

LEAD BY



WITH SUPPORT OF



Fondazione
Compagnia
di San Paolo



GUIDE - BERGOLO GARDEN 2023

INDEX:

1. Intro
2. Approaches
3. Goals
4. Practices
5. The design: permaculture tools
 - a. *Observation*
 - b. *Mapping*
 - c. *Planning the seeding*
6. Maintenance-month by month
7. Conclusion: results and numbers - future



1. INTRO:

Bergolo community garden was created in 2023 with a didactic, communitarian and regenerative vocation. Designed following the principles of Permaculture, ecological design approach, it is integrated into the landscape with its harmonious forms and its multiple educational and productive functions.

The garden was created through cooperation between the New Wellness Education youth association with its European volunteers and the municipality of Bergolo, which dedicates public land to the garden, and at the same time through European funds (for human resources) and the San Paolo foundation (for materials).

The garden's main objective is to create around it a community of people who are sensitive to caring for the earth and who, by connecting with its beings, also strengthen human networks of collaboration, in order to recreate functional ecosystems, as well as experiencing the benefits of the connection with nature and eating healthy food.

The main characteristics of the vegetable garden are its great biodiversity of plants and edible flowers, and its perennial mulching: a 10-20 centimeter layer of hay that covers the soil to maintain humidity (and thus reduce the amount of water used), to create organic matter with its decomposition, and to prevent the growth of wild grasses and erosion.

No mechanical tilling was done in 2023: the soil, previously prepared by the roots of the melliferous green manure plants planted with +Api project, was only aerated with a pitchfork to preserve its microbiological life. No pesticides or chemical fertilizers. With the regenerative approach, the soil was left more fertile than it was!

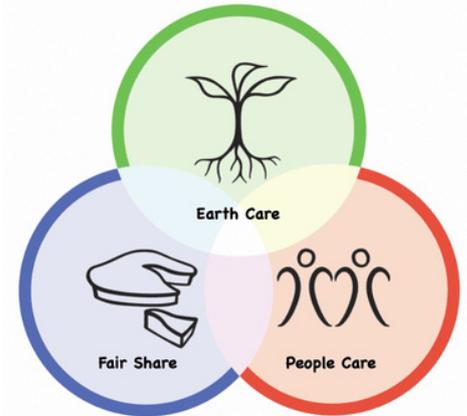
The vegetables produced have been used for community dinners and youth projects, to weave community. The garden is ready to host local schools and other visitors in its labyrinthine and imaginative forms inspired by synergic agriculture.



2. APPROACHES

PERMACULTURE: *System for designing sustainable and regenerative human settlements, based on observation of the natural ecosystem.*

REGENERATIVE AGRICULTURE: *Agricultural method that restores the ancient fertility of the land and protects water and biodiversity by reducing erosion, tillage and the use of agricultural chemicals, integrating crops, trees and animals to recreate a resilient ecosystem.*



3. GOALS

a. Didactic

The garden is a space where young people, as well as older people, can experience contact with the earth and raise their ecological awareness. A place to learn by doing and understanding how to collaborate with nature for the benefit of all. It is the possibility of learning how to grow healthy food and to cultivate wellbeing through immersion in nature. Main target groups are ESC volunteers, Erasmus+ projects participants, schools and Bergolo visitors.

b. Productive

The vegetables, herbs and flowers produced in the garden serve as a support for the kitchen of New Wellness Education's project, as well as to organize dinners to strengthen community.



4. PRACTICES

- **BIODIVERSITY:** The diversification of varieties of plants in the garden. It has a multiple function: bring stability and resilience, both for the agroecosystem and for the production (barrier against pests), preserve local species, support the inhabitants that help with the pollination and regeneration (bees, insects in general), bring beauty (colorful flowers, plants of all shapes and colors), increase the variety of production, increase the didactic potential
- **NO SYNTHETIC PRODUCTS:** The lack of usage of chemical herbicides and fertilizers has great advantages in terms of health of the ecosystem (water, air, insects...) and safety of the edible products
- **MULCHING:** A covering spread over the ground (hay, leaves,...) to maintain humidity (and thus reduce the amount of water used), protect the soil from heat, cold and erosion, prevent the growth of wild grasses, and create organic matter with its decomposition. Hay is more interesting than straw because it is rich in different herbs, which can create better ecological niches and nourish the soil better. It is important to mulch also the paths, in order to avoid creating “fertility islands”; wood chips are a good choice because they take more time to decompose, and they help differentiating from the planting beds
- **IRRIGATION WITH RAINWATER:** By collecting and using rainwater in the garden, we not only can save drinkable water, but also favor the plants: rainwater doesn't have chlorine and contains less limestone, other than being more constant in temperature
- **NO DIG:** By avoiding the use of machinery we prevent soil compaction, erosion and disruption of microbiological life. Going one step forward, with the no dig method, we can preserve the structure of the soil and all its inhabitants, regenerating it in the long term instead of destroying it. One of the main tools to be used, in preference to hoe or any other tool, is the digging fork (or the *grellinette*), which doesn't reverse the soil layers but helps aerate the soil
- **COMPANION PLANTING:** Combining different plants in the same bed, following specific criterias, helps to prevent pests and diseases, save space, prevent erosion and weed growth
- **LOCAL SEEDS:** Local plants are more adapted to the specific climate and soil. By exchanging seeds with local farmers we can also help to preserve biodiversity (in the shops we can only find few standardized varieties)
- **PERMANENT BEDS:** Designing permanent beds and paths allows the soil in the beds to maintenance is softness, fundamental for the roots to grow strong

