Enhancing Active Ageing through Organic Gardening

D2.1: Organic Gardening Practices Report

Project Number	2024-1-CY01-KA220-ADU-000255237	**Acronym**	SeniORGarden
Project Title	Enhancing Active Ageing through Organic Gardening		
Start Date	01/11/2024	**Duration**	24 Months
Project URL	https://senior-garden.eu/		
Deliverable	2.1	**WP No**	2
Date	31/01/2025		
Author(s)	Vasilis Kyprianou (FBF)		
Contributor(s)	All partners		
Reviewer(s)	Lucia Svata (OTI)		

Co-funded by the European Union

Document Revision History *(including peer reviewing & quality control)*

Version	Date	Changes	Contributor(s)
v1.0	06/12/2024	First draft	FBF
V1.1	14/01/2025	Modification of tables and content	RISC
V1.2	21/01/2025	Review	OTI
V2.0	30/01/2025	Final version	FBF

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Executive Summary

D2.1 provides a detailed desk research report on organic gardening practices, aiming to identify the most suitable herbs and vegetables for communal gardens. These insights will directly inform the development of the hands-on training in Work Package 3 (WP3), which focuses on equipping senior individuals with knowledge in organic and smart gardening.

The report compiles and evaluates 12 key practices, such as seed starting, vertical gardening, composting, and companion planting, assessing their applicability in terms of environmental conditions, space, seasonal factors, benefits and potential challenges.

The conclusions emphasise species like tomatoes, lettuce, beans, basil, and marigolds as ideal for communal garden implementation.

Table of Contents

List of Figures

List of Tables

1 Introduction

1.1 Purpose

The purpose of this deliverable is to conduct a comprehensive exploration of existing practices in the planting and cultivation of organic trees, herbs, and vegetables. This exploration aims to identify which specific species or varieties are most appropriate for integration into communal gardens. The findings will directly inform and support the training activities to be developed under Work Package 3 (WP3).

By examining a wide range of practices, including species selection, cultivation techniques, and organic maintenance approaches, this deliverable intends to highlight best practices that can be transferred to and replicated within the project's communal garden initiatives.

1.2 Relation to other WPs and Deliverables

T2.1 provides the essential groundwork for WP3 by identifying the most suitable organic gardening practices and species for communal garden settings. Through detailed desk research, T2.1 highlights environmentally sustainable and easy-to-implement methods which directly inform the design and content of the training developed under WP3.

These findings support WP3 objectives to create a hands-on, practical training program on organic and smart gardening, tailored for senior participants. T2.1 ensures the training is based on real-world, adaptable practices that promote eco-friendly gardening and efficient use of resources.

In essence, T2.1 equips WP3 with the evidence-based content needed to develop relevant, effective, and localised training that empowers both trainers and seniors in sustainable communal gardening.

Finally, the identified practices will be published on the project website to ensure open and easy access for the targeted audiences.

1.3 Structure of the Deliverable

The deliverable starts with a Methodology section which explains the data collection approach, including the use of a standardised internal form to ensure consistency across practices. The core section of the report is the Organic Gardening Practices, which presents twelve practices in detail, each described in terms of summary, applicable plant species, methods, suitability, benefits, and challenges. This is followed by the Section on Communal Garden Species and Conclusions providing an overview of the recommended species to be planted in the context of the project training activities.

2 Methodology

To facilitate the collection and analysis of organic gardening practices, a dedicated internal data collection tool was developed in the form of a structured Google Form. This template was designed with five key sections:

1. **General Information** – capturing the source of each practice.
2. **Description** – providing a summary of the practice detailing the methodology and plants suitable for this practice.
3. **Suitability** – assessing the relevance of each practice to communal garden environments, with particular attention to climate adaptability, seasonal considerations, and space constraints.
4. **Benefits** – outlining the environmental, social and health advantages of the practice.
5. **Challenges** – identifying potential limitations or barriers to implementation, such as resource requirements, maintenance needs, or seasonal vulnerabilities while suggesting ways to address them.

