, humans, animals. See my 10 ways, (there are 10 environmental boundaries that we should not be crossing) to kill all living beings within 50 years at end of this book.

So I am glad to see that this report is finally out. After 30 years of research, they are saying what I have been saying all along:

FST Facts from the report:

Organic yields match conventional yields.

Organic outperforms conventional in years of drought.

Organic farming systems build rather than deplete soil organic matter, making it a more sustainable system.

Conventional systems produce 40% more greenhouse gases.

Organic farming systems are more profitable than conventional.

Soil health in the organic systems has increased over time while the conventional systems remain essentially unchanged. Carbon increase was highest in the organic manure system, followed by the organic legume system. The conventional system has shown a loss in carbon in more recent years. Organic fields increased groundwater recharge, and reduced runoff. "Organic agriculture has the potential to secure a global food supply, just as conventional agriculture is today, but with reduced environmental impact." This is according to a report that came out of the Food and Agricultural Organizations of the United Nations (FAO) International Conference on Organic Agriculture and Food Security.

Agroecological farming methods could double global food production in just 10 years, according to a report from the United Nations. Agroecological practices, like organic practices, attempt to mimic natural processes and rely on the biology of the soil and environment rather than synthetic sprays and other inputs. Switching to organic methods in communities where people struggle to feed themselves and their families can lead to a harvest 180% larger than that produced by con-

ventional methods. Organic farms are significantly more profitable. The organic systems uses 45% less energy than the conventional systems and also produces less greenhouse gases.

The Report ends with this:

"We have shown that organic can feed the world. Now it is time to take on the matter of feeding the world well." The only area I wish they had studied as well is the comparison between organic food and conventional food in their nutritional values. I know that if they were tested, it would be found there is more nutritional value to the organic produce than to the conventional. This follows the simple law of what you put in is what you get out. If you wish to get a free copy of this report go to my website.

Here is my latest book, my latest thoughts and my evolution in Organics, as well as various topics from my column.

Enjoy!

Andy Lopez, Invisible Gardener



## Chapter 2

### THE MYCELIUM INTELLIGENCE

## Chain of Life

We all understand the concept of The Chain of Life. We usually think about how one creature eats another animal which then gets eaten by another creature, which in turn gets eaten by another, until we get to us. We are at the top of the chain, or are we?

We understood that, but did you ever think as to the beginning of the chain? The start of the chain of Life starts with the fungi, bacteria, and protozoa. These are the real Master Gardeners of our planet. As I mentioned before, they have been at this for a very long time, much longer than we have. Gardening skills are honed to perfection. All living things depend upon the Mycelium, and its ability to recycle the essential minerals and resources needed for healthy growth.

As a kid, I was always interested in these mushrooms that would pop up almost everywhere. I noticed that after rain, they would appear overnight. Several times, I would sit and watch. Over a few hours, they would be fully grown and right in front of my eyes.

Beautiful. I am not talking about magic mushrooms (this is another story), but of the many varieties that grow in the lawn, in your garden, in the forest. It is these workers that take the minerals and other essential nutrients and convert them into an assimilable nutrient rich in minerals.

As I mentioned before, plants learned that they are better at growing if they grow with their roots intertwined with the Mycelium than if they tried it on their own. As a matter of fact, eventually, all plants evolved so that Mycelium grew in the root hairs of their roots. This became a particular type of Mycelium that is working for the plant, taking the nutrients from the Mycelium Colony and passing

it on to the plants. While plants can grow in soil without Mycelium (plants produce the proper waste that helps Mycelium grow), they will use their roots to locate the underground Mycelium colony and make a connection. They plug into the conscious mind of the Mycelium. The Mycelium will then expand its web weave to include the plant! The plant communicates with the Mycelium Mind, and they exchange information. What does the Mycelium get from this relationship? When the plant dies, it will become food for the Mycelium. It will digest and return all the minerals and recycle it back to itself as food, and it also feeds others.

The Mycelium have evolved to farm for their "food source" plants and indirectly insects as well as animals and even humans. Anything that dies and is returned to the earth becomes food for the microbial life.

Mycelium has been around for hundreds of millions of years. They have evolved into a very efficient organism. They can communicate within all of the intertwined roots of plants. They communicate with trees through this network. Trees communicate with each other through this network. Insects and animals are attracted to these areas. Insects will eat other insects especially if the bugs are getting mineral-rich food sources. Animals, in turn, are attracted to other mineral rich animals and plants. Lots of animals only eat plants (mineral rich), and they are prime food for animals to eat them and get the minerals. Whatever dies will be eaten by the fungi.

It's Alive is the name of one of my radio shows. I started this show way back in 1984 when I first moved to Malibu. In it, I try to express to folks how important this hidden life is. The top soil is the "skin" of the Mycelium. Just as the skin of animals, humans, insects, etc., acts as an interface between the inside and the out-

side of our bodies, so too does top soil act as an interface between plants, animals, insects, everything!

Plants have deep roots as well as deep roaming roots. They seek Mycelium and Mycelium seeks these roots. There is a definite interaction between the Mycelium and the roots of the plant. As the plant grows, its roots encounter this Mycelium which almost immediately starts to provide nourishment and communication with other plants directly through this network.

Humans, Plants, and Mycelium bacteria have evolved together over the millions of years and have developed many ways of communication with each other. Yes, humans can communicate too with this Mycelium. Together, they provide for each other. The key to healthy life is minerals. Lacking one or more minerals will eventually cause big problems, leading to an unhealthy state. This is not just true for plants but all living things especially trees and animals and humans. Whether plant, insect, animal, or human, being unhealthy is a magnet for pests and diseases.

## The Mycelium of the world is one living being

The Mycelium of the world is one living being and is responsible for many things of which the growth of mushrooms is one. Mushrooms digest minerals found in decaying insects, plants, animals (and humans) and convert it to usable forms-which the plants can assimilate and we, in turn, can also assimilate.

You are what you eat is the old saying. The fungi eat the minerals, which is consumed by the plants, which are then eaten by the animals which in turn is eaten by

us. Humans also eat the plants directly. These fungi will also eat and convert into the proper minerals (anything that dies and encounters the "skin") of the Mycelium. In essence we are Mycelium.

Thus, the Mycelium is the very start and end of the food chain. Now how cool is that? I often talk about how damaging disrupting the top soil is. By damaging and or removing this "skin," we are destroying the Mycelium and this in turn hurts everything else. The Mycelium is an important ally in the climate change war, one that we cannot ignore. So, it is very important to protect our top soil and in turn protect this amazing organism.

I talk a lot about the soil being alive. Well, did you know that Fungi (Mycelium to be specific) is the world's largest living organism? It's been said that Mycelium is Mother Nature's Internet. The Mycelial network is identical to the human brain. It is not also a coincidence that the internet is also identical to this collective fungi consciousness.

**What does this mean to me?**

It is alive and highly intelligent.

It communicates within itself, and all plants use this also to communicate with each other. Therefore, I have developed a relationship between mushrooms and healing the soil.

If you were to walk in a forest after a rain, you would see mushrooms popping up all over the place. Don't be surprised to find mushrooms growing in your lawn or on your property.

Many have asked me what is wrong and how to get rid of these pesky mush-

rooms, and I tell them not to worry that the mushrooms are nature's way of telling you that there is still life down there.

This relationship between animals (that's us) and fungi goes way back in time to about 600 million years ago. Animals share a closer ancestor with fungi than with any other kingdom, so it is not a surprise that we also share in the evolutionary traits developed over time. Fungi developed first around 1 billion years ago. They developed ways to digest food by secreting acids and enzymes into their environment. Early plants, however, did not have this ability and so they worked with the Fungi. This has allowed plants to survive on land around 700 million years ago. With the passage of time, (something like a million years), a new evolutionary branch of Fungi developed into animals. This branch of fungi developed methods of capturing nutrients by surrounding their food with a cell, becoming an early stomach. This eventually allowed organisms to develop ways to prevent water loss, and this became skin which was composed of many layers of cells and this was used to protect the body from outside attacks such as diseases and pests.

The fungi, however, went underground and slowly developed to where it is today. Fungi retained its weave of chains of cells and became a food web that all plants and living things depended on.

An interesting fact is that when there is a significant event that changes the direction of life, say when the dinosaurs became extinct due to a meteor, fungi were able to grow even more and helped the present life to grow back. Plants that had chosen fungi realized if they wanted to survive, they had to live with and work with this fungus.

Our brain cells have developed due to fungi. We took the network that works so well in the fungi and made it our own. The brain's networks directly image this underground network. Mycelium has been an important factor in the development of all living things upon this planet. We share a lot more than we ever will realize.

It is important to understand how species develop and what causes some to die while others thrive. It is important to note that way after we are gone, and just a memory in plants and insects, that this fungi network will still be here.

Now comes the fun part. If this is truly an intelligent organism, then it has a consciousness and intelligence.

## The frog does not pollute the pond it lives in

We humans think we are the smartest living beings on this planet. Well, surprise! We are not. Not even close. There is an old Chinese saying the Frog does not pollute the pond it lives in. Now that is real intelligence.

We humans, pride ourselves in our communication skills. We talk to only those that we think are listening. When was the last time you not only talked to the soil but listened?

As a child, I was always surprised to find that not only did the earth speak to me but the trees, the plants, the birds and the bees also talked and listened to me as I spoke and listened to them.

In my 6th grade, I got into trouble with the teacher because I told the class that trees talked and were vastly more intelligent than we were. They all laughed

at me. That's ok with me. I have always been called the crazy one in the room. Even to this day, I am considered the Crazy Gardener of Malibu. It is besides the fact that I am not a gardener. I am an earth scientist promoting a greater understanding of the most intelligent beings on the planet and the most stupid being(s) on the globe.

We must, in the end, acknowledge that we have been wrong all of these years. We have abused our abilities to communicate and instead have gone down the path of destruction. The earth will be here long after we are gone. Doesn't it make sense that we need to listen more and talk less? We do not know what we are talking about; We are aware of nothing. We indeed are stupid, and it shows. The pond is indeed polluted, and we plan to pollute even more. The sad thing is that we are not just taking ourselves down but taking everything else with us except for the fungi. She will be here, and She will know that we screwed up and will develop a new species that will evolve to take our place.

With trees dying everywhere here in southern California and around the world, from one pest or a disease, more efforts are being placed into discovering more pesticides to kill the pests or more chemicals to kill the disease. Some folks are also saying that we should just plant trees that are not being attacked by the pests, that these are special and will not get attacked. Yes, they may last a bit longer than other trees, but we are not paying attention to the real cause — the life of the soil.

Stop destroying the topsoil. Stop destroying the soil. Healthy living soil will provide for healthy pest and disease-free trees.



## Chapter 3

### VEGETABLE GARDENING GUIDE

## **Your Own Organic Vegetable Garden**

**I**n this book, I will not attempt to tell you how to garden and what to garden. What I am trying to do here is to pass along to you some of the things I have learned, both from my personal gardening experiences and from my organic business experiences. Some of this you will get and some of it you won't. Don't worry. If you like gardening or are thinking about starting your own organic business, then this book is for you.

I have tried to pass along my many years of experience to you in an easy to understand way. I hope that this book will make you an even better organic gardener and may lead you to some new discoveries and a greater understanding of organic gardening.

### **Basics of Organic Gardening**

1. The life of the top soil is the most important part of organic gardening.
2. Nutrition... Always provide proper nutrition. The key is having plants with high Brix levels. High Brix always means high minerals. Always use Organic Certified Fertilizers, use OMRI approved when you can or contact owners to find out why they are not OMRI.
3. Live Compost...make lots of good mineral — and microbe — rich compost. I will go over this more. Help keep the soil alive! Use Rock Dust! Use BioChar!
4. Control Stress... (the plants and yours) and you can control the pests.

## The Greater the Stress

## The Greater the Pest or Disease

This is important, and I will be going over this several times throughout the book.

5. *The Greater the Diversity the Greater the Balance.*

6. *Learn your vegetables. What and when you can plant.*

7. *Location.... Choosing a location for your raised bed is very important and I will cover more later. The location needs to be close to the kitchen to provide easy access for the cook to get to. The location must provide at least 6 to 8 hrs. direct sun, with the more the better and must have proper drainage. So, take a walk around your place and see if you can pick the perfect spot. Another consideration is water; it must be a close source.*

8. *Use a Garden Filter: Never use city water in your raised beds or in your foliar sprayings like compost tea , etc. Many cities have chlorine (or whatever) in their city water. Chlorine kills bacteria, that is what it does best. However, an organic garden requires natural bacteria to function correctly. A garden filter or water transformer will help keep your garden alive! You will notice an increase in earthworms and in the gardens overall health. Try Garden Gro.*

These are probably the most important things I can pass along to you. Understand these and you will be a successful organic gardener! I will be covering Brix later .

## **Your Raised Bed**

Having your own raised bed is a wonderful thing. Having the ability to grow your own food has always fascinated me ever since I was a child. So, building a raised bed quickly became a very important skill that I developed over these many years. Why do raised beds instead of just growing in the ground like it has always been done? Sure you can rototill the soil and work it and you can grow anything but not everyone has the time, space, or an ability to do that. Raised beds provide a great way to grow in places you might not normally be able to grow in. Raised beds also provide a lot of soil in a much smaller area allowing more plants and great root systems.

### **A few points about raised beds:**

1. Raised beds allow you to grow from 4 to 7 times more food in the same area than in the same ground.
2. Raised beds allow you greater control over watering costs (you can use 75% less water with a raised bed than if you were growing in the same area in the ground), pests (from gophers to ants), and crops (especially extending harvest periods).
3. Raised beds allow you greater control and health of the soil being used. Raised beds are easy to make and you can recycle (reuse) various materials in making the beds. You can use rocks, wood (untreated, unpainted of course), tree logs, bricks. You can use bottles to make the sides of your raised beds. Stick upside down in ground. You can use clay on the inside to mold and hold them together or you can use sand and pack it in or use rope to tie them together.

## The Drip System

A good drip system is important. You can use 75% less water using a drip system. A soaker hose will also work very well here. The soaker hose can be buried about 1/2 way from the top. A battery timer will help to control the water and is easy to operate. Place a garden filter between the hose and the timer. Your garden will love this extra touch.

There are many different types of drip systems on the market. Choose what you can work with for the price.

## Building It Yourself

Raised beds are a gardener's best-kept secret, especially if poor soil is the main problem. Raised beds stay warm longer and heat up more quickly especially in early spring, allowing you to work the soil and plant sooner than if you were growing in the ground. Raised beds drain better than in soil plantings.

The soil doesn't get compacted, because you do not walk on it. It's easy to amend the soil in that raised bed to meet the plants requirements such as specific pH needs (some plants like acid soil instead of alkaline). Raised beds require less maintenance than conventional in ground garden beds. Weed, disease and pest control tasks are easier when done in a raised bed environment.

You can choose from a variety of materials to construct your raised bed. I use wood because it is easy to work with, it is inexpensive, and this is what my customers usually want. I often use concrete blocks, natural stone, or I love to use any other type of natural brick.

Since most raised beds are constructed from natural untreated wood, here are a few tips for building your own wooden raised bed for your vegetable or herb garden.

## **Location Location Location**

### **Tip One: Location**

Select a site that gets at least six to eight hours of sun per day. A flat, level area and access to water would be nice.

## Selecting a good location is a key ingredient to having a healthy organic garden

Choose an area with plenty of morning sunlight and some afternoon shade. Most vegetables, especially fruiting types, do best with six to eight hours of full sun exposure.

Leafy and root vegetables will tolerate some partial light but need bright shade. Don't plant vegetable gardens under or near trees, large shrubs or under fruit trees as tree roots rob fertility, water and the tree's shade will rob the needed light from the vegetables. Don't plant vegetables in the narrow-shaded space between houses and walls unless it gets full sun and good workable soil. A loose, fertile, well-drained soil is best. If possible, avoid heavy clays or very sandy soils.

The ideal organic garden soil is a minimum of 18 inches to 3 feet deep (or more), fertile, well-drained and medium-textured. Such soils are usually dark colored like compost. Fine-textured, clay soils are difficult to work with and frequently form clods as it dries. Very sandy soils do not retain moisture or nutrients well either, and organic matter and rock dust applications should be added.

Amend the soil well with live compost and rock dust for minerals. Full sunlight of eight hours or more produces the most productive organic gardens. Six to eight hours of daily sunlight is the minimum for good production. Trees and hedges should be avoided, as they not only reduce sunlight but also compete with vegetables for water and nutrients.

Gardens near the house are more accessible and easier to take care of and protect. There are generally fewer wild animals near the house and water for irrigation will be easily available. It may be necessary to fence dogs or farm animals, and teach children about the garden. Frequent harvests are also easier and more fun when gardens are near the house or the kitchen. Consider just a small garden near the kitchen for frequently needed herbs and other cooking things.

## Gardens should be easy to get to

Lastly, garden sites should correspond in size to the amount of garden produce needed. Intensive cultivation techniques can only partially make up for a small site. Therefore, try to grow what you plan on eating.

### Tip Two: How Big?

The size and shape of your garden depends on what you want to grow and how much space you have available. So, figure out what you want and how much room

you can use. Make sure that you can access all parts of the garden without stepping into the bed. One of the main advantages of a raised bed is that you have control of the soil, and you don't let the soil get compacted the way it might get if you were to be walking on it. You can rotate the soil every few years to ensure the best growing environment for your vegetables. I prefer to add compost to the beds every season and to rotate the soil as well. Leave a bed alone with a green cover crop and then turn everything over and top off with a composted animal manure like horse or even llama. Keep the raised bed garden to around four feet wide so you can access the middle of the raised bed from either side without getting inside. Make this less if you are short or have a short reach.

### **How High?**

12 inches up to 18 inches (I like 24 inches up and 24 inches below ground level) depending on cost restrictions (more soil costs more initially but provides deeper root systems space for your plants!) and while many vegetables grow well in a bed that is in six inches of soil, they will do much better if they have at least 18 inches to 36 inches of soil to work with as well as an additional 18 inches below ground.

### **Tip Three: Preparing Your Soil**

Dig down as far as you can and then replace the bottom layer with wire mesh to protect from gophers. Use 1/4 inch mesh. You can have a layer of rocks right on the mesh. Run the mesh to the wood and nail together. Blend with the local soil equal parts compost and organic potting soil and the correct amount of BioChar and microbes. Add about 10 lbs. of rock dust (not more) to the mix. The last layer should be azalea mix. The soil prep is the single most important thing you can do to

your garden. You need to provide for an environment where Mycelium will grow. It is the Mycelium that will break down the minerals into a solution that can be then transferred thru the roots of the plants.

#### **Tip Four: Soaker Hose or Drip**

This is a good time to place a soaker hose about 1/2 way up from the bottom. This will allow roots to come down to get water while keeping water below ground (controls pests and diseases and saves water). Then run another drip line on top.

#### **Tip Five: Building the Bed**

You can use rot-resistant lumber such as aged cedar, redwood or even oak or one of many natural materials such as rocks. I treat all wood used with OTKO (a natural orange oil cleaner). Paint it on and let it dry. Two by eight lumber for the corners are perfect and will give you eight inches of depth.

Treat these with OrangeTKO or any natural citrus oil product. Cut your pieces to the desired size, then attach them together to make a frame. You can attach them in a variety of ways. You can make a joint at each corner, screwing the corners together with screws, for example.

#### **Tip Six: Filling Your Garden Bed**

Take this time to fill your bed with the best organic mixture of quality topsoil, live compost with microbes, and any aged manure (not too old, say 6 months). I also use the best organic potting soil I can find as well as adding a small amount (10 lbs) of rock dust to increase mineral content and BioChar. I top the garden off with a top layer of an acid mulch like azalea mix.

## **Maintaining Your Organic Vegetable Garden**

Keeping your garden growing with vegetables, herbs and other plants does not have to be a difficult task, and with the help from this book, you will find it a wonderful hobby that will provide you with a fun and pleasant method of entertainment.

### **Best garden**

To get the best garden, you need the best soil. This is the only time you will be able to provide the best soil in your raised bed, so do not go the cheap route and buy compost with sewer sludge or any other type of chemical product. Avoid using chemical fertilizers. It is best to use a good organic potting soil mixed with your compost, plus add earthworm castings as well as various other organics such as BioChar, bacteria and animal manure. Use azalea mix as the top layer and then allow bed to sit a week before planting. Blend compost with a good organic potting soil mix and place drip line midway up from bottom of the bed and then run another drip line on top.

### **Water Water**

A raised bed relies on a steady cycle of water and dryness. Too much water will cause your soil to be water soaked which will kill off the beneficial microbe. Some water once a week with the soaker and hand water a little as needed. Allow a few days in between watering for the roots to soak up the water and to allow it to dry out a little bit. You will know if you've waited too long in the drying process if you see plant damage.

### **Keeping Your Plants**

Once you've got a garden, you will want to protect your plants from pests and

other creatures. I like to use a shade cloth and PVC pipe to provide protection to the beds. The shade cloth keeps out pests and the rabbits! I use a 30% shade cloth which I can lift to get into the beds with. The cover can be removed and only used when needed. You can cover with plastic during winter to keep beds from winter damage. Some plants will need full sun and won't grow under the shade cloth. Use garlic to protect them (more on this later).

## Composting

The *Secret to Growing* compost is a special art that we all must learn if we are to become *Master Organic Gardeners*. We make compost not just to recycle, but to also return to the earth as much top soil alive with mycelium, and other beneficial microbes needed for healthy soil. So, the compost is the place where the minerals and the fungi meet. The fungi eat the minerals and makes it available to the plants via exchanges in the root hairs of the plant. Special fungi live there that transfers to the plants, the nutrients it gets from other fungi that are present in the soil.

Composting: 30% of our landfill materials come from this area of our wastes. Grass clippings, leaves, etc., make great additions to our composting system. A shredder will help to speed up the composting process. You will need a few good sources of animal manure. This is important because you cannot make live compost without some type of animal manure. The more mix of the microbial source, the better. Different types of manures, have different microbes, so the more the mix of microbes, the more of the nutrients will be available. Start using BioChar.

**Making good Kitchen Compost:** It pays to be able to save all of your kitchen

wastes. A small container would be useful to have in the kitchen area for this purpose. Make sure it has a lid. We compost all of our kitchen wastes and recycled paper wastes as well as the wood from the matches we use, etc. Anything that will compost is saved. Learning to make compost is a great way to take something that is being thrown away and turn it into food for the soil, for the plants, and food for us. This is recycling at its best! Make sure that you empty the container every day. I suggest that you compost the kitchen wastes by layering into your compost. You can also bury the kitchen wastes in your garden allowing the worms a meal. Adding some rock dust to kitchen waste will help reduce smells and flies and will also increase microbial activity.

“Raised beds allow you to grow from 4 to 7 times more food than in the same area of flat ground and up to 75% less water.”

## Mulch

Mulching is a very important part of the organic garden. It is an excellent way of recycling. It is always best to compost your mulch before using. Never mulch around plants with freshly cut mulch from trees or grass clippings. This will burn the plants. I will go over mulch in its own chapter.

## Mulch Vs. Compost?

Compost is the food and mulch protect the food from the elements like rain and the sun that will dry it. Mulch will hold water and not allow the soil/compost to dry. A good mulch is made from aged wood. This is wood that has been recycled from cut trees and composted organically. Often companies add urea to their compost

believing that the compost needs this "chemical" nitrogen. So, ask before you buy! Urea-based products are very detrimental to the soil organisms and should not be used. Instead, horse manure or any other composted animal manure can be added. Rock dust will also work well here as rock dust will bind the nutrition together. I will go over compost more in another chapter. Check out using BioChar.

### **Buy Earthworms for Your Garden**

Earthworms will love your raised bed. Give them a head start by buying African red wigglers that are the best kind for this use. Earthworms will provide much needed mineral and microbes for your garden. See my website for a great source of earthworms.

**Allow the many creatures of your garden to come together and sing their songs. Promote balance both within yourself and within your garden. Make the garden a place of life and not death. May your garden flourish and may you flourish!**

### **Mixing Flowers and Herbs**

It is a good idea to plant flowers and herbs along with your vegetables for the best insect protection. Try 50% flowers and herbs along with your vegetable garden.

### **Protection**

A raised bed can be protected from extreme heat and cold by placing a sheet of plastic over it and nailing it down to the wooden sides. This will also help to allow new seedlings to grow and become established. In feeding, use only natural certified organic fertilizers for best results. Chemicals will only destroy the balance of your garden. Allow time for this balance to occur.

**NOTE:**

One of my favorite things to do is to grow my own food. I really enjoy the whole process from starting a garden to deciding what to plant, what variety, where it goes in the garden and how to deal with all the various problems that may occur during a vegetable plant's lifetime. Someone told me the other day that you will have bugs and you will need chemicals to control them! I replied that while it is true that my garden will have bugs, it is not true that I will need chemicals to control them! What he was saying is that he did not know of any way to control them without using the chemicals. It has been my experience that if you believe in something it will happen and if you do not believe, you will find a way not to make it so.

I have been fortunate in that unlike many people who started chemically then switched to Organics, I was never into chemicals and have always been organic in my approach to growing my food, my lawn, my flowers, etc. It is for this reason that my experience has shown me that it can be done 100% organically, and that any problems are only waiting for the proper organic solution. It is even more important to grow your food organically since it is something that you must eat, and you want to be nourished by it. Chemicals have no place in our vegetable garden! Do not listen to the experts that tell you otherwise.

Insects have a purpose in this world as do all things. Understand the purpose and you understand life! Who gave us the right to decide who lives or dies? Bugs are not pests but merely bugs living out their lives according to their genetic makeup. They must do what they must do. Only we humans have a choice. Let us choose to live in peace with all things. Remember, Kill only as a last resort!

## Steps to a Successful Organic Home Garden

- Use mulch to conserve moisture, control weeds, reduce overhead water which causes diseases and attracts pests in plants.
- Keep plants free of insects and diseases by paying attention to problems as they occur and by practicing the available organic methods of control.
- Examine your vegetable plants regularly for potential problems.
- Keep weeds out of your garden by pulling and having a mineral rich soil.
- Do a Brix test of your plants if you need to see health of plants.
- Rock Dust, Compost and Mulch several times per year.
- Protect your soil microbial life
- Use BioChar

“Weeds do not grow well in soil that is rich in minerals and soil microbes.”

### Preparation

#### The Soil Test

A soil test is a relatively inexpensive way of determining how much, if any, organics are required and obtaining a certified organic fertilizer recommendation while will help you in your organic garden. A soil test is the only accurate method of determining how many minerals are available to your plants in your organic gardens. If too little organic fertilizer or compost or rock dust is applied, plants will

be starved, and the yield of vegetables will be reduced. Too much organic fertilizer will waste both organic fertilizer and money, as plants will be unable to fully utilize it. Too much organic fertilizer can also injure or kill plants just as too much of a chemical fertilizer will burn your plants. Use the soil test in conjunction with using your refractometer to measure the Brix levels of your plants. I will cover this more later. The life of the soil is very important here. Make sure you are protecting the Mycelium.

### Prep the soil

Before planting any vegetables, prepare the soil way in advance as you want the soil to settle down before you plant, especially if planting seed. This includes cultivating properly, adding organic matter, and maintaining soil fertility through proper organic fertilization. Learn to use Rock Dust. Early in the fall is the best time to begin preparing the soil. Soil provides nutrients and water for plants. To maintain and improve soil conditions, mix organic matter and organic fertilizers into the soil before planting, and prepare and cultivate the soil when dry or slightly moist (never when wet). Add Rock dust to increase minerals. Organic Coffee grinds are good to add. Earthworm castings are also excellent to add here.

Organic matter makes the soil loose (friable) and easy to work with. It improves nutrient and water holding capacity, nutrients which will benefit all gardens to increase drainage and crop aeration. Well composted soils vary in manure, compost, and leaf fertility. A typical organic mulch is commonly used for fertilizer application would be organic materials. Composted 1 to 2 lbs. (1 to 2 cups) of animal manure is easy to use an organic fertilizer.

## Top Dress

Mix rock dust around planted area when plants are a month old. Add one inch layer of organic mulch after seedlings emerge or after organic fertilizer or transplanting. If the soil doesn't drain well consider using raised beds filled with garden soil and organic potting soil mix, which contains coarse sand, perlite or vermiculite.

During the growing season, organic fertilizers as well as foliar spray will be needed. This is because not all the food for the plants is readily available. Applying bands of organic fertilizer is called "side-dressing." Apply a small amount to the side of the plants as needed. Alternatively, spread organic fertilizer on the soil surface about 4 inches from the plant and water it in. This will give the plants a growing boost. Spray a good foliar now too. You can make a foliar spray from any organic fertilizer you use by placing a cup into panty hose and allow to sit in a few gallons of water.

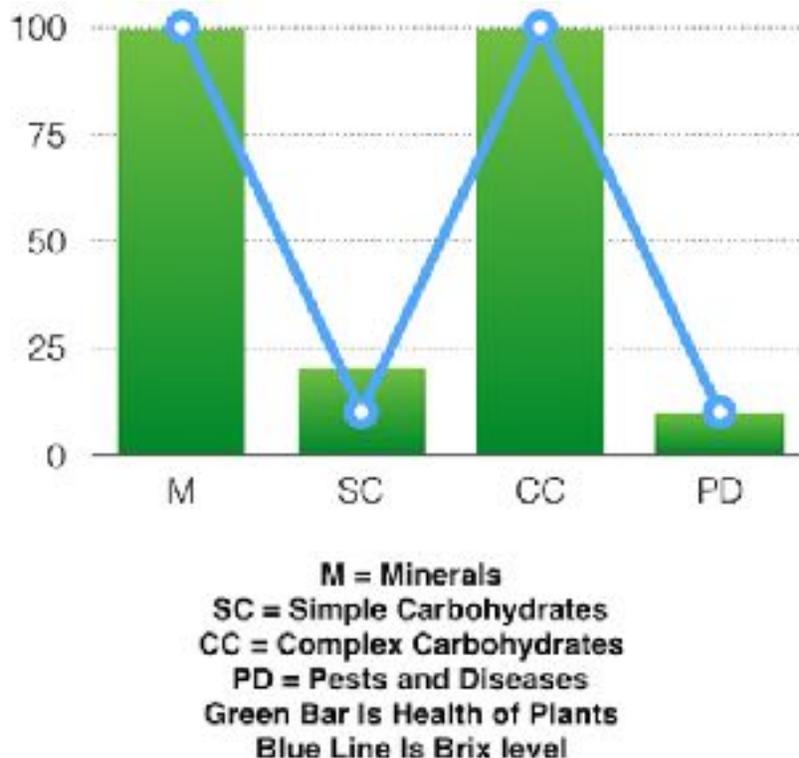
However, too much of any type of organic fertilizer placed too close to the plants, if made too strong, may injure plant roots or the leaves. So always use a smaller amount than you think it needs to be sure you don't burn the plants.

Examples of side-dressing timing are: tomatoes—after the first clusters of tomatoes form; sweet corn—when plants are "knee high" and tasseled; cucumbers, melons, squash, watermelons, cantaloupes and most other similar type plant really like side dressing. Basically, I like to fertilize regularly throughout the growing season. I use foliar applications as well as side dressings of compost and organic fertilizers and rock dust and I also use my SuperSeaWeed to make sure it gets all the minerals. If space is limited, it might be better to plant vegetables such as summer squash, peppers and tomatoes rather than corn (corn really needs lots of

space). All of these provide large amounts of fruit over an extended harvest period in a small area, so plant a few spaced a few weeks apart. Herbs are easy to grow also, so decide what you want to use.

## Garden Guide

- Avoid excessive nitrogen. Remember, HN [High Nitrogen] inhibits plants from receiving all the minerals they need to be healthy.
- Sample soil and have it tested yearly for minerals as well as microbial life.
- Apply only certified organic fertilizer to your garden.
- Thin when plants are small to avoid overcrowding or plant just what you need.
- Avoid excessive walking and working in the garden when the foliage and soil are wet.
- Wash and clean sprayer and tools well after each use with a natural citrus oil.
- Avoid planting in wrong time of year.
- Buy only Heirloom seeds.
- Care for the soil properly.
- Add rock dust several times per year directly into the garden as well as to your compost. Use a small amount.
- **Protect your soil from** Climate change by applying rock dust, compost and mulch.



"Man did not weave the web of life. He is merely a strand in it. Whatever he does to the web, he does to himself."

### Chief Seattle 1856

By growing heirloom plants, you will know they have been grown organically and will work much better than if you are trying to grow GEO plants or plants never grown organically. You will have problems.

## **The Ole Barrel Trick! (The Law of the Minimum)**

If you were to look at a wine barrel notice how the slots are held together by a band going around it with a bottom to hold the liquid. Imagine that each slot of the wine barrel was an element needed by plants, starting with nitrogen, potassium, phosphorus and so on. Now let's say they were to actually represent the amount that was available to plants to use.

The nitrogen slot is 1 foot up above the top level of the wine barrel with various lengths of slots for the varying amounts of each. Now let's suppose we started filling it up with water. How far up the barrel could we go before water would start spilling out? The lowest slot of course! All that nitrogen above the lowest slot is useless in holding any water. Actually, all the nitrogen is what cause some of the other slots to be so low. Remember that there is a basic minimum level of minerals that you want. Too much minerals become toxic to its environment, as too much nitrogen becomes toxic to its environment.

Coffee and many natural things from the kitchen can be a good source of mineral for the soil. Feed the soil first and then let the soil feed the plants. Use slow release organic sources of nitrogen like coffee. Never use nitrogen sources only but combine with minerals and bacteria. Provide minerals in amounts needed by soil and plants. Encourage high bacteria count by increasing use of compost-based products or make your own compost using various animal manures.

High Nitrogen=High Stress =Disease/Pests =  
Low Minerals=Low Nutrient =Low Energy (Low Brix)

High Energy=High Nutrient (High Brix) =  
No Stress=No Pests/Diseases!

It all revolves around a living soil! If the *Mycelium* is not present in the soil, the plants will not get the minerals they need.

One final note: There is a reason why Certified Organic Farmers cannot use store bought Urea based products! I am only talking about manmade urea and not that naturally made by animals including humans. Please don't allow people to convince you that there is no difference between the two and it is therefore ok to use it. Tell the plants and the soil that!

**"THE EARTH IS NEITHER AN ECOSYSTEM TO BE PRESERVED, NOR A QUARRY TO BE EXPLOITED FOR SELFISH AND SHORT-RANGE ECONOMIC REASONS, BUT A GARDEN TO BE CULTIVATED FOR THE DEVELOPMENT OF ITS OWN POTENTIALITIES AND THE POTENTIALITIES OF THE HUMAN SPECIES."**

**RENE DUBOS**



## Chapter 4

### ORGANIC FRUIT TREE CARE

## Long Term Organic Fruit Tree Care

### About Fruit Trees

Fruit Trees are very important to this planet's ecosystem. They are essential to the earth's recycling system. They provide the very air we need to live. They control the water cycles. They provide homes to many different species. They have been called the earth's shock absorber. I think of them as the earth's lungs. They assimilate carbon into oxygen, they clean up the air (improve air quality) and bring water and minerals into their fruit which we then eat. Reduce water runoff. Urban forestry helps clean up cities and raise the quality of life, promoting interaction between urban dwellers and their environment. Trees and fruit trees, also reduce heat and glare. But best of all, fruit trees provide an endless source of food. I like to say, have a vegetable garden and you grow for now but have fruit trees and you grow for tomorrow.

### Why Fertilize Them with Chemicals?

Chemical fertilizers destroy the soils beneficial microbes. Fruit trees will do better if they are taken care of naturally while at the same time you are not contributing to pollution from fertilizer damage and run off. Fruit trees that are fed naturally will be stronger and healthier than chemically fertilized fruit trees. Also, chemicals can pollute the environment and ourselves. Organically fertilized fruit trees have more nutritional value to your fruit than chemically fertilized fruit trees. Why do the trees do better? That is because the chemical fertilizers kill off the mycelium. The mycelium is a major food provider for the living plants.

No mycelium, no minerals.

## **Proper Fruit Tree Care**

How to fertilize them, then? Chemical fertilizers can damage the soil's ecosystem, cause stress and lack the essential bacteria and minerals. Fruit trees require certain conditions for proper growth and good health. It is important to understand what these conditions are. Proper site selection is very important. Before planting, amend the soil with good rich compost and lots of humus. Provide regular watering, then reduce as needed. Provide regular composting, then reduce as needed. Fruit Trees require a wide source of minerals.

## **Never feed fruit trees with chemical fertilizers**

Why do I say that? Because for starters this book is all about growing without chemical fertilizers, secondly, I say that because if you use the chemical fertilizers, YOU WILL have problems with pests and or diseases that you will not be able to control naturally. Also, chemical fertilizers usually have a lot more nitrogen than plants need and also chemical fertilizers will destroy your soil over time.

## **Mulch as Needed**

Most fruit trees will mulch themselves, so don't take away their leaf droppings (unless it's diseased, then they should be removed). Don't over mulch! Not more than 2 to 4 inches of mulch and never mulch next to a tree trunk! Keep at least 1 foot away. Do not use any chemical fertilizer or pesticides. Do not top trees! Go Native whenever possible.

Hire only skilled workers. Remember, it cost less to keep a healthy tree then to replace it. Save a tree whenever possible. Don't cut it down; plan around it and include the tree in you're planning!

### **Fruit Trees Need Water Not Overwatering**

Make sure that you provide adequate watering on a regular basis. A drip system or soaker will help. Filter the water. Use tree vents for deep watering if possible. Use a garden filter for this (try GardenGro). The proper selection of fruit trees is important for this purpose. Remember you only need to water enough to get water to the roots and most roots that take the water are in the top 4 to 6 inches of soil. Fruit is mostly water, so they need more watering than other trees, but not so much it drowns the soil which causes diseases. Mostly folks over water their citrus trees and all their problems are related to over watering. Make sure your soil is healthy, apply rock dust, compost and then mulch several times per year. Apply a good organic fertilizer and then only water as needed, probably not more than once a week!

### **Fruit Trees Love Compost**

Compost is one of the few things you can feed fruit trees with. Local compost rich with trace minerals, composted animal manure and lots of humus and fixed carbon source are best. Feed yearly if possible. Never feed fruit trees high nitrogen. High nitrogen can cause stress which is the main cause for pest or disease attack. Fruit Trees get their nitrogen from the air, from the compost and from the natural bacteria found in the soil.

## **Fruit Trees Love Rock Dust!**

Fruit trees need minerals, and rock dust is and always will be the most important source of these minerals for the fruit trees, and compost is one of the most important ways for you to get the minerals into the soil.

Compost is the best fertilizer to give your trees. By applying compost several times per year to your trees you are insuring strong healthy trees. Compost also encourages earthworms and healthy soil. Tree root system will be able to absorb the energy which compost provides. So, when you make compost, be sure to add a blend of different rock dust sources as well as the bacteria and BioChar. There are many microbial products on the market.

### **Methods of Compost application**

Compost can be applied to trees in several ways.

1... Layered application. You can apply a fine layer (about 1 inch thick) then another inch of mulch. Best mulch is made from your own tree! Let any leaves, needles alone that fall on the ground. Chipped wood is ok too. Ask your local tree company if they would bring you wood chips and for how much. Make sure they bring you only the wood chips and not junk, bottles, etc.

2... Vertical composting. You can apply compost to your sick trees and to healthy trees too by drilling hole every 3 feet in a circle around the tree starting at about

3 feet out from the trunk and every three feet and going around the tree in a spiral. Instead of drilling a hole (about 1 or 2 inches wide), you can use a post hole digger and dig down about 1 or two feet. Apply compost into these holes then mulch over the whole area with a good mulch.

3.... Make sure your compost is rich in rock dust. If not, then apply rock dust to each hole as well. Another method which I would recommend to you is tree vents. This allows the regular application of either compost, rock dust or natural fertilizer (OMRI certified organic) to the trees root system as well as for the regular application of enzymes, and elixirs such as SuperSeaWeed.

## **Fertilize**

Fertilize your fruit trees naturally and organically only. Avoid high nitrogen fertilizers that affect the soil and damage the fruit trees. Use Compost.

Rock Dust and compost are their favorite food. Composted horse manure to which rock dust has been added, works well for this purpose.

Trees also love acid mulching so an application of mulch covering the compost and or horse manure works here.

**PLANT MORE FRUIT TREES, CUT DOWN LESS  
FRUIT TREES**

Help Pass laws that protect fruit trees and provide for their care.

Have your city plant more fruit trees.

Have your school plant more fruit trees.

Fruit trees are very much like roses, they love your attention if it is good attention! Normally you do not have to fertilize your fruit trees more than twice per year. This increase if the trees are stressed or sick. Early spring and fall is a good time to fertilize your fruit trees.

### **Keeping your fruit trees happy**

You can keep your fruit trees happy by providing for them the following:

Slow regular deep watering. Allow to dry in-between.

Don't believe it when you are told not to water your fruit trees! Fruit Trees require water, or they will die. While it is true that fruit trees have been known to go a long time without any rain, they obtain their water from other sources. There is nothing more stressful than needing water. They also do not like to get over-watered. It is better to underwater than overwater!

Either way, this is a very slow death. By regular watering, you will need to establish how often is enough to provide the fruit tree with just the right amount it needs. Over watering can and often is worse than under watering. A good rule of thumb is not to water if the soil is still wet. Always allow the trees root system to

dry out before watering. Here in Malibu where I live, I have had to water certain trees once per week since there is very little sun or soil to hold the water, and the winds dry everything up faster. So, my fruit trees love a good deep soaking twice per week during the summer months and once per week every other times.

## **Natural Fruit Tree Care**

Give your fruit trees plenty of room to grow.

Provide an area of protection against humans, animals, cars, bikes and anything else that can either hit the trunk or damage it such as

Chemical spills.

Avoid overhead sprinklers hitting the trunk. Sprinklers should shoot out from the tree.

Avoid lawns and fruit trees in same place. If you do have a lawn, make it organic and control the watering.

Fertilize your fruit trees as often as they need it. Always use 100% organic and natural fertilizers (certified organic), compost, rock dust. Chemical fertilizers destroy the mycelium in the soil.

Go lightly with the pruning. Only prune dead branches.

New Fruit comes from New Growth on fruit trees, so you're pruning should be geared toward fruit production.

## **Some Guidelines for Natural Fruit Tree Care**

### **Long Term Organic Fruit Tree Care**

Chemical fertilizers can damage the soil's ecosystem, cause stress and lack the essential bacteria and minerals. Trees require certain conditions for proper growth and good health. Proper site selection is very important. It is important to understand what these conditions are. Proper tree selection for the environment it is in will also be important. Before planting, amend the soil with good rich compost and lots of humus and BioChar. Provide regular watering at first, then reduce as needed. Provide regular composting at first, then reduce as needed.

### **Watering Requirements**

Trees require regular watering at least once or twice per month, but water as they need it and not when you want. People usually over water the trees. Trees do not like to get their feet wet. That means don't allow trees to get wet from sprinklers on a regular basis. These will lead to Fungal diseases as well as attracts bugs such as ants, spider mites, etc.

### **Control Watering**

Use a drip system or Use a soaker hose. Avoid sprinklers hitting fruit tree trunk. Protect your fruit trees from: Humans, Cars, Dogs, Cats, Chemicals, and other damages such as Bad Pruning and bad gardeners. Do not over water your trees. Using a drip system is one good way of providing water to the trees roots

system without wasting it above ground. Also important is the use of a garden filter that takes out the Chlorine and Sulphur in the water. These chemicals are not good for the soil and therefore not good for the tree! Try GardenGro or you can make your own from a shower filter.

Make sure that the sick tree is getting watered, but not over watered. People think that you don't have to water or fertilize your trees. Mother Nature doesn't fertilize them they say! But she does in many ways, we must therefore provide a source nutrients and water for them. If you are watering correctly you will not also be providing a water source for the ants, it is for this reason that a drip or a soaker is more preferable than above ground sprinkler. The trick here is to provide enough water for your trees while not encouraging the ants. Use barriers such as DE painted around the trunk of the tree. A good mixture is made from garden grade DE and Cayenne pepper. Mix equal amounts, add a little water to make a paste then add more to make into a thick paint like mixture. Paint around trunk of tree.

Compost is one of the few things you can feed fruit trees. Local compost rich with trace minerals, composted animal manure and lots of humus are best. Feed annually if possible. Never feed trees high nitrogen. High nitrogen can stress trees which is the main cause for pest or disease attack. Trees get their nitrogen from the air, from the compost and from the natural bacteria found in the soil.

Trees need minerals and rock dust (plus microbes that eat the rock dust) and

they will always be the most important source of these minerals to the trees. This is the way nature intended it!

### **Tips on Raising Brix of your Fruit Trees**

A Brix measurement is a unit of how much dissoluble sugars your plant has. The higher the Brix levels the more sugars, the more complex carbohydrates and the more minerals it has. Therefore, it is no coincidence that plants with high Brix levels are not attacked by pests or diseases, not to mention they not only taste great but are rich in the minerals our bodies need. To have plants with high Brix/mineral levels, you need to protect your soil from climate change heat and from toxins that damage the beneficial microbic life.