5. THE DESIGN - TOOLS

a. Observation

“Observe and interact” is the first principle of Permaculture and the most important: before starting any action in a place, it’s fundamental to observe: sun exposure, winds, rains, soil, morphology, spontaneous plants, interactions between natural elements... Observing provides information for creating better and more efficient designs.

"Good design depends on a free and harmonious relationship between nature and people, in which careful observation and thoughtful interaction provide the design inspiration."—David Holmgren

PERMACULTURE TOOLS FOR OBSERVATION:

- ZONEANDSECTORANALYSIS:

<https://deepgreenpermaculture.com/permaculture/permaculture-design-principles/4-zones-and-sectors-efficient-energy-planning/>

- SOILTESTING:

spade test https://youtu.be/XPztjZdzcHY?si=i-tqBYvl_ztTbKF4a

jar test https://youtu.be/PvN_oWoehg?si=4ce79mvUVyyHqAe7

ph test <https://www.youtube.com/watch?v=KmJXh5zfcSw>



- BIOINDICATORSPLANTSOBSERVATION:

<https://www.agroecologynow.com/wp-content/uploads/2022/02/Bioindicators-Field-Guide-A4-PDF-version.pdf>

- ELEMENTSANALYSIS:

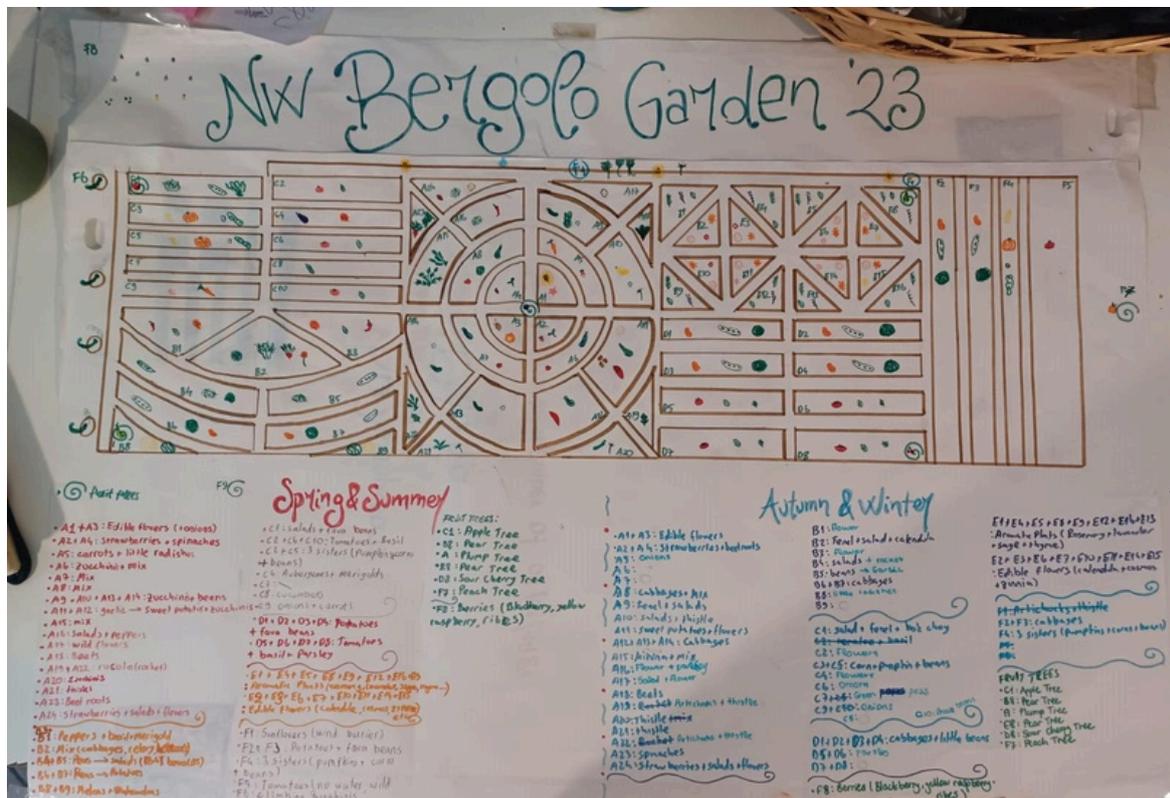
https://www.gaiapermaculture.com.au/_files/ugd/0d4591_a8a1803f244c40e288b8c56ae107e4b3.pdf?index=true