The identification of relevant practices relied on a combination of methods:

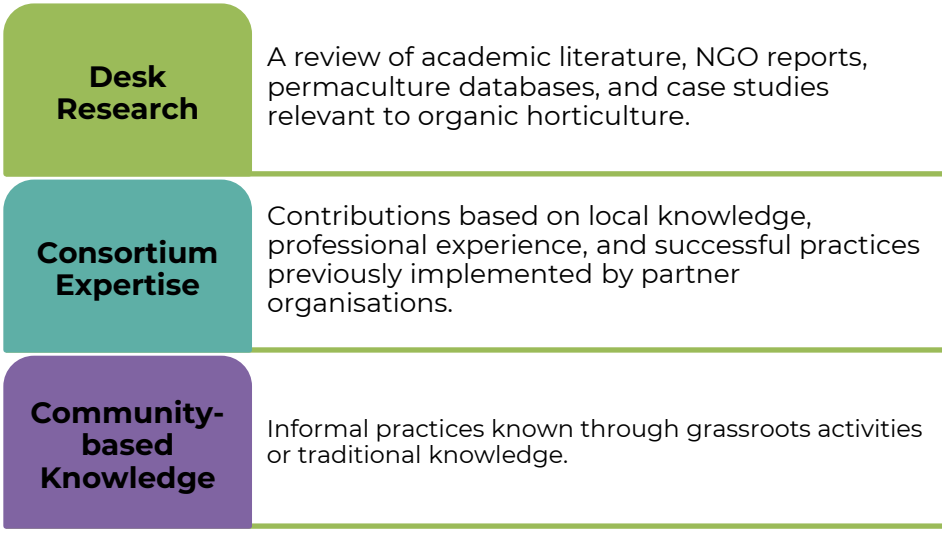

Figure 1: Organic Gardening Practices Resources

Even though the initial target set during the proposal phase was to identify ten organic gardening practices, the consortium successfully exceeded this goal by identifying a total of twelve practices, which are documented and analysed in the following sub-sections.

Each entry follows the standardised template outlined in Section 3, ensuring comparability and consistency across the dataset.

3 Organic Gardening Practices

Following an extensive desk research and review of found practices, the following twelve practices have been identified and selected:

3.1 Seed starting in pots

The first organic gardening practice identified relates to seed starting in pots.

Table 1: Organic Practice 1

General Information	
Practice Name	Seed starting in pots
Source	Martin, D. L. (2014). Rodale's Basic Organic Gardening: A Beginner's Guide to Starting a Healthy Garden. Rodale Books.
Description	
Summary	Seed starting in pots means planting seeds indoors (or in a warm, sheltered place) in small containers. This gives young plants a head start, before they're moved outside. It helps protect them from harsh weather and pests while they grow strong enough to be transplanted into the garden.
Plants Involved	Tomatoes, peppers, basil, lettuce, eggplant, broccoli, cabbage, cucumbers, herbs like parsley and thyme.
Key Methods	• Use organic seed-starting soil in reusable or biodegradable pots. • Keep the soil moist and warm to help seeds sprout. • Make sure the seedlings get enough light—either from a window or grow lights. • Before moving them outside, slowly get the seedlings used to outdoor conditions ("hardening off"). • Transplant when each plant has grown 2–4 real leaves (not just the first baby leaves).
Suitability	
Environmental needs	This practice works best in places with mild temperatures and good sunlight. Indoors, it can be done anywhere with warmth and light.
Space requirements	Minimal space needed for initial seed starting
Seasonal considerations	It typically begins in late winter or early spring, allowing plants to be strong enough for outdoor planting after the last frost
Benefits	
Environmental	• It protects seedlings from pests and weather while they're still fragile • It gives plants a healthy, strong start before they're planted outdoors
Challenges	
Common Issues	• Seeds might not sprout if they're old or the conditions aren't right • Seedlings can grow tall and weak if they don't get enough light • Plants may struggle when moved to the garden if not properly prepared

Solutions	• Use fresh, organic seeds and good-quality soil • Put seedlings in a bright window or use a grow light • Get them used to the outdoors gradually • Be gentle when transplanting and water them well afterward

3.2 Vertical gardening

The second organic practice identified refers to vertical gardening.