See more on Brix in the Brix Chapter.

### **Control diseases and pests.**

Trees require highly mineralized soil that is within its pH range. What is that? That is that soil is alive with Mycelium and therefore is rich in trace minerals. Most Fruit trees require between 6.5 and 6.8 pH which is the same pH range the Mycelium lives in.

### **Sugar and Milk and Compost and Trees**

Using molasses as a foliar spray, you are providing trees with a source of energy. Using compost rich in phosphate allows for greater sugar production in trees. Raising the sugar content of trees allows for greater mineral absorption. Use 1 pint

per gallon. Add 1 cup of Milk to increase bacterial activity. Calcium is an important source of energy for trees.

## ROCK DUST IS ONE OF THE BEST NATURAL SOURCES OF MINERALS. BUY DIFFERENT SOURCES TO GET A BLEND OF THE MINERALS

### **Rock Dust**

When using rock dust use 1 cup per gallon water. Add 1 cup to bucket. Slowly fill with a gallon of water and stir to dissolve. Add 1 gallon of water and 1 cup rock dust until bucket is full. Allow to sit 1/2 hour and then strain into gallon sprayer. Spray on leaves and pour it on to the ground around it (doesn't need to be strained). Please remember that rock dust alone will not provide the nutrients but when combined with living soil rich in mycelium, the rock dust is broken down and made available to the plants via their root system.

### **Fruit Tree Care Rules**

#1. Never fertilize trees with a chemical fertilizer. The chemical fertilizer destroys the soil microbial life over time.

#2. Trees require regular watering. Use a drip system whenever possible.

Avoid watering trunk of tree. They love slow watering that allows the water to enter the root system without overflowing. Over watering destroys the soils microorganisms.

#3. Always use filtered or solarized or well water. Never use straight city water as it may contain chlorine or some other chemical that can poison the fruit trees. See Garden Filter page or ask me.

#4. Allow time for fruit trees to recover. The bigger the fruit tree, the longer it will take to recover.

#5. Raise the energy level of the fruit tree through the addition of compost rich in trace minerals and bacteria. Trees love rock dust!

#6. Know the law of cause and effect. Control the cause and you control the effects. Fruit trees with high energy levels are not attacked by pests.

#7. Don't cut down fruit trees unless they are a danger or have become a hazard. Use proper pruning techniques or hire a professional arborist.

#8. Learn your fruit trees. Plant only fruit trees that will grow in your area.

## Give your favorite fruit tree a name

#9. Protect trees from dogs. Dog urine is very acidic and will injure the tree's root system.

#10. Avoid over compaction of soil. If the soil gets too compacted, water and air may not reach the roots and the roots will die. While you should not turn the soil over, it would be good idea to deep water by using a deep watering tool to punch a hole into the ground at least 1 foot deep. I would inject nutrition and microorganisms here. This will allow air to reach down by placing compost into it (vertical mulching), which also allows nutrition to reach root systems. Tree vents are excellent for this use.

#11. Mulch. Provide plenty of mulch but do not over mulch. Never apply more than 2 to 4 inches mulch around base. Never mulch up to the trunk (stay a good foot away at least).

#12. Protect trees from people!

#13. Do not poison the soil. Avoid spilling gasoline, paint, salt etc...

#14. Remove any tight wire supports as this will strangle the tree as it grows.

#15. Plant ground covers. They make a great living mulch which conserves water.

## How to Kill your Fruit Tree

These are the things that kill trees, i.e., if you want your fruit tree to live don't do these things

#1. Over fertilize the trees with a chemical fertilizer. The chemical version Urea (45-0-0) kills the Beneficial's in the soil.

#2. Over water your fruit trees regularly. Forget about a slow drip watering. Too much water kills the soil microbes.

#3. Never use Filtered or well water. Who cares about the chemicals in it?

#4. Never Allow time for your fruit trees to recover. If it doesn't recover overnight forget it!

#5. Don't fertilize them with any compost rich in trace minerals and bacteria, fungi, mycelium or Rock Dust!

#6. Pests deserve to eat trees.

#7. Cut down all your trees.

#8. Plant anything you want, forget about only trees that will grow in your area.

#9. Don't Protect trees from dogs.

#10. Forget the soil. Trees don't need live soil, do they?

#11. Never Mulch and if you do, never over mulch it!

#12. Why protect trees from people!

#13. Do poison the soil. Spilling gasoline, paint, salt etc...is fun too

#14. Use only tight wire supports as this will strangle the tree as it grows.

#15 Cut into a tree all the way around and the tree will die.

Do the above and you will definitely kill off your fruit trees or don't do them and keep your fruit trees alive!

## **Controlling Fruit Tree Diseases**

### **Soil Management Vs Pesticides**

Controlling diseases in your fruit trees can be as simple as providing a proper soil environment for the mycelium to live in.

Cultural practices should play a major role in your plans for how you can help the tree to recover from a current disease or how can prevent in the first place. Diseases all start in the soil and work their way into the tree through either damaged areas of a tree or through the roots. The damage is either caused by insects or animals or humans through improper pruning techniques and use of infested tools.

I have a radio show on soil and how one can bring soil back to life by using compost, rock dust, mulch and by using the various organic methods I have developed

over the many years I have been in business.

## **LISTEN TO MY RADIO SHOW DON'T PANIC IT'S ORGANIC!**

The refractometer is a great tool for seeing the results of your organic fertilization program. Brix level should be higher than 18 with 22 or better being the best level. Use a refractometer to measure the Brix levels of your plants.

Using the refractometer, you can determine the brix levels of your fruit trees and by doing so you can maintain a certain level of health for your trees. The basic rule is the higher the brix levels, the lower the pest or disease. High Brix levels equate to higher mineral and carbohydrate levels. Insects cannot digest carbohydrates. Higher mineral levels are what you want in all your plants, especially fruit trees and using the refractometer you can see the levels of minerals in your fruit trees by observing the corresponding brix levels. Mycelium affects Brix levels.

Foliar applications are the quickest way to raise the brix levels of your plants, but only through proper soil management will you be able to maintain a high brix level over time.

### **Rock Dust**

Fruit trees use lots of minerals in their fruit production. Use only a small amount several times per year. Make sure you have mycelium in the soil.

Fruit trees, like all living things, require a wide range of trace minerals to function correctly. Rock Dust is the single most important way of making sure the

plants get the minerals they, and in turn, you need. Apply rock dust several times through-out the year to insure they are getting access to these minerals. Important to note that not all rock dust are the same in nutritional value as well as they are different in PH.

Most rock dust have a very high pH level (like 8) which is bad if you start to over apply and it will affect the pH of the soil. Therefore, it is always best to apply rock dust to your compost process so that the compost will convert the minerals as needed without it affecting the soil. Ask when you buy the rock dust, if they know what pH it is. Some rock dust has a pH of 7 which is great!

Rock Dust make minerals available to the fruit trees over time via mycelium acting on the rock dust and transforming it into the minerals in a useable form. Rock dust when turned into a liquid and sprayed, makes trace minerals available immediately to the plants. You can determine this for a fact by looking at your refractometer and noting the reading 1 hour before you spray and then do a reading 1 hour after you sprayed. The brix reading should go up. Note: you want the Brix reading to stay up! I will show you how later...

Fruit trees need plenty of good mineral rich as well as  
Mycelium rich alive soil

## **Ants and Viruses**

Ants are disease vectors, they help spread many diseases from plant to plant and place to place. This is because ants carry their own type of fungus with them.

They use this fungus for many things from growing their own food to protecting them from other fungus which are harmful to them. One of the most important aspects of disease control is to control how it is spread around.

Control the ants and you control many diseases on plants.

Many viruses which attack trees are spread by ants climbing up them.

Most viruses are soil borne.

They come from the earth under certain conditions. Usually the earth has not only these bad viruses but many good viruses also. It is only when the health of the soil is very low that the bad bacteria are a problem since they love dead soil.

## **Ants and Fruit Trees**

What's up with Ants and Fruit Trees?

The Relationship between Ants and Fruit Trees go back a long time, further back then the relationship ants have had with humans. Like a good farmer that develops relationships with all its farm inhabitants, ants have developed beneficial relationships with fruit trees, fungus, other insects, animals, etc., anything that will benefit it in its struggle to expand and survive. Now that I have gotten that sentence out, I feel much better! We all know of times when you have seen lots of ants climbing up and down a fruit tree. What does it mean?

It has been my experience that ants are climbing up this fruit tree because the tree is either sick or stressed out or it has fruit (food) on it that is available to them. The ants go up to drink from the ripe food source.

### **Your Own Enzyme/Bacterial Spray**

One of the best controls of any bacterial disease is the immediate health of the soil and tree. A good bacterial spraying would consist of any of the many natural bacterial products available on the market today. For more information see Disease Control Chart.

Here's a good bacterial spray I make for myself

4 cups Nitron A-35 ..... (try Arbico Organics)

4 cups AgriGro.....

10 drops SuperSeaweed..... (try my website)

1/2 cup Rock Dust.....

1/2 cup fish emulsion (without Urea)

In 1/2-gallon filtered water, slowly add the above mixture until completely dissolved.

Add enough water to make a gallon. Allow to sit and create overnight. Strain water into a gallon sprayer.

Spray on affected areas of tree. Apply daily for the first week. Then monthly until problem is gone. Could take a year or so to complete.

### **A Simple Bacterial spray**

Take a pound of good rich live compost, place into panty hose, tie into a ball (like a tea bag) and place into a gallon of filtered water, do not use unfiltered city water for this as the chlorine will kill off the beneficial bacteria. Aerate overnight, then spray affected areas.

## **How to Control Fruit Tree Diseases Organically**

Many tree diseases are fatal, and they die from these diseases. You might say it is perfectly natural for trees to die from diseases (just like many have been telling me that we do not need to feed trees), but I do not agree entirely.

Yes, if you take all humans out of the picture, then I would say, sure diseases and pests are nature's way of removing the weak and the sick and that is perfectly natural; but throw in we humans and you have a different story.

Humans have not been good gardeners of the earth. They have been destroying everything they touch. Everything in nature depends on everything else. What we do affects all living beings sooner or later and trees are living beings, too, and what we do to the environment directly affects these trees in their ability to stay healthy and pest and disease free.

We spread diseases by not properly cleaning our tools. We spread diseases by ridding the soil of all beneficial microorganisms, which then allows diseases to take hold in the soil (all tree diseases start in the soil first). We apply chemical fertilizers either directly onto the tree or onto the soil, chemicals cause stress in the tree, imbalance in the soil and helps to spread diseases and pests using high nitrogen fertilizers.

High nitrogen fertilizers make for rapid growth but also stresses out the plants making them a perfect "food source" for insects.

## When a plant is food for insects, it is not food for humans

Sure, we don't eat the fruit trees but the point here is that if the insects think its food for them then the fruit tree or plant is weak and mineral deficient.

We eat for many real reasons and trace minerals, which our bodies need for proper health, is one of them. Try to eat rocks and you will see why we must eat something that ate something that ate something else (food chain).

To keep your fruit trees from getting diseases you first must control your gardener or tree company. You must keep them from passing a disease to your fruit tree through them by not properly cleaning they're cutting tools in between tree pruning. This is the number one-way tree diseases are spread in the garden (maybe even in nature).

## Pay Attention to the Health of the Soil

The good guys and the bad guys do not live in the same place in the soil! Really, it's that simple. So, if you apply rock dust, live compost (most compost sold in the market is dead, especially if sealed in plastic), should be alive with microbes. Then you apply a nice acid mulch (like azalea/gardenia mix) on top. An acid mulch is important if your soil is clay and alkaline.

Most Beneficial microbes live within a small pH range of 6.2 to 6.8. Outside that zone, you will find less of them. Chemicals destroy the natural balance of the soil and it is through this imbalance that the bad bacteria will thrive.

It is also important to provide the fruit tree will proper mineral sources such as regular foliar spraying. This will help to keep the Brix level of the fruit tree high, and reduce stress, and allow the fruit tree to handle any environmental stress. The foliar must be organic and not chemical. I use SuperSeaweed as my foliar spray but there are many available.

### **Some Basic tips**

Control water. Allow trees to dry in between watering. Better to under water than over water. Drier is better than wetter when it comes to plants and soil.

Control gardener or whomever is cutting. Must clean tools between each cutting and especially between trees and customers. Live Soil provides you with the needed soil microbes.

Compost applications will keep your soil alive (ask if rock dust is added to com-

post during production, if so, you won't have to add it yourself).

Rock Dust applications once or twice per year provides the minerals.

Acid Mulch protects the soil and holds water longer so less watering less often.

Foliar sprayings provide the trees with the minerals needed to stay healthy and fight off any diseases.

Use only Organic Fertilizers. Avoid high nitrogen.

Learn to use BioChar.

### **More on Controlling Diseases on your Fruit Trees**

The most important thing to learn here is this:

The Higher the Brix, the more minerals the plant has. The more minerals (a wide range of minerals is best), the less any pest will attack it. Plants will not get a disease if the pest that carries it, does not attack it. Pests cannot digest complex carbohydrates and plants with high minerals and with wide variety of minerals have complex as opposed to simple carbohydrates.

1. Get control of the watering.
2. Overhead watering is bad as it does the following:
  - A. City water destroys the beneficial bacteria.
  - B. As water evaporates, the disease raises with the water vapors and lands on the leaves and bark of the fruit tree.

C. This causes the disease to spread to the tree.

Apply a mulch to cover the bare soil. You can apply rock dust, then mulch or wood chips over that.

2. Get control of the soils' health.

A. Almost all diseases are soil borne. They start with the soil and then spread to the fruit tree.

B. Diseases require certain conditions to survive

C. Bad Guys Vs Good Guys. If the good guys die then the bad guys will take over. The two don't live in the same niche. Applying compost regularly is one of the best ways to supply needed bacteria and fungi, etc., that the soil needs.

D. Diseases require water.

Applying an acid mulch will help to

A. Control overhead water

B. Control pH levels. The pH of the soil needs to be between 6 and 7 pH, 6.8 is perfect.

Most diseases require access to the open air so by using drip and soaker systems instead of overhead sprinklers, it will greatly reduce the water and disease from being spread.

## Get Control of nutrition

A. Learn to use a refractometer to determine if the nutrition is being made available to the fruit tree.

B. Brix level should always be above 12 (14 is better). The ideal Brix level to shoot for is 18-22.

C. Brix is a measurement of the dissolved sugars in the tree. The higher the sugar level, the higher the mineral level and the higher the complex carbohydrate levels.

D. Only fertilize with organic fertilizers that are complete.

E. Apply Rock Dust several times per year for the minerals.

F. Apply Compost and an acid mulch over that.

G. Learn to use foliar spraying on a regular basis to provide nutrition directly into the plant and to control any diseases. If your fruit trees do get diseases, learn to use only organic methods to control and eliminate. Disease problems usually mean there is a problem with the soil, so look there first.

## Tool Cleaning

Why is it so important to clean your tools every time before you use them on your fruit trees?

Diseases can be spread from plant to plant when you cut a diseased plant and then go cut a healthy plant. The best way to stop this from happening is to sterilize your pruning tools.

Clean them every day in the morning and before use between different plants because my experience has shown me (and also there is plenty of evidence) that certain types of plant diseases are spread by this method (pruning tools) to healthy plants. Over the many years of doing house calls on folks that have gardening problems, I have found that many were spread from plant to plant by the diseased pruning tools of their gardeners!

It is not necessary to sterilize pruning tools to prevent transmission of soil-or air-borne pathogens because these types of diseases, generally bacterial or fungal, are going to be transferred by your hands, clothing, shoes, more so than by you're pruning tools. You will have better success in controlling these diseases through preventive cultural organic practices (e.g., pruning diseased parts [yep..clean the tools in between pruning] and dispose of properly, disposal of contaminated leafs, use of disease-free compost and mulch, controlling water, and practicing the organic method of growing without chemicals which all lead to a disease free healthy soil).

Diseases that invade the vascular system or by forming oozing cankers will be transmitted by contaminated pruning tools. Bacteria do not overwinter in the vascular system and it explains why transmission does not occur during the winter time. It does make a difference. The environmental conditions at the time you are pruning (wet or dry, hot or cold, time of year, location), whether a disease is spread via pruning tools. Most Canker types of disease can be spread either directly onto pruning cuts or from contaminated pruning shears. A deadly disease in

palms for example, is spread in this way.

Viruses and viroid's are another group of plant pathogens that can be transmitted by contaminated pruning tools. Pruning tools contaminated with vascular pathogens or active, oozing cankers, do cause the disease to spread to other plants if they are disinfected properly.

A final consideration to choosing a disinfectant treatment is to make sure that it is natural and not a chemical that may be damaging to your tools, to yourself and to the environment.

While there are many chemical disinfectants on the market, I do not use any of them and instead use the more natural methods of cleaning the tools.

Several more natural disinfectant treatments I recommend are:

Alcohol dips (ethanol or isopropyl alcohol). You can use any alcohol such as whiskey or even wine.

Chlorine treatment (Clorox is not natural, and I would not use it).

Household cleaners (OrangeTKO and Citra-Solve) are two of the easiest to get and safest to use.

White Vinegar can be used to clean your tools also. I have tried this for many years without spreading any diseases from my clients to clients.

### **My favorites:**

Portable steamer. Steam cleaning your tools at the end of every day is a great way to keep your tools disease free, but what about when you are out in the field? You can get a small unit, one that plugs in. You can get an adapter and then plug in the steam cleaner. It is small enough that you can hook it into a long cord and have it ready to use in between pruning, especially if you know the plants may be diseased. Portable UV light will kill all forms of bacteria or virus. Just make sure you have it on the tool long enough to do the job, usually about 5 minutes, but see manufacturing instructions.

## Protect Healthy Soil

### Keep Fruit Trees Brix Levels Up past 18

#### **How to Control Pests and Disease on your Citrus Naturally**

Organic Citrus growing methods will keep your plants and soil healthier than if you were growing the standard chemical way.

#### **Citrus Basics**

Keeping your citrus healthy is not as hard as it seems. The most important aspect of Citrus Care is the Health of the soil. Basic soil care is important. Rock dust applications topped with compost and then mulch is the first line of defense. Secondly provide fertilization with a good organic fertilizer.

**Avoid high nitrogen!**

Citrus growers everywhere are under more stress to keep their trees healthy and pest and or disease free. Why is that you ask? Glad you asked!

I believe that it is due to the commercial grower's inability or desire to grow organically commercially. It is not that they can't grow organically, it is more than they do not want to change! It is also the home owner who is growing more chemically and refuses to change and grow organically as well. This trend is changing as home owners and farmers are converting over to organic methods.

What is the difference between growing organically and chemically? The health of the soil! It is as simple as that. I know this does not make sense to the average home owner and so I will have to explain it to you as simply as I can. High nitrogen inhibits the plants ability to absorb minerals thus leading to a trace mineral deficiency.

### **Proper Citrus Care**

Maintaining the proper level of soil moisture is one of the most critical elements in natural citrus care. Avoid overhead watering by using drip. A healthy soil environment is one in which there are living bacteria in the soil as well as minerals for the bacteria to eat. A healthy soil drains well and has earthworms and other living creatures. Citrus require watering only once a week or even every other week depending on health and type of soil.

## **Do not overwater your citrus**

### **PH Level**

The proper pH level for your citrus should be 6.5-6.8 I know this is not always

possible, especially if your soil is clay which is naturally alkaline (above 7-7.5).

The pH level is important for certain bacteria to be present and combined with minerals which should be present in the form of rock dust, will help the citrus to maintain a healthy brix level above 18.

Any levels lower than that means that the citrus tree becomes food for the insects. Higher levels insure that the insect pest cannot process the higher sugar levels and will avoid the plant. A good pH control is an acid mulch like Azalea mix.

Growing without manmade chemicals is superior to growing with chemical fertilizers that destroy the ecological balance of the soil.

Did you know that chemical fertilizers are salts? Did you know that the Romans when they conquered other countries salted the earth to prevent them from growing? Guess what you are doing when you using chemical fertilizers? Salting your own soil and reducing your soils ability to maintain a balanced ecosystem!

## Soil Basics

### **Here are a few tips on keeping your soil alive and healthy**

First Basic rule of keeping soil alive is to maintain a proper pH level. PH levels determine what bacteria are present in your soil. Bacteria will only survive within a small pH range. Each plant has its own specific pH level. That is why some plants are acid loving and some are not. All plants with too high of an alkaline pH (anything above 7.4) will have a reduction in specific bacteria which in turn will have a reduction in the availability of trace minerals which the plants can then use. This translates to a lower Brix level of the plant. Control watering as water will also damage the soil and change the pH.

## Common Citrus Diseases

Most Citrus diseases and pests can be recognized by their symptoms and you can then take corrective measures to minimize the impact on your citrus trees' fruit production. You should examine frequently for pests, diseases, and other stress disorders.

THE LEMON TREE IS VERY PRETTY, AND THE LEMON FLOWER IS SWEET

### **Citrus tristeza**

This virus causes seedlings to yellow, causes severe stem pitting, and causes a quick decline of the citrus trees health which will result in less fruit or in a loss of the tree. Spread by aphids. To control the aphids, first you must control the ants as they herd aphids like cattle for their nectar which they produce. See listings of natural ant control sprays in this book.

### **Asian citrus leaf miner**

Attacks the new growth and causes stunting and distortion of the leaf. Each growth vulnerable to attack. Control depends on health of soil, especially soil pH which contributes to tree's brix level. See more info on Citrus Leaf Miner in later part of this book.

Young Tree Decline is not a bug but a disease: symptoms include dead wood, sparse foliage and reduced growth. Affected trees will wilt sooner during a dry

spell than healthy trees. This is basically a soil problem. When was the last time you applied rock dust, compost and mulch?

**Citrus canker:** a highly contagious bacterial infection of citrus trees causing yellow halo-like lesions or scabs on the leaves, fruit and twigs of citrus trees. Severe infections can cause blemished fruit, leaf loss, fruit drop and die back. This starts out from the soil and as the tree weakens this disease grows. It is a trace mineral deficiency first.

**Root Rot:** also referred to as Brown Rot. The symptoms of this disease are dark brownish patches of hardened bark on the trunk of the tree. It is common for ooze to seep from the dark brown infected area. Over time, as the disease advances, the bark dries, cracks and dies. The disease can also cause decaying and browning on the fruit and die back and yellowing on the foliage. Disease starts in bad dead water-logged soil. Both plants and soil are being over watered.

**Greasy spot:** a fungus disease of citrus. Symptoms include yellowish- brownish blister spots on leaves, often on the underside of the leaf. As the disease progresses, the spots will develop into oily looking blisters. This is the product of over watering.

**Sooty mold:** a fungus that causes blackening of the leaves of citrus trees is spread by ants herding the aphids. The ants use the nectar but leave a lot behind which the mold grows on. Controlling the ants here will help a lot. A simple treatment is to wash off the mold with any type of natural Castile soap and water. See Using soap in a later section of this article. Remember the aphids/ants know that the Brix level is low enough for the citrus to become food for the aphids. Maintaining a high Brix will prevent the ants/aphids from attacking. See Brix info in

this book.

**Aphids:** can be light grey-green, green-yellow, black or brown.

Symptoms are easily detectable on the leaves and include the appearance of multiple puckered marks and yellowing and twisting of the leaves. Aphids cause the leaves of lemon trees to appear deformed. See Natural Spraying for aphid control. See also controlling ants since ants can herd aphids for their nectar. This is a soil problem which leads to plants not getting the trace minerals they need resulting in Low Brix. Perfect food for aphids.

**The citrus whitefly:** This is an insect that is most commonly found feeding on the underside of the tree's leaves. When the branches are shaken, the Citrus whitefly will rapidly take flight and can be seen fluttering around the tree. In addition to feeding on the citrus tree, the whiteflies also lay their eggs on the underside of the leaves. The tree's leaves begin to curl and appear to be covered with a sticky, sooty mold substance. This is a classic over watering and improper fertilization. Trace minerals are not being made available to the plant.

**The Orange dog Caterpillar:** a large caterpillar about 1.5 to 2 inches in length. Its body is a brown color. An easily observed symptom that the Orange dog Caterpillar has infested a tree is the leaves throughout the tree appear to be partially eaten or chewed from the outer edges. Over watered tree.

**Citrus Thrips:** The most visible sign of infestation are leaves that are distorted, shriveled, or curled and usually a silver grey color. The fruit may be streaked, scabbed or a silvery color. The damage continues throughout the growing season and is most noticeable during hot, dry weather when the tree is already under

stress. Trace mineral deficiency.

### **Citrus Greening Disease:**

How to keep your Organic Citrus Free of HLB Citrus Greening Disease

Here are a few simple steps that you can do at home to keep your citrus safe.

Three Basics

- Preventive
- Observation
- Controls

Preventative:

Organic cultural practices provide for healthy living compost rich in minerals and the bacteria needed for healthy plant growth. Provide for proper mulch, control water and provide organic fertilization. Keep the soil healthy to avoid any problems.

Observation:

Traps Visual help in determining possible problems.

Some Controls you can use:

Compost tea

Sesame Oil

Garden Grade DE

Rock Dust Tea

Coffee/Cream/Molasses

Compost applications.

Main importance is to raise Brix level to 18/22 and keep it there!

Routine traps will capture Asian citrus psyllid on your citrus trees at home and serve to let you know they have shown up. Psyllid's can carry a disease that have affected orange groves in Florida and elsewhere worldwide. The bug is a carrier of citrus greening disease, also called Huanglongbing, or HLB. It ruins the taste of fruit and juice before killing the trees. There is no known cure or established prevention. If the disease becomes established in a region, there's no known way to get rid of it. I have a few suggestions, however.

Homeowners need to learn that (in my opinion) the Psyllid will not lay its eggs into a fruit tree if it thought the tree was not a good food source for its children! What this means is that the tree is suffering from a trace mineral deficiency.

#### What to look for

HLB causes yellow mottling of the leaves (the color is a mix of green and yellow roundish areas) and produces small, hard fruit with a bitter taste. Detection can be difficult, as the symptoms may not show up for more than a year and the leaf symptoms can resemble other diseases or nutritional deficiencies. However, HLB leaf symptoms are unique in that the yellow mottling caused by HLB is not the

same on both sides of the leaf. More symptoms of HLB-infected trees include yellow new shoots, small or lopsided small fruit, fruit tree produces fruit too soon and then drop before maturing. As HLB progresses, leaves, and then the whole branch will fall off. This is followed by the fruit tree dying.

### Egg Stage

Eggs are bright yellow-orange and almond shaped, in groups on the newest unfolded leaves.

### Nymph Stage

Nymphs have dull orange red eyes with waxy tubules that keep honeydew away from their bodies. Hard to see, so use a magnifying glass.

### Adult Stage

1/8-1/6-inch, brownish aphid size, feed with heads down, like a cow feeds grass. Because of the shape of their heads, their bodies are lifted to approximately a 45-degree angle.

HLB can be spread by grafting infected plant tissue onto another plant, by infected psyllid and by pruning from one tree to another without cleaning your tools. Once the Asian Citrus Psyllid picks up the disease, it carries it for the rest of its life spreading it from fruit tree to fruit tree as it feeds. It will not affect other fruit trees as it is specific to all types of citrus.

### Inspection

Weekly inspection is not a bad idea during the first month of spring and the

first month of fall. Start a garden diary with a section for the citrus. One of the best time to do inspections is when you are doing the refractometer readings and especially when you are foliar feeding.

Inspect when watering, pruning or tending trees. Pay close attention during times of leaf growth. Keep your tools clean. Use OTKO or Bleach to clean them with.

**NOTE:**

While it is true that once a citrus gets the disease that it cannot be cured and that there is no known preventative, I believe (and it is just that, a belief, but one based on 50 years of experience), that your citrus would be better off if you followed these steps than if you did not! Simply put, if your citrus brix is at 18 or higher, your citrus will stand a far great chance of not being attacked by the psyllid. I believe that the psyllid will not attack any citrus with a brix level higher than 18 with 22 being best.

Do not think that because you have managed to locate phyllids that you can kill them off and not tell anyone. Your best bet is to follow the guide lines that I have given you and obtain close observation of your trees brix levels as well as other indications of trouble and be quick to respond by reporting.

By combining some natural sprays like compost tea and rock dust tea, along with any natural soap, you will have a very good chance of staying ahead of the game. Spray regularly with a mineral rich compost tea. This will help keep the brix level up high. The higher the Brix the less the pest/disease.

The insect remains dormant for much of the year but tends to move around in the fall, to lay eggs on the new growth of citrus trees. They often establish colonies near major roads and freeways. People move plant material around, and the psyllid hitchhikes along. Most experts believe the first spotting of the disease will be on a backyard tree rather than a commercial orange grove. Homeowners need to learn what to look for.

Determine the size of the psyllid colony if any are found. It is important to call your local AG Hotline if you think you have either a sick citrus or psyllids or both. They will need to be examined to detect if there were infected insects on nearby lemon and orange trees. The combination of a few infected trees and a large population of psyllids can easily overwhelm your yard not to mention a state, so be on the lookout for the first signs of trouble and report it.

Simply put if your citrus brix is at 18 or higher (22 and up is best) , your citrus will stand a far greater chance of not being attacked by the psyllid. I believe that the psyllid will not attack any citrus with a brix level higher than 18/22.

See Refractometer info at [www.crossroads.ws/brixbook/BBook.htm](http://www.crossroads.ws/brixbook/BBook.htm) or visit my website for a free refractor and brix eBook.

## More on how to Protect your Citrus from HLB Citrus Disease

With the recent discovery of the Huanglongbing HLB disease carrier pest in Ojai, (HLB also known as citrus greening disease); once it gets this disease it is fatal. The disease is spread by an insect called the Asian citrus psyllid, and the disease is coming to our own backyards sooner than you think. However, there are many things that you can do to prevent your citrus from getting this disease.

The prevention is simple: Keep the psyllid from infecting your citrus. No insect bite no disease unless it is spread by humans using infected tools.

There are short term solutions and long-term solutions. The long term is simple - Bring the Mycelium back into the soil.

So first off (short term) make sure you or your gardeners always clean their tools in between pruning even from same tree. You can use Hydrogen Peroxide, Bleach, OrangeTKO (a natural citrus cleaner) or even Alcohol. Clean between each cut. The second part of prevention (long term) is to understand why the insect will attack your citrus in the first place: It is food for its children as well as for itself! Stop using chemical fertilizers (long term) that destroy the soil Eco-balance. Start using compost that is alive with the microbes (long term).

Here is a simple formula I have developed over the years

Use a refractometer to determine the Brix level of the plant (not the juice) even though that's what it was invented for, to measure the sugar level in the juice (usually for beer or wine). However, you can also measure the Brix level of

the plant. By reading the Brix level of the leaves/flowers you can determine the overall health of the plant. This gives you a starting point to work from.

The higher the Brix level, the higher the sugar levels, and higher complex carbohydrates as well as higher minerals. Hint: Insects cannot digest complex carbohydrates, so it is no coincidence high Brix levels equal higher mineral levels equals more complex carbohydrates as well. If your citrus reads anywhere near or above a Brix reading of 18, the likelihood of the psyllid attacking that citrus is reduced considerably, over 22 and no psyllid in its right mind would attack it or even think that it was a good food source for its children!

## How to raise and keep high Brix levels on your Citrus

### Health of Soil

Soil holds both bacteria and minerals. It is the bacteria's job to eat the minerals and turn it into a source available to the plants through their root hairs. This is a long-term solution. By providing minerals and bacteria in the compost at the proper pH levels, your soil will be providing the proper environment for citrus to get the minerals needed for healthy growth. Too much minerals can become toxic. So, apply lightly. So, apply rock dust, compost, BioChar and an acid mulch mix. Coffee grinds mixed into the soil will help to lower pH levels since the soil here is very alkaline. Introduce Mycelium to the soil to help it recover. The Mycelium is important.

## Health of Plant

To keep your plants healthy, you must provide all the minerals it needs as well as proper amounts of organic fertilization and adequate watering. Citrus needs to be watered only once a week or even every other week depending on soil. One method of providing needed nutrition is to foliar feed regularly. This is spraying such as compost tea and other organic nutrients directly to the leaves which they absorb into their system and help keep Brix up. Avoid high nitrogen chemical fertilizers because they bind up the minerals and cause stress by killing the soil.

**THE HIGHER THE STRESS, THE GREATER THE  
POSSIBILITY FOR PEST/DISEASE.**

There are many natural ways to kill the psyllid without resorting to chemicals that the insect will eventually develop immunity to. Try either using garlic concentrate or caffeine powder, both of which will kill the psyllid on contact. An easy mix is to use cold brew coffee as it will kill them on contact. Just do not spray it everywhere.

When the plants are food for insects, the plants are no longer healthy

## **Citrus Leaf Miner and others**

**Brown soft scale:** These are small, non-mobile insects that attach themselves to the wood, foliage and sometimes the fruit. Scale is most common on the new woody growth. When adult scale is attached to the tree, it often appears as waxy or crusty bumps on the tree. It is often mistaken for part of the tree's own growth, but it is an insect. The scale sucks sap from the tree and causes the leaves to turn yellow and drop.

**Citrus bud mite:** small, elongated insects with a tapered posterior and four legs near the mouth. The bud mite is difficult to detect but large infestations may be visible by close examination.

**Citrus red mite:** an extremely tiny pest, only 1/50 inch long and red or purple in color. These mites infest leaves and fruit. Intense infestations during hot, dry weather can cause leaf drop.

**Snails:** chew holes into leaves and cause the fruit to be scarred or pitted.

You can also see silvery trails winding around the trunk and branches near the soil. You can also detect snails by lifting the lower branches and inspecting the leaf debris under the tree.

## **Controlling the Citrus Leaf Miner**

The citrus leaf miner is a relatively new pest that has started showing up in California within last few years. The larvae are laid by a tiny silvery white moth that tunnels within the leaves, leaving trails of dead tissue behind. Other symptoms in-

clude curling of leaves of both older leaves and young green shoots. It is important to start controlling at the first signs of plant damage and to follow up with regular applications.

Once they eat a path between leaf surfaces, they drop off to pupate in the soil beneath and then repeat the cycle of producing new leaf miners during a typical summer season, requiring warm days and warm nights. Controlling the leaf miner can be very difficult because larvae are protected by the citrus leaf surfaces.

An immediate way to control is to remove and throw away the damaged leaves (especially if the leaf is folded up and underneath it has a white cotton like substance), in the garbage inside a plastic trash bag to prevent the larvae from going back to the soil to produce more.

Remember, there are always short-term solutions and long term solutions. The long term takes time but is the foundation for proper long-term health and must be addressed.

### **Natural Preventive Sprays**

There are several sprays that you can use to control this problem. Follow the basics of proper organic fertilization which will keep your brix levels up, and proper composting, rock dust and such applications combined with proper water management.

## **Spinosad**

If the problem is severe, try treating your infected citrus tree with Spinosad. Spray the entire tree several times a week for the first month then use the mixture described below. Spinosad is toxic to bees so avoid spraying any bees.

## **Insecticidal Soap**

Insect Killing Insecticidal Soaps are available commercially such as

Concern and Safer Soap. They also have pyrethrin added to increase effectiveness.

## **Fatty Acids**

Some companies like Safer also use a mixture of naturally derived fatty acids and pyrethrum.

## **BTK**

BTK (*Bacillus Thuringiensis Kurstaki*) can be used to control the larvae stage and must be applied before the larvae appears, so timing is important here.

Spraying your citrus leaves with a light sesame cooking oil and light soap solution, if sprayed at the right time, will kill the white moth and/or prevent it from depositing the larvae. The larvae too will have a hard time with it. So spray at the first sign of damage, especially if you do not want to kill the bees. Do not spray this mixture if temp is above 90 degrees during the day.

## Neem Oil

Neem Oil is also effective against the moth and or larvae stages and does not kill bees.

## More Natural Controls

You can try using a product called Organicide that is made from Fish Oils and Sesame Oil instead of the cooking oil formula below.

## Garden Grade Diatomaceous Earth

Diatomaceous Earth works on all soft bodied insects that attack citrus and other plants. Diatomaceous Earth will also work as a control for the moth and can be applied as a dust or added to water and sprayed, and once dried, leaves a thin coat which will affect the moth once it lands on it. It should be sprayed on both sides of the leaves. Never Use Pool Grade DE as it is dangerous to your health.

## Rotenone and Pyrethrum

In some states you can buy Rotenone and Pyrethrum Spray (not in California). Controls many insets including the leaf miner. One of the best natural soaps to use is called Dr. Bronners Soap and comes in a variety of natural smells like lavender, Tea Tree Oil and Peppermint.

Several years ago, I ran into this great natural product made from citrus oil. Most products like this usually contain petroleum distillates but not Orange TKO! I

gave a bottle to my wife and she loves it's 1001 uses around the house. I myself started using it on my tools and then discovered that it will control ants, and then found out that it will control many types of insects and disease as well. How you might ask? Citrus will dissolve all matter of chemicals as well as break down the defenses of insects and remove and destroy most spores of diseases it comes into contact. An additional advantage of using OTKO is that it will also raise the Brix level of the citrus through absorption. Use very lightly at 1 oz per gallon water.

### Using Natural Orange Oil to control citrus pests and diseases

OrangeTKO is completely safe to use around bees but do not spray them directly. Use 1/4 oz of Orange TKO per gallon of water. You can either add to a 3-gallon sprayer or put into a hose end sprayer. While you can just use this spray alone, I have found out that you can also add a small amount of molasses to this mix. Try 1 oz molasses to the water mix after you have added the orangetko.

Spray several times per week to control most insects and diseases.

You may want to have a soil test for microbial life.

The most important thing to remember is the health of the soil. Dead soil will not provide the fruit trees with the minerals they need to be pest and disease free.

# Invisible Gardener

## Long term solution

Long term solution is the health of the soil. This always takes time to bring back to life. Key into over-watering which destroys the soil. Key into chemicals that also destroy the soils microbiological life. Key into minerals and apply rock dust. Always use live compost with living microbes.



## Chapter 5

### NATURAL TREE CARE

# TREES ARE MOTHER NATURES' LUNGS

## **It's the Trees**

Is it too late to plant a tree that will, when grown to maturity, help control climate changes? Perhaps it is...Perhaps not.

We are all aware of the current global warming (yes, it is global warming since the planet overall is getting warmer, don't worry the cold is coming). We still have cycles of spring, summer, fall and winter, but they are rapidly being affected by the CO<sub>2</sub> in the air. The oceans are absorbing the warmth and it is this warmer ocean that is melting the clusters of glaciers in the Antarctica, as well as glaciers around the world as evidenced by ships being able to almost go through the North pole without running into ice. Scientists are now saying that the Amundsen Sea region of the West Antarctic Ice Sheet is being undermined by warm water that is melting away at the base and is making more and more of it "float" with no base.

### **Melting from below**

A research group has recently showed that glaciers in the Amundsen Sea sector have shrunk so much that a larger portion of the glaciers now float where they once rested on land. The glacier flows out from the land over the ocean, with its front edges afloat. Ice loss is driven by warm water that weakens the ice from below. As the warm water enters from below, the grounding line is moved farther inland. It is this action that will eventually collapse the glacier. This collapse will cause the ocean to raise 15 feet within a short period of time. This raise will prove

to be disastrous to anyone living by the ocean, and will especially impact Florida, PCH in California, as well as all around the world. Scientists are saying this could happen anywhere from 50 years to 100 years from now.

### **What about the trees?**

Way back in 2000, I started talking about climate change, what was really going to happen, and how it was important that we plant more trees.

### **Why trees?**

You know why. Trees take in CO<sub>2</sub> and replace it with O<sub>2</sub> (Oxygen). They also control how much water is present in the air as well as cleaning up their local environment. Looking into the recent past, it does not take one long to find the last Global Warming called the Medieval Warming period, which lasted around 500 years, (when they cut down most of the forest in Europe) and which was followed by what is called the Little Ice Age, which also lasted around 500 years. George Washington crossed the Delaware where he also saw chunks of ice floating by him.

All throughout the history of the world, there have been global warming followed by a period of ice, which we call Ice Age. We are now starting into a new period of Global Warming which will be followed by a period of Global Cooling leading to another Ice Age.

We all must understand the role the forest plays in this balancing act and by removing this natural "shock absorber," we have removed the one thing that can mediate the fluctuations of Heat and Cold.

While we must behave as good gardeners and reduce our carbon foot print, eliminate the use of toxic chemicals, stop radiating the world through the use of Nuclear Power plants (no, they are not a clean source of energy) as well as clean up our act(s) such as forcing us to eat *GMO* foods with pesticides (and now fungicides too) etc., removing plastics from our oceans (these are just a few). We must stop the destruction of what forests we have left in the world and start to plant more trees everywhere (we should have at least 50% forest cover on all cities...80% would be the best). Even if we were to plant today, it would still take close to 50 years before these trees will start to affect the worlds' climates! If we had started in 2000, the trees would only be 15 years old and they would still have a way to go! But it is not too late. We must start now to give the next seven generations of all living things on earth a chance.

We are destroying the top soil. It is like destroying our skin. Do that and we won't last long. It is the same for the earth.

### **Nuclear Ice Age?**

In my recent Blog "How to kill all living things on earth within 100 years [see article at end of book]," I point to the many things we are doing to ourselves and to

our planet and how one problem alone is a problem we can deal with but not all combined. These are natural ecological barriers we should not be crossing and have already. I have counted 10 so far that together will surely mean the end of all living things on this planet within a short period of time. Yes, we have gone through global warming and ice ages before, but what is the difference this time around?

### **Radiation.**

Nothing alive will live in a radiated environment for long. A nuclear winter would be even worse. Throw into the mix polluted water, polluted air, and polluted oceans and you have a wonderful recipe for extinction.

### **How do we get an Ice Age from Global Warming?**

The process is very simple. The Gulf Stream is a major controller of weather patterns. It allows there to be seasonal fluctuations that create spring, summer, fall and winter. How does it do that? The position of the sun through space determines how much light the earth will get from the sun as well as how hot it will be. The farther away the earth is from the sun, the colder it gets and the less heat the earth gets. It is this heat that is absorbed by the oceans of the earth. The Gulf stream is a circulation of the earth's oceans which literally go around the earth. Cool water is denser than warm water and will sink below the warmer water. Water that is more saline is also denser than water with lower salinity and thus will sink below the water of lower salinity. Water temperature has more of an ef-

fect on water movement than salinity, and global warming will increase the temperature. It is a fact that while warm salty ocean water rises, cold salty ocean water sinks. It applies only to salt water, not fresh water. The glaciers will melt the warmer it gets and it will mix fresh water with the salty sea water, and since fresh water does not sink nor rise except when mixed with salt water, it will dilute the salt and this effect of circulation will eventually stop all together. This makes the oceans a natural recycler of heat. As salt water gets colder it sinks, and as it gets warmer it rises, starting the cycle over again as it gets colder as it goes down and then raises to the surface as it gets warmer.

If the *Gulf Stream* stops, it will stop the natural cycles and it will stay on a cold cycle until the ocean salt levels have increased to where the sun's rays will heat it up enough to recirculate and the natural cycles will start up again. This may take a few hundred years or a few thousand years. Remember the last time this happened, the *CO2* levels were nowhere near where they are now and that cycle lasted around 500 years each for the *Global Warming* and the *Ice Age* that followed. That was just for cutting down most of Europe's forest! Imagine what will happen now!

## Plant a tree today for a better tomorrow

### About Trees

Trees are very important to this planet's ecosystem in that they allow us humans to breathe. They are essential to the earth's recycling system. They provide the very air we need to live. They control the water and climate cycles of the plan-

et. They provide homes to many different species. They have been called the earth's shock absorber. I think of them as the earth's lungs. They assimilate carbon into oxygen, they clean up the air (improve air quality) and bring water and minerals up to the surface and reduce water runoff. Urban forestry helps clean up cities and raise the quality of life, promoting interaction between urban dwellers and their environment. Trees also reduce heat and glare.

Trees are also a big part of the answer to climate change as I mentioned before.

### **Why Fertilize Them with Chemicals?**

The answer is simple. Trees will do better if they are taken care of naturally while, at the same time, you are not contributing to pollution from fertilizer runoff or soil destruction. Trees that are fed naturally will be stronger and healthier than chemically fertilized trees. Also, chemicals can pollute the environment and ourselves. There is no comparison between trees that are grown organically and trees that are grown chemically.

### **Never feed trees with chemical fertilizers**

How to fertilize them, then? Chemical fertilizers damage the soil's ecosystem, cause stress and lack the essential bacteria and minerals. Chemical fertilizers usually are high nitrogen based. Trees require a certain amount of nitrogen, which

they get from the air but when usage of high nitrogen content fertilizer limits mineral intake. Trees require certain conditions for proper growth and good health. Proper site selection is very important. It is important to understand what these conditions are. Proper tree selection for the environment it will be in is also important. Before planting, amend the soil with good rich compost and lots of humus. Provide regular watering at first then reduce as needed. Provide regular composting at first then reduce as needed. Another reason why chemical fertilizers are bad for tree is because they destroy beneficial microbes in the soil. Use a good organic fertilizer made for trees.