b. Mapping

According to the data collected through the observation, permanent beds are designed, using creative but functional patterns: <https://botanicalrevivalherbs.com/permaculture-patterns/> Beds are averagely 80cm wide, in order to make every corner accessible, most of the paths are 40cm, the main ones 60cm.

The patterns are first designed on paper and then transmitted to the land.

It is important to keep the map updated with what is planted in each bed to ensure rotation in the next planting season.



c. Planning the seeding

As a support to plan seedings and transplants it is possible to use different charts and calendars, to know the time, the right sun exposure, the right moon, the right distance and depth. Because of climate change, we have to pay attention to unusual variations in climate, and decide if to anticipate or postpone the planting/seeding.

It is also important to consider which are the plants that go well together or not, to combine them properly in the beds.

Moreover, it is fundamental to keep in consideration which family of plants were previously in a bed, in order to respect the rotation (the same family of plants shouldn't be planted twice in the same place, to ensure availability of nutrients).

TOOLS FOR GARDEN PLANNING:

- SeedingplannerNORTHOFITALY:
https://www.ortodacoltivare.it/calendari/odc-tabella-nord.pdf?utm_source=sen dinblue&utm_campaign=tabella_di_semina&utm_medium=email
- Gardencalendar2024:
<https://www.ortodacoltivare.it/wp-content/uploads/2023/12/calendario2024-ort odacoltivare-1.pdf>
- Gardencompanionschart:
<https://media.smilinggardener.com/files/images/articles/vegetables/companion -planting-chart.pdf>
- Vegetablefamiliesforbedsrotation:
<https://www.theseedcollection.com.au/blog/a-beginners-guide-to-vegetable-pl ant-families>

6. MAINTENANCE

PREPARING THE BEDS: a. For transplanting: aerating the bed with digging fork, opening hole in the hay with the hands, opening hole with a small shovel, putting compost, placing the plant and closing the earth around without excessively pressing, ensuring that there is enough hay around them (*nest*) - 15 cm everywhere b. For seeding: aerating the bed with digging fork and removing the bigger spontaneous plants (if we are seeding legumes is not necessary), breaking the clumps with hoe and rake, sprinkling compost, placing them with the right distance and pushing them slightly down with rake if small (if big push them down with the finger deep as necessary), placing 5 cm hay and increasing it to 15 when plant are out and big enough

WATERING:

It is important to plan and follow up the watering, mostly from April to September.

Every plant has different water needs, which also vary according to the season.

Mulch the soil and water it (abundantly) just when it is not moist anymore.

It is important to create a clear water schema to guide the volunteers, and keep it updated according to the plants that are in each bed and to the season.

Watering schema example:

<https://docs.google.com/spreadsheets/d/1dYdE1-MSx8fERD7UG5bHZPMB7geJtRUkbrUNSMYf0M/edit#gid=350912376>

WEEDS CONTROL:

A good habit is to cut the spontaneous herbs and not take the roots out, since the roots, even when dead, help the soil in multiple ways! Cut them when they are taller than the focus plants, remove them only when seeding small seeds.