Table 2: Organic Practice 2

General Information	
Practice Name	Vertical gardening
Source	Banerjee, C., & Adenaeuer, L. (2014). Up, Up and Away! The Economics of Vertical Farming. Journal of Agricultural Studies, 2(1), 40–60.
Description	
Summary	Vertical gardening involves growing plants upward using structures such as trellises, cages, shelves, or wall-mounted planters. This method enhances accessibility and control, making it easier to handle, maintain, and harvest plants, especially in limited spaces.
Plants Involved	Climbing plants like tomatoes, beans, peas, cucumbers, zucchini; trailing herbs like mint and oregano; leafy greens such as lettuce and spinach in stackable systems; strawberries and certain flowers.
Key Methods	• Set up vertical supports like trellises, netting, or wall-mounted containers. • Gently tie or clip plants to guide them as they grow upward. • Use hanging pots, vertical shelves, or fabric pockets for planting. • Make sure the structure is sturdy and gets enough light and water. • Trim plants regularly to keep them healthy and well-shaped.
Suitability	
Environmental needs	It works best in sunny areas with good airflow. Great for all kinds of soils when using containers or raised beds.
Space requirements	It is ideal for small spaces like patios, balconies, or densely planted community gardens. It makes efficient use of vertical space rather than ground area.
Seasonal considerations	It can be implemented year-round depending on the setup. Seasonal adjustments may include greenhouse vertical gardening or indoor systems with grow lights.
Benefits	
Environmental	It improves water efficiency by reducing soil evaporation while helping prevent soil-borne diseases. It also encourages pollination and biodiversity when mixed with flowering plants.
Social	It makes gardening more accessible to people with mobility issues, such as seniors, by reducing the need to bend or kneel. It is ideal for urban and communal settings with limited ground space.
Challenges	

Common Issues	• Structural instability in windy areas • Uneven watering, especially for higher sections • Some heavy plants may fall if not supported properly
Solutions	• Use sturdy materials and secure anchoring for vertical supports • Employ drip irrigation or self-watering systems to maintain moisture levels evenly • Check supports often and trim plants to avoid top-heaviness

3.3 Organic Pesticides and Beneficial Insects for Pest Management

The third practice identified by the consortium relates to the use of organic pesticides and the exploitation of beneficial insects for pest management.

Table 3: Organic Practice 3

General Information	
Practice Name	Organic Pesticides and Beneficial Insects for Pest Management
Source	IFOAM – Organics International. (2020, March 6). Organic Agriculture & Pesticides. Retrieved from https://www.ifoam.bio/organic-agriculture-pesticides
Description	
Summary	This practice integrates the use of natural pest deterrents (organic pesticides) with the strategic introduction or encouragement of beneficial insects that act as natural predators to harmful pests. It forms part of an ecologically balanced pest management strategy.
Plants Involved	Applicable to a wide range of vegetables (e.g., cabbage, tomatoes, squash), herbs (e.g., basil, dill, mint), and fruiting plants (e.g., strawberries, cucumbers) that are often susceptible to common garden pests.
Key Methods	• Application of homemade organic sprays such olive oil soap solutions, garlic-chili infusions, or soap-based insecticides • Planting companion plants (e.g., basil and oregano, rosemary and lavender) that repel pests or attract beneficial insects • Introducing or conserving beneficial insects such as ladybugs, lacewings, predatory wasps, and hoverflies • Maintaining insect habitats using insect hotels or diverse native plantings
Suitability	
Environmental needs	It works best in biodiverse environments with minimal chemical disturbance and requires moderate to warm climates for insect activity.
Space requirements	It can be practiced in gardens of all sizes, from small raised beds to large communal plots. Beneficial insects require small “habitat zones” like hedgerows or wildflower patches.
Seasonal considerations	It is most effective during active growing seasons when pest populations and insect activity are highest (spring to early autumn).
Benefits	

Environmental	It reduces reliance on synthetic chemicals, preserving soil microbiota and water quality while supporting pollinator health and fosters biodiversity.
Challenges	
Common Issues	• Slower results compared to chemical pesticides • Difficulty attracting or sustaining beneficial insect populations • Homemade sprays may vary in efficacy or harm sensitive plants
Solutions	• Test organic sprays on a small area before widespread use and follow precise dilution guidelines • Provide insect habitats and avoid over-pruning

3.4 Composting

The fourth organic gardening practice is the composting, which refers to the process of recycling organic matter, turning it into a natural biofertilizer.

Table 4: Organic Practice 4

General Information	
Practice Name	Composting
Source	Hu, S. (2020, July 20). *Composting 101*. Natural Resources Defense Council. Retrieved from https://www.nrdc.org/stories/composting-101
Description	
Summary	Composting is the natural process of recycling organic matter, such as food scraps and garden waste, into a rich soil amendment called compost. It accelerates decomposition under controlled conditions, creating nutrient-rich humus that enhances soil health and reduces waste.
Plants Involved	Compost benefits virtually all plants, especially vegetables (e.g., tomatoes, peppers, lettuce), herbs (e.g., basil, parsley), and fruit trees (e.g., citrus, olives), which thrive in compost-enriched Mediterranean soil.
Key Methods	• Mix “greens” (wet, nitrogen-rich materials like vegetable peels, coffee grounds) with “browns” (dry, carbon-rich materials like dry leaves, cardboard). • Maintain proper moisture (damp like a wrung-out sponge). • Aerate regularly by turning the pile to encourage oxygen flow. • Use bins, tumblers, or pile systems suited to the available space. • In hot climates, cover compost to prevent drying out.
Suitability	
Environmental needs	It works well in warm temperatures which speed up the process but shading or covering may be necessary to retain moisture during hot, dry summers.
Space requirements	Composting can be done in small garden corners, shared bins in communal spaces, or urban balconies using enclosed composters or bokashi systems.