**Remember, a healthy tree doesn't need you only healthy topsoil. That is how they have been doing it forever.**

### **Mulch as Needed**

Most trees will mulch themselves, so don't take away their leaf droppings. Don't over mulch! Not more than 2 to 4 inches of mulch and never mulch next to tree trunk! Keep away at least 1 foot. Do not use any chemical fertilizer or pesticides. Do not cut the tops of trees! Go native whenever possible. Hire only skilled workers. Remember, it costs less to keep a healthy tree than to replace it. Save a tree whenever possible. Don't cut it down; plan around it and include the tree in you're planning!

There are many different types of mulch you can use. You need to understand this fact. Some mulches are just decorative and do nothing to help the soil. They also can burn and not good in a fire prone environment. When I talk about mulch, I usually am talking about a type of mulch that decomposes and helps the soil to re-

tain moisture and helps with the temperature changes. I like using an azalea/gardenia mulch which is made of aged shredded very fine recycled tree cuttings blended with earthworm castings. Then on top you can add pebbles to make a natural mulch to protect the lower layered mulch you have just added.

### **Trees Need Water but not over-water.**

Too many people are over-watering their trees. This will damage them just as much as if you never watered them. It is better to under-water trees than over-water them. Under-watering, if done correctly, encourages trees to have deeper root systems. Make sure that you provide adequate watering on a regular basis. A drip system is important as trees will benefit best from a slow drip that allows the water to go deeper into the soil (see my tree vents) as well as watering once a week or even once a month. Filter the water. Use tree vents for deep watering if possible or use a deep root feeder. Use a garden filter for this.

### **Trees Love Live Compost**

Compost is one of the best things you can feed trees. Local compost rich with trace minerals, composted animal manure and lots of humus are best. Feed yearly if possible. Never feed trees high nitrogen. High nitrogen causes stress which is the main cause for pest or disease attack. Trees get 70% of their nitrogen from the air, and the other 20% from the compost and from the natural bacteria found in the soil and the last 10% from other sources.

## Trees Love Rock Dust!

Trees need trace minerals and rock dust (as well as the microbes) is the most important source of these trace minerals to the trees. Colloidal rock dust will be high in phosphorous, calcium and will contain many trace minerals depending upon the source and type of rock dust. The microbes digest the minerals and make them available to the trees. Buy a blend of different rock dust sources for better minerals availability. See more about Microbes in a different chapter.

The Fungi feeds first. This is the way nature intended it. You know the old gardeners saying Feed the earth first.

## Tree vents

These are used to

1. Provide for a deep watering source
2. Provide for a safe place for the microbial colony to grow
3. Provide a way to control pests and diseases.

A tree vent is a clay pipe that is placed under a tree. Four tree vents per tree equally spaced (think 12, 3, 6 and 9 o'clock) about 2-4 feet away from the trunk (depending on size or age of tree). I use clay drain pipes that are 3 inches wide and 12 inches long, long enough for our purpose. For very old trees try 24 inches long (two 12-inch tree vents stacked on top of each other).

Run a drip line to water the vents. A two gallon per hour drip head in each vent

will do. Use only filtered (use a garden water filter-try GardenGro) water. Water at least once per month or as needed. Best is a long slow drip overnight. Inside the tree vent place compost, rock dust, etc. Also, in the tree vents you can use one of the two formula's (see below) if the tree is being attacked by pests or diseases. See also info on water filters. Do not allow to dry. This is a very important tool in your natural tree care program. Learn to use it right!

"Tree vents can be used for all trees, by placing compost and microbes into the tree vents. This provides for a place for the microbes to establish a colony as well as to provide deep watering, encourages root development, and provides oxygen to the soil. The tree vents are essential in pest control, as healthy soil is essential in the trees health."

### **There are two different formulas you can use:**

The first is a simple formula that encourages beneficial microbes to establish an underground colony.

#### **The Microbial Formula for Tree Vents:**

Inside the tree vents place the following mixture:

1 part live compost (if you buy from the store, chances are it is not alive), find a local source!

1-part rock dust

1-part microbial mix\*

\* The microbial mix can be purchased by simply buying an organic fertilizer that also has microbes (try MycoGro) added or by buy the many different resources of

rock dust available on the market. You can blend them to produce best affects.

Place four tree vents per tree as well as in areas soil needs to be returned to life. Place a 2 gallon per hour drip head. Water once a month to keep the mixture from drying up. Do not overwater. You can add aerated compost tea to help it along with microbial levels.

**The Tree Vent Formula TGM+ (used to control pests and diseases).**

Makes enough for four tree vents

1-gallon Agri-Gro

1-gallon Nitron A-35 (you can get it from Arbico Organic)

1-quart Superseaweed

1 gallon Liquid Acadia Seaweed

2 pounds Live Compost

2 pounds Organic Tobacco (only if using for pest control)

2 pounds Rock Dust

1/4 pound Crushed Garlic

1/4 pound Biochar

Blend compost, garlic, tobacco, and rock dust. Separate into 2 lbs. Place inside zip lock bag. Allow to sit inside a zip lock bag for one month and then add 2 lbs. into each tree vent. Add 1 cup each of Agri-Gro and Nitron A-35 to each tree vent and add 10 drops Superseaweed to each tree vent. Water. Do not allow water to overflow. Water slowly to fill. Use water filter to clean water of any chemicals,

very important! Repeat again in two weeks. Then again in a month. Repeat the TGM+ formula in two months' time, then every six months or as needed.

Placing the tree vents: Make sure the drip system is working. Do not allow it to dry. You can use tobacco dust or buy organic tobacco. Tree vents can be used for all trees placing only compost as a food source. This provides for deep watering, encourages root development, and provides oxygen to the soil. The tree vents are essential in pest control since the tobacco will kill any pests that are attacking it. The garlic will prevent bacterial diseases from spreading.

Healthy trees will not be affected by insects and diseases as much as sick trees. That is your first line of defense. However, what to do until the tree gets healthier is very important. Plant pests and diseases play an important role in controlling the tree population. Not all tree pests are harmful to the tree — some are beneficial. Learn to identify the symptoms of plant problems; experience will teach you. Having healthy living soil is very important to the health of trees or any other plant. It is the fungi that will protect and keep the trees healthy and pest and disease free.

When using a refractometer, you will be able to keep many pests and diseases away simply by keeping your trees Brix levels at the point that you have determine healthy trees. Anything higher than 18 is a good starting point. Just remember that the readings will vary for types of trees as well as time of year.

## How to Kill a Tree

These are the things that kill trees. i.e... if you want your tree to live don't do these things!

#1. Fertilize trees with a chemical fertilizer.

#2. Overwater your trees and if you do, water the trunk of the tree really well. Forget about a slow drip watering.

#3. Never use filtered or well water — who cares about the chemicals in it?

#4. Never allow time for trees to recover. If it doesn't recover over night , forget it!

#5. Do not fertilize them with any compost rich in trace minerals and bacteria or Rock Dust!

#6. Pests deserve to eat trees.

#7. Cut down all your trees.

#8. Plant anything you want, forget about only trees that will grow in your area.

#9. Don't protect trees from dogs.

#10. Forget the soil. Trees don't need soil do they?

#11. Never mulch and if you do over mulch it!

#12. Why protect trees from people?

#13. Do poison the soil, spilling gasoline, paint, salt etc.

#14. Use only tight wire supports as this will strangle the tree as it grows.

## Some Rules for Natural Tree Care

Never feed trees a chemical fertilizer. Chemicals kill off the bacteria in the soil while at the same time weakening the health of the tree. Chemicals cause a great deal of stress to trees. Trees require regular but deep watering. Use a drip system whenever possible. Avoid watering the trunks. Trees love slow deep watering.

Always use filtered, well, rain, solarized, or transformed water.

Never use straight city water as it may contain chlorine or some other chemical that can poison the tree. See Garden Water Filter.

Allow time for trees to heal. The bigger the tree, the longer it will take to heal. People do not realize that. Just remember that we are mother nature now.

## Raise the Energy level of the tree

Besides taking a vacation the addition of compost rich in trace minerals and bacteria is the best thing you can do to help raise the tree's energy levels. Trees love Rock Dust. Foliar feeding them will provide them with the fastest source of food and energy, therefore, it is important that you only feed them nutrition that relieves stress; and not cause it.

## **Using the Refractometer to measure the Brix levels of your trees:**

When I talk about energy Levels, I mean the higher the Brix level the higher the trees energy level is. Why? Brix measures dissolved sugars in the plant whether in the leaf or in the fruit. This sugar level corresponds to carbohydrates levels, phosphorus levels, calcium levels and mineral levels. You can tell all of this by using the refractometer! I believe that the more minerals a plant has (as well as animals and humans) the more Cosmic Energy you will be absorbing.

### **Cosmic Energy?**

I call it Cosmic energy because that's where it comes from. What if I were to tell you that the earth is being bombarded every day with cosmic rays that shoot through the earth, in one side and out the other, in 1 Nano second? A Nano second is 1 billionth of a second.

These cosmic rays are given off by distant stars, distant galaxies and distant cosmic events such as a super nova. When these things happen, they shoot cosmic energy out in all directions that are made up of many different types of energies such as radio energies, infra-red, ultra violet, ELF (extremely low frequencies) EHF (yep, extremely high frequencies), as well as an amazing array of photons, neutrons, electrons , etc.

Some of these will eventually reach the earth and pass through it. However, there are certain materials on this planet (as well as on others) that absorb this energy once it passes through. This material is paramagnetic. Certain types of trace minerals also absorb this energy and they too are paramagnetic. These are the same trace minerals needed by plants, animals and humans for proper healthy growth.

The refractometer is a handy tool in determining how good a gardener you really are. By keeping track of your Brix levels, you can see the results of your efforts.

How can we tell how much minerals, phosphorus, calcium , etc., a refractometer is showing us?

A refractometer will tell you the sugar levels of your plants. It will also tell you approximately what type of carbohydrates your plants have. It will also tell you if your phosphorus, minerals levels are high. High phosphorus levels lead to higher calcium levels as well as an overall high mineral level.

You can tell if you have high calcium levels by looking at the line between the dark top and the bottom white. How clear is it? If it is very clear and distinct, then you do not have high enough calcium levels. If the line is fuzzy, then you have high enough calcium levels and other minerals as well.

#### **How to make a slurry from a leaf:**

To get a sample from your tree leaf, you must first cut a small leaf into smaller pieces and place them into a mortar, add a few drops of distilled water and use the pistil to crush the leaves and make a green liquid. Add enough water to allow you to put a drop of this green liquid onto the small refractometer window. There are two types of refractometers: Digital and Analog. I currently have an analog and a digital.

Start a note book and name the tree. Note any other trees like it and sample those also. Try to reach a max Brix level that would represent healthy trees. If you have more than one, do a reading from each and compare. The Brix levels should be within range of each other.

You will find that by keeping track of your trees Brix levels, you will also be able to spot problems and deal with them before they get out of hand.

I would do a Brix reading once a season on plants that I think need more looking after, and only do a brix reading if there are indications that something is happening to the tree.

### **How to Control Palm Wilt Naturally**

Malibu has one of the best environments for Palm trees provided we properly take care of them. I have been in Malibu since 1984 and I have seen many beautiful Palm trees die, not a natural death, but from a totally unnatural death, and one that was not necessary.

Not long ago, it was not uncommon to find Palms growing over 100 years! It would be interesting to see if there are any palms in southern California that are even close to that even though they were first brought here around 100 years ago. There is only one palm that is native to southern California - Washington filifera, the California fan palm.

The rest of the palms you see everywhere live here because we planted them and have somehow kept them alive. I say somehow because most folks haven't the faintest idea of how to properly take care of their palm trees.

It doesn't help that the "experts" themselves do not seem to understand either. I see massive amounts of fertilizers applied to palms as if high nitrogen was the answer to everything. It is the main cause of everything from pests to diseases.

I recently started a new customer who has a Date Palm about 25 years old that has *Fusarium oxysporum* "Palm Wilt." A Very serious pathogen that will kill the tree within a short time. Usually, Arborists will recommend replacing the palm with a different variety. One that will not catch this disease since it is easily spread (usually by gardeners and tree folks that do not properly clean their tools).

Here is my "opinion" on what is happening, and how to not only avoid it, but to properly deal with this problem. Contrary to popular belief, you can save a palm tree that has this disease and keep it alive and well for many years as well as prevent the healthy palms you have from getting it. First off, the main problem with any disease is the soil. This disease is no different.

We damage the soil by:

Destroying the soil's natural micro-biological balance through applications of chemicals from fertilizers to weed killers or to snail baits.

Destroying the soil through the constant use of chemicals in our water supply (water that is treated to kill bacteria! Hint: soil needs bacteria).

Destroying the soil as well as damaging the trees root system through over watering. It is no wonder that diseases and pests flourish in this type of environment! By the way, the first thing this person did to the sick palm was to dump high nitrogen fertilizer all over the place. High nitrogen is the perfect food for this pathogen!

This disease (actually all diseases) depend on one main factor in the plant — low trace minerals/high nitrogen. These two always go together, and they provide a perfect environment for diseases and pests.

I wonder how many folks have ever tested the Brix level of their palms? If they did, they would be shocked to find that the Palm would have a very low Brix level. 10 unless it was taken care of properly, in which case it would be above 22.

So, the key to keeping your palms healthy is to help them keep their Brix levels high by providing them with a healthy soil environment. To which rock dust, compost, BioChar and mulch are provided along with a good organic fertilizer source (slow release, low nitrogen). A good monthly foliar application would go a long way towards keeping your palms healthy.

### **Organic Control for the Polyphagous Shot Hole Borer**

The Polyphagous shot hole borer (PSHB)-Ambrosia Beetle and a fungus (*Fusarium* sp.) are what we are dealing with here.

Let me review:

The beetle lays its eggs in a suitable host. The host must have low Brix levels. Low enough so that the tree has high simple carbohydrate levels. This makes the tree an excellent host for both the fungus and its children that eat the fungus.

So, the long term prevention is to get the Brix level of the tree to its maximum and you do this by building up a healthy soil. Keeping in mind that the higher the Brix level, the Higher the Mineral, higher complex Carbohydrates. The over all protective ingredient is the high Complex Carbohydrates which will keep the Beetle from succeeding in this process. The fungus will not grow if the mineral levels and carbohydrate levels are high enough. It is important to use natural sources of these minerals and not to attempt to be a chemist and supply it directly as this

will lead to dangerous toxic mineral levels and it will kill the tree!

When checking for Brix level, use the leaves and or flowers of the tree or leaf if possible.

Here are steps to take to keep your trees from getting this pest and steps you can take if the tree has it (have an arborist ID it for you).

The first thing I would do is to start a spraying program of trace minerals and beneficial microbes.

The trace minerals need to be a balanced mixture and in a readily available form. While there are many trace mineral formulas on the market, almost all are chemical derived so I went and started using a formulation for humans which has over 70 trace minerals in a readily available form. This is an organically sourced plant supplement (the original product is called Nature's Energy Mineral Complex for humans) is called Crop Boost. Also look at Sea-90.

By applying as a foliar spray, it alone will increase the mineral levels of the trees. But as usual, I go one step further and blend in Superseaweed which is a blend of many natural sources of both minerals and microbes and bacteria. This blend allows the microbes and bacteria to eat the minerals and make this solution available to the plants. It is also used as a soil soak. I already add MycoGro to the SuperSeaweed but I also add it to the spray along with the minerals. The Superseaweed also has the same mineral mix as well as well as the MycoGro.

In addition, you will need to find a good source of live compost. You should ask the person you are buying it (the compost) from if they have any tests that show that their product is alive. The compost is important as it will be applied to the soil. To the compost I would add a good rock dust mix as well as mycorrhizae (like

MycoGro). The compost will help the soil to come alive, but it takes time. I would make "tree vents" in which you place the compost mix, place a drip and apply a good deep watering once every two weeks. I cover this in other parts of this book.

The foliar spraying should be done twice per month during stress periods and once per month other times. Especially during wet weather as nutrients are normally taken in during this time.

More and more trees and other plants attacked by pests which carry a disease that then infects the tree. The Shot Hole Borer is no different in that respect. It bores a tunnel into the tree it selects, spits out (it does not eat it) and injects into the tunnel several species of fungus. Not only is it a food source for the pest, but is also their children's future food store as the beetle use this space to grow the young. The young are born, eat the nutrient-rich fungus, and they start the process all over again. This pest is different in that it uses a fungus to feed its children and that it does not eat the material when making a tunnel.

The key here is preventative, keeping the pest from picking that tree in the first place.

So why does the borer or any other pest for that matter, choose a particular tree to become a nursery for its children? What makes the mother say ah this is the place or ah, this is not the right place.

The first place one should look at is not the tree but the soil that the tree is

growing in.

I do a radio show called "It's Alive." This show is all about the living soil and the benefits it provides to everything that grows on it. The soil is alive with millions of microbes that each has a job to do. If these organisms are missing, then their job(s) do not get done.

Many microbes, all that they do is eat and poop. Doesn't sound like a big important job but it is. What the microbes eat is the trace minerals needed by plants, but plants need the minerals in a particular soluble form. Which is the poop of the microbes, which are they absorbed into the tree, that's another job microbes (Mycorrhizal fungi) do thru the root hairs of the tree which is where these fungi are to be found.

The Soil Food Web is like the internet for the earth in that it is all connected. The living organisms in the soil, each provides benefits to the plant while in turn they get benefits from the plant.

When the soil web is destroyed, the microbes and the microbiology die and or is changed, and the good work is no longer being done. Chemical fertilizers, while they provide some nutrients, they do not provide all the nutrients in the proper form. They also damage the soil by killing beneficial microbes that provide the necessary micro-nutrients, they provide immunity to the plants; they provide essential support that plants have evolved to use.

High Nitrogen is bad for plants and trees. High nitrogen inhibits the absorption of minerals by its destruction of soil microbes. Remember, chemical fertilizers are salt. This salt kills all living things and in its place and the bad guys will move in and

take its place. That why diseases start in the soil.

High nitrogen will cause rapid growth. Growth which is weak in minerals, high in simple carbohydrates. This growth is a soft, lush and easily eaten by sucking and chewing pests. Many of these pests bring with them various diseases which also find the weakened plant an attractive and irresistible food source.

Using a refractometer, you can chart the Brix level of any plant, tree, vegetable, lawn, rose, etc. You will see the Brix raise whenever any type of fertilization is done. If you use a high nitrogen chemically based fertilizer, you will see a big jump in the Brix levels of the plant. If you chart the Brix levels over the coming week, and if you are not applying any more of the fertilizer, you will see that the Brix levels of the plants will eventually drop LOWER, then it was before! While on the other hand, if you were to use a good organic fertilizer based on good organic practices. OMRI approved. One that has beneficial microbes, essential minerals in the form of rock dust, live compost properly made, low nitrogen. Then you will see that the plants Brix level not only rise but they will not drop below its original level but will settle down a few points above the original level. Many conditions will cause the Brix levels to rise and fall. Seasonal forces exert a big control over Brix levels and therefore over nutritional levels of the plant. This ranges from soil temperatures to light conditions from the sun to the genetics of the plant.

The goal here is first to understand what the correct Brix a particular tree should have and then work to allow the tree to achieve that level and taking into account the time of year, what the correct Brix should be at that moment.

Once the correct Brix level is reached, the tree in question whether it is a Sycamore, or an Avocado will be able to withstand an attack of pests and diseases.

It does this because of the following rule I have concluded over the many years I have been in business:

The Higher the Brix,  
the Less the Pest/Disease

The Higher the Brix,  
The more Complex Carbohydrates it will have.

The Lower the Brix,  
The more Simple Carbohydrates it will have.

Insects love Simple Carbohydrates,  
They cannot digest Complex Carbohydrates.

Here are some more Organic Controls that can be applied to the tree to kill the Beetle and to prevent the fungus from growing. These will kill the beetle on contact.

### Caffeine

Caffeine can be sprayed once or twice per month to kill any pests that it is sprayed with. Use Organic Cold Brewed Coffee.

### Using Tree Vents

You should start at least two tree vents for growing microbes. The other two tree vents should be for controlling the pests. If you only have a few trees, you can use this method: Place 3 tree vents around base of tree about 3 feet out from trunk. A tree vent is what I call it, but it is really either a clay drain pipe 4 inches wide or a simple pvc pipe 4 inches wide and 18 inches long. Put a grate on top. Place a drip line around the trunk (about three feet out) so that you can place a 1 gallon per hour drip head on top of the vent. Inside the vent, add the following mixture:

1-part tobacco

1 part crushed garlic

1-part compost

1-part rock dust

1-part organic tree fertilizer

1-part microbes

1-part BioChar

Mix well and place about 1 lb. in each vent. Replace every 6 months. This mixture will not only kill any pests attacking the tree but will also act as a preventative.

### Garlic

1-part garlic can be added to the above mix to really make it effective esp. if you think it has the beetle already. Garlic can also be planted at base of the tree for control. This will also destroy the fungus on contact. Garlic can be sprayed as it will kill on contact.

### OrangeTKO

This is an organic product that will kill the beetle and destroy the fungus on contact. You can make a mixture by adding 1-part Mineral oil and 1 part OTKO. Use straight. Should be painted onto the areas that show the small hole bored. Should be done once a month as needed.

### **Here are some foliar applications that will raise the Brix levels of your trees:**

Compost Tea should be sprayed regularly

Rock Dust Tea should be sprayed regularly

A good microbial spray like Superseaweed, Nitron A-35, or Agri-Gro. Google it.

Make sure you are applying a live compost and also an acid mulch.

All of the above will slowly raise the Brix levels of any plant. Best done during late spring or early summer. Compost tea will also provide a sort of inoculation against most fungus. Never spray with a chemical fertilizer. Sure, it will raise the Brix temporarily but then it will drop lower than before!

## Natural and Organic Control of Oak Root Fungus

Oaks, like any tree, will get stressed out if you do not pay attention to its basic needs, especially if conditions are ignored or abused.

In my article "How to Kill a Tree," I went over the top ten ways that you can "kill" a tree. For many years, I kept telling how to keep their trees happy and healthy and stress-free, but I found out that I would get everyone's attention if I just said here is how to kill a tree and then hope folks got the message and didn't do any of those things.

Oak Root Fungus is just that; a disease that attacks the tree through its root system. All diseases are soil borne. That is to say, they are already in the soil just like diseases are already in our body. They are just waiting for the proper conditions to come forth and do their thing. They all need a host to live off.

This "Bad Bacteria" also requires certain conditions for it to survive.

I will go over some of these now for you.

Carbon is important in the soil for many reasons but on top is moisture. Carbon holds up to 4 times its weight in water. Soils with lots of carbon in it requires less watering and visa-versa. Carbon is also essential in the production of carbon dioxide. Carbon dioxide plays a part in the production of carbonic acids that control mineral uptake to the plant. Try BioChar as a good source of carbon. Remember Brix? High Brix means high mineral levels. High minerals mean more complex carbohydrates. More Complex Carbo means fewer bugs/diseases attack the plant. Manganese is important for the reproduction of the plant or any of its vital parts such as seed, and flower. Calcium and Colloidal Phosphate are also important. Without these, the manganese is not available.

Call me on my radio show and we can talk more about this or email me.

Energy flows from one part of the plant to another. This is needed to provide the plant with all the various minerals it needs. Think of it as the Law of Attraction. That is how electricity flows and that is how the minerals flows into the plant. This starts in the soil. Soils with high mineral content will also translate to plants with high mineral content as the law of attraction attracts the minerals from the soil into the plants.

The specific gravity of soil is also important because the greater the minerals content of the soil, the greater will be the soil's specific gravity. Why is this important? The greater specific gravity translates into greater availability of the minerals for the plants.

Phosphate controls sugar content of plants. Why? Because it is this unique type of phosphate controls the electromagnetic bond between minerals and oxygen. So phosphate and oxygen form a complex that is the carrier of minerals from the soil to the plant (in this case the tree).

For the tree or any plant, all minerals must be in a form that is assimilated by the plants, and this must be in a phosphate form. Nitrogen is not a mineral.

The soil must have the proper living organisms which convert all minerals into this form. If there are no bacteria present, the plants will not get the minerals they need, and their mineral levels will drop and then the carbohydrates will change from complex to simple (which insects love).

The pH level of the soil must be within a specific range if the bacteria are to survive.

Treated water changes the pH of the soil over time and damages the process of assimilation of minerals by plants. Over watering will lead to this problem. It will kill off all beneficial bacteria which will then allow bad bacteria like Oak Root Fungus to grow.

The fungus then attacks the tree and further inhibits nutrient levels in the tree.

The tree dies

Prevention goes a long way here. While it is true that this disease is incurable, you must remember that this disease was present in the soil and if you change the conditions in the soil, you can control the disease.

**So here are a few things you can do**

If you know that the tree has Oak Root Fungus, then you need to start immediately spraying the leaves with a mineral rich solution. Email me for the one I use. It is a mineral complex for humans, that plants can also use. It is in a form that is available to them so they will absorb thru their leaves. Do not spray them with any high nitrogen chemical fertilizers. You can spray them with any organic liquid solution that has trace minerals as well as microbes. A good way to make a mineral rich solution (if you are not a chemist) is to buy several different sources of rock dust. Blend them together and pour a cup into a pantyhose. Add 1 cup of your fresh compost (for the bacteria), tie into a ball and allow to soak in 5-gallons clean water. Allow to sit overnight, and then pour the liquid into a sprayer and spray the leaves as well as the trunk.

Make a second batch of the rock dust/compost tea. Take everything out of the panty hose and put into the water. Allow to sit for a few days in a warm place, but not hot. Then take that and pour around the base of the plant but not on trunk. Make sure you take what rock dust is left and blend into the soil.

Apply the following to the soil around the base of Oak: 10 lbs. rock dust, 100 lbs. compost, a thin layer of azalea/gardenia mix to cover it. Make sure the compost is alive so get it from a local person who made it. Do this seasonally. Spray the tree once or twice a month with a good organic fertilizer with minerals plus the mineral complex.

Do not over-water the oak tree! A good deep watering once a month is all that is needed.

### **Silk-Tree and Glassy-winged Sharpshooters**

A reader says:

My Silk tree is being attacked by glassy-winged sharpshooters. What Should I be doing?

Answer:

If left alone it will eventually kill the tree. Glassy-winged sharpshooters usually lay a mass of eggs on the underside of leaves, cover them with powdery white protective secretions called "brochosomes." After the nymph's hatch, the remaining egg mass leaves a brown mark on the leaf's surface. The nymphs feed within the vascular system of the small stems on the plant where the eggs were deposited. After several molts, the nymphs become adult glassy-winged sharpshooters, and

the process starts over again.

The glassy-winged sharpshooter feeds on a wide variety of host plants and includes over 70 different plant species. Because of a large number of hosts, glassy-winged sharpshooter populations can flourish in many areas. They feed on a plant by inserting their needle-like mouthparts into the plant's xylem. While feeding, sharpshooters squirt small droplets of waste from the anus often called "leafhopper rain." These droplets are messy and, when the water evaporates, leave a residue that gives plants and fruit a whitewashed appearance.

The way they feed makes glassy-winged sharpshooters an efficient vector for the *Xylella fastidiosa* bacterium. Once they feed on an infected plant, *X. fastidiosa* colonizes the sharpshooter by forming a biofilm on its mouth-parts. The sharpshooter then transmits the disease to additional plants while feeding. A plant that is not affected by any of the diseases caused by *X. fastidiosa* becomes a reservoir, holding the bacterium for other sharpshooters to pick up and carry to other plants. *X. fastidiosa* is linked to many plant diseases.

Many successful efforts are using integrated pest management (IPM) of the glassy-winged sharpshooter which include the use of natural insecticides, parasitoids (especially wasps in the family Mymaridae), and the impact of naturally occurring pathogens like viruses, bacteria, and fungi. One of the newly discovered pathogens is a virus specific to sharpshooters. The leafhopper-infecting virus, Homalodisca coagulata virus-1 (HoCV-1, Dicistroviridae), has been shown to increase leafhopper mortality. The virus occurs in nature and is spread most readily at high population densities through contact among infected individuals, contact with virus-contaminated surfaces, and as an aerosol in leafhopper excreta.

Please note that I do things differently and that my approach is based upon why the leafhopper is attracted to the tree(s) in the first place. So what I do is first to reactivate the tree's root systems. I do this thru application of various types of natural bacteria and Mycelium that should be present along with the proper minerals. This takes time to reestablish a functioning root system so during that time I am also applying thru foliar methods all the minerals, etc., the tree needs to get stronger. Once the tree reaches a certain Brix level, the pests will not attack it.

### Why is this?

Brix reads sugar levels in the plant, but it also reads the mineral levels which also tells me what carbohydrates the plant has. Let me explain.

I like to tell folks "if the plant is food for insects then it is not food for us." This is important for anything we eat, but it also relates to things we don't eat such as the Silk Tree. When a pest sees that an individual plant has become a food source for it and its children, it knows that the plant will have the right type of carbohydrates and that is simple carbohydrates instead of complex carbohydrates. Simple carbs are the primary food source for most insects while complex carbs are not digestible by these insect pests.

### Kool huh?

Chemical fertilizers do not have all the trace minerals needed by plants for healthy disease and pest free growth. When your plant — say the Silk Tree - is being attacked, this should tell you that the plant has a trace mineral deficiency.

Unless you are a chemist and also understand soil biology, I would not attempt

to add trace minerals directly. This will cause significant damage to the ground and the plants. Therefore, it is always best to add trace minerals in a form that is found naturally. This is rock dust. Not all rock dust are equal in their trace mineral content, so it is wise to get a blend of rock dust. Now, what do you think will happen if you just were only to apply rock dust to the soil? Unless you already have a live soil with Mycelium, it will do nothing to the plants and instead will become toxic and cause more stress which will only cause more insects and diseases!

Also, it takes time to bring the soil back to life so that foliar sprayings will be necessary. Foliar sprays are just that — spraying the leaves with nutrients and bacteria. Typically, a particular type of bacteria is found on the leaves of plants which helps in absorbing nutrients directly from the air. Foliar sprayings contribute to bringing these bacteria back as well as to bypass the soil and provide nutrients directly into the plant's system and encourages the plant to get healthier.

The long-term solution is to apply rock dust, compost and then an acid mulch. The short-term solutions are many. First, we have to feed the plant and help it to reduce stress (play some good music), then we have to control what is attacking it by either directly killing off the pests or by confusing the pests to stay away.

**Here are a few things one can spray the silk tree to kill off glassy-winged sharpshooters**

Garlic will kill them on contact. Get Garlic Barrier and follow instructions. Coffee will also kill them. Use organic cold brewed coffee. One 8 oz concentration added to 3 gallons water will work. Also, add nutrients to the mix to raise the Brix

levels. Try Superseaweed or Organic Magic or any of the many organic products on the market. Try Arbico Organics. Try BioChar.

High Nitrogen temporary raises Brix levels especially if the fertilizer also has a broad range of micro-nutrient besides NPK. Some actually have a broad range of minerals. These fertilizers will work on a short-term basis but are not suitable for Sustainable Practices over time.

Using chemical fertilizers while it causes rapid growth, it also temp raises Brix levels but what it really does is causes the tree to produce more Simple carbohydrates instead of the Complex carbohydrates. This makes the tree a perfect environment for pests and diseases.

**To effectively raise Brix levels of a tree, one must first provide a solid foundation living soil**

If the soil is at a proper pH level then the microbes we want, along with the Fungi we want, will be found. These microbes only live in a small pH range 6.5-6.8. Above or below this range, you will find the microbes but not as much as in the proper range. Compost is not a good Fungi environment until the microbes have exhausted themselves on the nutrients and then the pH will drop, and this will allow the proper microbes/fungi to grow. The compost should then be inoculated with the appropriate Fungi and Microbes.

In the case of the Shot Hole Borer, several conditions are different from other types of borers. First off, the insect does not eat thru the bark but spits it out. Secondly, the pests "farm" certain species of fungus which they have developed over the years that they can eat as a food source for their children. It is the combination of the two that makes chemical control tough. The pests are well pro-

tected within the tunnels they build. The tunnels themselves are an important factor in damaging the tree branches and support system.

So, the key here is another rule I developed:

If the pest does not attack the tree, the tree will not get the disease it spreads. The exception to this rule and many other rules I have developed is Humans. They don't work within any known perimeters of logic.

So, the key here is prevention.

The key to prevention is healthy soil.

The Organic system works on the principle that  
healthy soil = healthy plants



## Chapter 6

### MAKING THE ORGANIC TRANSITION

Proper nutrition is the very foundation of organic growing and pest control. Just as a human body that isn't properly fed is wide open to attack from one illness or another, so it is with plants. "Chemical fertilizers" are not complete foods. They lack almost all of the important trace minerals. There are over 70 trace minerals that plants and humans need, and chemical fertilizers provide only a few of them.

If plants do not get the trace minerals they need, as well as a variety of enzymes, microbes, bacteria, they will become stressed and will be attacked by disease or pests. The stress comes from mineral deficiency.

Ants, like most predatory insects, attack plants that are sick or stressed. This is a natural law, like the wolf who only attacks sick sheep. I do not recommend the use of chemical fertilizers. If you presently are using these fertilizers and want to stop, be forewarned that you must proceed slowly and carefully as you make the transition from chemical fertilizers to exclusively pure organics. As an addict depends on drugs, plants depend on chemical fertilizers for their "hits" and won't accept organic food at first. Time is needed to allow the plants natural systems (soil) to begin to work again. Give yourself and your plants at least a year to go from chemicals to organics. It may take several years of growing organically for the soil to return to life and for the organic materials to kick in. Use the following schedule in making the organic transition.

## **First Month**

Keep using the same amount of chemical fertilizer but also spray a liquid seaweed blend (such as Superseaweed, or Nitron A-35 or Agri-Gro ) as a foliar feeder. Make sure the soil is in good condition by applying lots of rich live compost and rock dust. Stop using any chemical pesticides. Start using the many methods mentioned in this book. Use a nice acid mulch like azalea/gardenia mix. Find a local source of organic fertilizers or go online to order. Get the organic fertilizer made for the type of plants you are growing. Remember that it will take time for the organic fertilizers to work in the soil so use the foliar sprays to help the plants get the nutrition they need. Start using BioChar.

## **Second Month**

Reduce the amount of chemical fertilizer by one-third, while continuing to spray the leaves of your plants with the liquid seaweed, according to the instructions. Superseaweed is five drops per gallon or use another natural organic product since there are many on the market. Replace the chemical fertilizer with a good live compost and a small amount of rock dust. Apply more compost around plants, turn over soil when possible. Mulch well with a good acid mulch, not bark chips.

## **Third Month**

By now you should have reduced the amount of chemical fertilizer to one half the original amount you were using before and increased the amount of organic fertilizer to replace the chemical fertilizer.

In other words, you are now using one part organic and one part chemical. You will find that during these months your plants will be under a great deal of stress

and may be attacked by various predatory bugs. Use only organic methods to get rid of them. Keep spraying the leaves with a good liquid seaweed weekly or monthly.

### **Fourth to Eighth month**

Stay on the 50/50 basis. This is a good time to see how the plants are responding to their new organic regime. Some plants will not like it at all and may even die, but the majority of plants will do very well. Keep spraying the leaves as often as recommended (as above). Make sure you have added plenty of live compost, and a small amount of rock dust and an acid mulch as well as rock dust applications.

### **Ninth month**

Reduce the use of chemical fertilizers by half again, and increase your organic fertilizer/compost. Follow with a monthly spraying of liquid seaweed and a good organic fertilizer that you have made into a liquid or just buy it in a liquid form.

### **Tenth month-Twelfth month**

Repeat the process. By now you should be using one-quarter of your chemical fertilizer with three quarters organic fertilizer. This is the level you want to stay at for the next two months. By the end of the first year you should have reduced your chemical usage by 80 percent. You should also have increased your organic usage by 80 percent. During the next few years you should work on reducing the chemicals used, eventually not using any chemicals at all. Remember to apply rock dust twice a year as well as compost.

Then you'll be 100% Organic!

Any problems your plants may have can be treated with the appropriate organic controls and healthy soil.





## Chapter 7

BRIX: WHAT IS IT AND HOW IS IT IMPORTANT?

## 100% Health equals more minerals less pests and diseases

### What is Brix?

Brix (°b<sub>x</sub>)

Relative density scale indicates the percent of sucrose by weight (grams per 100 milliliter of water) in a solution or juice of a plant measured in degrees Brix. A Refractometer is used for measuring solids dissolved in water; it corresponds directly to the refractive index scale. A Refractometer allows you to accurately measure the percentage of sugar or brix in any liquid with just 2 or 3 drops.

### What is a Refractometer?

#### Using a Refractometer

You can use a refractometer on all plants, vegetables, flowers, trees and lawn. Experiment for proper brix levels for the type of plant you are testing. Very simple to use. Just press a liquid sample of either the fruit or the leaf down against the glass plate. Point it toward a light source and look through the eyepiece to view the reading. A refractometer is a "must have" for anyone growing their own food and/or wants to know what the Brix levels are for their fruit trees, plants, vegetables anything that grows. Don't guess when to pick, just take a few samples from throughout your plants to determine instantly the sugar or brix content of your citrus before picking. For most vegetables, flowers, etc., a good Brix level to maintain is 18 or higher (get to 22 and you will be singing). There are many really good Brix books and eBooks available.

A refractometer is a tool you can use to measure the health of your plants. Of-

ten used to measure the dissolved sucrose in a liquid it gives you the Brix reading. A refractometer was invented by a cook (Ernst Abbe: Invented the first refractometer, and many other devices) who wanted to know how sweet his fruit was such as an apple. Gardeners soon found out that you cannot only measure the "sugar" levels of wine and beer (it is used mainly for beer or wine making) but also fruit, vegetables, lawns, flowers, and you can also measure the plants levels of minerals and carbohydrates.

A refractometer device measures sugar concentration in plants both from the fruit and its leaves. The readings will differ from fruit and from the leaves. The fruit determines the taste while the leaf reading actually tells you the health of the plant. Generally, a good Brix reading of the fruit can tell you if the plant is healthy or not but a direct reading of the plant can tell you lots more! Refractometers are also used for drug diagnosis of what's in your blood, also used in-gemology to see what it is crystals, etc., are made of, used in veterinary medicine to determine what a disease is doing, used in aquariums upkeep to determine the right pH of the water, and for farming (in wine making, and beer making). It is a tool that can be used to test the health of your crops by showing you what the Brix level is of the fruit or plant or vegetable you are testing. A refractometer uses refractive light passing through plant sap or fruit or vegetable juice to take a reading of nutrient (sugar, mineral, carbohydrates) levels. The higher the Brix, the healthier, disease and pest free (more resistant) is the plant; the higher nutritional (dense) value the plant will have.

A low Brix means that your crop will not grow to its potential due to some external limiting factor, such as: low levels of nutrients, low mineral levels or mineral

imbalance in the soil which allows weeds to grow and compete for food and light, low calcium content in the soil or deficiency in boron and other exotic minerals, which usually indicates other problems with the translocation of sugars. This happens when you get a low Brix reading in one part of the plant and a higher Brix reading in another part. For gardeners a refractometer will tell you if your plant has watery cells. Watery cells mean the plant is very low in the sugars it needs to function. You want your plants to have lots of dissolved solids like sugar.

Using a refractometer on a regular basis to keep track of your plants' health over a period of time will help you to determine problems before they crop up, as you can tell if what you are doing is working or not.

If you test your tomato plants with a refractometer and you notice a declining Brix reading, then you can correct it by either foliar applications or soil applications to raise it before it translates into a serious problem.

Healthy plants will naturally have a very high Brix reading.

## **The higher the Brix reading the following will be true:**

1. Higher Brix equals higher sugar level and the sweeter the fruit will be.
2. Higher Plant Brix equals higher minerals. Higher minerals mean less diseases and pests.
3. Higher Plant Brix equals higher complex carbohydrates. Insects can't digest complex carbohydrates (but they do love simple carbohydrates). Plants with high Brix levels are no longer "food" for insects. Insects often spread diseases.

## **A plant with a high Brix reading means a few things to me:**

1. The higher the Brix the higher the complex carbohydrates
2. The higher the Brix the higher the minerals. A fuzzy line between the dark and light not only tells you the Brix level, but the fuzzier the line the more blend of minerals you will have.
3. The higher the Brix the higher dissolved solids.
4. The higher the Brix the less the pests
5. The higher the Brix the less diseases it will have.
6. A plant with a high Brix reading is that way because the soil is alive with Mycelium. The Mycelium provides all plants with the minerals they need.

Brix levels are important to know if you want to be able to detect problems before they become an issue. Knowing that a Brix level is low, low enough to attract insects, is an important warning sign to know and one can use this information in order to control and eventually not have this problem at all.

Understanding that low Brix levels usually means trouble to your plants and to you is one that has taken me over 65 years to learn and so now I pass this knowledge to you. Living in such a wonderful year-round climate that Malibu has, one can see from my location that I have developed into a very specific niche and within that niche grow only specific plant varieties and have done so forever. In Malibu, we do not have to worry about snow and our plants show it.

I am not saying that you must know what Brix level your plants are at in order to have healthy plants. If it is not broken, you do not have to fix it. So, if your plants are doing good, then that is great, but if they are not then here is a tool to help you figure out why not.

Using a refractometer to measure the Brix level of your plant (not the juice) will tell you how much minerals and complex carbohydrates the plant has available to it. A good gardener can tell if a plant is getting all its minerals or not by the way the plant looks, but sometimes it is helpful to have a tool that can guide you in the right direction.

There are many books on Brix and using a refractometer, so I do not wish to bore you with the details, simply to say that using such a tool in my garden has really helped me to better understand what I was doing right and what I was doing wrong and how the plants were responding to it.

You can obtain a good inexpensive refractometer by any of the following:

1. Go to EBay type in Sugar Refractometer in the search box. Pick a good analog one to start with. They come in either analog or digital. The digital usually cost more and are harder to use but well worth it once you get good at using it. You can expect the cost to range from around \$50 to around \$200. If you buy it too cheap don't expect it to last, so I would buy around the \$100 mark for an analog type of refractometer
2. Go to my website and look for Brix info, I have a nice chart too. It will show you the ones you can get from my Amazon store. These are good refractometers but cost a bit more.
3. Use google to search for the various types available
4. If you still need help think about Joining ClubIG and as a member, I will help you.
5. For more information, please listen to my Refractometer Diary radio show.
6. [Visit my website for my free Brix eBook!](#)

For more information on the refractometer and how you can determine the Brix levels of your citrus as well as everything you eat and lawns. From flowers, etc.

Refractometers and charts are available from:

My website: [InvisibleGardener.com](http://InvisibleGardener.com) located under Free Resources-Free Brix eBook

And also, from:

- Pike Agri-Lab Supplies Inc., RR2, Box 710, Strong, ME 04983 (207-684-5131)
- Online auction houses, such as eBay.
- Rex Harrill, PO Box 6, Keedysville, MD 21756 301-432-2979 will assist anyone who cannot obtain an instrument. There are two different types of refractometers, one is the standard analog and the other is digital.

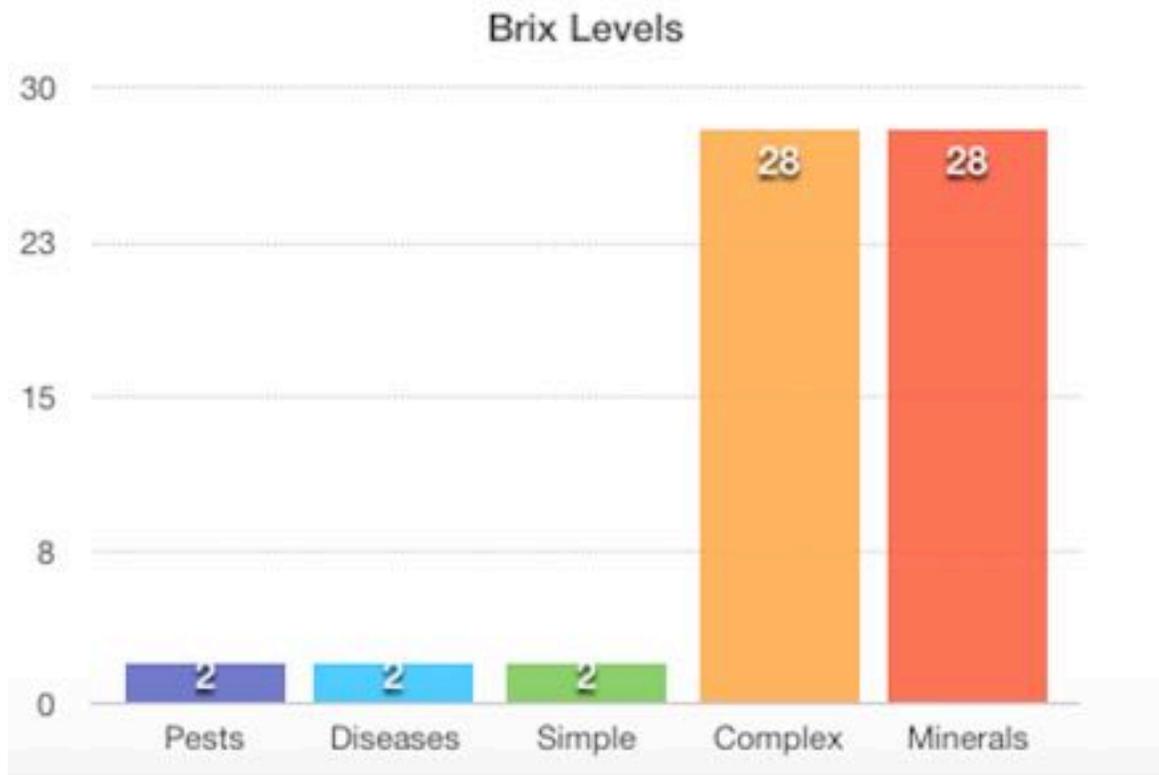
### **How to get a reading**

First you must get the juice from either the fruit, the leaf, or whatever part you want to read. You can also use it for carrots and other below ground crops.