MONTH BY MONTH

PREVIOUS AUTUMN



1. We select the place for its position and soil quality (a sowing of melliferous green manure was done in 2022) 2. We covered it with different layers of mulching, creating a “lasagna”: 1cm homemade compost, 2cm wood leaves, 1 cm of horse manure, 10cm of hay. This technique serves to get the soil ready for the spring, by reducing the quantity of spontaneous herbs and creating soft topsoil

FEBRUARY

1. Observation: wind/sun exposure for the beds orientation and plants position, soil testing (we verified that it was softer and darker where it was previously seeded and covered by hay!), observation of bioindicator plants and richness in diversity to better understand soil condition



2. Seeding: we seeded the area for future garden expansion with green manure mix and covered with hay 3. Tree planting: we planted a plump, a peach and a cherry tree which was given us as a gift 4. Garden planning: we designed the shapes of our future garden on paper and then reported it on the land

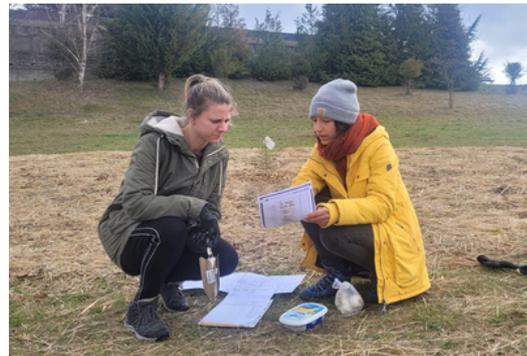


MARCH



1. Direct sowing: (1st half) garlic, fava beans, peas - (2nd half) carrots, little radish, potatoes, rocket 2. Mulching: we added hay, to have again 15cm of covering after winter decomposition 3. Transplants: (1st half) strawberries, parsley, onions - (2nd half) blackberries 4. Building: greenhouse and fence 5. Tree planting: we transplanted 2 pears and 1 apple which were gifted to us 6. Greenhouse sowing: according to the

calendar, we sowed local seeds in seedling trays in the greenhouse



APRIL

1. Direct sowing: (1st half) fava beans, edible flowers, salads potatoes (2nd half) spinaches, garlic, chickpeas, beets, beetroots green beans



2. Greenhouse sowing 3. Transplants: salads, onions, strawberries - (2nd half) aromatic plants 4. Watering

MAY

1. Transplants: aromatic plants, edible flowers, zucchinis, pumpkins, melons, watermelons, cucumbers, tomatoes, basil ... 3. Greenhouse sowing 4. Direct sowing: beans, salads, corn 5. Watering 6. Mulching 7. Building new compost place



JUNE



1. Transplants: tomatoes, peppers, aubergines, edible flowers... 2. Cutting the grass in bed 3. Mulching paths with wood chips 4. Creating cane structures for tomatoes, peas... 5. Greenhouse sowing 6. Tight tomatoes, cut "femminelle" 7. Collecting 8. Water



JULY



1. Prune plant till damaged 2. Transplants and seeds again summer vegetables! 3. Treat with preventive macerates for diseases 4. Rebuilding structures

5. Mulching 6. Watering 7. Collecting potatoes

6/7: STORM!!



AUGUST:



1. Transplants: cabbages of all types, zucchinis, salads, thistles
2. Watering
3. Collecting
4. Mulching



SEPTEMBER:



1. Transplanting: salads, fennels, artichokes
2. Direct sowing: beets, carrots, salads, spinaches, little radish
3. Watering
4. Collecting vegetables, flowers and seeds
5. Cutting herbs
6. Mulching



OCTOBER/NOVEMBER

1. Direct sowing: peas, garlic, onions, fava beans, rocket
2. Collecting vegetables, flowers and seeds
3. Mulching
4. Planting: aromatic plants, trees
5. Cut dry summer vegetables and leave it on



DECEMBER:

1. Collecting
2. Mulching paths and beds

7. CONCLUSION: RESULTS & NUMBERS - FUTURE

DIDACTIC

The garden in 2023 hosted more than 200 people, through visits and didactic sessions, most of them between 18 and 30, participants of long or short term ESC projects and Erasmus+ projects. Many tourists passing by in Bergolo also stopped by the garden, admiring its colors and shapes and giving appreciative feedback. The people who visited the garden this year come from around 20 Countries and 3 Continents.

Moreover, during the events we organized throughout the year, locals too had the possibility of visiting the garden: during the Ecofestival, the Water Management Course, the presentation of Water Project and booklet.

The ESC volunteers have been the ones taking care of the garden the most, with the help of NW coordinators: many of them explicitly express that they felt a physical and psychological benefit related to spending time in the garden. They learned how to start a garden and take care of it, to produce healthy food, and how to eat healthier, by trying garden products.

The garden created a space to talk about sustainability and permaculture and raise ecological awareness between all the young and older visitors.

PRODUCTIVE

This year 600 seedlings were planted, plus around another 1000 were seeded directly (potatoes, carrots, beans and broad beans, peas, garlic, onions, little radish, beets, spinach, salads of different types...).