Seasonal considerations	Composting is a year-round practice. However, decomposition may slow in cooler months and accelerate in spring/summer. Regular watering may be needed in summer.
Benefits	
Environmental	• Diverts organic waste from landfills, reducing methane emissions. • Enhances soil fertility and structure, supporting water retention and carbon sequestration. • Reduces dependence on synthetic fertilizers and pesticides.
Health	• Improves the nutritional quality of produce grown in compost-enriched soil. • Reduces exposure to harmful chemicals by minimizing synthetic fertilizer use.
Challenges	
Common Issues	• Bad odours due to excess moisture or lack of aeration • Pests like rodents and flies if inappropriate materials (meat, dairy) are added • Slow decomposition due to imbalanced green-to-brown ratio
Solutions	• Turn compost regularly to improve aeration and speed up decomposition • Avoid composting meat, dairy, or oily food to deter pests. • Follow a 2:1 brown-to-green ratio to prevent odours. • Use secure, enclosed bins to deter pests and avoid adding problematic waste

3.5 Crop rotation

The fifth organic practice identified is referred to as crop rotation and it is used by the Canadian Organic Growers.

Table 5: Organic Practice 5

General Information	
Practice Name	Crop rotation
Source	Canadian Organic Growers, Perth-Waterloo-Wellington Chapter. The Organic Backyard: A Guide to Growing Organically for Small-Scale Gardeners and Urban Growers. Canadian Organic Growers, 2019. https://www.n2ncentre.com/wp-content/uploads/2019/04/Organic-Gardening-Guide-Canadian-Organic-Growers.pdf
Description	
Summary	Crop rotation is the systematic planting of different types of crops in a specific sequence over several growing seasons on the same soil. It is a foundational principle of organic gardening because it prevents nutrient depletion, disrupts pest and disease cycles, and improves soil health.
Plants Involved	Crop rotation benefits virtually all garden plants, especially legumes (e.g., beans, peas), leafy greens (e.g., lettuce, kale), fruiting vegetables (e.g., tomatoes, peppers), and root crops (e.g., carrots, beets), which thrive when rotated through nutrient-balanced, pest-resistant organic soil.

Key Methods	Crop rotation is a cultivation technique that involves the succession of different crops on the same plot of land according to the nutritional needs of each. There are three categories of plants. • Preparatory plants: They leave the soil still rich and free of harmful weeds. For example, corn which is suitable for the first phase of rotation. • Exploitative plants: They exploit the soil, impoverishing it. An example is wheat. • Improving plants: These plants improve the exploited soil by enriching it with nitrogenous substances. • An example of rotation is: 1st year: Corn 2th year: Wheat 3th year: Legumes 4th year: Wheat 5th year: Starting again
Suitability	
Environmental needs	It adapts to most climates with proper crop selection
Space requirements	It needs multiple plots or garden sections to rotate effectively
Seasonal considerations	Plan rotations by season (cool vs. warm crops)
Benefits	
Environmental	• Enhances soil fertility naturally • Reduces need for synthetic fertilizers • Breaks pest and disease cycles • Improves soil structure
Health	• Promotes healthier plants with fewer pests • Reduces reliance on chemical treatments • Yields more nutritious crops
Challenges	
Common Issues	• Difficult to manage in small spaces • Risk of planting same family unknowingly • Requires careful planning and tracking
Solutions	• Keep a garden journal or map • Use labelled crop family charts • Start with simple 2- or 3-year rotation cycles

3.6 Mulching

The sixth organic practice identified and described below refers to what is called mulching, a technique from sustaining moisture in the soil and protecting from the plant from the growing of weeds.