This can be done by placing a small amount of the juice onto the glass and then looking through the eye piece to read the Brix level. The Brix level is the point (line) where the dark part on top meets the white solid bottom. Where the two meets, you read the Brix number next to it. That's your Brix level. Compare the readings to any Brix Chart (see my website under free resources the Free Brix eBook).

The relationship between Brix levels, carbohydrates and pests and diseases: Chemical fertilizers increase Brix but also increases simple carbohydrates. Organic fertilizers increase Brix while increasing complex carbohydrates. Simple carbohydrates are good for insects, bad for the plants. Complex carbohydrates are bad for the insects and good for the plants.

**Brix, Minerals, and Pests and Diseases** are related to each other. Low Brix means more pests and diseases. High Brix always means more minerals. less pest and diseases. Will vary with different types plants. Higher Brix equals Higher Complex Carbohydrates. Lower Brix equals Higher Simple Carbohydrates



# My Refractometers



Don't Panic, It's Organic!



Chapter 8

COMPOST

## **Any Discussion on Organic Gardening Basics must start with Compost**

"Compost is Mother Nature's best hope for our planet."

Andy Lopez, The Invisible Gardener

### **Why we really make compost**

We can think of many reasons why we make compost, like recycling, enriching the soil, replenishing lost minerals, etc.

All of the above are good reasons but to me the main reason I make compost is to help the living organisms in the soil. To help them do their jobs.

Making compost allows us to follow how compost is made in nature and then recycle everything back into it. Our top soil is rapidly disappearing. Let's not only keep what we have left, but also create more top soil and help the Mycelium stay alive.

The basic idea is to gather the various sources of minerals like rock dust, shells, etc., and gather the various sources of microbes like from animal manures and put them together in an environment that will allow the microbes to eat the minerals and the resulting compost is what we will add back to the soil.

## Steps to Compost Production

### The C Spot

Where to make your compost is important. You will need to find a location that gets morning sun if possible. If it gets too much sun, it may dry out on you and you will need to water it more often. Another factor in locating a spot for your compost making operation is the type of system you are using-

### Whether bin or pile?

This is determined by the amount of space you have available. The bigger the size of your property, the more compost it will produce, the more bins or piles you will need. Also, local city rules will determine what you can do.

Another factor is that your compost set up should have easy access to your kitchen, water, and enough space for storage of materials you will need.

Drainage is important. It is important that the compost set up be in contact with soil as it will allow microorganisms to enter the compost process as well as allow for proper drainage.

### It's too cold!

The time of year you make compost is also important.

If you live in a place that has a heavy winter you should make compost before winter comes, then allow it to sit during the winter time.

## **It's too wet!**

Protect it from rain by covering it with a tarp.

## **To Air or not to Air?**

There are two types of microorganisms that work the compost. Aerobic microorganisms require an open air oxygen-rich composting environment.

Anaerobic microorganisms do not require oxygen. Which type you have will depend on how you plan on making your compost.

Aerobic microorganisms require compost bins or piles that are turned over regularly to expose them to oxygen.

Anaerobic microorganisms require closed environments whether bin or pile, that do not need to be turned over regularly. Whatever you decide to do, the proper microorganisms will be there to do it for you! I suggest that you use the Aerobic microorganisms since these works faster to get the job done than the Anaerobic type but require more work (fun).

## **To bin or not to bin?**

Whether you use bins or make piles depends on a few factors;

Local City rules

The amount of space you have available.

The size of your property and your time.

## **To Pile or not to pile?**

Whether you make compost piles or not really depends on the size of your property and the amount of compost you will need. Personally to me, piles is the best way to make compost (if you can do it) because it allows the compost to heat up enough to control any diseases. Smaller bins will not heat up as much!

Are you watering enough? Compost needs a little bit of water in order to heat up. Use a water filter to remove chemicals since chlorine, etc., kills bacteria. Don't over water it since too much water will drown it.

Add enough of each type of materials in order to get it to heat up: Green materials such as grass clippings, new leaves, vegetable, kitchen waste , etc. Brown materials such as dried leaves, dried plants (run through shredder), etc.

Use some type of animal manure such as rabbit, horse, cow, etc.

Use rock dust as a mineral source (see Rock Dust). Add a small amount to the compost to feed the bacteria. Add a bacterial product such as SuperSeaweed to increase the right bacterial count. Do not add any chemical fertilizer to your compost! That is a no-no! You are looking for a carbon to nitrogen ratio of 25 to 1. Get that right and your compost will heat up from the activity of the microbes. A good temperature is around 170 deg. F to a max of 200 deg. F.

Use BioChar.

## **Use it or lose it!**

When compost is ready, you must use it, otherwise the insects and other creatures will use it for themselves! If you are having rats and other creatures living in your compost, then you are not paying attention! Never use chemical fertilizers to

make your compost with. You can instead increase the nutritional level of your compost by adding a good organic slow release fertilizer. This is your immediate help. This may or may not work on the long-term basis, this depends on how good a gardener you are.

### **Don't Want to Make Your Own Compost?**

Look around your city. Many cities are making compost these days.

Ask them what it is made from. Avoid ones with sewer sludge.

See if you can spot any places that sell compost. Ask other gardeners for a source. Go out into the country side and look around there. Always ask them what they are doing with it and how they are making it. Ask them if they are exposing it to any chemicals, etc. Never assume that anything is as they say it is. Ask about how they make it and what goes into it, how long have they been making it and so on. These are important questions which you should be asking. Nowadays, there are more and more people making and selling compost, so it should not be hard to find. Many companies sell compost through the mail.

**The Invisible Gardener Says:**

**"Avoid Buying Compost made with sewer sludge since it may contain heavy metals which will pollute ourselves and our environment."**

Sewer sludge can be processed correctly with the end result of good clean safe compost. However, studies around the world have shown that this is not the case for most of the worlds' sewer treatment plants, especially in the USA. This is one area that we must look into very closely if we are to solve this problem. Through the use of bacteria, we can make sewer sludge a safe organic alternative to fertilizers. The laws are changing rapidly every year. We must keep close watch over this or it will be a problem that will not be easily resolved. Do not believe it when they (the manufacturer) say the levels of toxins are below EPA standards. Insist that they lower the standards to zero levels.

### **Notes**

Remember every little bit of toxin adds up to a lot! Check with the source before you buy it!

**Here are some suggestions of possible sources of composting materials or compost all ready-made**

Talk with your local restaurant stores, especially the natural food ones as their vegetables, etc., are organic. Use in your compost.

Locate seafood locations where they either cook them, as in a restaurant, or where they catch them as in a dock. These can be dried for your compost use.

I also suggest that you collect clam shells, etc., as these when dried and crushed make an excellent addition to a compost pile. Look for any sources of coffee such as either coffee hulls and or coffee grinds. Similarly, locate sources of tea, either tea bags or tea leaves.

## The Less the Stress, The Less the Pest and Disease

Lumber yards may also be a good source of material provided that you only use untreated wood products. Locate chicken farms, ask for their feathers, and/or egg shells as well as any droppings. Ask them what they are spraying if anything. Locate horse or cattle farms and ask if they spray their animals or the manure. Look for an organic mushroom farm. Make sure they are organic (they use steam instead of chemicals). Look for old alfalfa bales. Grass clippings make an excellent source of nitrogen for your compost pile, just make sure it's organic (unsprayed). For more information on compost see compost info.

1. Chemical fertilizers, especially those with a high nitrogen base such as Urea, do considerable damage to the soil eventually killing off all beneficial bacteria which then leads to dead soil.

2. Using bacteria, toxins can be removed from the soil. This is the future of composting plants and sewer plants. Until then, ask questions concerning your local sewer sludge and what it is being used for. Sewer sludge and compost don't go well together. Unless the sewer sludge is processed using bacteria, it will contain heavy metals and other toxins that will end up in your environment; that will end up in your food; that will end up inside you.



## Chapter 9

### NATURAL DISEASE CONTROL

The best way to ensure that your property and your plants are all getting the proper trace minerals is to learn to keep a Healthy living Top Soil, to use Live Compost, Rock Dust and to learn how to blend the various sources of minerals and foliar sprays so you have a complete balanced mineral diet for your soil and in turn your plants.

## **Natural Disease Control Introduction**

**If you Eliminate the Cause**

**You Eliminate its Effects**

### **It's all about the Soil**

I have a saying, "If you Eliminate the Cause, You Eliminate its Effects." When dealing with diseases and pests, it's the cause (soil) which you must control, or cure, rather than the effect (disease or pest). As long as you treat the cause, the effects will disappear. All diseases start in the soil therefore you must start with the soil. I will not attempt to describe each type of disease for you in this book. There are many books out which do just that, instead I will point you in the right direction since it has been my experience that you need not know the name of the disease to treat it. Remember, all diseases are treated basically the same way:

Heal the Soil. As long as you heal the soil, the effects will disappear. If the disease is persistent after following the below steps, then proceed on to the organic disease control section.

### **Always key into Nutrition First**

What are you feeding your soil? If you say nothing, then you are just as bad as the person who says I'm feeding it the chemical fertilizers I bought at the nursery. Feed the soil first, and then the soil will feed the plants. Always Seek Balance, When things are out of balance, Infestation, Diseases, and Pests occur. Balance is important to the soil and plants as it is to humans. When things are in balance, stress is reduced, and we get all the proper minerals we need for healthy growth. Healthy soil is important is keeping healthy plants.

### **The Good Guys and the Bad Guys don't live in the same place.**

Bad bacteria and good bacteria do not share the same soil. Dead soil is not actually dead but instead contains the presence of bad bacteria or fungi or any number of disease sources. Healthy soil is the key to everything.

Healthy soil has Mycelium. Mycelium is one of the "Good  
Guys."

## **All plant diseases come from the soil**

### **Avoid High Nitrogen Fertilizers**

The continual use of chemicals in the soil eventually destroys both the bacteriological and biological balance of the soil. Also present are the salt deposits of the various fertilizers, etc., used throughout the years. This causes major changes in the pH levels of the soil affecting nutritional absorption by the plants. This will lead to higher stress levels in all things associated with this soil. The application of not only high nitrogen fertilizers but the application of any type of chemical fertilizer is very bad for the soil, the plants, the insects, the animals, the birds and all humans involved. High nitrogen also promotes the various diseases found in the garden. Why? High nitrogen causes stress and imbalance in the soil and plants, the same way a high sugar diet does in humans. The more natural the mineral sources, the more acceptable the mineral supply. Poor health and high stress of plants are due to mineral deficiency.

The healthier the plant, the less the pests and or diseases will affect it. Avoid using any chemical fertilizers, pesticides, herbicides, etc. Chemical fertilizers are not complete foods. They provide only a small amount of the total diet required for healthy plant growth. NPK is not a complete dinner for plants! Work on having healthy soil with microbial life and your plants will have less and less pests and the diseases they spread.

With healthy soil, the microbial life will maintain the proper function that the soil was intended to do and that is to provide plants with all the trace minerals it

needs for healthy growth. When we destroy this balance, the plants mineral levels drop. This shows up as a low Brix level. By using a refractometer, you can see the results of healthy soil on your plants.

### **Stressed Out Plants**

The same rules of pest control apply to disease controls, the higher the stress, the greater the problem associated with it and the harder it will be to control. Stressed out plants are not getting the minerals they need. Water-logged soil produces stressed plants.

### **Dead or Water Soaked Soil**

To correct, amend with compost, rock dust and animal manure if available. You should have plenty of earthworms. Dead water soaked soils have no earthworms. Compost and mulching will increase organic matter to soil allowing bacterial and nutritional resources to increase. Increase drainage. Practice soil rotation if possible. Rotation of crops is suggested whenever possible. If a raised bed is used allow the bed to go fallow for one season or grow a green cover crop.

### **Some Diseases are introduced by Viruses**

Destroy diseased plants. Throw away in the trash. Do not compost since most backyard gardeners do not compost in big enough piles in which the temperature is high enough to kill the fungi. Avoid spreading the disease by cleaning your tools with alcohol in-between cuttings. Do not use chemical fungicides. They only will cause more problems both to your health and the soils health. Use Compost tea. These viruses start in the soil. By providing compost and then mulching, you avoid many of these diseases since they all need overhead water to survive.

## **Some Diseases are introduced by Weeds**

Use disease free seedlings and plants. Many diseases are also carried from one plant to another by humans, insects, animals, etc. Be especially careful when bringing potted plants with soil into the home. Certain weeds are hosts to pests which carry the disease from one plant to another, therefore, weed control of some type is important. Weeds can also provide homes for many Beneficial's so choose carefully.

## **Some Diseases are spread by Insects**

Many diseases are carried around by insects such as the ant. Control the insect populations in your area. Learn what insects spread what disease.

## **Improper Varieties Planted**

Proper placement of variety is important. Choose a location which gets as much light as needed by the plant for proper growth. Make sure the plants normally grow in your area. Choose the correct variety for your area. Heirloom varieties are stronger and more suited for organic gardening. Write to Abundant Life Foundation or Seeds of Change. Use trap crops in addition to various types of traps which attracts the pests away from the garden.

## **Improper Planting Time**

Observe the correct planting dates on vegetables, etc., for best results. Planting during the wrong time of year also exposes plants to insects that would not normally affect your plants if they had been planted at the right time. Also, temperature and amount of day light is important.

## **Improper Watering Techniques**

Avoid overhead watering. Use a soaker hose or drip system whenever possible.

### How Important is it to Identify the Disease?

Diseases in different plants may have the same name but will show different symptoms thus making identifying very difficult. While I encourage you to try and identify the disease that is attacking your plants, you must remember that the basic treatments remain the same regardless of the disease. This book was not designed to help you identify the pest or disease. There are many books out there that are good for that purpose.

THE INVISIBLE GARDENER SAYS: IT DOESN'T TAKE MAGIC TO CONTROL DISEASES NATURALLY! ALL IT TAKES IS A HEALTHY SOIL!

Chemical Fungicides destroy the bacteria and " goods guys" in the soil and will cause health problems in humans and animals also.

## What are the perfect conditions for diseases to occur?

### **Dead Soil   Stressed Plants   High Nitrogen**

Chemical overuse destroys all beneficial soil bacteria esp. Mycelium and allows for a few specific types of bad bacteria that depend on these conditions to grow. Urea when used over many years, destroys this balance of good and bad bacteria. Dead soil increases the plant's stress levels due to bad conditions for plant growth.

High nitrogen causes rapid growth. Rapid growth without proper nutrition causes more stress which in turn restricts more nutrition from being absorbed by plants. High nitrogen also attracts insects that have mutated to handle plants that have such rapid growth. High nitrogen also mutates bacteria into rapid growth cycles.

Environmental stress can be from improper watering to weather cycles, such as too much rain or drought. These conditions cause stress in the plants. They are stressed out because they are no longer getting the proper minerals they need to be healthy. Low mineral levels always bring about low Brix levels. Pests and diseases key into low mineral leveled plants.

### **Biological considerations**

Planting the wrong variety or type of plant in the wrong environment will certainly cause major stress to plants and all involved. Over chemical use of any type

from pesticides to herbicides, etc., will cause major damage to the soil's Eco system and disrupt nutritional levels.

## **Special Formulations**

### **Alfalfa Tea**

A tea can be made using Alfalfa meal. I suggest that you add 1 cup per gallon of meal. I would put it in a sock and tie into a ball (like a tea bag). Allow to sit for 1 hour, strain through a gardeners' cheesecloth. Spray on plants to control most fungus before they start. Add a dash of natural soap as a wetting agent. Great as a blend with any minerals. See also Making Your Own Enzyme/Bacterial Spray.

### **Baking Soda**

Baking soda can be made into a spray at the rate of 1-5 tablespoons per gallon (depending on the plant sprayed). Baking soda and milk with a dash of natural soap makes an excellent fungal control. See natural disease control chart at end of this chapter for list of diseases it controls. A better mixture is baking soda, dash of soap and compost or earthworm casting tea.

### **BD 508**

A biodynamic spray which will help to prevent many fungal diseases. Available from the Bio-Dynamic foundation.

## Clay

Clay can be used as a fungal control. Add 1 cup of finely powdered clay into a gallon of filtered water, allow to sit for an hour. Strain through gardeners' cheesecloth. Add seaweed to increase effectiveness. Use either red or white clay.

## Compost Tea

Compost tea when properly made will control many fungal diseases. Place 1 cup of your compost into a panty hose. Tie into a ball. Allow to sit in filtered water. The length of time depends on the severity of the problem. Allow to sit for Approx. 1-5 hours. Add a dash of natural soap. Then spray on plants. See also Compost / Earthworm castings tea.

## Fish Emulsion

Fish emulsion will provide essential microbes that will prevent many diseases from occurring. Use 5 tablespoons per gallon. Avoid urea-based products unless its natural. High nitrogen is not good for disease control.

## Garlic

Has been used for centuries as a fungal control. Garlic can be made into an extract and sprayed. Add a dash of natural soap to increase effectiveness. Garlic can also be grown around the plants. The natural aroma will provide for a fungus free environment. This is mainly due to the garlic being absorbed into the plant.

## Horsetail

An old time favorite of Bio-Dynamic gardeners. Effective against many bacterial

diseases. An infusion of the leaves and flowers can be used for most problems; for greater strength make an extract or obtain through mail order companies. The dried herb is available through many mail order herb companies. Also available through Peaceful Valley Farm Supply. For better results mix with a dash of soap and a dash of garlic.

### **Hydrogen Peroxide**

This product will reduce many types of fungal diseases. Use only as a temporary control. Use 1-5 tablespoons per gallon water of the 15% (best to use food grade at 1 drop per gallon). Always test for strength so as not to burn plants. Always use filtered water when making any natural bacterial sprays. Use seaweed or natural soap to increase effectiveness. You can also use food grade which is stronger. In that case use only 1 drop per gallon.

### **Milk**

The high calcium levels combined with milk's natural bacteria make for an excellent natural spray to control fungal diseases on many plants. Raw milk is best, but otherwise, it doesn't make a difference as long as the amount of fat is the same. The actual amount of fat doesn't matter since it is not the fat that does the job but the calcium and the natural bacteria that does. Powdered milk will work if it's only the calcium you want.

### **Manure Tea**

Manure tea makes an excellent anti-fungal spray as it introduces many different

types of beneficial bacteria. Avoid using raw manures. Use only well aged. See manure tea in appendix for preparation. Add a dash of natural soap to increase effectiveness. Manure can be placed into panty hose, tied into a ball and allowed to sit in filtered water.

### **Molasses**

Can instantly raise the energy level of the plant. This instant rise will help to deter many fungal diseases and pests. Keeping pests away is a very important part of controlling diseases naturally. Add a dash of fish emulsion to increase effectiveness. Goes well with milk and also with rock dust. A good strong anti fungal formula is mixing equal amounts of molasses, seaweed powder, milk and rock dust (about 1 cup each), mix well. You will need to add more rock dust and seaweed until a paste. You can then place use a small amount of the paste in a gallon of clean water. Aerate for 2-4 hrs. Then spray on diseased plants.

### **Rock Dust Milk**

Rock dust can have very large amounts of calcium, iron, magnesium as well many minerals, depending on your sources and if you mix the different types of rock dust together. This will make it a quick energy boost for the plants and increases the beneficial bacteria count in the soil. Rock dust can be added to filtered water and turned into a milky liquid and sprayed or used as dust. I suggest adding a dash of natural soap along with a dash of seaweed. A dash would be 1 tablespoon of powdered seaweed or 1 ounce of liquid seaweed per gallon of filtered water.

### **SunSpray Ultra Fine Horticultural Oil**

Can be used to control many fungal diseases. Sprayed year round, it will prevent diseases from spreading. Great on fruits and vegetables, roses and most flowers. Avoid on hairy plants. Avoid if hot days (over 90 degrees). Adding a dash of garlic and natural soap will increase its effectiveness.

### **Vegetable Oil**

Can be used as a way of controlling many diseases when they first occur. Should be used during warm or cool weather. Avoid using during hot weather. Corn oil, soy bean oil, olive oil, coconut oil are but a few oils you can use.

## **Steps in Controlling Diseases Organically in your Garden**

As I mentioned before, proper placement of your garden is important. Choose a location which gets as much light as possible. Do not plant under or near a tree or next to a lawn and away from direct wind. If plants do not get enough light, they will not be able to get enough nutrients and their stress levels will go up and the pests/diseases will follow! They really need at a minimum, 8 hours light per day.

Amend the soil with good rich live compost. Apply mulch as needed. You should have plenty of earthworms. Dead soils have zero earthworms. Choose the correct variety for your area. Heirloom varieties are stronger and more suited for organic gardening. Check out Abundant Life Foundation or Seeds of Change.

Practice soil rotation if possible. Rotation of crops is suggested whenever possible. If a raised bed is used, allow the bed to go fallow for one season. Amend with compost, rock dust and animal manure if available.

Use disease free seedlings and plants. Many diseases are carried into the garden. Be especially careful when bringing potted plants with soil into the garden.

The stronger the plant, the less the disease will affect it. Avoid using any chemicals in the garden. Avoid high nitrogen fertilizers. Certain weeds are hosts to pests which carry the disease into your garden, therefore weed control of some type is important. Weeds also provide homes for many Beneficial's so choose carefully.

Use trap crops in addition to various types of traps which attracts the pests away from the garden.

Destroy diseased plants. Throw away in the trash. Do not compost since most backyard gardeners do not compost in big enough piles in which the temperature is high enough to kill of the fungi. Avoid spreading the disease by cleaning your tools with alcohol or OTKO or EZ-Cut in-between cuttings.

Avoid overhead watering. Use a soaker hose or a drip system whenever possible.

Do not use chemical fungicides. They will only cause more problems both to your health and the soils' health.

Use a Garden Filter whenever possible. Chlorine will kill the bacteria in the soil

and this will cause problems.

If all of the above fails to control your diseases, then there are many natural disease controls which you can resort to.

## Minerals Used in Natural Disease Controls

There are over 72 minerals which are needed by the soil and the plants for healthy disease-free growth. Here are just a few which you can work with:

### **Bordeaux**

Is a mixture of copper sulfate and lime. Used in France for at least 100 years, copper is very poisonous, be careful applying. Follow instructions on label. Good for fungus diseases on grapes, and fruits such as peaches and apples. Used against Potato blight. Helps roses with fungus. Available from Peaceful Valley farm and garden supplies, ARBICO, etc., and at most nurseries. Avoid contact with skin, wear plastic gloves. I would not use unless you have experience using before. Use only as a last resort.

### **Calcium**

Calcium can be used to reduce certain types of bacteria fungi found in certain diseases. Also, beneficial bacteria will enjoy the calcium in their diet. So a good spray will naturally be a mixture of calcium and a bacterial source. Calcium can be obtained from crushed egg shells. Bone meal is also a good source of calcium. Milk

provides calcium and a beneficial bacterium (see milk). Most Rock Dust are also high in calcium (see rock dust). One Rock Dust Source I use is from Southern California (AgriMin) and is 30% calcium while Azomite is about 10% calcium. So different sources of rock dust will have different levels of minerals. I would make a blend of a few different sources. There are also many natural sources of calcium.

## **Copper**

Copper is an excellent natural fungicide, controls diseases of vine crops, potatoes, leaf spot, anthracnose, downy mildew, powdery mildew, scab, fire blight, and bacterial spot. Available in liquid or dust form. Available from most nurseries. Try Peaceful Valley. Use sparingly. Prevents black spot on roses, tomatoes, and other diseases. A rotenone/copper mixture will also control insects. Excellent for use on melons and cucumbers. Can be used as a liquid for spraying or as a dust for dusting. A 50/50 copper/magnesium spray is very good for most bacterial control. I would use Copper Soap as it is much safer and easier to use.

## **Magnesium**

Available from rock dust and other sources such as Epsom salts. Available at most drug stores, magnesium will help to reduce stress on the plants. Plants can become stressed due to minerals not being available to them. High nitrogen causes imbalances in the soil, and plants' bio mechanisms, resulting in the locking up of trace minerals in the soil, and the ability of the plant to intake the required minerals. Be careful using Epsom salts as you can over do this and then it will cause damages to the plants. I have found that it is better to make compost tea or

earthworm casting tea or the rock dust tea or by using a trace mineral product (like SuperSeaweed) and in this way, you are also applying all the trace minerals needed. Less chance of causing damage.

## Sulfur

Is an ancient tool of the organic farmer. A natural fungicide and insecticide, used for rust, powdery mildew, leaf spot, brown rot. Also, a good soil acidifier. Available from ARBICO Organics or most nurseries. Micronized sulfur is an extremely fine dust which when dusted on plants will control apple scab, cedar-apple rust, black rot, leaf spot, and powdery mildew. Liquid sulfur is also available. Sol-Po-Mag is a naturally mined source of Sulfur, Potassium and Magnesium. I would add this to your rock dust blend. Go lightly.

## Zinc

This exotic element is just as important as the top three (NPK) without which the plant would die. Zinc is normally readily available but when the flow of over 72 minerals needed by the soil and plants is interrupted, the zinc will be used up by the plants. When the plant doesn't have any zinc left, they go into immediate stress. Good rich compost will provide the zinc as well as will the rock dust blend. Most rock dust will have a good amount of Zinc. You can always ask the rock dust company for trace mineral report from their lab or send off to your own lab.



Chapter 10

THE INVISIBLE GARDENERS' KITCHEN

## Coffee any one?

Coffee isn't just something you drink anymore; now it's something you can spray or sprinkle on your plants to control diseases and pests! It is not too hard to understand why coffee is so loved by my plants since I get a kick from drinking this stuff; why shouldn't they? These days it is wise to drink only organically grown coffee. Coffee is second only to cotton in what they are being sprayed with chemically. Organically grown coffee is rich in minerals, phosphorus, iron, calcium and a variety of other trace minerals depending on the area of the world and the soil it is grown in, as well as caffeine being deadly to most insects including snails and slugs!

Old time organic farmers know the true value of organic coffee and coffee grinds in their organic gardens. One of my first recollections was of my mother feeding her plants dried coffee grinds. I also remember her saying that you never throw your cold coffee away but spray it on the plants after mixing with sugar, milk and all. She would say that she never knew a plant that didn't like coffee and neither have I! I myself tell people to make one batch of coffee for themselves and make the second batch (from the same coffee grinds) for your plants! You can also use coffee beans sprinkled around to keep animals off your plants.

## Here are a few interesting ways to use coffee in your garden:

1. Coffee and compost go hand in hand. Adding coffee grinds to your compost pile or bin will increase its mineral content and help to acidify the soil (keep the PH down).

2. Coffee as a soil additive by adding dried coffee grinds and or beans to soil and turning over soil then mulching. Many plants especially like coffee grinds mixed into their base soil. Plants like roses and vegetables like tomatoes will do well with coffee grinds. Also plants that like acid soil such as gardenias, azaleas, etc. will also like coffee grinds. If using the beans, you simply sprinkle a few around plants and areas you don't want these unwanted visitors. You can also just sprinkle the coffee beans around plants and in areas you have snails, slugs. It is also effective against rabbits and other creatures. Just add new coffee beans once a month until problem goes away.

3. Hot Coffee can be sprayed directly on most insects and caterpillars, grasshoppers, etc. and it will kill them while not damaging the plants. When you spray with the hot coffee, water is cooled down upon contact with the air enough to damage the insects but not the plants. Insects require only a small change in the body temperature to die. Hot coffee will also damage fungus spores upon contact. To increase effectiveness of hot coffee you can add a dash of milk, sugar, soap, Tabasco or essential oil.

4. Hot coffee and hot compost equals hot tea! This mixture can be made by allowing your compost tea to sit for a few days. It should be sitting inside a glass bottle allowing the sun to shine through it. This increases the bacterial levels as well as the energy levels of the tea, not to mention the actual temperature of the water. Then you make a batch of hot coffee for yourself and then make a batch for your plants. Mix the hot coffee with the warm compost tea equally, (1-quart hot coffee equals 1 quart compost tea) and use immediately at full strength. Add a dash of Dr. Bronners Peppermint soap (or any other natural soap like Queen of the Meadow) as a wetting agent. This mixture will control all forms of fungus as well as most insects.

5. Organic Cold brewed coffee can be foliar sprayed on most plants without any damage to their leaves, but care must be taken with the flowers as coffee may discolor it. So, the next time you make that batch of coffee, take a look at your plants, maybe they are trying to tell you something!

"The Good Guys and The Bad Guys do not live in the same place!"



## Chapter 11

DON'T PANIC IT'S NATURAL?

We, as professional organic gardeners, must always adhere to the 100% natural way...no man-made chemicals used here! However, as more and more organic professionals come into being, the term "organic" and the term "natural" come under scrutiny. States have different ideas as to what these terms mean as do most countries around the world. Certified organic standards vary from state to state and are currently being developed in the USA and in other countries. The United States recently adopted Organic Standards (which are too long to go into here, maybe next time), so I will mention just the definitions of Natural, Organic, Natural based, Organic based.

### **Natural**

Any product that is made from animal or biological, mineral or plant, and in a form available in nature. The form may be altered, dried, cleaned, etc., in order to better use it as long as no chemicals are applied to it in this process.

### **Organic**

The term "Organic" in chemistry means any product containing the element carbon. Both naturally occurring and man made products may be classified as organic. I know this can be confusing because of the term Organic Gardening, which we think of as being all natural.

### **Natural Based**

Any product that contains some natural materials as part of its ingredients. The portion that is natural is not stated or defined. Rock Dust, for example is natural and not organic.

### Organic Based

Any product that has some portion of its ingredients organic. This can also be man-made pesticides or man-made fertilizers.

### A THOUGHT:

The general public believes that the terms "organic" and "natural" are one and the same (me too), however, technically this is not true. I have always told people "Don't Panic It's Organic" and now I add to mean "Don't Panic It's Natural" since this is what we really want. Beware of everything you buy! Read the ingredients and avoid anything that is not naturally found in nature.

Do you know the difference between when something is Natural and  
when something is Organic?



Chapter 12

**THE INVISIBLE GARDENER'S 7 R'S**

# Reduce Reuse Recycle Rethink Replant, Resist and Refuse

## Reduce

By reducing our waste, we can help to reduce our landfills and control our resources better. This also includes reducing our needs. Americans spend a greater part of the earth's natural resources than do the rest of the world. Reducing our need for power is a good start. Reducing our need for chemicals is another good start. Think twice before you use it!

## Re-Use

There are many things which we throw away that we can reuse over and over again. Start a list of what your needs are, what you do to get it and items that you can reuse over again. There are many good books out there on this subject.

## Re-Cycle

Recycling has been played up as a very important part of reducing our wastes. Recycling many products into reusable items is a great start in controlling our city's wastes. Visit your local recycling center today!

## Re-Think

This is a very important part of the 7 R's. Rethink your life style. Think about what you need to be happy and how much of it do you really need? Rethink your use of energy. Do you car pool? Do you use a bicycle to get to work or shopping? Learn about using solar energy or wind energy. Do you drive an electric car?

## Re-Plant

This is my favorite part of the 7 R's. Replanting whenever you can is very important to the earth. Buy live Christmas trees instead of dead cut ones then plant them come January. Avoid cutting down trees unless absolutely necessary.

## Resist

Resist buying what you know you don't need or can't even use.

## Refuse

Refuse to do what you know is not right.

Remember by following the 7 R's you can help  
Mother Earth to regain her health



Chapter 13

MULCH

**M**ulching is a very important part of the organic garden. It is an excellent way of recycling. It is always best to compost your mulch before using. Never mulch around plants with freshly cut mulch from trees or grass clippings. This will burn the plants.

Compost is the food, and mulch protects the food from the elements like rain and the sun which will dry it out. Mulch will hold water and not allow the soil/compost to dry out. A good mulch is made from aged wood. This is wood which has been recycled from cut trees and composted organically. Often companies add urea to their compost believing that the compost needs this "chemical" nitrogen. So ask before you buy! Urea based products are very detrimental to the soils organisms and should not be used. Instead horse manure can be added. Rock dust will also work well here as rock dust will bind the nutrition together.

#### A Mulching Question:

We always love your advice. Need help on this one. You encourage a mulch over the soil to retain moisture among other things.

Here is the dilemma. An agent in my office also volunteers for a fire station near his home in Arizona. He was assigned to the San Diego fire-lilac. He experienced several bad situations with mulch igniting and basically acting as kindling. We have mulch everywhere at our home and are thinking of removing it. Wetting

it only to quickly dry out in high, dry winds isn't the solution. Should we replace it with some rock like pee gravel or larger?

Any help would be appreciated.

Jack and Christine

Hi

Thanks for the question.

It is a critical question too since the real issue here is not only the health of the soil but also not to provide a fire with anything that could cause the fire to spread and do more damage.

I understand your confusion in that I am always talking about mulching mulching mulching. Let me clarify this.

First off it is essential to have healthy soil if you expect to have trees, etc., living on it. You should treat your whole property as one living being, and in this way, you may see that there are many things you should be doing that will not only keep your soil and in turn its trees healthy but also help your property to maintain a low fire profile.

There are several areas where the application of mulch, along with compost and other soil amendments are not only highly beneficial but required. In such areas as the garden, fruit trees, roses, flower beds, lawns. These areas it is understandable that they should have good soil. In other areas, you are just trying to keep a low fire profile by not having anything run up to the house that may burn.

## Wood-chips are not mulch.

I am assuming that the "mulch" that you are talking about is either decorative bark, recycled shredded tree, or some other type of tree product. These things by the very fact that they are basically small pieces of "wood" will burn and therefore should not be used as a mulch around the house or their areas.

The mulch that I am always talking about is called azalea/gardenia mix, and it does not burn since it is a soil product. It is made from aged wood and earthworm castings. This breaks down into the soil and needs to be replaced.

The fire department does not want the mulch to be more than 4 inches. Which is fine if it is a soil mulch and not a wood chip mulch. I would not use wood chip mulch in fire-prone areas. Especially not decorative bark. You mention small rocks as a mulch. They will work just fine but do very little to the health of the soil. The use of stones as a mulch will work well against fire and should be used in specific areas that you know would be more prone to burning.

So there are several things you can do to provide a "mulch" while protecting your home from fires. What I think you should do is to plant a living mulch one that will not only contribute to the health of the soil but also protect your property from fires. Kurapia is an excellent place to start. It does not burn too quickly, requires minimal watering once established and has roots that will go down 10 feet, holding the earth and water.

A California native. It is a beautiful ground cover with little white flowers a good part of the year. 60% less water and requires no mowing and even helps the bees. This ground cover will grow well on slopes as well as a lawn replacement.

There are many other different types of native grasses and ground covers you can use. A great Grass to grow is Buffalo Grass, it doesn't produce really tall and doesn't burn well. Another is called No Mow and waves in the wind.

With the fires around us and very little rain in sight, we have to be proactive and think down the road and then apply it to now. Ground covers are a great way to control the health of the soil and to help with fire prevention. With a simple drip system set to water once or twice a week after established. The first month I would water two or three times per week. But once they get growing they will spread out and every year will cover more and more area. They will make a significant natural barrier for your homes and property.

They can be grown along the highways and on dangerous slopes to control slides.

Another good thing about Kurapia is that it will grow well along the coast because salt doesn't bother it. Kurapia grows so fast and gets so thick that it keeps weeds from getting established.

An important note here:

Please realize that watering the ground cover is very different from watering your trees. Especially with Kurapia since its water requirements are very different

from trees. You should always water trees on their timer program and set to water a good long time say 1 or 2 hours once or twice a month via drip using a 2 gallon per hour drip head. While Kurapia will require much less watering and if you just watered for these, the trees will die because the roots of the trees are not getting any water. So place the Kurapia and the trees each on their timer program. Fruit Trees require very different watering than trees. Never water the lawn and think the trees will be beautiful. If you do then when your tree starts to die it will be too late to help them since the soil will have been dead by then.

### **How to use Mulch**

What type of mulch should I use? The type of mulch that you will use will depend on the plants you are using and the affects you want. If you are using mulch as a decorative mulch then you go with what looks best for the conditions you have. An example would be whether to use big chips or little chips and whether the chips are the proper color or not. Just remember that wood chips do not help with the health of the soil only in protection from the sun.

There are different types of mulch, each with a specific use. Some mulches are really wood chips. Some mulches are decorative bark while other mulch comes as a fine ground up mulch like azalea/gardenia mix. So, the different types of mulches do different things, some are decorative while others provide cover for the soil while holding water, controlling weeds and providing nutrients. I like to use Azalea/Gardenia mix as my mulch. Since my soil is too alkaline, this type of acid mulch helps to reduce the pH level down to closer to 7 or neutral. One added benefit of

using azalea/gardenia mix is that it is basically earthworm castings mixed with aged tree bark.

The Invisible Gardener says  
"Rock Dust, Compost and Mulch!"



Chapter 14

NATURAL WEED CONTROL

## Weeds grow in mineral deficient soil

Your garden will never be entirely weed free. Once you have figured that out we can move on to what we can do to control the weeds. If you discover weeds, it is best to deal with it right away rather than later. The bigger they get, the harder they'll be to remove and the more nutrients it will take. Weeds also compete with garden plants for water, nutrients, sunlight, and space. They also harbor and or attract the wrong type of insects which will also bring their own plant diseases along with them. Allowed to grow, weeds can become a threat to you're newly planted garden.

One of the reasons why weeds grow in mineral deficient soil is because the soil also lacks the proper fungi. Weeds bring up minerals from deep down and when they die they return the minerals. That is why you can tell what minerals is missing from the soil by what weeds you have.

### Hand Weeding

Control weeds by pulling them out. Use a good weeding hoe, or learn to mulch or layer to prevent weeds from coming up in the first place.

### Mulching

A thick layer of mulch deprives weeds etc, of their needed access to light. Once your plants have sprouted and are growing well, hand-pull existing weeds and then place a layer of straw, compost or grass clippings over the entire bed. Natural

sources of mulches provide the extra benefit of adding organic matter for soil organisms to feed on.

### **Natural Barriers**

Lay natural landscape fabric, newspaper, old cotton or wool rugs, anything that is natural and that will slowly decompose. Plastics are bad to use around plants to block out weeds. This method works well for almost all your vegetable plants once they are grown. Layering is another method of simply layering the mulch over a period of time. You can go from mulch like straw to a mulch like paper or even paper bags. The idea is to rotate the different types. Keep the soaker hose buried under the layers and you will need very little water.

### **Competitive Planting**

Low lying herbs make for great ground covers and are called live mulches. They cover the ground and prevent weed seeds from germinating. Herbs are a perfect choice for this method.

### **Animal Control**

Protect your garden from gophers and raccoons and other creatures. For gophers depending on what method you plan to use, you will need to make a physical barrier to keep them out of the garden beds. For raccoons, you may have to cover the area with a cage to keep them out.

## Greenhouses

Think about getting a greenhouse to start your seeds in.

Corn Gluten is an excellent pre-emergent weed control that is also an excellent lawn fertilizer. Controls weeds only at the time of germination and will not affect current weeds. This will also stop other types of seeds from germinating so do not use in the vegetable bed if you also are planting from seeds. Controls Crabgrass, Bentgrass, Dandelions, Pigweed, Purslane, Lambs quarters, Foxtail, and Bermuda Grass. Since it has a high nitrogen content, it will also fertilize. Can be made into a tea and sprayed.

Corn Gluten is available from most garden centers as well as from many online locations. Try Gardens Alive. I like their products. This product is just what it says, made from Iron HEDTA (FeHEDTA) which is a form of chelated iron. The chelated iron products that kill weeds are liquids that are specifically formulated to kill weeds in lawns, and gardens and is not the same that is made to supply iron to plants. Grass and most plants can tolerate an overload of iron, but most weeds (including clover) shrivel and die within a few days. Sometimes a second application is needed. Liquid chelated iron for weed control is available under the name Iron X from Gardens Alive. Check the label and you'll see the active ingredient is chelated iron, sometimes listed as Iron HEDTA or FeHEDTA. Granular chelated iron is available as a soil amendment when your soil is lacking in iron and not what you'd want to kill lawn weeds with. My experience has been that weeds in general do not tolerate an abundance of trace minerals in the soil.



Chapter 15

NATURAL PEST CONTROL

## Keeping your plants

### The First Day

They will find you!

The news is out, there is a new food source in town and it is your garden!

So, you have a garden and it's your first day, now what? The very first thing I would do is not wait till the next morning to check out the garden but go out at night with a flashlight and take a look at night! In my experience as a gardener, I have found that the insects and other animals are most active at night and that this was the best time to observe them and to find out what they have in mind for my garden! There are other predators such as birds, beneficial insects, and frogs that come out at night also. I have learned to encourage them as much as possible by providing a good environment well suited for their survival. A bird bath is a wonderful investment that will pay off in many ways such as attracting birds and frogs to your garden, both of which will eat your insects and snails.

### Organic Cold Brew Coffee - How to make and Use

Throughout this book I mention Organic Cold Brew Coffee as a way to control many different types of pests and diseases in your garden.

## Coffee, Cream and Molasses

You know that once insects have found your garden, it will become a food source for them if you do not stay on top of it. A garden requires lots of attention by you and not from the insects! Please remember that not all insects are bad, so do not get into a kill everything that moves approach!

## Plant Protection

Here are a few things you can do to help fight off the insects and other creatures that want to eat your food too:

### **A simple spray to keep bugs off vegetables:**

In 3 gallons can of clean water (allow water to sit in sun for a few hours or get a garden filter), add the following:

1 cup organic coffee. Place inside panty hose, tie into a ball and place into the 3 gallons of water. Not decaffeinated because it's the caffeine that we want. Or you can use 1 cup of Organic Cold Brew Coffee.

1/2 cup milk. Whole milk is best because we want calcium bacteria from milk, and the fat.

1/2 cup Granny Smith Organic Molasses or your preference.

1 tablespoon of Superseaweed per gallon or any other organic fertilizer you want

to use.

1 tablespoon Superseaweed Microbiological activator or any other seaweed / enzyme / bacterial product you choose.

Stir well and allow to sit overnight (so make this batch the same day you finish your garden). You do not have to let it aerate overnight, but I like doing that because more bacteria will be present, you can use it right away and make a second batch from that.

So, this spray is a very important tool for you to use.

Spray the leaves of your plants both sides at least once a day, preferably at night or early am. This spray will also help you to control diseases as well. You will want to reduce the sprays to several times per week as the plants grow. You will also need to learn how to make other sprays such as compost tea which I will cover next. I would consider joining my club and getting help from me.

## Garlic Spray

Garlic makes an easy spray that will prevent bugs and diseases from attacking your plants. Just get 8 oz crushed garlic and put into a panty hose, squeeze out the juice and add that to a gallon water and put into your sprayer. You can also bury the garlic under the plant for long term protection.

## Natural Barriers

Making a natural barrier as soon as possible would be a good idea.

*Coffee Grinds and or Coffee Beans make an excellent natural barrier*

Just sprinkle a thin layer around you're newly planted vegetables! If using a raised bed, sprinkle along the outside area as well. Coffee beans make for an excellent natural barrier. Just sprinkle around the edge of garden or property and it will keep most animals out for up to a month!

Flour also makes a good barrier if kept dry. Garden grade DE is also a good barrier. Garlic makes a good barrier either planted or sprayed around the vegetables you want to protect

It would be very wise to start off by covering your vegetable with a protective screen through which nothing except air can come in or out!

There are many variations of protective row covers from large scale to small scale. You should be able to choose what you need from the many available. Many garden catalogs will provide various methods of protecting your plants.

You can also make a system of protecting your plants using items bought from an organic garden center, buying items such as shade cloth which is used in nurseries. Use 10% shade cloth or at max 20%. Learn to use empty gallon water jugs with tops cut off and placed upside down over the plants.

## **Plant Organics**

Plant Organics is not a new science since housewives have been using garlic or cayenne pepper to control bugs for centuries. Veganism is also a safe method of using not only the wide array of materials available at the grocery store, but also the wide array of vegetables that we can grow ourselves! From pepper to lettuce, there are many store bought items that can be used safely against pests.