Most of the plants and seeds were gifted or exchanged: less than 100€ was spent this year to buy them.



The moments of biggest production have been June, September and October. In fact, the garden got destroyed by a storm in July, which erased the garden completely. But nature is resilient and it recovered very fast, with our support!



Around 25% of the food of the projects happened in those months was coming from the garden. Moreover, during those periods the garden was satisfying most of the needs of the NW volunteers and coordinators community in Bergolo.

PRACTICES IMPLEMENTED

BIODIVERSITY: 111 different varieties of plants were planted this year between Spring and Autumn. Pollinators were abundantly populating the garden, worms and beneficial soil insects visibly increased. The garden was full of colors: edible flowers, roots, fruits, pods, leaves.

Here a complete chart of all the varieties planted in the garden this year, with numbers:

<https://docs.google.com/spreadsheets/d/1enExRwh4t0IB2v5zuK49mVpINPWqbXjf/edit#gid=865521125>

NO SYNTHETIC PRODUCTS have been employed. Bergolo garden was fertilized with homemade compost, nettle macerate, and hay. When fungal diseases came after the storm (powdery mildew mostly) they were treated with diluted horsetail macerate and sodium bicarbonate.

MULCHING: The garden beds have been constantly covered with hay and in the beginning of June we finally got wood chips for the paths. The mulching visibly helped to keep humidity, protect the plants from heat and cold, soften the topsoil and reducing spontaneous herbs

IRRIGATION WITH RAINWATER: In May we installed 2 water tanks of 1000 liters each and started collecting rainwater from the adjacent building. This system was improved in October with proper connections and will be empowered with 3 water tanks of 3000 l. The garden



was watered mainly with rainwater, according to the season and the plant's need, keeping humidity with mulching, watering just when soil was not moist anymore.

NO DIG: The garden was never worked by mechanical machinery in 2023, but just with a digging fork, limiting even the use of the hoe in order not to invert soil layers. The soil got visibly more soft and dark after 10 months of cultivation, inverting the tendency that usually happens in conventional agriculture.

PLANTS COMPANIONS: Different vegetables and flowers have been combined in

the beds; this resulted in keeping the plants more humid, saving space, increasing the variety of production

LOCAL AND BIODIVERSE SEEDS: Seeds have been taken from seed exchanges or gifted from very biodiverse and organic seed producers. This helped the garden in being more resilient to climate and to pests and diseases.

PERMANENT BEDS: As a result of permanent beds, the soil in the beds is now soft and rich in microbiological life!

FUTURE

Bergolo garden has a vibrant future ahead. Connected with the agroforestry system, the water collection system, the dome and the theater, has an enormous didactic potential: it can support other young people in building or reinforcing their connection with nature and become more ecologically aware, to connect the youth associations with the local community through an exchange of knowledge between older and younger generations, and the visits of schools, it can be a space for courses and inspiring events.

Due to its position, it can also be a place of inspiration, questioning and discussion, bringing a little seed for a more sustainable agriculture in the marvelous Langhe hills.



Updates in 2024

In 2024 the garden and the green area directly connected to it has seen a significant growth and evolution with the direct involvement of ESC volunteers, local volunteers, participants of youth exchanges and training courses.

In order:

- 1. the extension of the garden has increased of 90 square meters, with the planting of additional 50 species (including trees as olive and lemon trees), the building of wooden beds for plants, additional water faucets.*
- 2. a didact green house was built (not completed yet) of 87 square meters, with the purpose to host more delicate species in the winter times and to use it as nursery before the warm season. As well as space for didactic activities.*
- 3. Installation of information, explanatory and didactic panels. With the description of the actions happening on the “Collina del Vento”.*

4. Rain Water recovery system. With the installation of 9000 liters water tanks connected to the “Teatro della Pietra” roof, collecting water from it that are used for water supplying of the teather (after specific filtration), that are connected themselves to 3 smaller tanks of 1000 liters each that are used to water the plants in the garden and the agroforest system.

5. Agroforest system, with aromatics and trees. Together with volunteers and participants of international mobilities we planted 60 aromatic plants(Sage, Rosemarin, thyme, lavender, oregano, Basil), trees of Juniper, Pears, Peaches etc....)

6. Bonfire, picnic spaces. With tables, benches, space for bonfire open to public and used by participants of international mobilities, volunteers, during festivals etc.....







During 2024 the whole area of “Collina del Vento” where the didactic community permaculture garden is places as well, is still changing, evolving, also thanks to participatory processes with locals (foe example community dinners using products from the garden), usually persons of older age with vast experience in agriculture and traditional practices.