



UZUMAKI

• PERMACULTURE •

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**AHMAD BALLOUT - FARID CHBEIR
ELIAS FARAJALLAH - HANNA EL HAJ**

UZUMAKI – Efficient/sustainable permaculture design

CHALLENGE

Water scarcity and inefficient irrigation systems are major challenges in sustainable agriculture, particularly in arid regions. Traditional irrigation methods often lead to water wastage and do not maximize the potential of water reuse. How might we create an efficient water management system that supports organic permacultural practices?

CONTEXT

The UZUMAKI project was developed as a project that focused on permaculture and sustainable agriculture practices. The project's design ensures efficient water use, supporting a diverse range of plants in an organic environment. The simplistic spiral logo represents the project's core philosophy of natural and sustainable design.



OUTCOME:

1) SPIRALS

UZUMAKI is an innovative water management project designed around four spirals and three keyhole gardens. The spirals were created using hugelkultur, a method involving the use of layers of compostable materials to build raised beds, ours consisted of wood, twigs, peatmoss, straw, grass clippings, soil and finally compost. This technique enhances soil fertility, water retention, and overall plant health. Each spiral is equipped with a sprinkler system to ensure even water distribution across the garden. The design allows water to flow through the spiral, ultimately being recollected in an underground tank at the center, creating a closed-loop system that minimizes water wastage and maximizes water reuse.

The shape and position of the spirals opposite the sun create unique microclimates within each spiral, benefiting different types of plants. Aromatic plants, such as marigolds, were planted for protection against pests. Additionally, beans were planted with mycorrhizal fungi, which form symbiotic relationships with the plant roots, boosting nutrient uptake and enhancing plant growth.

2) KEY HOLES

The keyhole gardens, bordered by bricks, are strategically placed between the spirals. These gardens are designed for easy access, allowing gardeners to reach all plants within an arm's reach. The central walkway in each keyhole garden provides convenient access for planting and harvesting. Plants are irrigated using a drip system and the beds consisted of soil and compost.