## **Homemade Sprays**

Homemade sprays can be made from a variety of plants, herbs, vegetables and various other items. Always use with caution. Follow the rule "Less is Best." Use as little as you can to achieve the results you want. There are many store items that are essentially homemade recipes gone mass market. The craze for hotter chili sauces and hotter sauces of any kind has made it easier for the organic gardener to find many alternatives to pesticides for his pest control. The hotter the better! Avoid anything that has preservatives or additives, colorings, etc. A good mail order source is Mo Hotta Mo Betta.

A synergistic plant is any type of plant or natural material that when added to another plant or material, increases the effectiveness of that plant. Soap is a natural synergist for most plants as it acts both as a wetting agent and pest and/or disease control. Tabasco sauce is another such product that kills on contact and repels as well. Tabasco soap is a blend of the two. Many vegetables can be made into a liquid and then sprayed in a diluted form to protect plants, repel or even kill bugs. There are many store-bought items and vegetables that are readymade for you to use such as those mentioned in the Mo Hotta Mo Betta catalog. Some good oil synergists are garlic, peanut, pecan, coconut oil, or any vegetable oil. Use all

plant mixtures with caution.

There are many plants that will kill both beneficial and pests, so be specific as to what you are applying or spraying. I have found that almost all plants can be harmed if improperly introduced into the garden environment. Tobacco can create havoc in the garden if sprayed without proper care. Cayenne pepper does the same damage also. It is for this reason that you must use with care any sprays that you make. Also, many plants can be harmful to humans, birds, fish. Because it is labeled organic, does not mean that it is safe to use. One drop of Nicotine Sulfate is enough to kill you. As simple a plant as garlic can do a great deal of damage in the garden's Eco-system as it affects Beneficial's as well. Many plants are oil based and may produce toxic substances as well. The Oleander plant gives off a toxic substance that could kill a young child or dog if enough of the plant is eaten. Lettuce when made into a liquid will kill white fly and many other soft bodied insects! Leaves from your tomato plant will kill roaches and flies! Soap if over used will kill Beneficial's and earthworms and make for a dead soil. So be careful with these mixtures. Label them and teach yourself and your children how to use them!

Wash off all fruit and vegetables, before eating!

### **Soap and Natural Pest Control**

The organic gardener develops resources for natural soaps that he/she uses in the natural pest/disease program. In the olden days, they made all of their own

soap and would trade soaps with others from other areas of the country. A good soap maker often was also well traveled because he had many customers spread out and he would visit them with his current batch of soap. Many would make a batch of soap especially for the gardener or farmer who would use it for controlling the various pests and diseases, even animals on their farms.

Natural Castile Soaps can be used very effectively and safely for any type of pest control. It is basically an essential oil of a very high energy quality level. Perfect for our use! Not too many insects can handle this soap! Only herbs are used to make a concentrate. Many formulas are used for various types of pests and diseases, please see specific pages for their formulas. Below are general formulas you can use for pest control.

### Using on Ants

In one quart of water add 5 tablespoons Natural Castile Peppermint soap. Inside House: Spray inside the house anywhere ants are seen, around windows, in the kitchen, bath room, etc. Avoid using on furniture. Outside House: Spray same mixture on ants outside, avoid spraying on plants. Spray on their ant trails. You should switch between using the peppermint, lavender, almond or eucalyptus for best effects. You may have to make stronger as needed. Any other natural soap will do, just read the ingredients and make sure it's 100% natural. For more information on ant control, follow this link. See More on Natural Ant Control in the Ant Chapter.

## Using on Trees

Natural Soaps can be used very effectively to control many types of pests on trees. I use an inline feeder found at the local store to spray natural soap high up to the trees. I put a special tip on the hose that shoots the water mixed with the soap (at 16 to 1). Also, see [Trees](#) for more information.

## Using on Roses

Using Natural Soaps on roses is a very safe, natural way to control many different types of pests that can attack them. A basic formula for all rose pests is: 10 tablespoons per gallon of water or no more than 1 oz per gallon water. It can be used by itself or mixed with other things to increase its effectiveness. Try adding any of the following to the above formula: 2 tablespoons per quart of gallon of crushed garlic (either oil or strained) or try 1 jell pill (the kind you take internally; buy at drug store), 1 tablespoon tea tree per of gallon water; 2 tablespoon per gallon of water or Castor oil. Always avoid spraying on hot days (anything over 89 degrees F is bad). Best to spray in early am (if day is not going to get too hot) or in late afternoon. For best results spray for pests at night when they are out!

## Using on Vegetables

Learning to use natural soaps to control pests on your vegetables makes a lot of sense for many reasons; the most important one is that it is safe to use. You merely have to remember to wash your vegetables before using. This soap will kill many insects on contact. First, you have to find the proper strength, make it too strong

you might kill the plant or too weak and it won't work at all. Here then is a general formula that you can use on your vegetables to control insect attacks. Look to the Organic Gardening chapter for specific control: As a preventative: 1 tablespoon Peppermint soap per quart water. Add seaweed per instructions. Spray on vegetables on a regular basis or first sign of trouble. On specific pests: 5 tablespoons per quart water. Test first on plant/bug to see if it is strong enough or too strong.

### Using on Flowers

Again, you will find that using natural soap is a very safe way to control most bugs on your flowers. Here is a safe formula you can use. Test for strength and effectiveness: 1/2 oz Natural Peppermint soap per gallon water can be sprayed directly on most flowers. Avoid buds. Spray stems and stalk first, and then area around plants.

### Using on House Plants

Many house plants will be able to withstand being sprayed with natural soaps. The important thing to remember is strength — always test a small part of the plant first to make sure that you will not burn it. Make sure the plant is not stressed out from lack of water or food. 1 tablespoon Peppermint soap or Lavender soap per quart hot water. Spray before water gets cold. Don't worry, the hot water won't hurt the plants! Honest!

### Using in the House for Spiders

While spiders are mainly good guys, you may find that you either have too many of them inside or you have one of the few bad guys! Try using 10 tablespoons Peppermint soap per quart water. Spray directly on spider, watch him/her for a few minutes and see if it dies, if not make stronger (add another 10 tablespoons soap). Only kill spiders as a last resort, please. I would just clean up after myself and leave them alone.

### Using in the House for Cockroaches

Use Peppermint soap on cockroaches in your home. You must make the spray strong enough to kill them. First try 10 tablespoons soap per quart water and if that is not strong enough then add another 10 tablespoons. That should do it. I would also go to the Cockroach chapter and review steps there. Spray in areas where they have been seen. Try to spray them directly for best control.

### Using on Lawns

Natural soaps can control many pests on your natural lawn. It decomposes with sunlight so must be sprayed directly on the pest. I like using natural soaps because they are very friendly to the environment and smell nice too! Try using 1/2 oz soap per gallon water or use an inline siphon to spray your lawn with a mixture of soap and water.

### Using on Fruit Trees

Soap is a safe way to control many pests that attack your fruit trees and its valuable fruits. Natural soap is one of the safest you can buy on the market today! Its primary use is to brush your teeth with, bathe with, wash your hair with so you know its safe. I would get an inline siphon which attaches the bib in which you then attach the hose. A small line goes out from the unit which goes into the soap. Do

not spray any buds and should not be sprayed when it is flowering. Wait until after it has finished flowering before you spray. I would wait until you actually have a pest problem before you start spraying. Best to spray trunk and area around tree then actually spray fruit but when fruit is ripe the bugs (ants) will come so be prepared to spray the trunk of the tree and the area around it as well as the fruit and wash the fruit before eating. This will also protect from birds attacking the fruit and other animals as well. Can't find the siphon unit? Then add 1 oz per gallon water to be sprayed.

### **Using in the House for Fleas**

Natural soap works very well indoors in controlling fleas. Aside from bathing the dog (cats usually don't like being given a bath unless they are taught as young kittens), you can wash the dog or cats bedding with soap as well as mist the area they sleep in with a solution of soap in water. Use 5 tablespoons per quart of water for this. Avoid misting any furniture that you are not sure of the results! Test on a small strip first. Using in the House for other pests:

### **Silverfish**

Natural soap can be sprayed directly on them and it will kill them. Try 3 tablespoons soap per quart water.

### **Pantry Moths**

While it is harder to spray them, you can use the soap to spray the kitchen shelves, etc., to remove any eggs.

## Using on Animals that eat your plants

Deer: By spraying soap mix with water on plants that you want to protect, you will be deterring them from eating too much. I add Deer OFF to make a better mixture.

Rabbits: Soap and Deer Off mixed equally and applied at manufacturer's suggested rate of 1 part concentrate to 7 parts water, 1 pint concentrate makes 8 pint spray.

Flies: Fly control depends on stopping the cycle of fly births. Birth control can be done organically, one method is by using soap. By spraying on places where fly's can lay their eggs such as on manure, rotten food, garbage cans, etc, you can effectively reduce the fly sources.

## Organic White Fly Control

Here in Malibu we are graced with mellow weather without very harsh winters. While this is good for us, it's not so good for certain plants that need a cold winter to kill off certain pests. One of these is the white fly. If you happen to have a hibiscus then you know what I am talking about. This winter was not cold long enough to kill off any over wintering white flies so around now you will see an early appearance of them on many of the plants that get white fly infestation.

### **Here is what you should be doing to control them:**

First off a good pruning will remove many white flies. It will also be good for the plant as it will start to grow and produce more plant. You want a healthy strong

plant and not a weak tall plant. First off, prune all dead branches, then prune any branches that are weak and skinny, and then prune off any branches that are too close together. If you prune now, by next month the plant will have a whole new bunch of growth and come May it will look even better than before.

You should start feeding your plants with a slow release organic fertilizer that is complete with all the microbes. Many organic fertilizers now come with a complete list of microbes that are needed by the plant for healthy growth. Do not use any chemical fertilizer since the high nitrogen content will only stress out the plant even more as the high nitrogen will cause rapid green growth and will inhibit the plants ability to absorb minerals.

If you have been following my blog on Brix and Minerals, I am always saying that the higher the Brix, the higher the minerals. It is all about minerals and plants with low minerals will also have low complex carbohydrates while having high simple carbohydrates. Most insects cannot digest the complex carbohydrates and it is a natural protection built into the system.

When was the last time you tested your plants for the Brix level? One reason why earthworm castings work well on not only hibiscus but on any plant that you use it on, is because earthworm casting are the right pH. This is good here in southern California's clay soil pH of 8. Earthworm Castings is also rich in all of the essential trace minerals. I also use rock dust to supply minerals.

I would add a good live compost. Just remember that any compost sold in plastic bags are not alive. You need living microbe for the compost and soil to function

correctly. I always say *The Good Guys* and the *Bad Guys* do not live in the same space. It is the function of the microbes normally found in the soil to digest the minerals and make it available to the plants root system and without the microbes, the plants will be mineral deficient and therefore will have low Brix readings and low complex carbohydrates. You should get into the habit of foliar applications as this is the best way to ensure high Brix levels. You can use compost tea, rock dust tea, liquid seaweed, milk (yes milk is high in calcium) or any other type of organic foliar applications available or hire an organic nutritional spraying company to do this for you.

Last but not least you can spray your plants with caffeine (try caffeine powder or cold brewed coffee for strength). Water only once a week since overwatering is a big cause of stress in plants which will lead to more pests and diseases.



Chapter 16

NATURAL ANT CONTROL

## Dances with Ants

### Intro

I started in the 6th grade learning about ants. I read "Do Ants Sleep?" and then saw a National Geographic video on ants. Then I went out and bought an Uncle Milton Ant Farm and started to use it at home. That is to say that I decided that I could control the ants by using the ant farm as a method of controlling ants through feeding them! Really works! Just run one or two tubes outside and allow them to enter into the ant farm and they will eat what you give them. That got me started on my Dances with Ants system, which I have developed throughout the many years I have been doing my natural pest control services.

As an added bonus, I have added this book to **Don't Panic It's Organic!**

"Your best bet is to learn how to control the ants."

"Keep them out of the house and in places you don't want them to be."

**HAPPY GROWING, ORGANICALLY OF COURSE!**

Andrew Lopez

The Invisible Gardener

A few things you must understand...

It is better to control ants than to kill them all off. Just spraying soap or pesti-

cides is not the answer to long term ant control. I developed this system myself and have been using it since 1972 and know that it works. Let me help you with your ant problem. I have set up many videos which explain what you can do as well as a website with content designed with helping you.

Why do you have ants inside your home?

The first rule of natural ant control is to know the law of cause and effect. The ants are not the cause, merely the effect!

Andy Lopez

Invisible Gardener

### First Thing

The very first thing you must do in controlling ants around your home is to buy the materials you will need.

Go shopping for the following items:

Any Natural Castile Soap: Peppermint, Lavender or any other type of natural soap. You can get this soap at any health food store or food co-op. Try Dr. Bronners. They also make Almond Oil, Lavender, Peppermint, etc, and several others. I would pick up one of each since you can rotate using them for best results. Make sure it's all natural.

Essential Oils are also good here. Try Clove Oil, Rosemary Oil, Cedar Oil. Make sure they are natural. Note: Do not use inside the house if you have small pets,

especially cats since it can be toxic to them!

Buy four Finch bird nesting houses from your local pet store or buy bricks from Home Depot. Buy a flat brick to go on top that go on the bricks. This will keep animals and children out.

8 oz Honey or white sugar or corn syrup. I buy from the 99 cent store. The honey is not real honey but high fructose corn sugar, they really love this stuff.

Four 8 oz plastic cups or any recycled container, one each goes inside the bird houses.

A quart sprayer (or gallon sprayer OK).

Caulking gun and caulk. You will need to repair cracks and other holes.

Get Boric Acid mixed already for use. Try Terro. This is 5% boric acid mixed with sugar. Read the ingredients. Try the 99 cent store.

If you wish to make your own gel, get Boric Acid Powder. This is sold at most garden centers or through mail order. See my website.

### **Next Thing. The set up**

Once you have your materials, the next thing you must do is set up the Terro ant bait (I would start off with the store-bought gel), then either reduce strength (once the ants stop eating it or make your own gel). Inside an ant cafe (either the bird houses, covered with rocks or use the brick) that you will place right next to the ant trail that is coming into the house. Place it outside next to the wall where they are entering. Do not spray anything the first day the Terro

bait is placed out. Then you will need to make a batch of soap and water that you will use to spray the ants with.

**A few things before you start to spray:**

Make sure that you are really cleaning up after yourself as well as you can. Ants are very smart they know a good thing when they see one. If you are providing food and water for them then they certainly will know it and come around looking for it. So this must change. Clean up better after yourself, don't leave out food overnight, dispose of garbage properly. Usually the areas where the ants are seen in the house are near sources of either food or water or both. Do not provide a water source for them. Leaky water systems, such as hose connections will always become a source of water and an ant colony will be set up near it. There are many water sources around the house for ants to tap into, not just obvious water sources like under the sink or in the bathroom, but in other water sources such as dog or cat water bowl, plant water trays, forgotten bottles of soda, or morning dew on plants also are a great source of water for ants. Are your children helping?

Another thing, it is important is to locate any ants that are coming into your house and find out how they are coming in before you start to spray. Once you spray, you will not locate how they are coming in. Follow them around and see if they are entering through holes or cracks in the wall, mark it for repair only after you have sprayed inside to drive them out and not before.

**The Basics .... Part 1**

Clean up any sources of food like cat food, bread crumbs, etc.

Start by adding 1 oz of the natural Castile soap per gallon of water. Take a walk around the inside of the house. Spray inside the house in the places where you see the ants. Start by using Dr. Bronners soap which will work well enough to drive the ants out long enough for you to make some changes. Use the natural soap at the rate of 1 oz per gallon water (make stronger if needed). Start in the center of your house and spray the areas ants are seen in, ok to add to mop water. Spray in the bathrooms and in the kitchen as well as the doors and walls, especially in areas with holes or cracks where they have been seen entering and exiting. Once you are sure the ants are out of the house, control and repair any leaky sources of water around the outside and as well as inside the house. Ants need water.

Once you have sprayed the soap then caulk up all entrances and exits that the ants were using. Caulk where the ants enter and exit house , etc. Repair or caulk any openings (after you have sprayed inside the house to drive them out). Spray also around the outside of the house where the wall meets the ground as well as any other ways the ants are coming in. i.e. they follow electrical wiring, water pipes, air conditioning ducts, etc. Be careful around electrical wiring, never spray there.

Observe what type(s) of food they are going after (this will determine what type of bait you will use). Make a batch of ant bait (sugar or protein. More later on this) and place into the ant cafes which you will place at the four corners of your house and at the four corners of your property.

Observe any trails around the outside of the house and where they are coming from. Spray the ant trails with the soap solution only after any entrances have been repaired. This is also a good spot to place your ant cafe unit with the Terro ant bait inside and covered with a flat brick to keep others out. Keep the unit out

of the sun as heat will affect the mixture. Walk around your property and locate current ant colonies (place an ant cafe unit and bait near it) and mark it with a red flag for ant cafe placement. Cover with rocks or keep out of direct sun.

Be prepared to spray with your soap solution once a day (at first, then I would do weekly) around the outside of the house. Once you have closed all entrances and placed the ant cafe unit outside, allow one day for the ants to feed from the ant bait. If after a few days, ants are still entering the house, follow them and see how they are entering. Place an ant cafe directly outside and near the trail for them to find, then repair the entrance, spraying a few days afterwards. Never spray the ant cafe units on the same day you use the ant baits.

The main control is using something that has a strong smell to the ants which covers up their trails The Dr. Bronner's soaps are great for this but so are essential oils, cedar, citrus oils, clove oil, etc., even using steam against the ants.

There are many natural barriers you can buy that will last. Try EcoSmart. This can be placed around the outside of the house as well as in the plant containers if they also have ants.

Always protect your eyes. When you get spray on them, water, water, water. If that doesn't help, see your doctor asap. Be careful when using any mixture. Do not spray during heavy winds to avoid it spraying back into your face.

Always wear gloves to protect your hands especially if you have any cuts.

Avoid spraying around pets. Move them outside until it clears out.

## More on Using Natural Soaps

### Inside

To control ants immediately, use any Natural Castile Peppermint (or any other flavor like Lavender, Herbal, etc.) soap. I like using Dr. Bronner's Soaps, but you can use whatever natural Castile peppermint soap you want to use. Add 1 oz per gallon water. Spray directly on ants in the house. If they die then it is the right strength, if they do not die, get up and laugh at you. Then I would make it 2 oz per gallon and then try a different batch of ants and see what happens. Still not strong enough? Don't fret, I have used 8 oz per gallon many times until they are reduced, but remember that it is for immediate relief only and not the whole answer. If the soap doesn't work by itself, try adding a little bit of the Orange TKO or Citra Solv Citrus. Start in the bath room and work your way towards the outside of the house. This will last for only a few days. You will have to spray daily in bad areas. Then switch to a Lavender soap or some other natural soap. Be careful with this if you have cats as they may get a reaction from it. However, they do not mind the Dr Bronners Soaps as much as they do the citrus oil.

Because it's a two-way street we must try to understand why ants do what they do. While ants learn quickly, people do not. So, don't be ashamed that it will take you and the ants some time to understand what you want of them and what they want of you. They are usually after food and water. So, clean up after yourself. Do not leave sugars, protein, oils, bread, etc., and other foods around for them.

Sometimes a simple thing as a regular cleaning up inside will be enough to keep the ants outside. Learning to keep your home clean inside and out, and then using natural soaps and citrus oils, you can spray regularly against the ants.

## **Alternative Sprays**

The main idea is that you will need to be able to spray something to control the ants with. This "something" has to be safe enough for you and your family but strong enough to kill and control the ants with. By spraying, you are marking your territory and erasing their markings. These are some of the things that you can use to spray inside the house, that are natural and safe to use as directed.

OTKO and Citra Solv are both natural citrus based cleaners free of petroleum distillates. They have a pleasant citrus smell to them but if you are sensitive to odors, you should take a light sniff before you buy it. This stuff will dissolve most insect bodies it comes into contact with, yet it is safe to use in the home and garden. See warning about using if you have cats! Use 1 oz per gallon water.

Cedar oil works wonderfully also. Learn the strength. Usually start off with no more than a few drops per gallon. See if it kills the ants. If not, then double it and try again. You don't want it too strong.

Any Herbal liquid soaps such as Natural Dog Shampoo or essential oil with its many different herbs used to make it. You only have to add 1 oz per quart of water to this stuff.

Avoid spraying directly on plants as this mixture is too strong and it will burn them (the plants). This mixture is strong enough to kill ants on contact and will provide protection for a day or two depending on the time of year and conditions of the ant colony's.

### **Ant Sprays for outside**

You will need a good hand pump sprayer. You may want to experiment with the mixture yourself to see what works best. Use this spray as often as needed; usually once or twice per week will do. Spray around the outside of the house and any places where you see ant trails or where they are entering the house. Spray only on the ants. Flood their ant colonies with it (usually under rocks) and on traveled paths, around the base of your house and other entrances, but **DO NOT SPRAY DIRECTLY ON PLANTS AS THIS MIXTURE WILL BURN THEM!** If this happens, wash off with water. You can omit the garlic if the garlic scent is unpleasant to you. You can use just the soap and water when spraying on walls. To summarize, when ants are coming into your house and you want them to stay out, first thing you do is set up the Ant Cafe outside (see Ant Cafe). The second thing you do is follow the ants and see where they are coming in, spray inside the house with a natural soap to make them leave, then plug up the entrances to keep them out. Then you spray a mixture of the soap and water along the outside of the house and directly on ants.

Use 1 oz of soap per gallon sprayer to start. Test on the ants for strength. If they don't die right away then add another capful and try again. Make the solution stronger as needed. Natural Castile soaps and or Orange TKO are great soaps to use. Try Dr Bronners Natural Castile soaps. Avoid using these things indoors if you have cats as it can be toxic to them. The Bronners soaps are excellent to use if you have cats.

Shaklee's Basic H has no smell for those of you who don't want any smell! You can also try herbal soaps, or any safe natural soap.

## **A Safe Ant Spray for the Garden**

Crushed garlic or garlic oil (the kind you buy at the store for humans to use). Strain and add to 1-quart spray bottle. Any natural bio degradable soap will also do. Tabasco sauce or sesame seed oil, or natural citrus oil like CitraSolv or OTKO. Can't Find Natural Peppermint soap?

Look at your local health food store or food co-op. But if you need to use something fast then I would suggest that you use OTKO or CitraSolve. Yes, plain orange oil will do too (read the ingredients). Fill quart sprayer with water, add 1 oz per gallon and spray where ever ants are seen in the house. Start with the center of the house and work your way out. Try Dr Bronners Natural Castile soaps instead of the citrus if you have cats.

## **About the Home-Made Ant Cafe Unit**

Learning how to make the Ant Cafe an active food source for the ants is a very important part of the treatment. It cannot be overstated. The ants will not be able at first to find this food source for many different reasons and sometimes they will not want it and ignore it. You must make them understand that this is a food source for them. This is what I call "Dances with Ants." Therefore, it is good to go slowly at first when introducing the Ant Cafe to the ants.

Providing food and water for the ants outside while using the peppermint soap (etc) inside the house may be enough to control your ant problem inside the house. We call this part Dancing with the Ants also, because it takes time to get the ants to go for the ant cafes and not go into your house or on your roses.

## Concerning the containers used to build your Ant Cafe

I have experimented with many different types of containers in order to find the one which worked best. There are many problems with using plastic containers due to their pollution abilities (damage to our OZONE layer from they're manufacturing process, damage to our oceans, etc.) so I do not recommend using this material unless it is used properly.

## More on the Ant Cafe

After trying out many different types of containers and after making different types of my own, I have decided that it is easier to go to your local pet store and buy a finch bird house or make the brick ant cafes units.

Here are some important points to keep in mind when you are looking for that perfect Ant Cafe. It is very important that the unit is able to be locked, screwed down or in some way made impossible for children, dogs, cats, etc., to get into. We are after only ants here! If you are concerned about kids getting into it than don't use boric acid—use only sugar, honey , etc. The container must hold enough ant gel (or plain sugar water) to last a week or two and be small enough to be hidden from view.

The Ant Cafe Unit is an important tool used to provide food for the ants. Yes, that's right, food! By feeding the ants, you can better control them, keep them out of your home and garden.

## Natural Ant Control and Boric Acid

It is not Possible to Train or Control the Ants by just feeding them

Invisible Gardener

Do you know what happens when you remove all the ants from your property?

More ants move in!

An infestation is indicative of a greater soil problem. Correct that, and you will be better able to correct the ant problem. However, you will have to reduce the ant population in order to re-gain balance. The addition of boric acid to the ant gel will do just that. The ants will find it and take it back to their colonies and sooner or later everyone will partake of it, killing them, and since it won't kill them all, they start over again but at a lower level. You must make the boric acid just strong enough to slowly weaken the colony. If it is too strong it will kill the scouts right away before they can make it back to the colony.

The Ant Cafe when kept clean and stocked with their food, will keep the ants out of your house. Boric acid is available at your local drug store or garden center or see my website. The garden center variety is much stronger than the drug store, so be careful and always wear gloves and avoid breathing. See Boric Acid Formula Adjustment page for amount to mix. You can alternately purchase Terro which is a 5% boric acid formula or other readymade formula. See my website for choices.

Also, be careful when using the ant cafes to make sure no spiders have moved in. Wear gloves when using!

## **What you feed the ants makes a difference**

This process of learning what's best to feed the ants is very important and will take time and patience. The Ant Cafes should be placed around the outside of the house (4 ant cafes, one at each corner), and along their trails. Do not place too many ant bait units as it will be harder to maintain. Keep out of direct sunlight as heat will ferment the sugar mixture.

Clean and Replace with a new mixture when this happens. Cover with rocks to keep other creatures out, and children and pets. Check regularly to ensure that they are being kept full and clean. Check out making the ant cafe from brick blocks.

The Basic set up is to feed the ants with a mixture of sugar and boric acid. The amount of Boric Acid will depend on how strong you need to make the mixture so that it will allow the ants to take it back to their colony. If it is too strong, the ants will die before they can get back to offer it to the colony. Usually you would want a 5% solution to start with and then go to a 1% solution for regular use. Also, sometimes, the ants will not want sugar but want protein instead. Add peanut butter to formula. You will not need to add much.

## **How to Train your Ants**

This is the most important one and the hardest one to learn and accomplish: reaching a balance between teaching the ants how to use the ant cafe, making sure they keep going there while at the same time showing them where you do not want them to be. You will find that you must set aside a small amount of time each week

to check the ant cafes. They must be kept clean. The sugar mixture tends to go bad in hot weather and must be changed regularly. Check for spiders. Wash out once a week.

Start with by just placing in the ant cafe what they want to eat without adding any boric acid to it. Keep trying mixtures until you find what they like. Try using various forms of sugar like molasses, corn syrup, brown sugar, high fructose corn sugar.

Important Hint: Every month change the source of sugar. One month use white sugar, the next month use brown sugar or molasses, or corn syrup, etc. If they are not going after the sugar, try adding peanut butter to the mix. Give them what they want! Make the mixtures so that they will want it! If you provide for the ants a permanent source of food, you have a head start in controlling them! Remember to add the proper amount of boric acid.

### **First time using Boric acid**

The first time you use boric acid mixture in the ant cafes, you can start off by using the store bought strength at 5%. Just place a small amount in the inside of the Ant Cafe unit (either homemade or store bought). Once the ants stop eating then they are on to you!

Stop using 5% solution and start using a 1% solution. Just dilute the 5% to a 1%. Add 1 oz Terro to 3 oz warm water and 1 oz honey or corn syrup. You now have a 1% solution.

Alternatively, you can add 1 oz powdered store bought boric acid, 3 oz warm wa-

ter and 1 oz honey or corn syrup. See formula if you want to make more.

### **Are the ants still eating it?**

After a week, if they are still eating this mixture, then make a new batch and add 2 tablespoons boric acid or Terro (instead of one) and watch them again. Are they still eating it after a few days? If not, then clean out mixture and use the previous strength. If ants are still eating it, then make a new mixture and add three tablespoons boric acid and follow above. Sometimes you will need to make a 50/50 sugar and boric acid mixture. Remember, when you first start feeding the ants, it is important that what you start feeding the ants with is something that they want. You do this by first placing a small amount in the ant cafe without any boric acid. Once the ants start eating it, change after a few days to the boric acid mixture. If you make homemade gel, make sure it works and that the ants go for it. Make it too strong and they die right away. So, watch and see if there is traffic and that they are using it. If you use the readymade, all you have to do is reduce the strength down from 5% to 1% by adding either a liquid sugar such as honey or corn syrup.

### **Regular feeding**

Inside the ant cafes, you should be replacing the old ant bait with new ant bait once a week or as needed. The 1% boric acid solution is the best for this use.

## **Making your own Gel**

If you decide to make your own ant gel, there are several simple ways to make it. I am using the example of 100 oz (100%) to better show you the amounts you want to end up with:

1 oz boric acid

25 oz sugar

74 oz water

This is the 1% solution, but you can make any size you want.

5 oz boric acid

25 oz sugar

70 oz water

This is the 5% solution.

Remember, start off with the store bought 5% solution to be sure, then if you need more you can keep buying it (simply add a few drops at a time of honey to the ant gel). If you want to make a big batch yourself...

### **1% boric acid solution**

If you are using boric acid store bought solution....

In 100 oz of water add the following:

1 oz boric acid store bought at the 5% solution

25 oz any type sugar such as honey or corn syrup

The remaining 74 oz is warm water.

Mix well in a blender and add about 4 oz to the ant cafe unit.

If you are using the store bought boric acid dust....

In 74 oz warm water add the following:

1 oz boric acid powder (add slowly to avoid the dust) can be bought from the 99-cent store or internet. See my website.

25 oz any type sugar. Start with the common fructose. It comes looking like a honey bear (but it is not honey) at the 99 cent store.

Slowly add the boric acid into the warm water while the blender is on low.

Then add the sugar and blend well.

This is the mixture you pour into each ant cafe unit's little containers that you are using to hold it. I use the same boric acid bottles since it comes with a nice warning on the label! Use about 4 oz to each ant unit.

### **5% boric acid solution**

In 100 oz of water, add the following:

5 oz store bought boric acid

25 oz any type sugar such as honey or corn syrup,

The remaining 70 oz is warm water.

Mix well in a blender, add about 4 oz to each ant cafe unit.

If you are using the boric acid dust....

In 100 oz warm water add the following:

5 oz boric acid powder which (add slowly to avoid the dust) can be bought at the 99 cent store.

25 oz any type sugar. Start with the corn fructose. It comes looking like a honey bear (but it is not honey) at the 99 cent store.

The remaining 70 oz is warm water.

Slowly add the boric acid into the warm water while the blender is on low.

Then add the sugar and blend well.

This is the mixture you pour into each ant cafe units little container. I use the same boric acid bottles since it comes with a warning on the label!

### **A simple formula**

OK, OK

Here is a really simple Boric Acid Formula!

In a blender, fill to 1/2 way with warm water.

Add 8 oz boric acid powder

Blend together in a blender to completely dissolve.

Add 8 oz white sugar and more water to almost fill.

Blend again.

Use that mix in your ant cafe at full strength.

Add that mix to the rest of the gallon container.

Shake well. That's your formula! You should use at full strength!

Next time you make it, change the source of sugar and use a high fructose sugar. Always change the source of sugar every time you make it.

### **What to do if they don't like sweets but grease instead**

Some ants will go for protein instead and will not touch the sweetened baits...

Since they are going for protein (grease), they are probably grease ants... so most available ant baits, such as Terro or Drax, must be mixed with a grease or oil to make them attractive to grease ants. Any grease or oil that can be mixed with the bait should be effective. I suggest peanut butter or a raw pie dough mixture of shortening and flour, or as in your case, using what they want.

The bait-oil mixture must contain enough grease to be attractive, but not so much as to dilute the active ingredient below where it will be effective. Though exact proportions of the most effective mixture are not known, I suggest starting with peanut butter oil to add to the boric acid formula. Just add 1 oz of peanut butter to the mix.

If ants are not attracted to this mixture, try another type of oil such as beef

bouillon or grease from the kitchen after you have cooked meat.

Small amounts of the bait and oil can be mixed together on wax paper and then transferred to the area of ant activity. The bait can be placed on small squares of paper, the non-sticky side of small masking tape strips or directly on the ant trail. Baits must be used with care. Make sure the bait is out of the reach of children and pets. When ant activity has ceased, carefully dispose of the remaining bait. Please read using my ant cafe as a better method of only allowing the ants to get at it.

## **Learning**

Learning to train your ants depends on how well one learns how to use the boric acid strength and how well we mix the sugar sources. A properly made and kept ant bait system is the core of your ant control program.

## **Boric Acid Bait Care**

Do not leave any amount of gel sitting around. If ingested, drink milk and induce vomiting. Always follow instructions on labels of products that you buy. Never pour ant gel into any type of drinking container, soda bottle or in anything that would confuse someone into that if accidental ingestion should occur, thinking that it was safe to drink. Always label the ant mixture as poison and write: Keep out! To be

safe, avoid using if there are kids at home or dogs, cats, or other pets.

Even though boric acid is also sold as an eye wash, it is dangerous when taken internally. So, avoid cuts, and please be very careful using it. The mixture should be a thick fluid (like honey).

You should make just enough for your immediate use. I get my boric acid from my local nursery or at my local hardware store, or internet (see my website). Boric acid, when used in concentrated amounts, is dangerous to animals, bees, cats, dogs, small creatures, trees and humans, so be careful not to use it outside the Ant Cafe where children can get at it. Keep out of reach of children.

## Commercial Gels

### Try Terro ant bait

**Terro** will work for one or two months until the ants get used to them and leave them alone. They are too strong and will kill them too fast not allowing the boric to get back to the colony. That is why it is best to add sugar to this mix reducing the strength by half. Most nurseries sell the Ortho brand boric acid powder if you want to make your own. Just be careful using the powder. Follow my formula.

It is much easier to simply use the Terro and then add the sugar to it.

Ants have two stomachs, one for taking food back to the colony and the other

for themselves. If the boric acid is too strong, it will kill the worker and the mixture will never get back to the colony.

Read the ingredients, if it has something other than boric acid, do not buy. Use only if it says 5% boric and 95% inert, usually a mixture like corn syrup.

### Question:

Hi, Andy-

Just read your "How to manage ants" in your column. It was very helpful. The other day I was watering our two passion fruit vines. Afterwards, I noticed a lot of ants near the base of the stalk. It almost seemed like they were pouring out of the soil. Any ideas? Treatments?

Answer:

Thanks for reading my column. I have received a lot of emails with the very same problem but just different plants. So, I figure I better help out.

It is important to understand that ants are an important link in life. Break that link and it will be very bad for us. Ants play a very important role in the regulation of other insects as well as act as mother nature's custodians.

What we must do as good gardeners of this earth is to realize their value and act with respect. The other day, a person told me that it would be better to kill

all the ants on the planet. I tried to explain to him that would be impossible and that more than likely, it will be ants that will be here long after us "humans " are gone.

Ok. Ok to the problem at hand.

The best one can do with ants is to keep their populations down and to make less of what we grow a food source for them. The problem here is that due to the drought, the ants have found not only a source of food for them but a source of water. It will insure their survival during drought periods. While we cannot stop watering our property, we can start controlling the ant population.

There are two ways that I know of to control ant populations that do not including the spraying of (fill in the blank) to kill them. In my last column on ants, I mentioned that I hate to kill ants or any other creature, but sometimes you have to, and so I will tell you how to keep the ant population down.

First off, you can use a Boric acid ant bait. The best and easy one to get locally is called Terro. They sell it in Ventura at Green Thumb Nursery. The ants take the boric acid bait back to their colony, and the boric acid will eventually kill the Queen, which will cause the ant tribe to reduce population until they make another queen. You will need to place these ant baits near where you have seen the ants say under the plant in question. They should be replaced weekly.

## Spinosad

Another solution is to use Spinosad. Spinosad is derived from the fermentation of a naturally occurring soil bacteria. This product is called Bull's Eye and is an ant bait from *Gardens Alive*. The ants take the bait solution into the colony where it is fed to other ants including the queen. It will affect the entire colony within a few weeks. Just remember that when you remove an ant colony, another ant colony will take its place. So, this will have to be done year round. I would alternate between the Terro and The Bull's Eye Baits for best results.

In the long run, it is best to:

1: keep the water below ground.

2: keep plants healthy so ants won't see it as a food source.

3: keep the house clean so ants won't see it as a food source.

For me, I find that I do not need to reduce populations, but simply increase the health of plants the microbiology of the soil. The more microorganisms in the soil, the fewer ants will be able to populate.

Here are Some More Ant Barriers:

## Oil

There are many natural cooking oils that you can use that when added to the soap will keep ants off your plants , etc. Always try using a natural based oil instead of a chemical or petroleum-based oil. Try Sesame oil.

For ant control use a hot oil like Tabasco sauce or sesame hot oil or dragon fire oil, or any type of hot cooking oil.

### **DE (Diatomaceous Earth)**

Garden Grade DE (try Arbico Organics) can be used as a dust or if added to water as a spray. You can add 1 tablespoon DE per gallon water. You can also use Food Grade DE

A Barrier that you use as a dust:

### **DE**

Garden Grade DE makes an excellent temp barrier. It would last only for a few days and is also cumulative, that is to say that an ant might walk over it and not die right away! Best used outside.

### **Natural Ant Control Barriers**

There are many natural ant barriers which you can use to keep the ants from getting into places you don't want them to be in. Ants will know that you don't want them in certain areas by using a barrier that they will not cross or do not like to cross. They are not stupid and will follow the path of least resistance.

Andy Lopez The Invisible Gardener

## **A few things to remember in controlling ants**

1. Have patience. Controlling ants takes time. Don't be in a hurry, they have been around for a long time and there are many of them!
2. Keep doing it. Don't give up. Keep doing the steps. It will work.
3. Don't give in to the chemicals. They will only make it harder for the natural system to work.
4. One of the easiest ways to keep ants out of the house is to learn to use any type of natural soap to make a spray.
5. You will not be able to get rid of all the ants, a few are natural to have around, just not in the house.
6. Keep a look out for any new ways ants have figured out how to get in and correct it.
7. Bottom Line is to control ants you need live healthy soil.

### **Carpenter Ant Control**

How do you know if you have carpenter ants and not termites? Once you have found out your 'termites' are really Argentine Carpenter Ants, their method of control is the same.

The only difference in ant treatments is that you can presume that the carpenter ants are living within the walls of your house, underneath and or in cracks , etc.

These ants still must eat! The ant cafes are important here. Ant Cafes Step 3, these must be accessible to the carpenter ants. This means that unless you have located their trails leading into your house, that you must place the ant cafe 'inside' the house, hidden away under a cabinet or in the attic or basement. Start with the same steps, first spraying around house and in areas they are visible, then by placing the ant cafes in nearby accessible areas with first just sugar then adding boric acid to the mixture. Basically, follow the same instructions as for regular ants.

Important Notice about using citrus concentrates for ant control inside if you have cats

Recently, my beloved cat Poppie died. The vet told me something that I did not know and so I am passing this down to you. Recently we moved into a condo and just as soon as we moved in, we were attacked with ants. Controlling ants in a condo with hundreds of homes means that you have to do something inside to keep them out. Aside from using a caulking gun to plug up the small holes they were using to get in, I started spraying the ants with OrangeTKO. I use this stuff because it is natural and it has no chemical additives. Well, it worked but then my cat started coughing a lot and so I took her to my vet. What my vet told me was that she and most cats, cannot handle strong citrus odors due to the fact that Citrus Oil Extract (Limonene and Linalool) can be fatal to cats that breathe in the strong odors. Many Citrus oil extracts are found in insecticidal sprays, dips, shampoos, insect repellents, food additives, fragrances and in citrus cleaners like OrangeTKO, Citral Solve. Citrus essential oils are the strongest and therefore you should never use if you have small pets (it can affect dogs too). D-Limonene and linalool are cit-

rus oils with insecticidal properties and are metabolized in the liver resulting in liver damage or worse and the cat dies.

Cats are more sensitive than dogs. Linalool exposure causes more severe clinical signs that lasts longer than d-limonene. If the product also contains piperonyl butoxide, the toxic effects are increased. Piperonyl butoxide alone will damage your pets liver as well as your own liver! So, I would not use essential oils unless you know how to properly use them since they usually are very strong.



Chapter 17

YOU HAVE SNAILS!

There are many things I could tell you about controlling snails organically but there is one way that sticks out from the rest and it is so simple and easy that I think mentioning all the others will only confuse you and you might miss this completely so here it is....

Coffee, yep Coffee. Organic shade grown of course since coffee growing is only second next to cotton as to what damage they do to the environment and to the amount of chemicals they use (pesticides, fungicides , etc.), and we do not wish to contribute to this problem. However organic shade grown coffee growing does not have this problem.

There are four ways to use coffee for snail and slug control:

1. Use the coffee grinds and mix into the soil several times per year and right after planting new vegetables etc. You can either use the coffee grinds from you're morning coffee or you can opt to make a stronger mix and just dump the coffee onto the ground and mix it well into the soil. This stronger version will not kill the earth worms (they love coffee grinds) but will not only kill snails and slugs on contact, it will also prevent them from laying eggs and it will destroy the eggs as well.

3. The second way is to buy organic cold brewed coffee. Use 8 oz concentrate per one gal clean water. That is a strong mixer that will kill snails, slugs and most creatures, including beneficial insects so be specific when using.

2. The third way is to make your own organic cold brew coffee and spray the plants you want to protect. You can do this by simply putting about 1 pound of or-

ganic coffee beans into a panty hose or cheese cloth. Tie into a ball. Allow to soak overnight in 5 gallon bucket with clean filtered water. You can then spray any plants that are getting attacked. You will need to do this as often as night. Also best to spray at night when pests are most active.

3. The third way is to use the coffee beans and sprinkle them around the plants and area. You will need to do this probably once a month as that is how long it might take the coffee bean to lose its caffeine. This depends on how much sprinklers etc are watering it. Best way to check is to pick up a coffee bean that has been out for a month and see if you can smell the coffee. If not replace it with fresh beans.

## The Invisible Gardener says:

### There are four important things to remember about controlling snails

1. Give yourself lots of time.

Allowing yourself and your property time to regain balance is very important. You must be given enough time to stop your urge to use chemicals (rather to switch from chemicals to organics) and the soil needs time to regain the invisible populations needed for soil to be alive!

## 2. Maintain a healthy soil environment.

The health of the soil is your solution to controlling any type of pest in your garden especially snails! Apply rock dust and other sources of minerals yearly to increase energy levels of the soil. Add compost as often as needed. Try to find a local source of live compost which should have all the microbes. Control snail eggs by using special Invisible Gardener methods. Apply earthworms as needed. Mulch regularly. Control water. Encourage predators such as birds lizards, etc.

## 3. Avoid chemicals at all cost!

Learning to grow without using chemicals is not as scary as it seems, nor is it impossible. Instead of saying avoid chemicals at all cost, I should just say do not use any chemicals that can harm you and your environment. Be very careful what you decide to do. Do you really have to use it, isn't there an organic safe way to do it?

## 4. Plant the proper planting for the season

Planting the wrong type of vegetables in your garden will encourage snail activity. The same goes for other types of flowers that snails find good to eat. Knowing that snails are prone to grow during the early spring, it would not be wise to plant anything that was not protected that you do not mind the snails eating. A good suggestion would be to flush the earth of snails in your area.



Chapter 18

NATURAL FLEA AND TICK CONTROL

## Natural Flea Control for the Rest of us

Control Fleas naturally and **you** will be much better off for it and so will your **pets!**

- Non-Toxic
- Safe to Pets
- Safe to Children
- Safe to Environment
- Really Works
- Long Lasting
- Easy to Use
- Easy to make your own and Inexpensive

Let's talk about the cycles of the flea. There are three different types of fleas, the Cat Flea, *Ctenocephalides* fleas, the Dog Flea (*Ctenocephalides canis*), and the Human Flea (*Pulex irritans*). The Cat Flea is the one we are most interested in as the other two are very rare. Cat fleas not only like cats, dogs, and humans but they also like many other species such as rats, chickens, etc.

## The Life Cycle of the Cat Flea

Adult fleas lay eggs outside in the grass or any warm safe place (usually near a warm-blooded host). The eggs develop into legless larva which feed on tiny amounts of organic matter for up to one month. Usually the eggs are laid on the hosts and then drop to the ground. If inside, they fall on the carpet, etc. The larvae do not bite but live off dried blood defecated by the adult fleas. Outdoors the larva will lie in a shady moist spot. The larva then becomes pupae by spinning a cocoon and emerge in about a week as a hungry adult.

The cycle for reproduction is 30 to 60 days and is triggered by the presence of the warmth and carbon dioxide given off by respiration. The larvae can live up to 6 months and the pupae can live to a year until the conditions are right for emergence.

What this means is that if you have just moved into a new apartment or home which previously had a dog or cat as a tenant, your presence, or your cats' or dogs' could trigger their emergence! Many people have allergic reactions to flea bites while others never notice it. Fleas usually do not bite humans unless there are no other mammals around.

Natural Flea Control is possible and not a fantasy.

Please follow the steps I provide for you and you will see the results.

## Control Methods

Here are some various natural flea control methods I use

### Natural Peppermint Soap

This is an excellent soap to use as a mist around infested areas. Smells great, too! Use 5 tablespoons per quart sprayer of water.

Your treatment should be spread out over a 60-day period. This means that you should do regular flea treatments every month if you are in areas prone to having fleas. I have two cats and one dog. I know fleas. The cats clean themselves and generally don't like to be told what to do or to have anything done to them, but they can be helped, as well as the dogs. Fleas and dogs, fleas and cats, they go together. It's unnatural for there never to be fleas again. We can't totally rid ourselves of them any more than we can totally rid ourselves of the ants. The answer here is to control and reduce them. The formulas given here along with the hints are to help you keep fleas out of the house and off your animals. Follow these hints and you will succeed.

Many flea collars on the market contain Sevin which attacks the nervous system of the insect (as well as your pet's nervous system and ours as well). I have seen flea collars which contain DDT! The companies are getting smart and are using

Pyrethrum but are screwing up when they add Piperonyl butoxide to boost it up. This product has been associated with liver disorders. You should avoid using this product. Especially avoid using around children or seniors or those with health problems. Insist on using only pure pyrethrum flowers (the whole plant).

The first thing you have to do is to reduce their population ASAP. This is done by spraying the infested areas with a natural soap (try Dr Bronners) that will kill the fleas (but not the eggs).

### **More Specific Organic Flea Controls.**

#### **Here is a list of natural products used in flea control:**

##### **Pyrethrum**

Pyrethrum is made from the crushed Pyrethrum chrysanthemum flowers, and is safe to use around mammals (kills fish), safe for bird's pets, etc. Pure Pyrethrum is the best to buy (avoid additives such as PB. See below). Arbico and Gardeners Supply both sell a good pure Pyrethrum product (see resources). Dust only your dog(s) with the Pyrethrum. Cats lick themselves and would not like its taste. Avoid eyes.

##### **Pyrethrins**

Pyrethrins is the active insecticidal compound found in Pyrethrum.

Pyrethrum comes from a flower and is safe for mammals. Many products avail-

able for flea control contain pyrethrins, however be warned that most products also add the synergist Piperonyl Butoxide, which has been found to cause liver disorders and can cause chronic human health problems. Children, elderly and pregnant women should avoid completely. Safer Entire Flea and Tick spray does not contain this PB. Always check the label to see if PB is present.

## Repellents

There are many natural repellents available on today's market.

Please be careful using essential oils. Do not get into eyes, do not breathe in, do not use if pregnant or chemically sensitive. Always check with your doctor if you are not certain if you can use or not.

Cedar oil/chips make a good flea repellent when placed around the animal's bedding. Replace with new cedar chips regularly as with age it loses its odor and may become a good flea larvae home. Better yet spray the chips with a natural cedar essential oil.

Do not use any products containing DEET. Veterinarians caution those using such products to follow label instructions carefully, because overuse can harm your pet.

## Limonene/Linalool:

A citrus-peel extract, D-limonene and Linalool shampoo are both safe to use on dogs but not on cats as it is toxic to them if inhaled. Products containing only d-

limonene kill larvae and adult fleas, while products which contain both kill all stages of the flea. I suggest that you use lightly as some pets may show skin rashes. Do not apply on pets but spray areas.

- Buy only Natural
- No PB
- Keep away from children
- Avoid contact with eyes
- Store in safe place
- Use in small amounts
- Use only as needed

### **Steps to Natural Flea Control and Natural Tick Control**

- Healthy pets
- Healthy soil
- Control stages
- Attraction
- Natural Traps
- Use Citrus
- Use Natural Soaps

## Use Natural Oils

Find out how they are entering your home. Be sure to check the immediate area around the home, including the front and side doors. Best way to find out is to follow the animals you have around and see how they are picking up the fleas.

If you are having a severe flea problem indoors you must first do a thorough cleanup of the immediate area (s).

By removing any areas that can house the adult fleas, you are reducing any eggs which can hatch later. The key thing to do here is to steam, then vacuum thoroughly any rugs; send them to the cleaners if you can't do this, or have a company come and steam clean them. Make sure that you destroy (i.e., throw away inside a plastic bag) the vacuum bag, which should be full of fleas and their eggs. Vacuum/steam several times per week to ensure that you get all eggs and any adults.

Bathe your dog in Peppermint soap or use a flea comb on cats/dogs. Bathing your dog once per week with a good natural dog shampoo will do wonders in controlling any fleas or ticks. Read the ingredients to make sure that its 100% organic. Any good natural dog shampoo will do.

A good flea comb will help control fleas and ticks on your dog and cat. Dip flea comb into alcohol in-between use or do like I do and I get Pyrethrum Powder from Natural Animal, sprinkle a little bit on my hand and then comb it up with my flea comb. It will have the pyrethrum in the comb and then I use the comb! This will kill the fleas on contact as you comb. Use this method once or twice a week. The natural pyrethrum will not affect the animals. Spray inside the house with any of the natural spraying mixtures I cover later. Get the Flea Zapper. A battery-operated device that really works and zaps the fleas!

### **Natural Flea Control Basics**

- Healthy soil reduces flea and tick populations
- Control water as flea and ticks need water sources
- Control rodent's vectors
- Control other animal vectors
- Use *Garden Grade DE* under building and under bedding.
- Use *Food Grade DE* inside on pets and rugs. Be careful around their eyes. Avoid using on head. Use the flea comb here.
- Use *Beneficial nematodes* to control outside in the soil.
- Use *Natural Castile soap* like *Dr Bronner's* or *Queen of the Meadow*
- *Must be Safe to the Environment*

- Organics are Long Lasting
- Organics are Easy to Use
- Organics are Easy to make yourself

### Organics are Inexpensive

You can spray the inside areas with a soap essential oil mixture.

Try 1 drop citronella oil or 1 drop Lavender Oil or 1 drop Tea Tree Oil or 1 drop Citrus Oil or Cedar oil mixed with 1 drop any natural soap like Lavender Soap per quart water. Mist areas you do not want them on like rugs, pet areas, other areas around house, etc. This will provide you with some immediate help. Test spray on rugs, furniture first before using. Essential oils are not really oils so it will not be oily. Make sure you start with very small amounts like 1 drop per gallon, but you can work your way up to what works for you.

### About your Cat or Dog:

Be aware that cats will smell this too so keep them out of the area while you are spraying and allow to air out before allowing them into the room. Best not to use if you have small pets.

Any type of essential oil like rose oil or tea tree oil. Mix the two together and label it flea control spray. Add to sprayer and spray inside house where fleas are

seen. Should be done as often as needed. This is not a long-term solution but will provide you immediate help.

The essential oil increases the effectiveness of natural Castile soap, keeping the fleas away longer. Spray any areas they are seen in. If you are having a really bad flea problem, try using any natural dog shampoo instead that has pyrethrum. I also like using any natural shampoo with natural oils that are also very effective against ants.

#### **Spray outside the house:**

Spray outdoor with any natural soap. Use the same formula to spray the grounds and the area around it. You can also use any natural citrus based cleaner at 1 oz per gallon water. Spray around the outside of the house and along any places that you see them.

#### **Spray beneficial nematodes to control outside.**

There are many beneficial nematode products available (Try Arbico Organics) that when applied to the soil will control all flea larvae as well as many other types of pests, grubs, etc., that have part of their life cycle in the soil.

After you have sprayed the inside and around the outside of the house, you then can close off any entrances that the fleas can use to get inside, fix any screen doors, screen windows , etc. Learn to keep the door closed during summer or main flea months.

## Clean up around the outside of the house and garden.

Control the fleas around the outside of the house by controlling any water sources as well as any food sources for them. Control all the rodent population as well by having an active female cat available hunting. Highly dust the areas around the house with any of the following:

Dust around the outside of the house with *Garden Grade DE*.

By using this natural dust at the right time of year, you will reduce any flea adults before they can lay any eggs. A light dusting is all that is required. You should also dust your dog once per week.

A good natural repellent is *Natural Pipe or Chewing Tobacco, Compost, Molasses*, mixed in your own homemade "tea" bag. Just get a panty hose with no holes in it and place your mix inside and tie into a tea bag.

- **Use Natural Essential oils if you do not have pets.**

Use any *Natural Lavender Soap* (like *Dr Bronner's*) sprayed around the area. A good formula is to make a batch of *compost tea* (except you add 1 cup *chewing tobacco* or any natural tobacco you have to the *compost*) and allow it to sit in the sun for a few days, then the day before you use it, add 1 cup *molasses* per gallon tea.

Allow it to sit for another day. Then add 1 cup citrus oil or citrus based natural cleaner per gallon of the tea you have and add 1 cup per gallon of the natural lavender soap.

To avoid flea problems, remove the chemicals!

A healthy property will have less of a flea problem than an unhealthy property. Learning to use soap as a natural spray repellent is important as well as learning to keep fleas out of the house. We can teach you these things so that you can help yourselves. Remember, the fleas can be kept away!

### **For Immediate Flea and Tick Relief:**

If you are having a severe flea problem indoors, you must first do a thorough cleanup of the immediate areas. The key thing to do here is to vacuum thoroughly any rugs, send them to the cleaners or if you can't do that then have a company come and steam clean them.

You can dust with pure pyrethrum flowers. Use only 100% pyrethrum dust. You can alternatively use a mixture of DE and Pyrethrum. I suggest that you buy a pound of garden grade DE and 8 oz of pure Pyrethrum dust, blend the two together. Handle with care since it is a dust and you should avoid breathing any kind of dust. This mixture is safe and will not harm you or your animals as they should be dusted also before and after you clean your rug.

## Spray them

The first thing you have to do is to reduce the flea population ASAP. This is done by spraying the infested areas with a natural soap that will kill the fleas (but not the eggs). This can be sprayed around pet bedding, rugs, furniture, etc. A fine misting is enough. Should be done daily. Always test rugs, furniture for any damage the soap may cause. Ok around kittens and or puppies.

## Using Natural Soap Sprays:

### Natural Castile Peppermint Soap

This is an excellent soap to use as a mist around infested areas. Smells great, too! Use 5 tablespoons per quart sprayer of water. A good substitute if you don't mind the citrus scent, yet effective. Use 5 tablespoons of any natural soap like Dr Bronners per quart sprayer of water. Safer Flea and Tick Spray: This combination of natural Pyrethrum and safer soap contains no PBOs and is used for quick knock-down and broad-spectrum control on most vegetable and ornamental crops. This is a contact spray which must be applied directly to the insect (fleas) to be effective. Registered for control of aphids, whiteflies, earwigs, asparagus, bean, flea, cucumber and Colorado potato beetles, cabbage loopers and worms, tomato hornworm, leafhoppers, gypsy and diamond-back moth larvae, tent caterpillars, and more. In addition, the concentrate is registered on fruits, nuts and on lawns (for cinch bugs, lawn moths, sod webworm and army worms).

## Citrus Based Soaps

Make excellent soaps for controlling fleas. There are many natural products on the market today. Just read ingredients.

## Any Natural Dog Shampoo

Any good natural dog shampoo will do. Many contain natural essential oils of any of these or more, peppermint, myrrh, eucalyptus and cajuput. Try any natural soap.

## Your own Liquid Pyrethrum Formula

1/2 cup Pyrethrum dust,

1 oz alcohol

A bio-degradable soap.

First make a Pyrethrum Slurry by adding the pyrethrum dust into an empty container. Add a small amount of alcohol (1/2 oz). Add a few drops of a bio-degradable soap (such as any Natural Castile Soap or Natural Orange Cleaner, Amway's LOC or Shaklee's Basic H, or Queen of the Meadow). Slowly add a little water, stirring it up until it is all dissolved and forms a slurry. Slowly add the Pyrethrum slurry into a panty hose, tying into a ball. This ball is placed in a gallon of water. Keep stirring the water as you go. When it is all dissolved you can use it to fine

mist the rug and the dogs whenever there is any sign of fleas. You can lightly mist the dog before he enters the house. You can also spray the area around the house once or twice per week as needed, as well as spraying the dog's bedding area.

Natural Insecticides for flea control are available as liquid solutions, foggers, powders, and aerosols. It is important that you understand what their main ingredients are and if any harmful additives are present.

### **Natural Dusts to Control Fleas**

"Please be careful when buying any pyrethrum products as not all are natural. Read the ingredients. Should be all 100% part of the plant!"

"Invisible Gardener"

Not everything is natural so be a smart earth wise shopper....

There are several different dusting formulas which you can use on fleas; this will depend on your preference. You dust lightly before and after you vacuum.

### **A Good Natural Flea Control Formula with Pyrethrum**

Pure Pyrethrum powder is one of the safest ways to kill and control fleas both on and off animals as it is totally harmless to humans and animals. Avoid breathing

dust or fumes. Comes from the Pyrethrum plant. Dust dogs once or twice per week, for a bad case use daily. Dust dog bedding and rugs, carpets , etc., before vacuuming. A good approach is to start in one corner of the room and dust slowly as you work your way out. Allow to settle for 1 hour before vacuuming.

Never use pool grade DE

DE and Salt Formula for Fleas.

1 pound. Dia-Earth and 10 oz. Salt

Inside

Mix Dia-earth with the salt and lightly dust the rugs. You can use a salt shaker to dust with or make your own. Scrub into rugs. Allow to sit for a 1 hour then vacuum. You can lightly dust afterwards and leave it on. This will prevent further infestation. Dogs can be dusted with pure dia-earth. Dust once per week. Use a small handful and rub on coat. Be careful to avoid the eyes.

Outside

Lightly dust outside areas once per month, using only the DE as the salt would not be good outside. A better outside control method is nematodes and of course healthy soil.

## Dia-Earth/Pyrethrum Formula.

10 pounds. Dia-Earth

1 pound. Pyrethrum Dust Mix, the dia-earth with the pyrethrum powder. This is a very strong combination and will kill and control many other insects as well as fleas. Can be used inside or outside. Inside use very lightly around pet bedding, sleeping areas, frequently used areas, etc. Outside use only in areas where you know there are fleas. Use only sparingly. Diatomaceous Earth is available at Nitron Industries and many mail order companies.

## Crawling Pest Barrier

Fossilized shells of tiny water-dwelling organisms called diatoms which when ground, have microscopically fine, sharp edges. Use as a barrier to crawling pests such as slugs, snails, earwigs, etc., (must be dry to be an effective barrier). Apply early morning or evening to minimize disruption to Beneficial's. Use a mask to avoid breathing dust. Product is untreated, unheated agricultural food grade freshwater DE (not the DE used in swimming pools). Contains at least 12 minerals including 19% calcium and 33% silica. Here are some other DE products: Insect Dust, and Safer Ant & Crawling Insect Killer. Not all DE are the same. Investigate first!

## Pyrethrin & Diatomaceous Earth

Exciting combination of insecticides for controlling pests: The desiccant and barrier properties of diatomaceous earth with the knockdown properties of pyrethrin provides a wider range of control. Apply as dust or wet table powder.

Labeled for most crops: vegetables, greenhouse, ornamentals, livestock, lawns, fruit trees, and grain. Use to control aphids, cucumber beetle, ear worms, flea beetles, stink bugs, thrips, whiteflies, etc. Use in animal quarters to control mites, lice, and flies at a rate of 2 oz/100 sq. feet. Use as a grain protectorate: mix 1 lb. in 5 gallons of water per 1000 bushels. For crops, use 1-6 lbs. /acre, depending upon coverage & insect populations. Use with discretion, product is a non-selective pesticide. May leave a visible residue which can be washed off with water.

"All herbs make good flea control dusts, find one that works for you."

Invisible Gardener

### **Insect Dust**

Composed of diatomaceous earth, which is made from fossilized water plants so tiny and sharp that they lacerate the insect body and cause death by dehydration within 48 hours. Because it works mechanically upon the insects, they won't develop immunity. It may be safely applied indoors or outdoors, around home foundations, in corners and crevices inside. So safe you can actually rub it into your dog or cat's fur.

If you apply with a duster, wear protective gear to avoid inhaling dust. Controls ants, fleas, ticks, cockroaches, earwigs, slugs, beetles, and silverfish. 6 lb. bag treats 2,500 sq. feet.

### **Using Dried Pennyroyal or Peppermint**

Sprinkle dried Pennyroyal or peppermint on rugs, animal bedding, etc. Can also be made into a tea and used as a bath for dogs.

Grow more herbs in your environment. Growing herbs such as pennyroyal, peppermint, etc., will naturally repel fleas, etc.

Pennyroyal is a fragrant low growing ground cover. Easy to grow and effective against fleas.

You can alternate between any of the above-mentioned dusts.

Don't use anything that doesn't feel right for you. Always test a small portion of the rug to avoid color damage.

"Sometimes a good proper vacuuming will do a lot for Natural Flea Control"

### **Vacuum, Vacuum, Vacuum**

Suck em up!

The treatment is regular vacuuming of rugs, carpets and upholstery, pillows, mattresses, , etc.

Be sure to vacuum the pets' sleeping areas as well. Vacuum at least twice per week, daily is better for bad flea cases. Be sure to properly dispose of the vacuum bag otherwise the fleas will get out (tape closed and throw in trash right away). Vacuuming helps not only to rid yourself of the adult fleas but from the eggs and larvae as well. I realize that this is a lot of work but its necessary for proper control of fleas. When fleas are reduced then you can vacuum once or twice per week

or as often as necessary. I am not saying that the answer to fleas is vacuuming, though it does help. See also other natural products used in flea control:

A tip on the care of your vacuum bag. Make sure you have no holes in your bag otherwise the fleas may escape after you have just vacuumed them up! I suggest emptying out and replacing with a new one each time. I also suggest that you add a small amount of either DE or Pyrethrum into bag to kill them as they enter.

Do you have a bad flea Problem?

Vacuum everyday to start with! And make sure to empty or throw away the container bag. Not all flea combs are the same, try a few till you and your pet are happy.

### Using a Flea Comb

Your pet's first line of defense against fleas is a good flea comb and a good natural bath. There are special metal flea combs (better than plastic type) available that you can use to comb your cat or dog. This is a very effective method of controlling and reducing fleas. Combs monitor flea control problem by picking up flea eggs. You dip the flea comb into soapy water or you can add a little alcohol to the water, to kill the fleas. Comb during bad flea periods or better yet add some powdered Pyrethrum to your hand and brush in into the comb. Comb once or twice per day if you can. Feeding a little garlic to your pet will help them rid themselves of fleas, and it will also control worms. Feeding brewer's yeast to your animals will

also help control fleas on them. An herbal flea collar would be very useful here. Sometimes, electronic collars work well.

“ The first thing you have to do is to reduce their population ASAP. This is done by spraying the infested areas with a natural soap that will kill the fleas (but not the eggs).” The Invisible Gardener

Flea combs have fine teeth that remove adult fleas and eggs from the pets fur. Here is how you can make use of a flea comb to help reduce the flea population on your dog or cat:

Get ready a bowl of soapy water and put it next to you. Using the flea comb, start combing through the fur coat of your dog or cat. Pay particular attention to the face and neck and the area just in front of the tail. These are areas where fleas are frequently are found. The flea comb will remove both the adult fleas as well as eggs. Dip the flea comb into the bowl of soapy water. Fleas will be killed by the soapy water. Repeat the combing session several times a day if possible to remove as many fleas from your pet as possible.

There are many flea combs available in the market and price can range from a few dollars to thirty or forty dollars. Both dog flea combs and cat flea combs are available. Here is another trick. Sprinkle a little bit of Pyrethrum in your hand and then use the flea comb to pick it up. It will coat the comb with the Pyrethrum and then you use that same comb and brush them. An Excellent flea comb is called the

Flea Zapper. Yes, it zaps them without hurting the animal.

Flea comb alone will not work so use The Ultimate Flea control also.

There are many natural soap products on the market that will work in controlling fleas.

### **Safe Shampoo/Soaps for Dogs**

Bathing your dog regularly with a natural based soap will go a long way towards reducing pests on your animals. Always read the ingredients before buying. Avoid using any soaps with additives or coloring, dyes and in general avoid using if you cannot pronounce the ingredients! Be careful using shampoos that use pyrethrum with Piperonyl Butoxide. It's not the Pyrethrum that you should avoid but the additive. This stuff (PB) is harmful to your dog and you as well. A good safe shampoo called Flea Stop contains D-Limonene (comes from lemon peels) which kills flea's dead. This oil has been diluted enough so that it doesn't bother the animals esp. the cats.

### **Natural Castile Peppermint Soap**

Bathing your dog in Peppermint soap will kill all fleas and ticks while making your dog smell nice. You can also add a teaspoon of peppermint oil into a quart sprayer filled with water and use to spray or mist your dog before he comes into the house. Use a towel to dry.

This mixture can also be sprayed around the dog's or cat's bedding area and around the entrances to the house as mentioned in step 1.

See also biodegradable enzyme insecticide soaps

Use any natural Dog or Cat Shampoo:

This soothing, fresh smelling conditioning shampoo contains the pure natural essential oils of peppermint, myrrh, eucalyptus and cajuput, plus apricot kernel oil and extract of kelp in a base of non-detergent coconut shampoo. Many natural products contain all the right ingredients that make for an effective natural spray

"Stress can make an animal or human more prone to flea attacks. Reducing stress will reduce pest attacks. The principle laws of balance are the same in all living things. From the smallest to the largest, all living things require balanced energy. I would work on making sure my pet cat or dog or whatever animal gets the best organic food I can give it. I would make sure it got plenty of love and was happy. I would make sure it got plenty of exercise."

Invisible Gardener

### **Natural Pet Shampoo Guide**

Holistic veterinarians often recommend that dogs can be bathed every 1-2 months and may be bathed weekly when suffering from a bad flea infestation. Cats that tolerate bathing may be bathed once or twice a year, and once a month when infested with fleas.

**Shampoo Instructions:** Place cotton balls inside your pet's ears before bathing, and if fleas are present, always apply shampoo at the neckline to create a barrier against fleas trying to crawl toward your pet's head. Thoroughly wet your pet's fur to begin. Shampoo starting at pet's head, using a small amount of shampoo on a wet cloth to swab your pet's face and head, avoiding the eyes. Lather thoroughly around the neck and continue back over the body and legs to the tail. Rinse with warm water.

Continual use of the dusts, sprays and vacuuming mentioned above will provide a form of birth control for fleas. I suggest dusting once per month during flea season and spraying as often as needed.

#### **A question:**

There are several products on the market for flea control that work by applying a liquid on their backs and is absorbed into their system. This is really a poison. The word is still out (for me) on how safe they are. I would not use it unless you have gone over all possible choices and also gone over with your vet. Please look up the internet for latest news. Anyone who has information on this, one way or the other, please let me know.

#### **Beneficial Nematodes**

Using beneficial nematodes is the wave of the future.

Keeping the flea population down with beneficial nematodes.

Bio Flea-Halt: A relatively new nematode product that controls fleas outside! Using specific beneficial nematodes to control flea larvae and pupae, will effectively kill over 90% of both the larvae and pupae within 24 hours. Safe to use around the vegetable garden, lawns, etc.

The nematodes come packaged in a seven-ounce container that holds more than 75 million worms in a comatose state for up to five months. "They are alive, but not doing a whole heck of a lot." One package of the now commercially available product, called Bio Flea Halt, from the Farnam Pet Product Company, costs \$15. The worms are simply mixed with water and sprayed into a flea-infested backyard. Depending on the number of fleas and the size of the area, no flea should be left standing within a few days of contact with the nematodes. One package is enough to cover a 2,500 square foot area.

As long as the ground is kept well-watered, as it would be with most grass, the nematodes need no other attention. The worms can be used in any climate, as long as their food source is available. Across the country, wetter climates have the worst flea problems, but the nematodes aren't regionalist. Wherever there are fleas, they'll be ready to kill. The worms will work in a variety of places besides the garden, such as on gravel, and the bark of some trees. And, the nematodes will keep on searching for their next flea meal for up to six weeks after the last flea has died, preventing new fleas from re-infesting the area.

The reliable nematode kills off only harmful bugs, says Ross, who helped develop Bio Flea Halt! The nematode won't harm the other beneficial bugs that live in backyard soil, he says, so the natural ecosystem of the yard is preserved.

"Studies have shown that most beneficial insects are immune to nematodes."

The nematode preys upon the soil stages of fleas and white grubs; the larval stage of Japanese, Oriental, fuller rose, May and June beetles; and assorted chafers, cutworms, sod webworms, army worms, bill bugs, leatherjackets, pickle worms, squash vine borers, clear wing stem borers; black vine, strawberry root, citrus, and apopka weevils.

"A natural flea trap will not only help you to control them but will also give you a count of how many of them are there. I love the Ultimate Flea Trap!" Invisible Gardener



## **Here Fleas, Here Fleas...**

### **Ultimate Flea Traps**

Fleas like most insects are attracted to light. A trap can be bought that uses a light bulb and a sticky strip as the base. This trap works at night in a dark room. The fleas in the carpets are attracted to the light and are stuck on the sticky mat. There are many companies now selling this product.

A simple homemade version would be using a light clamp and shining the light onto a sticky mat. You can also use a bowl of soapy water and shine the light on the water or you can use cheap wine. The wine will also attract them. Shining light on the wine will make the wine scent travel further.

### **Fleas and Boric Acid**

"For long term control of fleas on your property, you must strive to constantly raise the energy level of your property. This is done by providing your soil with plenty of good rich compost, by regular mulching and by promoting a biological diversity."

## **How does Boric acid control fleas?**

### **Using Boric Acid**

Boric acid can be used in the home to control fleas. It can be safe if you follow

instructions. Just remember that if you have pets it can kill them as well as kill animals including humans if ingested or if it enters our blood. It is for this reason that I urge great caution when using this product. Borax laundry soap works great for this purpose because it has a fragrance in it that prevents animals from eating it. Nevertheless, it has to be used with caution and you must avoid breathing it.

Basically, you apply a small amount of the boric acid onto the rug and then you brush into rug removing any leftover dust with a vacuum. This dusting will kill any flea eggs as they hatch and will last for a longtime. You can add salt to this mixture at 50/50 to increase effectiveness.

"Boric Acid can be used safely if you follow basic precautions but please try my other methods first before you try using Boric acid."

### Invisible Gardener

Flea control with boric acid or borax is by far the safest, most effective and most commonly used method for getting rid of fleas in your home. Not only is it inexpensive, its effects can last for a prolonged period of time possibly up to a year. This makes it attractive compared to other chemical sprays where you would need to reapply after just a couple of months.

Boric acid or borax kills fleas by acting as a desiccant causing severe dehydration to them. Boric acid or borax is relatively safe for use as long as you follow basic precautions.

The key to success with boric acid as a flea killer is to properly apply it.

Where the powder is applied can be just as important as how you apply it.

### Here is how you can make use of boric acid effectively in your natural treatment of fleas

1. Clear away all areas that require treatment. Remove things around the areas to be treated such as shoes, toys, furniture , etc., from the carpeted areas. Especially food.

2. Begin by first vacuuming all the carpeted surfaces thoroughly to remove any fleas that are bouncing around. Clean and vacuum everything!

3. Sprinkle the boric acid powder lightly over all carpeted areas and don't forget under the bed and under the furniture. Pay special attention to pet areas, as these are likely to be areas where fleas are easily found.

4. Using a heavy brush, slowly brush the boric acid powder into the carpets. Wear a face mask. Work into the rug all the way to the bottom.

Scrub into the carpet until all boric acid disappears.

5. To make use of boric acid powder to kill fleas on furniture, simply sprinkle the boric acid powder very lightly over the furniture. Work the powder deep into the wells with your brush until powder disappears. Vacuum off all excess powder from the furniture and rug. Boric acid is not as effective at killing the adults, so you may not see the results for 2-6 weeks while the adult population dies off.

If you have been vacuuming (as I told you), you will not have so many adult fleas around when you do this, so be sure you vacuum first for a few days before doing this part. Allow the boric acid to sit for a few minutes and then vacuum up the boric acid that is left. Don't worry vacuuming will not bring up the boric acid you rubbed into the carpet. That will stay there and provide control for at least 6 months or so. New Rugs? Do right away and then once every 6 months for best results.

“While Boric acid can be used safely please think about it first and then follow through with care.” Invisible Gardener

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## **Natural Flea and Tick Control Hints**

A healthy animal keeps fleas off better than a sick one

### **Some Helpful Hints**

For long term control of fleas on your property, you must strive to constantly raise the energy level of your property. This is done by providing your soil with plenty of good rich compost, by regular mulching and by promoting a biological diversity. It will be this diversity that will automatically control the infestation of any one insect.

### **Stress can make an animal or human more prone to flea attacks**

Reducing stress will reduce pest attacks. The principle laws of balance are the same in all living things. From the smallest to the largest, all living things require balanced energy. The equation of life dictates that harmony be balanced by evolution or growth. In animals, this balance is maintained through proper nutrition, proper elimination and proper exercise. Keep yourself healthy by eating and exercising.

Keep your pets in shape by feeding them good natural organic food and giving them plenty of exercise. Read the ingredients of the food you are feeding your

animals. Avoid foods with chemicals as additives.

I love my pets and I will do whatever it takes to keep them happy and healthy

### **Old Tick Problem, New solutions**

They will usually show up on your pets but can attach themselves to you, too, if they are really hungry. Here are a few tips on their natural control.

First off, one must try to locate the source. Usually it is wild animals that will bring ticks and fleas to your immediate area. So, the obvious thing to do is to keep these animals out of your area. There are many really easy ways to tell these creatures not to come around your place.

#### **Using Coffee**

One thing these animals have in common is that they have an amazing sense of smell. That's how they find what they want to eat. They also come around for the water, since it has become very dry these days.

So, what we want to do is to use their sense of smell against them, without hurting them.

One of the easiest ways to keep unwanted wild animals away is to use coffee beans. Try and get the vanilla ones because they are more potent and will last

longer. Get the coffee beans and sprinkle the beans around the perimeter of the property. This will last for about a week or two, but it might be enough to make them go somewhere else. If that doesn't work at first, then don't wait two weeks to refill. Do it weekly.

Another thing I would do is not only use the beans but also spray the area with cold brew coffee. This you should apply as often as needed. The coffee smell will only last for a few days and is really meant to kill on contact the ticks (not the animals). How much? I would add 8 oz of cold brew coffee to 1 gal water. Spray the area around as well as the lawns and other flower areas. The coffee will not harm the plants and it actually will protect them as well as kill off any insects including Beneficial's, so be careful using. The spray will have to be used at least once every few days to keep the ticks and animals away.

## Using Garlic

Garlic has always been one of my favorite "tools" against most insects and animals. Garlic will kill most soft bodied insects including fleas and ticks.

Garlic will also repel most animals when they first encounter it (unless you have Italian fleas/ticks, in which case they love the stuff). I use both crushed garlic and chopped garlic. The crushed garlic is great for making your own "garlic juice" and the chopped garlic is great for sprinkling around and the little pieces take a while to decompose.

The coffee and garlic can be used together for an even more potent repellent!

However, it would be good to try using them separately and not together in the beginning since it really is a confusing smell for most humans (I don't know if I want to eat or drink it), and it is a very strong smell. All of these methods are for outdoor use and not indoors.

### **Using Garden Grade or Food Grade Diatomaceous Earth**

You can dust your animals with food grade DE. Just go to a health food store and get the food grade DE. Take a small amount of the DE in your hand and lightly dust the animals coat with it. Just start at the back of the neck and rub it in. Avoid getting into your and your pets eyes. Use lots of water if you do. Ok for cats too.

### **Natural Flea Control Resource Guide**

Flea Busters Unique Borate Powder Has Many Important 'Flea Killing' Features a powder which is milled to be extremely fine and is also statically charged. The 'fine' powder allows for easy installation while brushing into the carpet and for light application (very small amounts need to be applied for effectiveness). The 'statically charged' powder provides a clinging effect to carpet fibers. This allows very little to be removed by vacuuming, thereby providing long-lasting protection. It attaches to the flea larvae as they wiggle by. The effectiveness of killing (dehydrating) flea larvae is greatly increased.

The Rx for Fleas Plus also has a neutral pH of 7.0. While being very safe for carpets, the neutral pH is actually more important in a pest control sense by not

causing the targeted pest (flea) to be repelled from the powder. Roaches, ants, fleas, etc., can sense and avoid an alkaline or acidic substance, but crawl right through the neutral pH material.

Borate powders are much safer than most liquid pesticide alternatives. When installed properly, the exposure to people and pets is very minimal. Flea buster's Rx for Fleas Plus is 33% less toxic than pure boric acid powder products! Flea busters Powder Provides More Carpet Area Coverage the Flea busters label identifies the maximum allowable coverage for the container size. This means in 900 square feet you can't use more than 3 lbs., but you can use less! Flea busters service company averages less than 3 pounds of powder to treat the average home of living room, halls, stairs, family room and 3 bedrooms — five average size rooms! Because the powder is so fine it only requires a small amount applied everywhere to be effective. More is not better! Only a few microscopic crystals are all that's necessary to kill the flea larvae.

### **Biodegradable enzyme insecticide soap**

#### **Product Description**

Kleen Free Naturally is a proven biodegradable enzyme insecticide soap that is used worldwide as a pest control (bio-pesticide) multipurpose cleaner. We sell it in a concentrated (8 to 1 with water) and pre-mixed form, large and small quantities. This revolutionary product is now available to the general consumer. Preformed enzymes have been used widely in restaurant and institutional settings for many years, due to their low toxicity and superior cleaning properties. They are also becoming widely accepted in the field of pest removal, as enzymes leave no toxic

residues and the enzymatic effect on the insect exoskeleton is quick and safe.

## Product Details

### **Brand: Eco Living Friendly (ELF brands)**

**Ingredients:** natural enzymes. Kleen Free Naturally is an organic, non-toxic, ecologically safe cleaner and bug eliminator. Gets rid of: bedbugs, scabies, mites, lice, chiggers, no-see-ums, fleas, crabs and many more insects. A unique organic enzymes formula specifically designed to eliminate pests and clean areas safely.

Pet Power is a natural, organic concentrated cleaner that can be used on all your pet related cleaning problems. Pet Power can be used to clean pet bedding, bird cages, dishes, kennels, litter boxes, horse stalls and is safe to use on and around your pets. Be careful not to get it into your pet's eyes. Pet power is not an insecticide. However, it can be used for flea, tick and lice control as a spray or dip. Destroys skunk and cat spray odors or any foul odor. Cleans Kennels and Horse Stalls and Trailers, breaks down organic matter, rids area of odors, and will act as a fly repellent.

Pet Power cleans so thoroughly that it destroys the life line of Bacteria, destroying the bacteria itself says McMasters University. Orange Pet Power works well on all surfaces, including carpet, upholstery, vinyl, floor and concrete. It is an emulsifier which contains no synthetic chemicals, petroleum distillates, or detergents. It is also 100% environmentally friendly, biodegradable, non-toxic and allergy free.

## Much to Do About Lyme Disease

Lyme, Conn. - Lyme disease got its name from a small town in Connecticut in which this controversial disease was first recognized in 1989. It was found to be carried by a tick called Black Legged tick or more commonly known as Deer Tick since deer are one of the main carriers. This disease is so well known, that it has become popular disease to have whether you actually have it or not since its detection is very difficult and not widely acknowledged by professionals, i.e., many people believe that they have Lyme disease and insist on it but their doctors do not believe they have it. Doctors do not agree amongst themselves as to what constitutes Lyme disease since it mirrors a wide variety of other diseases and problems. Current treatment is long periods of regular doses of antibiotics, but this can lead to the population as a whole using more antibiotics (whether they have the disease or not) thereby increasing the diseases' resistance to the antibiotics as well as increasing the patients resistance to antibiotics, which is not good in the long run because you may need antibiotics in the future for a serious health problem like E bola , etc. Later on in this article I will go over some natural ways you can fight this off as well as prevent the tick from attaching to you or your pets.

Experts are promoting another even more controversial way of controlling Lyme disease. Kill off the deer! In the small Maine town of Monhegan Island, the townsfolk voted to hire a professional deer slayer to kill off all the local deer herd! This just shows you the Lyme disease panic that is gripping people everywhere. This type of misguided enthusiasm will not work since the black legged tick also hosts other animals such as dogs, cats, rodents, humans; most animals that have blood

(hint), so by killing off deer we will not deter the tick populations (instead it will drive them to look for new hosts).

Lyme disease has been recognized as far back as 1950 with even further indications that it has been around for centuries! Certainly the tick will continue to survive for a long time carrying with it the bacterial host so how do we cope with it without killing off all deer and without spraying chemicals or becoming scared of nature? Read on....

### **Steps to take to minimize getting Lyme disease**

1. Wear proper clothing that protects you when going outside to work or play or hiking or camping. Tick season is usually right after the first spring rains when the earth is warm at night. Tick season can last through the summer and into the fall in most places. Wear long pants, long sleeve shirts, and long cotton socks. Tie your pant legs with a string or rubber band to prevent them from climbing in from your pant legs. Do the same with your long sleeve cotton white shirt. Button down the sleeves and collars if possible. Avoid dark clothing to reduce heat buildup. Darker colors are less attractive than white to ticks. Wash you're clothing with any natural Castile Peppermint soap to increase effectiveness as repellent. You can also use Castile soap to spray around pants, or whole body just before going out if you have suspicions of there being a tick infestation in the area you are working or playing in. Natural Castile Peppermint soap added to water at 5 tablespoons per quart water and misted on clothing will last quite a few hours at repelling ticks. Citronella Oil when added to water ( 2 drops per quart water) and when sprayed on

clothing will also be effective against ticks. You can also use garden grade Diatomaceous Earth by either adding 1 tablespoon per quart water and misting clothing and or area or by simply dusting DE on pants before going out. You can also dust DE in the area you are going to be in. This will kill and repel ticks for a short period of time. Pure Pyrethrum powder can also be used as a dust on pants but avoid getting them on you. DE and or Pyrethrum can also be dusted on your dog before going outside or on a walk, etc.

## 2. Use only natural sprays to control

Any Natural Castile Peppermint soap will be an effective tool for this purpose. Start off by bathing with it; this removes all odors which ticks are attracted to. Carbon dioxide given off by humans as well as other body odors only work to attract ticks and other blood sucking creatures. By using the soap they will smell only the peppermint and not you! You should also wash you're clothing with the soap to increase the peppermint odor the clothing will give off. Use it to wash your hair, allowing the foam to sit for a few minutes. Dogs will love this too. Take a bottle of Peppermint soap with you (it's a concentrate and will last a long time) whenever you go camping, hiking , etc. Take along a quart sprayer or even smaller. By adding water and soap you can mist yourself regularly as well as you're camping area to increase effectiveness of peppermint as repellent. Planting peppermint around gardens and lawns will help repel ticks. Natural Castile soaps are environmentally safe ( you can use it in a stream!), use it to brush your teeth or as a shampoo. The ticks will not find you! Citra Solve and Orange TKO are also both effective repellent for ticks. Learn to spray your camp site with either a liquid

DE/soap mixture, or the Citra Solve or Orange TKO. Use 1 tablespoon per quart of water. Spray areas you are working or playing in. Avoid contact with skin and or eyes. Avoid using if you have cats.

Garden grade DE can be added to the natural Castile soap to increase its long-term effectiveness. DE and or soap will kill the tick on contact. DE can be dusted lightly around your pants before going out. The DE will last you all day or you can re apply. DE can also be dusted around a campsite or on trails, and dust your dog before going out. One handful is enough for a dog. Start at top of neck, behind head and thoroughly dust coat. Allow to stay on dog as it will not harm him. Avoid getting into eyes, wash with water if you do get on eyes. Use a collar. You can either get an electronic flea collar for yourself and attach to ankle or get an herbal flea collar instead. Either will work to keep ticks and fleas off you and your dog. Avoid chemical flea collars. See Flea Chapter.

### 3. Be careful what you eat

Eating garlic during camping, hiking, or outside work is also an effective way of repelling ticks from attaching themselves to you and your animals. Another way to use garlic is to put a small piece in your shoe before you go outside to work, hike , etc. The garlic will be absorbed by your body and given off through your pores effectively repelling ticks fleas, etc. Of course, you may be putting your friends at risk (they will stay away from you) as well as your fellow hikers but you will get used to it. Planting a garlic barrier around your property will also work in the long

run as an effective tick repellent. Feeding your animals garlic also will protect them. Another way to protect your animals from tick attacks is to use these new flea control methods that you place a drop on the back of their neck which provides 30 days of flea protection. This also works for ticks! Ask your veterinarian. Brewer's yeast is another effective food supplement you can use for yourself and for your pets as an effective flea/tick repellent.

#### 4. Proper tick removal

If you find a tick, proper removal is very important as improper removal often leaves the head imbedded in the flesh which will cause infection and increase possibility of getting Lyme disease. Using the proper tweezers is important. Try Uncle Bills Sliver Gripper or any Tick Removal Kit which comes with tweezers, magnifying lens, alcohol wipes, two plastic bags for keeping the suspected tick for later identification and a tick identification card. Always make sure you have completely removed all of the tick including the head.

Application of hot Golden Seal tea directly on the infected area will help you to heal faster. Vitamin C will also increase your return to health and reduce infection. Echinacea and Golden Seal mixture taken internally will help you fight off any infection or disease. Vitamin E taken internally and applied to bites will also reduce infections and reduce your chances of getting Lyme disease.

A few things to remember

- 1.. Ticks will always be around

2.. Deer will, and should, always be around.

3.. Lyme disease is a reflection of a weakening human immune system. All living beings are being attacked by chemicals and are breaking down in their ability to fight off diseases, while at the same time the very same disease and pests are becoming immune to the chemicals. Chemicals weaken our society as a whole and weaken our biological systems.

4.. Keep yourself as healthy as possible

5.. Keep your animals as healthy as possible

6.. Reduce stress in your lives.

7.. Drink pure water

8.. Breathe pure air

9.. Eat pure food

Cut a garlic clove in half and place into each shoe. No ticks or fleas will bite you!

Invisible Gardener



Chapter 19

UNDERGROUND PEST CONTROL

## How to Control Gophers, Moles and other Underground Creatures

### Observation

Gophers can do a great deal of damage to the natural ecosystem. I do not recommend the use of traps as they are inhumane and very cruel. I believe that you can keep gophers out of your property without killing them. Only kill them as a last resort.

How can you tell whether you have a gopher? Gopher mounds have dirt pushed off to one side of the mound while a mole mound will be volcano shaped with the center at the entrance to the tunnel (usually plugged up). Poisons do not work on moles!

### USING SMELL

Hair today, gone tomorrow! A good "gasser" is decomposing hair. A strong odor is given off as the hair decomposes. Placing human hair in the gopher tunnels will effectively keep them out of passages and should be placed in new tunnels as they appear. Hair works best on hot days and hot nights: the heat causes the hair to smell up the tunnels!

Get your hair from "the good ole boys" barber shops instead of hair from a salon since most men spray less "stuff" on their hair. If you can, use animal hairs such as dogs or cats since this will repel the gophers even more effectively. Visit your local pet parlor! Basically, you can use any hair you can find.

## USING GARLIC AND SESAME OIL

To 5 gallons of water add 1 oz each

Only kill these creatures if you really have to.

Use anything natural that has a strong odor. Cotton balls soaked in garlic will work well.

Crushed garlic: use a panty hose tied into a ball, squeeze garlic juice out, and add 1 oz of sesame oil. Mix well and then use a deep root feeder to inject the mixture all the way around the area you want them out. Inject into the tunnels whenever possible. Do daily, and then weekly, as needed.

## Holy Smelly Cotton Balls Batman!

A cotton ball soaked in either citronella oil, garlic oil, or crushed onions and placed into the gopher tunnels will disgust them enough to make them leave the area! Wear gloves to disguise your "human" scent. Cover up the entrance and pat down the soil. Repeat at all the locations where gophers or mole "mounds" are present. Return the next day and find the tunnels out of which the cotton balls have been tossed. That is an active tunnel.

Throw the cotton balls back into the tunnels and cover the entrance with a large rock. This will last anywhere from a few hours to a few days. They will be back once the smell has disappeared.

Nothing personal but many women spray their hair with many things which don't decompose too well. On the other hand, this can prove to be a plus since some hair products stink and the fact that they don't decompose could mean that they will last longer under adverse conditions!

### **Coffee Beans**

Place coffee beans into gopher tunnels. Will last a month or so then replace.

### **Using Physical Barriers**

*Gardener's Supply, Peaceful Valley, or Arbico or Gardens Alive!* To name a few.

You can also use plants that gophers naturally abhor. Garlic and onion plants are avoided by gophers/moles and make excellent barriers. Other plants gophers hate are herbs such as tansy, peppermint, spearmint and rosemary.

A good physical barrier is one that you can plant in a bulb! Yes, you can plant paper white narcissus around the border of your property. As they grow in every year they will make a living barrier that will keep gophers, moles and other underground creatures out of your property. Narcissus bulbs are toxic to them. Another bulb you can plant is called Society Garlic. This one will also help to keep underground animals out of your property.

The use of animal predators is the one of best ways to naturally control go-

phers. If you have animals, the use of poison is not recommended.

Cats and dogs will chase gophers and sometimes eat them. Other predators that will eat your gophers for dinner are king snakes, gopher snakes, hawks, coyotes, and owls. Try buying a gopher snake or king snake from your local pet store and releasing it down the gopher tunnel. All underground creatures do not tunnel any deeper than 18 to 24 inches. Remember this when you are making a physical barrier.

- Because moles seldom venture to the surface, they are seldom seen.
- The mole is built for digging underground, equipped with large, heavy claws.
- Moles are solitary creatures except during the brief spring mating.
- Stop using poisons that can harm your pets and hole!

A king snake is also a natural enemy of the rattlesnake. Or try building a nesting home for owls and other birds. There are many ways to use sound to tell the gophers that you want them to leave. One way is to place a speaker on top of the ground on the area where you don't want them and play something through it really loudly! Another thing that works is to buy or make your own clanker!

What is a clanker? It's a wind-driven device which can be made to look like anything. As the wind turns it, it makes a sound which is transmitted straight down through a pipe into the gopher tunnel. Eventually the gophers will get used to it.

## Gopher It

There are many different types of battery operated "Gopher Getters" which are placed into the ground to protect vegetable gardens and small lawns. They give off ultra-high sounds to drive gophers and moles away. They cover a 1,000-square foot area. This product offers a safe method of repelling rodents (gophers, moles, ground squirrels, and pocket mice) with no damage or danger to the ecological balance. Gopher It is one type which does not kill but repels. They are available from many catalogs. Try *Gardeners Supply*.

## Using the UnderGround Exterminator

If you use the Underground Exterminator, then you simply place one end of your garden hose into the tunnel and hook up the other end to your car's exhaust system and run the car for about 1/2 hour. The cars fumes (carbon monoxide) will settle into the tunnel and kill them. Extremely effective because it goes to the rodent by using pressurized engine exhaust to fill burrow with odorless carbon monoxide. These shrewd rodents may not go into traps or eat poison, but they must breathe.

- It eliminates more than one at a time.
- ONE solution for ALL underground rodents.
- No need to dispose of dead or wounded rodents.
- Your cost is under \$20 at your local hardware store and it can be used year

after year. A small price to solve a long term and damaging problem.

- Empty tunnels will be used by migrating moles in the fall.

#### U. S. VETERINARY STUDY:

"Gasoline Engine exhaust induces unconsciousness in rodents and death occurs within 5 to 7 minutes without pain or discomfort."

Google: THE UNDERGROUND EXTERMINATOR



Chapter 20

NATURAL ROSE CARE

## Natural Rose Care Basics

Understanding the simple basics of growing roses and applying it is the mark of an excellent organic rose gardener.

### Getting Started

The first thing you have to do is address the nutritional needs of your property as well as that of the plants. Proper nutrition is the KEY to natural pest and disease control. Anytime you treat the cause, you will be controlling the cause.

### **Avoid High Nitrogen at all costs**

Yes, you will have to switch to Organics if you want to regularly control trips, aphids, and other pests naturally. Organics and chemicals do not mix well. You may get away with good results for a few years longer than if you were completely chemical, but sooner or later you will pay for it in the form of asking yourself, What am I doing?

Not just the plants and soil suffer; you will also suffer from exposure to the chemicals in the fertilizer or pesticide, etc. Fertilizer exposure can be as dangerous as pesticide exposure. So, decide now if it's organic that you want.

## 10 Steps to Healthy Organic Roses

### 1. Soil Care

- a. Live Compost (Mycelium rich)
- b. Rock Dust
- c. Mulch
- d. Earthworm Castings

### 2. Variety vs. Location

- a. Heirloom
- b. Coastal
- c. Desert
- d. Buy Disease Free

### 3. Organic Fertilization

- a. Soil application ...soil drench
- b. Foliar application ...use compost and or earthworm casting tea

### 4. Environmental vs. Stress

- a. Light
- b. Temperature
- c. Wind
- d. Weather
- e. Human

f. Animal

5. Cultural vs. Stress

a. Proper Pruning

b. Proper Tool Care

c. Keep plants free of weeds, diseased leaves, disease-infested plants or canes

6. Use only Natural Pest Controls

a. Strive to have healthy soil

b. Work on keeping Brix levels as high as possible

7. Use only Natural Disease Controls

a. Healthy soil is very important as all disease start in the soil

b. Keep your tools clean between pruning

8. Minerals vs. Brix Levels

a. Maintaining Brix Levels

b. Use a Refractometer

9. Bacterial vs. Soil PH

a. Compost

b. Earthworm Castings

c. Animal Manures

d. Bacterial Products

e. BioChar

## 10. Water Management

a. Drip Systems

b. Soaker or Blubber

### **Organic or Chemical**

Remember, you can't be organic only when it suits you to do so. Organic demands that it become your way of life.

**"Take Good Care of the Soil and the Soil will take good care of your Roses"**

**Invisible Gardener**

If you are a first time rose grower there are many things we must agree upon before starting. How much time do you plan to spend on your roses? Are you a part-time rose lover or are you going to really go at it? There are many good books available on the subject of growing roses. Take an organic rose growing class. Growing roses for show is a great deal of fun and also lots of work. You will also have to decide if you are growing organically or if you will be using chemicals.

Our health is the number one reason for growing roses organically. Consider the many chemicals on the market today and the many health problems that arise from their continual use. Remember that children and older adults are at greater risk. Secondly, consider the environmental pollution associated with their production, transport and consumer use. You can have that perfect show rose grow organically and stay healthy to enjoy it. An added benefit is that roses organically grown are more disease resistant and they last longer!

Get a "GardenGro" Filter (this is just one of many garden filters available on the market, just Google "Garden Water Filter") to remove the chemicals from the water supply that goes to the garden. Clean garden water is important in order to make your compost tea work.

Provide for your roses a constant supply of good rich Compost

### **The Big Switch**

Going from Chemical to Organic can be a traumatic experience to both the rose and the grower. Plants as well as people go through chemical withdrawals. You must allow at least one year to complete the switch (see converting to organics). This allows both you and the plants time to adjust to the new organic regime. While it is best to start off organically, you may not be able to. Commercial rose growers are

not organic and therefore when you first purchase your roses they have been grown chemically! Don't Panic! Given time your roses will love being grown organically.

### **Which Variety**

The varieties you choose are important. Environmental conditions determine what varieties will do well and what will not. Don't just plant any rose or you will be sorry! Take into consideration the following: Is it hot and dry? Is it very wet? Fog? Winds? Where are you located? What varieties are being grown in your location?

### **Location**

Choose an airy location to allow for air circulation to reduce fungus development. A sunny location is a must if you're going to have stress-free roses. Early morning sun is best for roses. They like to look at sunrises! Give them as much sunlight as possible.

### **What Condition my soil is in?**

The soil's condition determines everything. If you have all of the other conditions correct but not the soil, you will not be able to grow them organically and chemicals will be needed. The key to growing anything organically is healthy soil. Living soil allows for a functional diversity of organisms. Functional diversity is how organisms cooperate with each other to provide plants with the trace minerals they need. This sharing of resources provides for an ecologically balanced healthy

system.

The greater the balance, the higher the energy level, the greater the nutritional levels, the less the stress and the less the pests.

### **Know your Soil pH**

Different plants require a different pH for maximum benefit. Know your plants and their pH requirements. In soil where the pH is too high it will not be able to assimilate certain minerals resulting in a trace mineral deficiency which invites a pest or disease attack. Most animal manure's have a high pH and you must use peat moss (coconut hulls are better — try *Gardeners Supply*), forest shavings, etc., to counter balance this. Rock dust also has a high pH (8-9 pH) and therefore must be balanced with a slightly acid mulch/soil compost. Roses love a pH of 6.5

### **Roses with High Brix Levels are Healthier**

Just remember that you want your roses to have a brix level of over 18 in order not to get attacked by pests and diseases. Learn to keep your roses between 12-18 brix level with a combination of organic nutritional sprays, rock dust applications, and proper organic fertilization as well as correct pruning methods.

### **Watering**

If you have frogs hopping around your roses, you are probably watering too much! Roses do not like overhead watering. Always provide either a soaker hose or

a drip system for them. Regular watering is important. Avoid over watering. Slow deep watering is the best. Use a 2 gallon per hour drip head, one on either side at approximately 6 inches out. A soaker hose will work fine for this as long as it doesn't spray water onto the leaves. A soaker hose can be buried or mulched over to prevent this. Dig a well around the rose to hold in the water and the compost and mulch. Mulch should be 2-3 inches deep.

### **Basics: Nutrition, Compost and Roses**

Get good at making compost. Experience is the best teacher here. The better your compost, the better it will be for your plants and the more effective the organic system will be. Remember, proper nutrition is the cornerstone of the organic system and compost is its main building block. Roses love compost so feed it a cup of good rich compost once each month.

### **Fertilizing Your Roses**

Avoid using high nitrogen fertilizers. Nitrogen is naturally provided in the organic system and is never lacking. In the organic system, nitrogen is easily available and only used when needed and in small amounts, for longer lasting results. Some natural sources of nitrogen are animal manures such as horse, cattle, llama, rabbit, earthworm casting, chicken , etc., they also provide natural bacteria, enzymes, and trace minerals.

### **Organic Fertilizers**

Chemical fertilizers lack bacteria and enzymes essential for soil life and for nutritional exchanges necessary between plant and soil. Compost is the finest organic fertilizer you can use on your roses. You will need to add a good organic fertilizer, approx. 1 cup per month per plant. The Organic fertilizer should be around a 5-5-5 with Nitrogen no higher than 7. There are many good organic fertilizers on the market today. Read the ingredients. Avoid urea-based fertilizers. Find two or more different organic fertilizers and switch between them. Or you can make your own fertilizer.

### **Making your Own Organic Rose Fertilizer**

1 pound. New Jersey Greensand, 2 pounds Rock Dust, 2 pounds Alfalfa meal, 2 pounds Fish meal, 2 pounds Seaweed powder, 2 pounds Earthworm Castings, 1 pound Epson Salt, 1 pound Chelated Iron. Mix together, use at 1 cup per plant per month. Water well. See also organic fertilizer information for another version of rose fertilizer or check out my organic rose fertilizer.

### **Minerals**

Minerals in a fine form such as rock dust, granite dust, decomposed gravel, greensand, soft rock phosphate. Minerals from the ocean such as kelp meal, fish meal, seaweed powder, crushed oyster shells. Minerals from the animal kingdom such as bone meal, feather meal, minerals from animal manure.

## Using Rock Dust

Rock dust will help to increase the energy level of the soil and in turn will quickly raise the roses and the soil's energy levels. This is primarily due to its high calcium levels as well as high iron, and its large selection of trace minerals, which are made immediately available to the soil and plants. To avoid the dust, rock dust can be made into a milk like liquid and sprayed on the leaves. Use only 1 tablespoonful of rock dust and 1 tablespoon of Diatomaceous Earth (garden grade or food grade only) per gallon of distilled or polarized water (Stir in a clockwise direction for 1 min then stir quickly in the opposite direction for an additional min). Allow to settle for 5 minutes. Add 10 drops Superseaweed™ or any concentrated liquid seaweed or natural fish emulsion. Strain into sprayer. Spray once per month, or daily, as long as pest infestation occurs.

Maintaining maximum Brix levels in your roses is necessary, if not the most important aspect of growing roses that anyone can learn and use. Look up refractometer information on internet to read more and obtain your own refractometer.

## It's Alive

Mycelium are nature's cooks. They take raw materials (minerals) and eat them, converting the minerals into soluble compounds which are easily assimilated by the plants. The Mycelium eat first! We are in essence feeding the soil! Try to use a garden filter to filter out the chlorine in the city water. Chlorine kills Mycelium. Chemical fertilizers kill the Mycelium. A Mycelium alive soil will help you to have beautiful healthy roses.

**For Bacterial Sprays use any of the following, or mix them.**

**Nitron A-35™:**

A bacterial activator. Provides enzymes. Helps bring the soil back to life. Use 1 cup per plant per month. Ok to use along with organic fertilizer but will need to use 1/2 cup fertilizer less, as the Nitron will make more of the fertilizer available. Roses love Nitron A-35. Nitron-A35 is available from Arbico Organics.

**Agri Gro™**

Provides many natural enzymes needed by the soil for roses to be happy. This stuff is amazing!

**Using a Liquid Seaweed**

Seaweed is full of trace minerals and bacteria that your roses will love. For more information see chapter on making your own SuperSeaweed.

**SuperSeaweed™**

Provides trace minerals and bacteria which your roses need.

A Natural Biodynamic spray. For best results add 10 drops per gallon of filtered water one day before use and allow to sit. For more information see chapter on Making your own SuperSeaweed. Available at my website.

## Compost Tea or Earthworm Castings Tea

One of the best microbial sprays is made from either compost tea or earthworm castings tea. Place 1 cup a panty hose and tie into a ball. Suspend in a glass gallon container filled with filtered water. Allow to sit in the sun for 24 hours. Spray in the evening. A good program is to add 1 cup Nitron A-35, 1 cup Agri-Gro, and 10 drops Superseaweed into a gallon of compost tea. Aerate overnight then spray on roses. See Compost Tea, Earthworm Casting Tea page for more info. For best results, you should always add rock dust to you're composting process.

## Milk

An excellent bacterial/mineral spray, milk is also a good source of calcium. Milk provides a natural bacteria that prevents and fights various diseases. Milk will kill off fungal diseases while allowing beneficial bacteria to grow. Fill a gallon sprayer to within 3 inches of the top with filtered water or solarized water. Solarized water can be made by filling a gallon glass container. A good container is the water companies 5-gallon glass or plastic bottles. Allow to sit in the sun. Stir regularly to remove any chlorine, etc. Overnight will be long enough. Spray on leaves. You can add a liquid seaweed concentrate such as Superseaweed™ or Maxi Crop™ to increase effectiveness.

## Organic Alfalfa Tea

The biodynamic farmers know the benefits of spraying with Alfalfa tea in early spring. Alfalfa is very high in nitrogen (10%), very high in many trace minerals, high in iron and especially high in natural bacteria. To make Alfalfa tea, add 5 cups Al-

falfa meal into a panty hose then tie into a ball and place inside a 5-gallon container of filtered water. Allow to aerate for one day. Then add 1 cup fish emulsion, 1 cup Nitron A-35, 20 drops Superseaweed. Add 1 cup of this liquid to 1 gallon of water. Can be poured around base of roses or sprayed on leaves. If spraying on leaves, filter before pouring into sprayer so as not to clog up the wand tip.

### **Some More Bacterial Sources**

Animal manures provide many different types of bacteria needed by the soil. Choose from different types of animal manures. Horse, cattle, sheep, llama, rabbit, are some to name a few. Do not use your dog or cat manure. Do not use any carnivorous animals as their manure could contain harmful parasites. Take a drive out into the country and discover for yourself what resources are available for you in that area. Chicken farms, (egg farms), rabbit farms, dairies, horse farms, etc., all make good sources of these materials. Talk with them and see what they want for it. Sometimes they'll give it to you free! Ask them if they spray any chemicals on the manure. Avoid using any manure that has been recently sprayed. Allow at least 6 months before using. Composting will remove most chemicals.

Blood meal, liquid seaweed, fish emulsion, Nitron A-35 <sup>TM</sup>, Agri-Gro <sup>TM</sup>, SuperSeaweed <sup>TM</sup>, Willard Water <sup>TM</sup>, to name a few are some of the commercially produced products.

Learn the Bio-Dynamic system. This will help you to increase your basic understanding of how Mother Nature has put everything together and how it works and best of all, how to utilize it to your benefit.

Please note: There are many different products on the market which can be used in place of the above. I, however, can only recommend those products which I have used and tested in my organic gardens. If you have a product that you think I should know about, email me.

**PH LEVELS AFFECT NUTRITIONAL AVAILABILITY. DO YOU KNOW WHAT THE BEST PH IS BEST YOUR ROSES?**

For Sick Plants

20 pounds. compost

1 cup Rock Dust

1 cup Alfalfa meal

1 cup Seaweed powder

1 pound BioChar

Mix into a good rich alive compost the cup rock dust, alfalfa meal and seaweed powder and apply to sick plants as a top dressing. Apply 1 inch layered. Water well. You can use any type of rock dust as your mineral source.

Spray with a liquid seaweed concentrate such as Superseaweed or you can use Nitron A-35™ or Agri-Gro Premier Plant Food™. Apply it as often as needed.

**Natural Rose Care Diseases**

## Bio Dynamic Formula

Here's a very old biodynamic formula which will help you to control many diseases on your roses, plants, etc. Obtain horse, cow, sheep, llama, or rabbit manure. Make sure it's not more than 6 months old. You will need only about 1-5 lbs. The amount depends on the number of roses, etc., you want treated. One cup of this manure mixture will make 3 gallons of a liquid spray. One gallon of this spray will take care of 10 full grown roses, etc.

Add 1/4 cup rock dust per every lb. of manure you get. Add 1/4 cup powdered seaweed per every lb. manure used. Place this mixture into a large clay pot and mix well. The clay pot should have a cover for it. You can either bury in ground (in a shady area) or place in your basement if you have one. Allow to sit for 1 month. Take 1 cup of this mixture and place into a pair of panty hose. Place into a 5-gallon glass container such as the one mentioned above. You can buy these from your water company. Allow to sit in the sun for at least 1 hour, three hours is best. Remember to use only filtered or solar water. If you are going to use solarized water, you can add city water to the five-gallon container the day before, stirring regularly. Keep what mixture you are not using inside the clay pot. This will be effective for up to 1 month. Make a new batch if longer than that. Spray on the leaves. Works best in early morning or early evening. Spray daily until effective.

## Using Molasses

(You can use molasses to control many pests on your roses, etc.)

### **Here's a good formula to use**

To one gallon filtered or solarized water add 1/4 cup organic molasses. To this add a dash of soap such as Natural Peppermint soap (1 tablespoon will do as it is a concentrate). Any natural soap will do, experiment! Spray on leaves. This formula only works on roses which are already being fed properly and have a good live compost/soil to rely upon. The molasses provides a special bacteria as well as sugars in a form available to the plants.

### **Bordeaux Mixture**

Bordeaux mixture works well against most mildews and fungus such as powdery mildew and rust. You can make your own Bordeaux mixture by adding three ounces of copper sulfate (bluestone) to 3 gallons filtered water and dissolve well. Add 5 ounces of hydrated lime and again mix well. Ready to use at 1 part mixture to 1 part additional water. Can be used at full strength for bad infestations.

### **Fine Horticultural Oil**

Using Sun Sprays Ultra Fine Horticultural Oil will smother the rust spores and it will reduce them during the growing season. Fine Horticultural Oil can be used year-round without burning the plants. If used during the early spring, it will help to control and reduce many fungi.

### **Biologicals**

Biologicals are used to control many varieties of rose attacking caterpillars: BT, MVP, Neem (available from Gardens Alive, etc.). Use Tangelfoot™ (available from

most garden centers) and place a line around the base of the plants. It will keep caterpillars (and snails) from climbing up. DE made into a paste and painted around base of rose will work also.

## Soap

Using soap will control spider mites, aphids, ants, trips and many other rose pests. Use 5 tablespoons of Natural Peppermint soap, or any other natural soap, per gallon of filtered water. Safer Insecticidal soap is also excellent to use. Proper pruning is very important and can only be learned from experience.

## Baking Soda

Baking soda can be used to control most diseases but should be used only as a control tool and not a crutch. Don't get into the habit of using baking soda every time there is a problem. In a cup add enough water to fill to 3/4 cup. Add 5 tablespoons of baking soda, stir in well, add 5 tablespoons vegetable oil or ultra-fine oil or fish oil or coconut oil, add 2 tablespoon Natural Peppermint Soap or any natural Castile soap. Stir in well to dissolve then add either 2 tablespoons of vinegar or apple cider. Fill cup to full. Stir well to dissolve, pour either into a quart sprayer filled with water (preferably filtered or solarized) or add to hose end sprayer, adjust mixture.

## Ants and Roses

Quiet Control is what you seek. It is not necessary to kill them. For more information on ant see Dances with Ants chapter.

The Less the Stress...

### **Controlling Aphids and Ants on Roses**

The other day I had a caller on my radio show. She had heard my previous remarks to a caller concerning ants and aphids and their relationship. This caller was certain that only some aphids are herded by ants and that most fly from place to place totally indifferent to what the ants have to say about it. It is just the opposite; most aphids are under the control of their ant masters. I also have found it to be true that by controlling the ants, you obtain a greater control of the aphids which are attacking your roses, etc. There is a definite relationship between various insects, in particular aphids, which are found on plants, and ants. The ants control most if not all insect activity on plants which they have 'adopted'.

Plants under the care of the ants are protected by them and are also used as a source of food either for them directly through the sap or pollen of the plant, or indirectly through the use of aphids and other insects which attack the plant and which in turn are 'milked' by the ants (for their nectar). Changing the behavior of the ants is a very important factor in controlling many pests in the home and garden as well as controlling the ants themselves. This is developing a line of communication between the ants and yourself. Ants are uniquely positioned in the insect kingdom.

They are intelligent enough to remember. Ant memory works in a very direct way. They are programmed by nature to behave in a certain way. Their actions are

controlled by certain factors in their environment. Control these factors and you control the ants.

### **Getting A Hold**

Raise the energy level of the soil; in turn you will have higher energy levels in the roses, vegetables or plants. The higher the energy level of the soil, the healthier the rose, the less stressed, and the less pests your roses will have attacking them. Ants respond to imbalance and stress. Ants know when the sugar levels are low and thus become food for them to exploit by using aphids and other sucking insects.

### **Give Caesar his Due**

Feeding the ants will reduce their activity in other parts of their kingdom (our yard and house). Ants, like most creatures except man, follow the path of least resistance. Ants are good at this. If an endless food source has been found, they will use it to the benefit of their colony. Ants will not have to go looking for food as long as they get what they need. The basic idea is to provide for the ants a feeding center. See "Ant Cafes" in my "Dances with Ants" section of this book. Set up at least one Ant Cafe nearby. By providing them a food source, we can begin to re-train them to come for food here and to stop looking for food in the kitchen, or on the roses, etc.. This is a simple system that can become your most effective control method against the ants.

## Using Natural Barriers to keep Ants/Aphids Off

Tangelfoot™ works well for this. You can add cayenne pepper to increase its effectiveness. Other barriers to keep ants and aphids off are Tabasco sauce and a natural soap sprayed on the base and on leaves. Use 1 tablespoon of each in 1 quart of water. A good soap to use is Natural Peppermint soap which is available at most health food stores. Any natural soap which has a strong fragrance will work; Peppermint is very effective for this purpose. There are many natural fungicides that are used to control Downey Mildew, Rust, Black Spot, Powdery Mildew and other exotic diseases, but by now you should get the idea that the basis for regaining the health of the roses and other plants is to regain the health of the soil.

The important word to understand here is "Exotic." "Exotic" diseases can be directly correlated to the lack of "Exotic" trace minerals. Usually it is an absence of, rather than the presence of, these exotic minerals that trigger the effect (which is the disease). This is also true for common diseases.

To regain control of any such disease, you must regain the balance of the Ecosystem that the plant is growing in. Check soil pH levels, Check for excessive salt levels such as boron, chlorine, etc. Check watering habits and equipment. Use a garden filter to filter out the chlorine. Check you're composting/fertilizer habits, switch over slowly to organics. See more info in "Dances with Ants" section.

## **Vitamin C**

Vitamin C is an effective way of controlling aphids on your roses. Use a liquid Vitamin C and spray several times per week or as needed. Use about 1,000 units per quart of water.

### **Here are some more tips on keeping your roses disease free:**

#### **Coffee, Milk and Molasses**

A natural way to control Black Spot and many other diseases on your roses is to use the following formula:

#### **Just Coffee**

Make a second batch of coffee for your roses. Use the coffee water instead of just water. Just fill a quart sprayer with the coffee liquid and spray it straight. The coffee is an acid liquid rich in minerals, especially iron. Coffee has a pH of around 5. This is a perfect pH level for foliar applications as the plant will absorb over 50% of the minerals in the liquid. The other 50% is not wasted because most of it is used by the soil bacteria so it is a good idea to water the soil with this liquid too. It will also help to reduce the pH of the soil over time. Better to add coffee grinds regularly at base of plant. Use the coffee grinds left over from when you make the coffee liquid.

#### **Here is another way to do it**

In 1 gallon hot water, add 1 cup of fresh coffee grinds which have been placed

into a cloth tea bag. Allow to sit for an hour, then remove coffee from the tea bag. You can alternatively just add the coffee grinds into the water and then allow it to settle, and pour the liquid into the sprayer. This is important if you plan to spray with it, otherwise you can just add the coffee grinds, allow to sit for about an hour then pour at base of plant(s). Another way to keep animals and insects off your roses is to use the beans sprinkled around.

To this add: (1 cup milk) (1/2 cup sulfured molasses) (1 tablespoon Superseaweed™ or any organic liquid rose fertilizer). Mix well. Spray upper and lower leaves as needed.

Roses are subject to being attacked by many types of diseases (if their Brix levels are low). Some are black spot, powdery mildew, Botrytis blight, rust, cankers, crown gall, wilt, and viruses

### **Black Spot**

**Control:** A good cultural preventive for black spot starts with a cleanup in the fall of all diseased leaves on the ground by proper removal and disposal. All diseased canes should be also be pruned and disposed of. This will reduce overwintering fungi. Make sure you have cleaned your tool in between pruning roses so as not to spread disease.

A natural fungicide spray made from coffee, milk and molasses should be started in the spring, just before leaves become spotted. Spray as often as needed,

with spraying several times a week being the norm. Try buying heirloom varieties which are resistant to this disease.

### **Powdery Mildew**

White fuzzy growth on the leaf surface containing fungal spores are carried by the wind to other rose leaves. This a soil born disease. Powdery mildew develops rapidly during warm, humid night weather or humid diseased soil.

### **Control**

Can be reduced through proper cultural and organic spraying applications. Pruning and destroying all dead or diseased canes in the spring will reduce the initial fungus population. During the growing season, all diseased leaves should be removed and destroyed. New growth is susceptible; therefore, a thorough spraying of upper and lower leaf surfaces and any new growth is important. Weekly applications to treat new growth during temperature fluctuations and during frequent rains may be needed. Control overhead watering: use a drip system. Avoid high nitrogen chemical fertilizers. A preventive natural spraying of coffee, milk and molasses will go a long way towards control. Using copper as a last resort to control is suggested but be careful. Avoid getting on cuts.

### **Botrytis Blight**

A smooth, slightly sunken, grayish-black lesion may develop just below the flower head. The bud is destroyed. It frequently hangs over at or near the lesion.

The fungus may also infect stub ends of stems from which flowers have been cut.

### **Disease Cycle**

Botrytis is a gray fungus that generally lives on dying tissue. With the right conditions, any dead plant tissue can release thousands of Botrytis spores. Botrytis infection occurs when water remains on leaves or buds.

### **Control**

Cut and destroy all infected blossoms as soon as they droop or die. To prevent large numbers of fungal spores, remove dead plant material on which spores are produced. Fungicide application may be necessary. Clean your tools in between pruning.

### **Using a Copper Fungicide to control**

Always follow instructions and use with care. Avoid over use as it can damage the soil.

### **Using sulfur to control**

Follow instructions and avoid over use.

### **Using Milk to Control**

Use Milk at 1 to 10 ratio clean filtered water and dash of natural soap.

## **Stem Canker and Dieback**

Like almost all fungus-based rose diseases, there is no cure for stem canker and dieback. Trim the infected cane well below the canker and dispose of it. Use sharp pruning shears to minimize damage to the cane, and trim at a 45-degree angle. Clean your tools as you can spread throughout if you cut with a tool that has the spores on it!

## **Brown Canker**

Red to purple spots appear on the canes and with time, these spots usually develop into gray-white lesions on the stem surface. A whitish patch can be seen as the small spots are massed together. However, in time, the white lesions continue to enlarge and brown cankers (several inches long) form, girdling the stem resulting in death of the plants stem. The cankers may extend down into the crown of the plant and may destroy the entire plant.

The fungus overwinters in the soil of infected canes and spores can be spread to healthy canes by splashing water, wind, and pruning tools that have not been cleaned. The pathogen can only enter plant tissue through wounds.

## **Control**

Select disease-free planting stock to prevent the introduction of brown canker. In established rose plantings, all dead and dying canes should be pruned out and destroyed. In removing diseased canes, make cuts well below the diseased areas.

Before each cut is made it is important to dip the pruning shears in a natural orange cleaner. Since this pathogen enters the stem through wounds, care should be taken to avoid stem injury. Use live compost rich with microbes and minerals.

### **Baking Soda Formula**

(for Powdery Mildew and Black Spot)

2 teaspoons Baking soda

2 tablespoons Sesame oil

Put into 1-gallon Organic Coffee that you just made.

Mix well then pour into a pump type gallon sprayer.

Thoroughly soak both sides the of the leaves. Apply in the morning, approximately once a week as needed.

The above baking soda formula is based on the Cornell research. This formula is now available commercially under the name of "Remedy" by Bonide.

### **Baking Soda-Vinegar Formula**

1 tablespoon Baking soda

2 tablespoons Sesame oil

1 tablespoon Natural Castile liquid soap

1-gallon Organic Coffee you have made.

1 tablespoon Vinegar

Mix together the baking soda, oil, soap, and liquid coffee. Stir in the vinegar last don't shake! Pour into a sprayer. Spray in the morning and when the temperature is less than 80 degrees. Thoroughly soak all parts of the plant.

Apply weekly as needed.

### **The Vinegar Formula**

2 tablespoon apple cider vinegar (5 percent)

1-gallon coffee water

1 Tablespoon of my SuperSeaweed for roses or any natural rose fertilizer

Pour the vinegar and water into the pump sprayer. Soak the undersides of the leaves. Spray only in the morning. Apply once a week as needed. The vinegar will help raise the Brix Level of the roses to protect it against most diseases.

### **The Vit C Formula**

2000 Units Vit C

1-gallon coffee water

1 Tablespoon of my SuperSeaweed or any liquid seaweed.

This formula is a great way to keep diseases and pests off your roses.

Please note that I want you to use liquid coffee instead of just plain water. Why? Because the coffee is acidic, and it will help to further control diseases!

### **Fungus Control with Earth Worm Castings or Compost Tea**

Organic gardeners have been able to reduce fungus problems when they use compost and use an acid mulch. Earthworm castings is non-toxic and does not destroy any portion of the soil food web. Castings contain a wide array of beneficial soil organisms that consume not only fungi, that also provide for minerals to the plants root system. Fungus control using earthworm castings or compost is not a new idea but has been used for centuries by those in the know. Earthworm Castings and Compost can contain over 10,000 different biological organisms with the Earthworm castings having an acid pH. The bacteria, molds, fungi, actinomycetes, etc., all together create a healthy soil micro biological environment.

Fungus infestation is due to a simple soil problem: More bad guys then good guys present in the soil. This is an unbalanced condition which allows the bad fungus to get out of control. The fungus not only multiplies unchecked but also reduces available food to the plants. A key source of food for fungi is nitrogen. Nitrogen that is consumed by the fungi is locked up and not available for the plants. The plants then become nitrogen starved with impaired growth from the imbalanced fungus. As the fungus ratio grows out of balance, spores can be released from the soil and it also affects other plants nearby.

Additionally, various bacteria eat minerals which is then available to the plants, and when this source is removed, a mineral stress happens. When minerals are low,

Brix levels are also low in plants.

### Repeat Feedings

Apply a one-inch layer of earthworm castings or compost with a one inch layer of an acid mulch. Do this several times per year. For the minerals, apply rock dust once per year as a thin layer before you apply the earthworm castings or compost. Always apply compost or earthworm castings several times per year or as needed to keep the soil in a balanced condition.

### Compost Tea or Earthworm Castings Tea

Compost Tea is another great way to provide a bacteriological environment on the leaves of your roses that will control diseases and pest on your roses. See making compost tea and earthworm casting tea in another section of this book.

### Rock Dust Tea

Here is another way to apply minerals to your roses to keep the brix levels high. Add 1 cup rock dust into a pair of panty hose and place into 5 gallons clean water. Allow to sit and then pour the liquid into a sprayer and spray the roses. Best in afternoon.

### **The best cure is one of prevention**

- Plant resistant rose varieties, learn to use Heirloom varieties. It is important to plant the right variety for your area.

- Plant to allow for air circulation in between plants. Give them plenty of room if possible. Also learn to prune them so that their centers are open.
- Plant in full sun never in shade or low light. Not enough light will stress them out which in turn will cause more pests and diseases. Less light equals lower brix levels.
- Use Compost and Earthworm castings. Both are very rich in bacteria and minerals.
- Learn about Brix and what brix level is best for roses. I found out that a good brix level is 14-18. The higher the better. Fourteen is the lowest you can have and still have moderate control of pests and diseases. Brix levels are also related to the weather, the colder the weather, the lower the Brix due to less circulation.
- Use Compost Tea and or Earthworm Casting Tea. These types of bacterial and fungal teas provide minerals to the plants via their leaves through Foliar feedings.
- When pruning, remove all diseased canes and discard to the trash.
- Clean you're pruning tools between pruning. Use OTKO or Bleach or H2O2 (hydrogen peroxide)
- Avoid Chemical fertilizers.
- After pruning, use the coffee, milk and molasses formula. Always clean your tools in between pruning.
- Avoid overhead watering, use a drip system instead.



## Chapter 21

### NATURAL FOLIAR SPRAYING METHODS

## **What is Foliar spraying application?**

It is a method of applying the following to the leaves of plants:

**Nutrition**

**Pest or disease control**

**Method of raising Brix levels in plants.**

Nutrition can be applied to plants through the method known as foliar spray applications. This is when you mix either an organic fertilizer or some other type of organic product with water and you then spray the leaves or other parts of the plant. By doing this you have allowed the plant to absorb what you put into the water directly into their system, much like what happens when you place something on your skin and it is absorbed into your body. Anything you spray the plant with will affect the plant by either providing nutrients needed by the plant for its food production, or by protecting the plant by attacking the pest or disease. I will cover more later.

Pests and Diseases can be controlled by foliar sprayings of organic and or natural mixtures. For example, milk is excellent for foliar sprays because not only does it provide the plant with calcium from the milk, but it also controls many varieties of diseases. I will cover more later.

Foliar spray applications are also a useful tool for raising the Brix levels of plants. For more information on Brix please see my website for the free Brix

eBook. Basically, Brix is a measurement of sugar levels in the plant. The higher the sugar level, the higher the mineral and complex carbohydrate levels. This also translates to less pests and diseases.

All plants including trees love to be sprayed with a good natural foliar spray. Seaweed is very good for them as is fish emulsion (without urea). Making a milk out of rock dust is also very good for them. This provides them with many natural trace minerals, calcium, iron, magnesium , etc., or the many great natural enzyme products like Nitron or Agri-Gro. Acadie and sea-90 are both good trace mineral/ bacterial sprays for trees.

SuperSeaweed is an excellent overall seaweed concentrate to use to provide trace minerals and bacteria. Use only 10 drops per gallon. Follow instructions on all labels. There are many natural products on the market these days. Choose carefully what you will use for the trees, ask questions, avoid using chemicals. Follow the law of the little bit when spraying. If you are uncertain about the amount to spray, spray less and more often.

## **Some types of Natural sprays**

### **Sugar and Plants**

Using molasses, corn syrup, etc., as a spray, you are providing plants with a source of energy. Using compost rich in phosphate allows for greater sugar production in plants. Raising the sugar content of plants allows for greater mineral absorption. I will cover some mixtures that you can make and use yourself.

## **H2O2 (Hydrogen Peroxide)**

Can be used for many different fungal diseases in trees. Use 8 oz per gallon water of the 2% or 1 drop of food grade.

## **Vinegar**

Helps to reduce PH level of water and increase energy levels. Use 1 tablespoon per gallon.

## **Carbonated Water**

Increases carbon dioxide to trees. Use 1 cup gallon.

## **Rock Dust**

When using rock dust, use 1 cup per gallon water. Make the same way you made the DE. Add 1 cup to bucket. Slowly fill with water and stir to dissolve. Allow to sit a few hours and strain into gallon sprayer. Or you can add to a panty hose, tie into a ball and make a tea bag out of it.

## **Making your own Organic Foliar Sprays**

The word foliar means leaves. All plants have leaves of one form or another, and when you feed them through these leaves, you are foliar spraying them. The idea is to provide plants with important trace minerals, bacteria, enzymes, and ele-

ments necessary for a healthy plant to grow. This chapter will strictly discuss the application of nutritional foliar spraying and not the use of foliar spraying concerning pest controls. That subject is covered in Pest Controls section of this book. Make sure you always use clean filtered water and not the city chlorinated water.

### **Rock Dust Milk**

Rock dust can be made into a liquid for spraying. See chapter on rock dust and pest and disease controls.

### **About Seaweed (kelp)**

Seaweed is very high in Potash as well as Magnesium and other more exotic trace minerals such as Boron, Barium, Chromium, Lead, Lithium, Nickel, Rubidium, Silver, Strontium, Tin, Zinc, and even traces of Arsenic, Copper, Cobalt, Molybdenum and Vanadium; all of which are important to proper plant growth as well as proper human growth (over 76 are needed). All the elements that compose this earth can be found in the ocean (if you look hard enough). Seaweed is important for this reason as a trace mineral source in making compost. It is no wonder that the origin of life was in the ocean. Try Sea-90.

One of the best foliar sprays comes from seaweed or kelp. Seaweed has been used for centuries as a fertilizer to grow mankind's food. The ancients all over the world knew the value of the ocean and her importance to their survival.

## Some Natural seaweed products

### Kelp Extract

There is a special kelp extract designed for foliar spraying made from cold processed Norwegian *Ascophyllum* Seaweed. Cold processing preserves higher levels of minerals and growth hormones than is found in other kelp extracts. This kelp extract is one of the most potent extracts available on the market today! A definite on you're making your own Superseaweed list. Available from Acadie, Arbico, Gardeners Supply, Peaceful Valley, and from many mail order catalogs.

### MaxiCrop

MaxiCrop is an excellent kelp extract containing over 70 trace minerals, growth hormones, cytokinins, auxins, vitamins, and enzymes. World famous as a foliar feeder and plant stimulant. Contains 1% N, 0%P, and 3%K plus elements from the ocean. Comes as a water-soluble powder that mixes easily with water. Use 1 teaspoon per gallon or is also available as a liquid concentrate. A must in making your own Superseaweed! Available from Arbico, Peaceful Valley and most mail order catalogs. You can also use kelp meal. To use the kelp meal, just make a "tea bag" out of a panty hose, tie into a ball and allow to sit overnight in clean filtered water.

MaxiCrop Kelp Meal is a Norwegian Kelp, one of the richest known sources of at least 60 minerals and elements. MaxiCrop Kelp Meal will improve many deficiencies, thereby adding to the nutrition of vegetables from your garden as well as help keep your soil microbes happy. It has been harvested, dried, and processed with a patented process, then blended and ground into a meal.

## Sea Crop/Sea Mix

One of the best liquid seaweed's around. A must for making your own Superseaweed! Seamix™ is fish emulsion and liquid kelp, highly recommended! Also available from Nitron Industries which is one of the few around without urea. Peaceful Valley, and Arbico are good sources too. There are more if you look around.

### **SuperSeaweed™: Developed by The Invisible Gardener™.**

The ocean has always been a source of nourishment for the plant and animal kingdoms. The oceans provide us with all the trace minerals, enzymes and bacteria necessary for healthy human growth. Plants need to have the same nutrients we do.

### **About Superseaweed™**

Superseaweed™ Mycorrhizae -Micro -Grow-Bloom- Brix

This product can be used as a Foliar Spray and a Soil Drench.

Organic Gardening depends on having a living soil. The process of assimilation, absorption, and growth in a living system is dependent on beneficial micro-organisms/bacteria. Beneficial Micro-Organisms (Mycorrhizae) form the key cornerstone for the organic process to happen. I learned early on in my childhood training. My mother and grandmother were both master organic gardeners and taught me all about bacteria and enzymes. They taught me that the soil was alive and that it comes with bacteria and other micro-organisms that are beneficial. Not all micro-organisms are beneficial and that they are a very useful tool in Organic Gardening. Like making compost tea and the various biodynamic sprays.

## **SuperSeaweed™ 100% Organic/Natural**

Helps all plants to Grow, Bloom more! Bigger Flowers, Bigger Buds!

Increases Brix! Fights diseases!

1 drop per gallon!

Helps all plants to Grow, Bloom more! Increases Brix! Fights diseases!

An invention of mine is a result of many years of experimentation and assimilation of my mother's knowledge as well as from my experiences as a gardener. I like to call SuperSeaweed Micro a "microbiological activator." In simple terms, it is a unique blend of beneficial micro-organisms and five different types of deep ocean seaweed, chosen for its purity and for its special bacteria and trace minerals. Along with primary sources of beneficial microorganisms, bacteria and enzymes.

Here is a partial list of the beneficial microorganisms, bacteria/enzymes I add to make my Superseaweed:

Endomycorrhiza: *Glomus intraradices*, *Glomus mosseae*, *Glomus aggregatum*, *Glomus monosporum*, *Glomus clarum*, *Glomus deserticola*, *Gigaspora margarita*, *Gigaspora etunicatum*, *Paraglomus brasilianum*, Ectomycorrhizal fungi: *Pisolithus tinctorius*, *Rhizopogon villosulus*, *R. luteolus*, *R. amylopogon*, *R. fulvigleba*, *Pseudomonas putida*, *Paenibacillus polymyxa*, *Laccaria bicolor*, *Laccaria laccata*, *Rhizopogon villosulus*, *Rhizopogon luteolus*, *Rhizopogon fulvigleba*, *Scleroderma cepa*, *Scleroderma citrinum*, *Suillus granulatus*.

Biological Beneficial Disease Control Microbes: *Trichoderma harzianum*, *Trichoderma konigii*

Beneficial Microbes: *Azotobacter chroococcum*, *Bacillus azotoformans*, *Bacillus coagulans*, *Bacillus licheniformis*, *Bacillus megaterium*, *Bacillus pumilis*, *Bacillus thuringiensis*, *Paenibacillus durum*, *Paenibacillus polymyxa*, *Pseudomonas aureofaciens*, *Pseudomonas fluorescense* -

You can see why it is important to use only clean filtered water here since any chlorine will kill these wonderful little beings!

Each seaweed, being from a different part of the world, contains its specific bacteria and its own special minerals as well. Blending these different liquid seaweed's produces a complete bacterial and mineral 'soup'. Always use with every watering! To this mixture, I have added rock dust (that's the natural part since rock dust is not organic), which increases mineral content such as calcium, iron, etc. I also add Enzymes from Agri-Gro and Nitron A-35 and the special Wallard Water .

SuperSeaweed is a unique blend of liquids, rock dust, and beneficial micro-organisms that encourages your plants to Grow/Bloom more while using less of your fertilizer. SuperSeaweed is a unique blend that naturally produces a higher Brix level for increased plant growth. It is to be used as a foliar spray as well as soil drench.

One quart makes 100 gallons (at 1 drop per gallon) of a natural liquid you can spray or soil drench your plants. One drop per gallon for daily maintenance or use 1 oz per gallon for first few months the switch to 1 drop per gallon.

### **Raises Brix levels on all your plants!**

Because your plants will be using their available fertilizer to capacity, you will be reducing wasted, or unabsorbed fertilizer. Therefore, only 1/2 to 1/3 of your present dose of organic fertilizer will be necessary. In itself, SUPERSEAWEED IS NOT A FERTILIZER. SUPERSEAWEED is a special "biological activator" to be used with every foliar spraying and by making nutrients more available to your plants, they will become stronger and healthier, reducing plant stress, pest problems and fertilizer costs. Plants last longer and look better too! Do not use with chlorinated water!

SUPERSEAWEED complements both chemical and organic fertilizers. I, of course, recommend using organic fertilizers whenever possible. Choose carefully what you will use for the trees, ask questions, avoid using chemicals. Follow the law of the little bit when spraying.

If you are uncertain about the amount to spray, spray less, more often. When working with plants give them time to respond. Sometimes results will not happen until the following season.

## Developing a Natural Spraying program

Here is a spraying schedule that you will learn to adapt to your own use. Follow it and learn from it.

### Winter

Winter months spray trace minerals on bark of trees; on leaves of plants.

Spray once per month. Add very little bacteria to sprayings as they will not be useful in the winter months, even in warm climates. Use formula #1 for this. Note: this is for southern areas with warm winter. You do not spray during snowing months.

### Spring

Introduce bacteria as early as possible. Apply compost tea in sprayings.

Use Superseaweed to boost bacteria counts along with the compost tea. Add 1 lb. rock dust, 5 lbs. MaxiCrop to a panty hose and let sit in 5 gallon's clean water, or use your own Superseaweed. Use a gallon of this mixture per 5 gallons of water. This is the spraying mixture you will use. If you cannot make your own Superseaweed, you can obtain the real SuperSeaweed from The Invisible Gardener (that's me).

### Summer

To 5 gallons water add the following:

1 cup rock dust

2 cups seaweed mixture

(see making your own SuperSeaweed)

SUPERSEAWEED use everywhere; flower and vegetable gardens, houseplants, fruit trees, hydroponics systems; everywhere!

**Fall:** To 5 gallon's water, add:

1 cup Fish Emulsion

1 cup Agri-Grow

1 cup of your own liquid seaweed mixture

1 Tea bag of compost

1 cup Rock dust

### **Instructions for use**

Do not shake! Use 1 capful per gallon water for all plants. Use once per week.

Seeds: 1 drop per/gal; soak over-night to promote growth.

Compost Starter: 1 capful per quart water per 1/2 cubic yard; to help make rich humus.

Greenhouse: 2 capfuls per gal. twice per week; use with inline feeder to spray leaves.

Vegetables 1 capful per gallon, once per week; use only. Usual organic fertilizer.

Lawns: 5 capfuls/gal. Excellent for orchids, roses! 1 capful per gallon.

### **Making your own SuperSeaweed**

Here is a formula that will help you to make your own "Superseaweed."

This is not the same SS that I make and sell, but it will give you great results:

2 parts Roots

2 parts Maxi Crop (made from powder)

2 parts Sea Crop

2 parts Agri-Gro

1-part Kelp Meal

1-part Willard Water

1-part Nitron A-35

### **An Example Formula**

2 quarts Roots

2 quarts Maxi-crop (made from powder)

2 quarts Sea Crop

2 quarts Agri-Gro

1-quart Kelp liquid concentrate

1-quart fish emulsion

1-quart Willard Water

1-quart Nitron A-35

10 quart's total of your very own "Superseaweed"

Add 20 drops per gallon for foliar sprayings, as well as watering of houseplants, etc. Use once per week. For sick plants, trees, use 1 cup per gallon, spray once per week, until plant recovers, than once per month. For lawns use 5 cups per gallon for sprayings. Do a soil drench once a month.

The idea in making your own Superseaweed is that in blending the different liquid seaweeds, you would end up with greater amounts of different trace minerals, bacteria, etc. So, when following the above mixtures, please feel free to try the various different types of seaweed's on the market and see which works best for you and your particular situation. Some seaweed is better for fruit trees than others, as some liquid seaweed are better at warding off pests than others.

### **Making your own Trace Mineral Spray**

1 oz Epson Salts

1 cup Greensand

1 cup Rock Dust

1 cup Powdered Acadie Seaweed

1 cup ground Coffee

1 cup Organic Alfalfa Meal

1 cup Gypsum

1 cup Brown Sugar or Molasses

1 cup Apple Cider

Mix powders together, place a cup of the mixture into panty hose and allow to soak in 1 gallon solarized or filtered water over night. Add the apple cider to the water when you are ready to use. Use a garden water filter like GardenGro.

Squeeze ball into water, strain into gallon container. Label trace mineral spray or use right away. Remember, this is a high alive active liquid so don't forget about it. The strength depends on what you are spraying and for what purpose, but I would start off with an initial 50% tea 50% water mixture into sprayer. Spray onto leaves in early AM if possible, or early afternoon. Apply at the rate of once per week as a foliar feeder. Best applied during winter months (if possible), otherwise use early spring and then once per month. OK to use fish emulsion or to add more liquid seaweed (following manufacturers' instructions) or Agri-Gro during summer months only, as you do not want to encourage new growth during winter months. The apple cider helps to acidify water.

### **Making your own Enzyme/Bacterial spray**

Now that you have the minerals, you will need the enzymes to eat it!

Enzymes are what life is all about. Without enzymes there would be no life on this planet. Enzymes are positively charged ions. They perform many tasks. They are important in the detoxification of the soil; soil that is dead from the chemicals poured on them. They help to soften the soil and allow deeper root systems.

Enzymes allow water to penetrate deeper into the soil. Enzymes are important to plants in that they help to release minerals and nutrients that are locked up in the soil.

**Agri-Gro:** Invented by Dr. Joe C. Spruill. PH.D. Biochemistry. A biological complex derived from natural compounds, processed through extraction, completed by fermentation. A plant and bacterial stimulant, contains stabilizing nitrogen-fixing bacteria, trace minerals, and humic acid. Designed to improve chemical and fertilizer efficiency, improves natural sugar levels of plants, improves **tilth** and water capacity, designed to reduce cost of production, reduce insect and disease problems and reduce soil compaction, and also to reduce nematodes and salt buildup in soil. A natural Solution containing living organisms, enzymes, azotobacter, bacillus, clostridium, humic acid and trace minerals. AGRI-GRO stimulates plant growth, promotes health, maintain High Brix levels.

1 cup fish emulsion (optional)

Allow to sit overnight, strain into sprayer.

### **Spraying Tips and Hints**

Don't over do it! A little bit goes a long way. Learn what you can mix and cannot mix; start your own mix, no mix list. Remember what works. Keep good records.

## Household Plant Formula:

When feeding houseplants, use only filtered or spring water, and add 5 to 10 drops Superseaweed depending on the health of the plant. If the plant is sick and it is the first time you are applying Superseaweed, then use 1 teaspoon per first gallon with 10 drops per watering for the first month's application. Don't forget to add good rich compost to the plants container. Never feed plants a chemical fertilizer! There are many companies that sell many different natural fertilizers. A good example is Arbico or try Peaceful Valley Farm and Garden Supply.

## Tea Anyone?

Not the type of tea your drink, unless you are a plant or soil microbe!

There are many types of "tea" one can make for your garden.

Today I will cover Earthworm castings tea, Compost tea and Rice Microbial tea. More brews later.

Earthworm Castings tea is also called 'worm-castings tea.' Worm castings is the 'poop' of the earthworm. Compost tea is made in the same way but by using compost instead. The "tea" is the resulting liquid that is made by soaking worm-castings or compost or organic white rice. Then placed into in the "tea bag." I use a pantyhose; just place your worm castings or compost, or clean white rice, about 1 cup, into the pantyhose and tie into a ball. Use clean filtered 5 gallons of water (I use a GardenGro filter but there are many available. Just Google "garden water filter") and then either aerated or just allow it to sit overnight with a little stir-

ring every few hours. I recommend aeration for best results. You can add other materials as well during the 'brewing' process to improve the tea, depending on what type of plant you are using it on, how you are monitoring the Brix levels and if you are using it either for pest or disease control. I will cover this later also.

### Why we spray “tea” on Plants?

As a kid, I started spraying various teas on my garden plants. I mean spraying tea that my mother would drink. I made a second batch of the tea and just sprayed it on my garden plants and eventually, I would spray it on the fruit trees, the lawn, the roses. You get the idea. By the way, spraying real tea has many benefits such as minerals (like iron), and especially useful if it has caffeine. The caffeine is great on controlling most insects and snails. But this is just one of the many teas you can use. I will cover more next week.

I have learned that some plants prefer teas with dominant fungal population, while others prefer bacterial and that many will do well with both. Think tropical rainforest vs. desert or mountains. The environment determines what the plants need to use to survive. Compost tea is high in the fungal while worm castings would be high in bacterial. Lawns, flowers, and most vegetable crops prefer bacterially dominated soils — whereas trees, fruit trees, flowering plants, roses prefer soil with greater fungal dominance. Again, they would do well with both applications. The Fungal tea can include of course compost, rock dust, enzymes, humic acids, fish emulsion, and various microbial additives such as Mycelium. Bacterial tea will use multiple forms of energy like sugars: molasses (I love Granny Smiths Organic),

brown sugar, honey, maple syrup, and the various microbial products on the market today such as soil bacterium, various yeasts, biological inoculants, etc. Other bacterial sources are rice which will make an excellent bacterial tea. I mentioned how to make earlier. You can also bury the rice as well once done with it. I place this into my tree vents.

By spraying the leaves and trunks of plants and trees as well as roses, vegetable, all plants, they will benefit by absorbing the nutrients the microbial liquid provides them. It is the microbial life that provides the nutrition. The earthworm tea provides these bacteria workers. The compost tea provides microbes that attack bad diseases and pests. It also will provide additional minerals if rock dust or other sources of minerals is provided to them to digest.

Microbial life, through recycling nutrients especially minerals and using carbon in the process, improves the soil structure and the water-holding capacity of the soil. Microbial life also provides for a natural source of slow release minerals over time. I like to tell folks that whatever you do in the soil, especially when it comes to minerals, is not available until the following year! It is this flow of minerals that the beneficial microbes provide that help the plants to fend off diseases and pests and as the soil gets healthier too over time (sustainable), also helps the plants to become more vigorous with higher Brix levels.

Compost tea or Earthworm castings tea is one of the best and quickest ways to increase the Brix levels of your plants. You should use them both for the soil with

soil drench and for the plants with foliar sprays.

Spraying your plants' leaves with beneficial microbes is a safe and natural way of keeping diseases and pests under control. The best defense is a good offense. By having more diversity of beneficial microbes and bacteria, the bad bacteria (diseases) will have a harder time establishing themselves. The same applies to pests. Foliar spraying also increases trace mineral availability to the plants through this very same microbial mix.

The same applies to using as a soil drench in that it increases microbial populations especially Mycelium around the root zone of plants, where they can then provide the trace minerals and other nutrients needed for healthy plant growth. An organic gardening saying is Feed the Soil first. I would also add Healthy Soil equals Healthy Plants.

### **What you need to create your "tea"**

Get yourself a 5-gallon pail, air pump, tubing, and air stones (comes as one kit including the bucket, try EBay or Amazon). Get your wife's or your girlfriend's panty hose. You can also buy them at the 99-cent store. To get started, just fill your bucket with clean filtered water and add your "tea bag" and aerate the water overnight. I would also get a timer (some kits have it included), to turn it on and off.

When making up your compost tea spraying schedule, remember that you are working with living organisms. So, it is essential not to space it out and forget you made it or not keep an eye on it but to spray as soon after making the tea. I would

never aerate more than overnight. If kept too long, best to pour it into a tree vent.

The timing of your tea sprays is essential. You want to spray when things are the most active. This goes for pests, diseases as well as for plants. I have found that spraying at night is the best time to spray the various "teas" I make. I especially like spraying under the light of a full moon. You will get the most insect activities during that time, so spraying becomes even more useful. Also, the plants and the soil activities will be up, and the sprays will last longer and become more effective. People ask me about spraying compost tea on rainy days and I like to tell them that it is fine because you are adding to the soil as well as the plants are more open to foliar sprays during rainy days especially for nutrition.

### **Humic Acid**

Comes from Leonardite Ore, millions of years old. Rich in humic acid that helps to break down Organic matter. Available from: Nitron, Arbico and many mail order companies.

### **A Special Wetting Agent**

Here's a little secret. Use Dr. Bronner's Soaps or Amway's LOC as a wetting agent for your sprays. You only need to add 5 drops per gallon. Works great!

### **Oxygen**

Plants need oxygen too. Try this....Go to the drug store and buy the 2% Hydrogen Peroxide. Add 1 oz per gallon to you're spraying mixture. Your plants will love it. This oxygen will allow greater absorption of nutrients into their system.

Apple cider is a good addition to your bacterial spraying kit! Apple cider or apple vinegar will help to increase the acidity of the water and allow bacterial sprays to work better. Only works where your water is alkaline. Use only 1 tablespoon per gallon.

1. If you must use the city water, I would allow it to sit in the sun for a few days, stirring every once in a while. This will remove most chlorine , etc., which are added to kill bacteria! Best to get a garden filter like "GardenGro".

2. Actually, you want the smell to be as strong as you can handle it! The stronger the better!

3. Food Grade is best.



I'm a Tree Hugger!



Chapter 22

NATURAL LAWN CARE

Learn to have an organic lawn and stop using chemicals that pollute your environment.

## You can have a healthy organic lawn

The dangers to our health from the chemicals being used to keep our lawns green and weed free are increasingly becoming more apparent. Strangely named chemicals such as pendimethalin, benomyl and 2methylcydohexy are widely used to combat weeds. There is an ever-growing list of chemicals used to maintain a "healthy lawn" along with the use of chemical fertilizers, herbicides, pesticides and who knows what else, causing concern amongst the public.

These chemicals not only have dire effects on the environment but on we humans as well. We can no longer trust the judgment of the EPA. "Being registered with the EPA by no means counts for a seal of approval or a seal of safety," says the National Coalition Against the Misuse of Pesticides.

Therefore, it is important to begin to take it upon ourselves to control the chemicals we use in our everyday lives, such as the chemicals we use on our lawns. This chapter is about how to grow a deep green healthy lawn without the use of manmade fertilizers and pesticides. We will discuss

Preventive Cultural Practices that is the foundation a healthy lush green lawn is based upon. Understanding the components of the lawn's ecosystem and providing

a more suitable environment for the types of grasses and microorganisms that grow best there, while decreasing the conditions for pests and harmful bacteria's, is the "ideal" and more natural, less toxic method of providing yourself with a beautiful lawn.

## **Lawn Basics 101**

With proper care, you can have a great looking natural water wise lawn.

### **Preventative Cultural Practices**

This includes the proper selection of the types of grasses for your area and the lawns use. Having a healthy lawn without harsh chemicals is really very easy to do. Let's go over the basic steps together. Soil supplies air, water, nutrients, and physical support to plants root systems. Soil also needs organic matter to keep it alive. Each type of soil needs a different amendment. Sand, clay, and silt, in varying amounts, determine the texture of the soil.

### **Understanding the Soil**

Chemical fertilizers kill off the beneficial soil bacteria, as well as killing off earthworms and therefore, should not be used and should be avoided at all cost! In this environment, the lawn and its bio system will be operating under stress. Stress is the most important factor in pest control because when a plant is stressed that means that it is going through a trace mineral deficiency. It means that for some reason, the trace minerals are not getting to the plant. Sometimes

the trace minerals are "bound" up in the soil through chemical bonding and are not available to the plant, but most often it really means that the minerals are either not there or the bacteria that eat the minerals are dead and in either case, the plants do not get the minerals needed for proper growth and the result is plants that have become "food" for the insects, and also have low Brix levels.

It is the goal of a good gardener to ensure that everything is done to keep the soil alive with the proper microbes that are needed to assimilate the minerals, and in turn, provide the minerals in a soluble form which is assimilated by the plants root system (small beneficial micro-organisms live on the root hairs of plants).

## Soil Conditions Affect the Stress Levels of your Lawn

### Watch for signs of stress

Whenever the lawn is under stress, several things have occurred:

- 1: Proper Food is not being made available to the lawn.
- 2: The Humus levels have dropped below optimum.
- 3: Water affects stress. Too much or too little water will cause stress in the lawn (chlorinated water is bad for the soil).
- 4: High nitrogen fertilizers kill the soil and cause a great deal of stress. Avoid using Urea at all costs.

## Understanding the Environment

More than any other element of climate, temperature will determine which type of lawn will grow where. Available sunshine and water (either as rain or humidity) round things out. An example of this is: if irrigation is unavailable, only certain desert species of lawns can be grown. It is a good idea to consult a gardening book that has a map broken into climactic zones. This will help to simplify the process of deciding which grasses you should consider.

## Soil Amendments

There are many forms of organic matter. Untreated sawdust, aged horse manure, and aged wood are common amendments and can be found anywhere. Aged wood soil conditioner, cocoa bean, mushroom compost, rice hulls or apple pomace are usually available regionally. Organic waste from your kitchen can be used to compost your soil as well as additions of rock dust.

Other amendments are: leaf mold, pine bark and bark chips, straw, sand, coffee grounds, grass clippings, shredded cardboard, bat guano, eggshells, grapefruit skins, potato skins, and wood chips and ashes. Organic matter should be added to your soil before you start a new lawn and should be done when the weather is fairly settled, so the ground will be prime for planting and the new grass will have only mild competition from weeds.

# The Best Organic matter to add is Compost

## Organic Lawn Fertilizers

Soil, in order to be alive, must have high organic matter, microorganisms, drainage and good structure. Natural fertilizers add to the soil, improving its fertility, maintaining and contributing to the improvement of these necessary elements.

Organic matter and rock powders form the basis of organic fertilizers, and benefit the soil as well as the plant. As a rule, chemical fertilizers are not a complete plant food. Organic material contains nutrients that provide the microorganisms in the soil with the materials they need to be active.

### A Tip from Nature

Organic Fertilizer mixes usually contain composted animal manure, plant residues, seaweed and fish products, and minerals (bone and blood meal, cottonseed meal, granite dust, phosphate rock and greensand). Organic fertilizers should be used in combination with compost in order to develop rich, humus soil

### Compost

Composting is practiced today just as it was hundreds of thousands of years ago. The recirculation of dead matter into life is a part of nature's program of soil

rejuvenation. A gardener's compost heap is a process that is going on eternally in nature. When we cut the grass and remove it we are cutting off the cycle. Therefore compost, when added back to the lawn, reestablishes the cycle and returns nutrients and bacteria to the soil. The gardener takes a tip from nature and uses this simple method to build the soil's fertility.

## **Horse Manure**

Among manure of other farm animals, horse manure is one of the most valuable. It is richer in nitrogen than either cow or hog manure, and ferments much more quickly, therefore being referred to as "hot manure."

Manure provides organic matter and trace minerals to the soil. Your lawn will benefit by having a thin layer of aged (at least 6 months old) horse manure spread over it (using a manure spreader), and then watered well. This should be done twice per year or even seasonally if you can do it.

This practice will also benefit the microbes as well as the beneficial insects. But the best top dressings are made from well-made compost because it provides a more complete and varied food source as well as varied bacterial sources. Run through shredder for best results.

## **Watering Procedures**

Deep, regular watering's are essential to develop a lush, verdant lawn. Lawn sprinklers are a definite improvement over hand watering. They can be set in place

to water as long as necessary and are especially effective if placed on a timer. The amount of water used depends on how deep the roots are of the grass you are growing. If there is a drought, it is better, rather than sprinkling lightly, to water twice a week, soaking the soil to a minimum of 4 inches, or not at all, for shallow watering causes roots to spread out near the top where they will be baked by the sun, becoming unable to withstand drought. A lawn that is watered thoroughly at regular intervals, and whose soil has plenty of organic humus (organic matter converts into humus that makes the nutrient elements in the soil available to the grass), will withstand drought, and remain sound throughout the hot summer months. Different types of soil need different amounts of water. Light soils need more water because they drain so rapidly. Clay soils retain water, so they need less.

Good organic cultural practices are the only method that I recommend for managing insect damage on lawns

### **There are several levels of lawn care**

A low input lawn is one that you plant a variety that not only does not need cutting but very little watering. Mother Nature takes care of its needs and you just enjoy. Native lawns are very much of this type. The cycles of nature determine the condition of the lawn whether it is winter or summer or whatever. This type of lawn allows you to water only when it is stressed out and you want it to perk up a bit. Re-seeding should be done to insure a proper lawn look as well as some composting and organic fertilization once a year to keep your soil healthy and maybe cut the lawn once year to allow for new fresh growth.

Proper tools are a very important part of having a good lawn so take good care of your mower!

Cut your lawn every other week and allow to grow 3-4 inches.

Why? Because the taller the grass the deeper the roots and it gets more food from the sun and is also stronger. Tall grass will also shade weeds. The shade of tall grass will prevent light from reaching new young weeds. Your grass needs grass blades to convert sunshine into sugar in order to feed itself. If cut too short, the grass has to grow faster in order to be able to make more grass blades that are needed to make sugar. This fast growth weakens the plant and it becomes subject to disease and pests. Tall grass is much healthier and feels great to walk on it as well as needing less watering.

Mowing your lawn higher has the following advantages:

MORE SHADE MEANS LESS WATERING

DEEPER ROOTS MEANS LESS WATERING

TALLER GRASS MEANS LESS WEEDS

TALLER GRASS MEANS LESS WORK

If you have weeds, it is because there is a mineral deficiency in the soil so use rock dust once a year as well as a good balanced organic fertilizer. Also, finally, when mowing leaves the clippings on the lawn. Get a mulching mower for this. It adds organic matter and puts back into the soil nutrients that it got from the rock and organic fertilizers. Good healthy soil is very important for health lawn.

### **Water Training your lawn**

Forcing your grass roots to go deeper into the soil will help you to reduce water usage and thereby only have to water twice per week and much less time. This allows the grass roots to grow deeper than the weed roots. Most weeds need more water than a healthy lawn. What shallow watering does is to encourage the growth of "thatch" above-soil runners rather than under the soil. It is called thatch because the runners form a weave like mat that chokes out water and air.

Water training your lawn is a way to allow the water to go down deeper and have less and less water runoff. So deep watering should be done only in conjunction

with having a good rich live deep soil.

Water Train your lawn to need less water by having a good healthy soil to grow in. Make sure you apply compost several times per year as well as aerate the grass. To aerate your lawn, you simply need to be able to punch holes about 1 or 2 inches into the lawn. Do this several times per year and then compost right after to allow compost to get down deep as well.

Grass needs nitrogen, lots of it. Weeds can get their nitrogen from the air. So, when you see weeds taking over your lawn you know that your soil is nitrogen and mineral deficient. A good natural organic fertilizer will go a long way here but a fertilizer is nothing if there are no microorganisms to eat it and pass it on to the grass! Cool season grasses are semi-dormant in the summer so fertilizing in the summer only feeds the weeds and not the grass. Use an organic lawn fertilizer with the Beneficial's.

## Monitoring Systems

Monitoring is when you regularly inspect the lawn for signs of harmful and beneficial lawn pests. Before you cut the lawn, you should inspect it for signs of stress. Here a garden notebook becomes very handy. Write the date. Lawn that is watered thoroughly at regular intervals, and whose soil has plenty of organic humus (organic matter converts into humus that makes the nutrient elements in the soil

available to the grass), will withstand drought, and remain sound throughout the hot summer months.

Your lawn will benefit by having a thin layer of aged horse manure, cow manure or chicken manure spread over it once a year

### **Developing a regular maintenance program**

It is important that you decide what work must be done on what basis and do it. Watering, fertilization, pest control, and maintenance should all be done on a regular basis, and notes should be kept on the whole process.

#### **Here are some lawn maintenance steps that you should follow:**

- Soil Test... once per year.
- Rock Dust... once or twice per year.
- Organic Fertilization... twice per year.
- Top Dressing of lawn with compost... every season.
- Irrigation... Establish a regular program of deep watering on the same days at least two times per week. Watering early in the morning is usually the best.
- Aeration depends on soil structure and should be done once per year.

- **Maintenance...** Cutting the grass is a very important step. Cutting too short or too long depends upon the type of lawn and the type of lawn mower. Try to cut from 3-4 inches tall.
- **The Mulching Mower...** Using a mulching mower is one of the best ways to recycle your grass clippings and feed the lawn at the same time! Try the newer solar mulching mowers! Get a good Mulching electric or solar mower.

### **Diseases of the Lawn**

Algae's growth generally does very little damage to lawns. Main cause is over-watering and high nitrogen fertilizers. Top dressing with compost will help conditions.

### **Fungi Diseases**

Fungal Diseases are caused by dead soil and using high nitrogen fertilizers. Over-use of chemicals on lawns eventually will kill off all the beneficial bacteria in the soil, leaving proper conditions for the bad guys to move in. Best type of fertilizer for the lawn is properly made compost, or other natural fertilizers such as rock dust, nature meal (Nitron), and many other natural lawn fertilizers available on the market today. Use Nitron A-35 as a bacterial activator (also try Agri-Gro, SuperSeaweed, Acadie, etc.). Wettable sulfur makes a good immediate fungal control.

Lichen growth can be removed by hand and raked clean. Top dress lawn with good rich compost and spray nutrition such as Superseaweed, Agri-Gro, Nitron A-35, Fish emulsion, etc. Toadstools or mushrooms are not necessarily to be viewed as bad for the lawn but instead should be looked upon as an indication that the conditions of the lawn should be looked at more closely. If your lawn has toadstools, then pick them and dispose of. Top dress the lawn with compost and rock dust.

“Diseases can be avoided by proper fertilization and proper watering, composting and organic fertilization techniques”

## Invisible Gardener

### **Making your own Organic Lawn Fertilizer**

5 pounds alfalfa meal

5 pounds rock dust or gypsum

10 pounds compost (finely grounded)

10 pounds aged chicken, llama or rabbit manure (finely ground)

5 pounds coffee grounds

5 pounds white sugar

1 pound BioChar

Mix well together. All items should be run through a fine screen. Apply as needed with a good rich compost. Keep an eye on you're watering. Water in early a.m.

Here is another great formula:

1 cup Liquid Organic Fertilizer

1 capful Superseaweed

1 cup Agri-Gro

1 lb. rock dust

1 lb. alfalfa meal

1 cup liquid seaweed like Acadie

1 cup molasses or sugar

1 can of Beer

See *Making your own foliar spray* chapter for more.

Now you can use what The Invisible Gardener uses himself on his famous customers lawns!

### **Making your own liquid lawn food for spraying**

Mix together and place into a panty hose tied into a ball. Allow to sit in filtered water or solarized water for a day (add liquids before to water), strain and spray onto lawns. Best time is early am.

## Natural Lawn Weed Control

Weeds will only grow in soil that is not rich in minerals. Weeds need mineral deficient soil to grow in, so keep your lawn well fed with minerals and natural bacteria and the right pH. You will have very few weeds establishing themselves in your lawn. Proper weed control is established through:

### Proper mowing of lawns

Always pull up weeds before you mow to avoid spreading the seeds. Keep a sharp blade. Tell your gardener to clean the lawn mower before he uses it on your property. Transference of weed seeds from one lawn to another is a major way lawns get weeds.

### Correct Watering

Regular deep watering is better than often shallow watering. Watering in AM is better than watering in PM. See water training your lawn.

### Correct Fertilization

Stop using chemical fertilizers. Stop the high nitrogen cycle. Organics will provide plenty of nitrogen, etc., as needed by the lawn for healthy weed free growth. Give lawns plenty of rock dust that provides minerals needed by healthy lawns. Provide your lawns with a top dressing of old horse manure or aged compost at least yearly. Chicken manure top dressed on your lawn 4 times per year will keep your lawn green and healthy. There are many natural fertilizers available on the market today.

## Hand Weeding

Hand pulling of the weeds is an easy and natural way to control weeds. I suggest that you first spray the weeds with a mixture of natural soap and Safer Insecticidal soap (50/50) the day before (see below). This makes pulling the weeds up easier. Weeds can be controlled by using natural soaps. Soap will burn them and they will die without having to remove them from the soil.

They will decompose and provide food for the soil. Test the strength of the soap mixture. Make to strength as needed. Use any natural soap like Dr. Bronners peppermint soap. Add 1 oz of this mixture into a gallon sprayer. Should work on most weeds but will not damage the lawn.

Do not water for 24 hour and do not spray in midday or on a hot day.

Try also WOW (without weeds-try Gardens Alive)! Made from corn gluten and is available at most garden catalogs or through my website under lawn resources .

Try to make your own lawn beer or buy the type of beer with the least amount of additives and preservatives, etc.

Corn Gluten 9-0-0 Organic Fertilizer is a great natural weed control as well as controls many other diseases too.

Don't Panic, It's Organic!



A happy lawn!



Chapter 23

HOW TO REDUCE WATER

"Reduce water usage from 50% – 75% within a few years and still have a beautiful environment"

Steps towards a 50 - 75% water reduction within next two years following the In-visible Gardener's 5 R plan

Reduce

Reuse

Recycle

Rethink

Replant

**Reduce** water consumption following the information here. Do it in steps to minimize damage and to train plants/lawns etc to go with less water.

**Reuse** soaker system and drip systems.

**Recycle** compost and mulch to increase soil fertility and water holding.

**Rethink** on what type of plantings you actually need such as whether you want natives.

**Replant** trees to increase a green coverage. A good green coverage will increase

your soil and plants ability to handle climatic changes.

### **Invisible Gardener's How to reduce water usage by 50 - 75% within the next two years**

Apply rock dust, compost and mulch several times yearly. Apply rock dust, compost and mulch several times yearly. This will reduce your outdoor watering by 10% the first two months. The first 30-60 days you will need to keep an eye out for your environment and see if you can spot any stress plants or if the lawn needs more water. Make sure the lines are working correctly. Some new heads may have to be cleaned.

Important note: Along with water reduction, you will need to improve the soil adding the following right after you have decided on whether you will be using a soaker or drip system. See notes on burying your soaker system.

### **Never place a soaker line around the base of your home**

- Repair leaks
- Change type
- Reduce time
- Reduce days
- Compost and Mulch
- Bury Soaker or drip
- Check water to make sure it is working correctly.

### **A secret water saving technique**

You can control the water by burying your soaker line under layers which add up every year. By simply adding 2 inches of mulch every year, you will be adding a deep enough layer under which your soaker line can be run as needed through a hot summer day without wasting any water. Additionally you will be able to water deeply once a week for more savings.

- aerate soil
- clean drip line
- replace broken drip line
- replace bad parts
- clean filter
- repair drip lines
- Control Water
- Catch the Rain!



Chapter 24

HOW TO KILL ALL LIVING BEINGS WITHIN 50 YEARS

Now, here is an easy way to make sure all living beings on earth are Dead within 50 years or less

Ignore the methane that is being released by the melting of the permafrost! Scientists have given us around 20 years or so, till we can no longer breathe the air because it will all be methane!

Ok.

Ten ways to kill all living things on Earth within 50 years based on The 10 Ecological Boundaries. These are things we SHOULD NOT BE DOING but are doing.

## 1. Nuclear

Build Nuclear plants with the current method, they should be using Thorium instead, look it up.

- a. Store wastes in pools out back. To be sure it will effectively kill, build it near a fresh water supply. It will leak if it isn't leaking already.
- b. Build nuclear plants near the ocean, make sure it is on a fault line! Let it leak into the ocean.
- c. Build nuclear plants near big cities. Let it leak into the city.
- d. Build nuclear plants near your favorite farm belt. Radiate your food. YUM!
- e. What about nuclear waste? Sure, Nuclear Power is safe as long as you ignore the waste it produces(not really, there are many other problems). You can delay this end by another 100 years (maybe) if you bury it in someone else's state. No

matter what you put it in, it will leak. Every nuclear plant on earth is leaking already nuclear radiation into our air, water, ocean crossing all Ecological boundaries. Life cannot live long radiated. Radiation crosses all Ecological Barriers.

## 2. Oil

Ignore the climate change warnings and drill baby drill! First will come global warming then it will be followed by an ice age. The last global warming occurred when Europeans cut down most of their forest. It called the Medieval Warming which lasted around 500 years; it was followed an ice age called the Little Ice Age also lasted around 500 years. That was without our current pollution/deforestation rate, this time it will last much longer. See my Blog "Climate Change-The Next Ice Age?" Ice Ages are bad but try surviving a Nuclear Ice Age? Ignore Climate change and continue to use outdated methods of doing business. Let's drill in the Arctic. Really?

## 3. Build the Keystone Pipeline.

50 years. Really? I give it 10 to 20 years, provided some terrorists doesn't blow it up first. It would be about right time for it to burst all up and down mid-America! Pipelines are bursting already. Look at Canada and look here in the USA. Their pipes burst once a day, over 300 acres have nothing living there, no trees, no birds, no insects. Look it up. The native Indians are saying Everything is dead. The pipeline that burst in Arkansas was only five years old. Improvident Land use (mis-

use of land-i.e.. Corporations take over land from farmer-farmer moves to ? While land becomes a cash crop for the corporation). Keystone Pipeline is a perfect example of Improvident Land use gone nuts. Even recently pipelines in the USA have burst see "Oil and Yellowstone National Park."

## 4. GEO FOOD

Eat *GMO(GEO)* foods with pesticides in the gene or? (almost everything you eat now is *GMO(GEO)* unless it is certified organic, but soon there will be no certified organic anywhere). Only eat "certified organic" as anything labeled "Natural" may also be *GMO(GEO)*. *GEO* knows no physical barriers and has already crossed several of the "Earth's Ecological Barriers". Do you not know what "GEO" is? Look it up!

a. Let Monsanto control *GMO(GEO)* research. If not stopped, within a few years there will be no viable organic seeds, no plants, no trees, no flowers, no safe food. Nothing will reproduce due to terminator tech build into anything *GMO(GEO)*. Terminator tech was developed so that farmers had to buy the seeds over and over again. They also knew that it (*GMO(GEO)* pollen) cannot stop from spreading around the world and pollinating other plants and they too would become *GMO(GEO)*. What they are not telling you is that it works only 95% of the time, the other 5% pollinate and spreads it to other plants worldwide. What about humans? Will humans be able to reproduce? What about pets and other animals? Their food is *GMO(GEO)* too. What about Bees? A Major die off is the result.

b. *GMO(GEO)* tech only develops pests resistant to Roundup, 24-d, BT, etc. Then resistance to whatever pesticide is used to replace it and so on, becoming a

never-ending cycle of stronger pesticides. Humans and all living things were not meant to eat pesticides. Recently it was discovered that *GMO(GEO)* cotton with BT found in high concentrations in the soil and surrounding areas. Insects are becoming immune to the BT.

c. *GMO(GEO)* tech develops super weeds resistant to anything you throw at it. See - "Some *GMO's* are Good, and Some *GMO's* are bad" for why I use *GMO(GEO)* together when I talk about *GMO*.

## 5. Keep eating microwave food

You are what you eat! Food that gets microwave destroys food and is no longer food. Food pollution is bad!

## 6. Keep that cell phone on!

Nothing like fried cells to ensure extinction. Electromagnetic radiation pollution is bad!

## 7. Sewer Sludge

Sewer Sludge in your compost equals Heavy metals in your food. It was an excellent idea to run a pipe underwater, three or four miles out to sea and on the ocean

floor and dump it there? Billions of gallons of human waste, mixed with the medicine of all types mixed with industrial waste is dumped every year along the world's coasts. Heavy metal pollution is bad! This kind of pollution has already crossed several of the Earth Ecological Boundaries. Arsenic, mercury levels.

## 8. Kill every living thing that crosses your path

Millions of road kill every month in The USA alone. Loss of (fill in the blank- birds, deer, rabbit, etc.), loss of animal biodiversity is bad! Loss of insect biodiversity is dangerous! While Solar Power is good, it is also killing birds, etc., by the millions every year.

Between China eating everything that lives, hunters going to (fill in the country) and kill whatever animal they wish, toxins everywhere in our water, our food that we have to eat, oil spills to plastics in the ocean, Nuclear radiation.

Climate Change: (which is caused by humans) (natural climate change is good for animals), all animals are slowly dying.

Fish fish till there are no more fish (or anything else we hunt or fish or otherwise kill). Loss of Fish biodiversity is very bad! Ocean acidification is very bad! It is one of the Earth Ecological Boundaries that's been crossed.

Plastic: Plastic does not decompose, merely forms small plastic "beads" which algae grows on as well as absorbs radiation, and medicine. It will last almost forever.

A whale was found dead, when they did an autopsy, it was found to be full of plastic. Birds, sea animals are dying of hunger while their Stomachs are full of plastic. Fishes are being found that have plastic in them, and we are eating it.

## 9. Deforestation and Land misuse

Trees play a very important role in the health of the earth as a place where living beings are to be found. Without that support, nothing will be alive. We have destroyed 3/4 of the world's trees and are in the process of destroying the rest. Besides Oxygen (they take carbon which we have way too much of) and replace it with oxygen. They also bring minerals and water up from deep within the earth for living beings to use. Recent drought is showing us how important trees are in reducing the damages a drought brings to its local as well as worldwide environment. By telling folks to water their properties less, they are in essence damaging the trees they have maybe even killing them. Under normal conditions (no humans) trees would survive a drought because they would have deep roots that go down and locate underground water sources that they can't now because humans have used up that underground water. We need more trees not fewer trees.

## 10. Nuclear War

Blow yourself up with that nuclear bomb or two. War, especially Nuclear War is very bad because War crosses all boundaries and destroys it.

## 11. Pollution

Pollute our bodies with chemicals. Smoke cigarettes and make others smoke your second, third and fourth-hand smoke. Eat as much GEO as you want! Eat Junk Food. Eat food ground chemically and not organically (there is a difference, see Rodale free report <http://rodaleinstitute.org/assets/FSTbooklet.pdf>).

Pollute our water: Pollution of Clean water is very bad! Freshwater use or rather its misuse is one of the Earth Ecological Boundaries, which has been crossed. See Keystone, See oil, etc. See Fracking.

Pollute our air: The modern world has not been paying attention to this important Ecological Barrier (Particle Pollution), which we passed a long time ago. Nothing can survive with toxic air to breathe. Air Pollution is very bad! Ozone Depletion is one of the Earth's Ecological Boundaries that we have crossed.

Pollute our oceans: This Ecological barrier is just as important and one that we sorry need to clean up our act. The oceans are in danger of becoming toxic to all living things. If the ocean fails, so too will humans be not far behind.

Pollute our soil: For years the argument was that you cannot feed the world organically which is not true. Conventional farming methods have destroyed the soil. Here is another Ecological barrier we have crossed.

Disrupt the Nitrogen and Phosphorus Cycles in plants thru miss use of natural resources and thru congenital farming methods, thru the destruction of the forest being replaced with cities, building of roads destroys the earth underneath it.

Electromagnetic pollution is very bad and crosses all Ecological Barriers. All living things cannot get radiated without sustaining damage. Includes but not limited to WIFI and its various devices. Smart meters along with the "Dangerous" towers we are forced to living next to these. Radiation from our cells phones, TV, Computers, faulty home wiring, faulty microwaves, (too many to name here). All of which bombard our bodies with a tradition that is known to do damage to living cells but its business as usual.

The Chart and more information on Planetary Boundaries is located at [http://en.wikipedia.org/wiki/Planetary\\_boundaries](http://en.wikipedia.org/wiki/Planetary_boundaries)



*It is never too late to change.*

andy Lopez, Invisible Gardener

## RESOURCES

### **Invisible Gardener's Own Rock Dust Blend**

This is in rock dust blend to which is added microorganisms, millions of bacteria, and millions of enzymes.

Superseaweed and Rock Dust make all of your house plants, container plants, indoor grown plants grow better by providing them with all their mineral needs. My own special blend is not available anywhere else.

### **Invisible Gardener's Superseaweed-Microbiological activator**

Check out my website for this product. Comes in Quart and Pint sizes.

### **Invisible Gardener's Growers Kit**

This is One Quart of Superseaweed and 5 Lbs. of my Rock Dust Blend.

For more information on my Superseaweed, Growers Kit and my Rock Dust blend please go to my website.

## **InvisibleGardener.com**

Join Andy online ...

Etcetera

The Invisible Gardener offers a wide variety of resources to help you understand and maintain the balancing act needed to manage your garden environment. I invite you to come explore and learn from my experience and see how the secret to a natural garden a solid understanding of how all the factors interact & work with each other.

## Media

### Web Site

The best place to start accessing the Invisible Gardener's other resources is to visit the web-site:

<http://www.invisiblegardener.com>

Here you will find access to membership in ClubIG. As a member you will get all of my current eBooks free plus access to my members only radio shows as well as access to The Organic Hot Line where you will get free consultations (live in southern Ca and want in person? I still do house calls).

You can also get access to my database of knowledge and experience, members ask questions, buy my special blends of fertilizers and rock dust, link to my radio program and video content, and see what services I provide.

## Radio Shows

I broadcast a member's only live radio show every Saturday at 1 to 2 pm PST. It is called "Invisible Gardener Radio Network." Members can call into the show and talk live with Andy. Non-members get access to my Free Show Don't Panic It's Organic radio show. Podcasts are available for all of my shows. Members get all of my shows in one place thru the members podcast. Also, I have Inner Gardening Music written by me. New show LIVE on [BBSRadio.com/dontpanicitsorganic](http://BBSRadio.com/dontpanicitsorganic) every Saturday mornings from 1 to 2 pm pst.

## eBooks

This Book will also become an eBook and it will be one of a series that as a set, addresses all the issues you can expect to encounter as a serious organic gardener. The complete set is intended to be a handy gardener's guide and includes the following titles:

The Bug Free Bed

Organic Gardening - Compost it!

Don't Panic, it's Organic

Natural Cockroach Control

Natural Flea & Tick Control

Natural Fruit Tree Care

Natural Lawn Care

Natural Snail Control

Natural Spider Control

Natural Termite Control

Natural Tree Care

Organic Rose Care

Rock Dust

Natural Pest Control

Natural Disease Control

Natural Disease Control Chart

Organic Gardener's Guide

Dances with Ants

Access to all the eBooks can be found at the Online Store. Just go to my home page at [InvisibleGardener.com](http://InvisibleGardener.com) and then go to the store. (See end of book for more details on special offer.) Members get all these books free!

## Videos

A regular feature of the website is the Invisible Gardener's "Live Cam." You can access this via my home page then click on LIVE CAM top right corner. Many of the videos are also located on my FaceBook Page which you can locate on [InvisibleGardener.com](http://InvisibleGardener.com) home page at bottom.

## Products

### Invisible Gardener Direct Purchase

Besides the eBooks you can purchase products manufactured by the Invisible Gardener. I offer a seaweed based micro-biological activator known as SuperSeaweed® which is blended from several varieties of seaweed, enzymes, and his own special rock dust mixture, and allowed to cook for several months. There is no external heat involved and the process is very much like making yogurt.

The special rock dust blend is also available for purchase. This is a proprietary blend of different rock dusts with an assortment of bacteria sources. It makes a wonderful bacteria/mineral spray and when mixed dry with the soil in your raised beds, acts as a recharger or added to water and sprayed.

You can buy both at a good price by buying the Growers Kit.

Access direct purchase products via:

<http://www.invisiblegardener.com/>

Andy Lopez

Invisible Gardener

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Don't Panic, It's Organic!



ABOUT THE AUTHOR

**ANDY LOPEZ - THE INVISIBLE GARDENER**

Living in the secluded hills of Malibu Canyon is a man known as the "Invisible Gardener." With a title like that, some confusion is inevitable: Could he be a playful, elf-like man who comes down from the canyon at dawn to sprinkle dew over the ground before others awaken? Or simply a wonderfully unobtrusive groundskeeper who literally fades into the landscape while dutifully taking care of the foliage? Actually, as Andy Lopez explains, he is not the Invisible Gardener at all — nature is. I am just one of her helpers he states. And if I could get more people to do what I am doing instead of consistently destroying the environment, she would have a much easier job.

In 1956, he started his own business with around 150 customers by the ninth grade. He did not get the name Invisible Gardener until 1970. After his service in the US Navy, he went to The University of Florida. He taught an organic gardening class, started an organic gardening club and produced various books. He started his current business in 1970 and one of his customers referred him as The Invisible Gardener and the name stuck! Lopez, better known around the world as The Invisible Gardener, has been in the organic pest control business since 1972.

Prior to that year, Andy had been a student at the University of Florida in Gainesville. While attending the university, he started The L.I.S.T (Living Institute of Survival Technology). The primary function of this organization was to promote the awareness of alternative knowledge, lifestyles and businesses emerging in Florida at that time. This was accomplished with the publication of several periodicals including — "The Gainesville People's Pages" and "The Florida Pages - A

## New Age Traveler's Guide to Florida."

After his time at the University, Andy moved to Miami and became active in local gardening councils and societies, including board memberships on the Rare Fruit Council, the Rose Society, and the Horticulture Society. In 1972, he developed 3 compost products - Organa (the SuperCompost)™, Organa Gold™, and Malibu Gold™, and a liquid microbiological activator called SuperSeaweed™. It was then that he started "The Invisible Gardener" — the first 100% Organic Spraying and Pest Control Service in the USA. Using natural every day materials, Andy developed a unique system of fertilization and pest control designed to increase balance in the target environment.

Moving to Malibu, California in 1984, Andy brought his company and knowledge with him to the gardens and homes of Southern California. He has expanded his practice to include a weekly radio show, the production of video education materials and teaching at local schools and organizations.

He is the author of "How to Heal the Earth in your Spare Time" — "Natural Pest Control" and his latest new book — "Don't Panic It's Organic."

## Bonus

### Here is how you can get the eBook version for Free!

This is my way of saying thank you for buying and reading my book!

May I ask you for one more small favor?

Reviews are always needed, and would you please do a review of my book?

You can post on my website Here is all you have to do. Please go to my website and register to receive my newsletters. Better yet, join! Just mention that you have the book and would also like to get the free eBook version and leave a review in the store. I will email you back right away with your eBook.

You will always be able to download this Book as an eBook. I will be updating it as needed. The newsletter will tell you when a new version is up. You will also be entered into our monthly contest where you may win a free lifetime membership!

The Reviews are on my website. You can also do a review if you buy anywhere else but from me like from Amazon.

Thanks

andy Lopez

Invisible Gardener

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