Table 6: Organic Practice 6

General Information	
Practice Name	Mulching
Source	Canadian Organic Growers. (2011). *The Organic Backyard: A*

	guide to applying organic farming practices to your home or community garden (2nd ed.). Perth-Waterloo-Wellington Chapter.
Description	
Summary	Mulching means covering the soil with natural or man-made materials to help keep moisture in, stop weeds from growing, protect roots from extreme temperatures, and improve soil health. Organic mulches like straw, bark, and dry leaves break down over time and feed the soil, while inorganic mulches like gravel or fabric last longer and control weeds without breaking down.
Plants Involved	Mulching helps many types of plants, including vegetables (like zucchini, tomatoes, eggplants), herbs (like rosemary and thyme), fruit trees (such as figs and pomegranates), and flowers (like marigolds and lavender). These plants especially benefit in hot, dry places with soil that holds moisture well.
Key Methods	• Apply 5–8 cm of mulch around plants, keeping it a few cm away from stems and trunks. • Use organic materials like straw, shredded bark, dried leaves, or compost for seasonal and soil-enhancing mulching. • Use inorganic mulch (e.g., stones or weed barrier fabric) in pathways or low-maintenance areas. • Replenish organic mulch as it decomposes. • Mulch in early spring to conserve water and in autumn to protect roots over winter.
Suitability	
Environmental needs	Mulching works in most climates. In hot, dry regions, it helps retain moisture and regulate soil temperature; in cooler areas, it insulates soil and prevents frost heaving.
Space requirements	Suitable for gardens of any size, from pots and raised beds to large agricultural fields. No extra space is needed since it is applied directly over existing beds.
Seasonal considerations	Best applied in early spring before weeds emerge and in fall for winter protection. It can be used year-round depending on climate and crop type.
Benefits	
Environmental	• It keeps moisture in the soil and reduces how often you need to water • It stops weeds from growing, so fewer chemicals are needed • It prevents soil from washing away or getting too hard • It feeds the soil and helps beneficial microbes grow (when using organic mulch)
Health	• It helps plants stay healthy during heat or drought • It keeps vegetables and herbs cleaner by stopping soil from splashing • It lowers the risk of soil-based diseases
Challenges	
Common Issues	• Too much mulch can hold in too much water and cause root rot • Some mulch (like wet straw or leaves) can attract pests like slugs • Low-quality mulch may carry weed seeds or break down too fast

Solutions	• Don't pile mulch too high or too close to plant stems • Use clean, pest-resistant materials like pine bark or cocoa shells • Check and refresh mulch when it thins out • Watch soil moisture and adjust watering to avoid soggy soil

3.7 Intercropping

The seventh organic gardening practice identified is the intercropping. Its explanation is described in the table below.

Table 7: Organic Practice 7

General Information	
Practice Name	Intercropping
Source	Canadian Organic Growers. (2011). *The Organic Backyard: A guide to applying organic farming practices to your home or community garden* (2nd ed.). Perth-Waterloo-Wellington Chapter.
Description	
Summary	Intercropping is the practice of planting two or more different types of crops together in the same space at the same time. The goal is to make better use of the land, help plants grow healthier, and create a more balanced and natural garden. By combining plants that grow differently, like one with deep roots and one with shallow roots, you can get more harvest, stop weeds, and reduce pests without chemicals.
Plants Involved	This method works well for many combinations of vegetables, herbs, and flowers. Examples include: • Corn with beans (beans climb while corn grows tall) • Carrots with onions (repel pests from each other) • Tomatoes with basil, lettuce with dill • Peas or lentils with other crops • Flowers like marigolds and nasturtiums, which help attract pollinators and keep pests away
Key Methods	• Mix plants that grow in different ways (e.g. tall with short, fast-growing with slow-growing) • Try row intercropping (side-by-side rows), strip cropping (alternating strips), or relay cropping (staggered planting times) • Include herbs or flowers that repel pests or attract bees • Leave enough space so that all plants get sun, water, and nutrients • Choose plant partners that don't compete too much with each other
Suitability	
Environmental needs	This practice needs healthy, well-drained soil, regular water, and sunlight. Choose crop combinations that fit your climate.
Space requirements	Adaptable to small gardens, raised beds, and large fields; efficient use of limited space makes it ideal for urban gardens and community plots.

Seasonal considerations	It can be practiced year-round with seasonal crop pairings; consider planting cool-season crops (e.g., spinach, radishes) alongside warm-season ones (e.g., peppers, tomatoes).
Benefits	
Environmental	• It makes better use of space and soil nutrients • It stops weeds from taking over by covering the ground • It helps protect the soil from erosion • It attracts helpful insects and improves the garden's natural balance
Health	• It helps to grow a variety of fresh, healthy food in the same area • It reduces the need for chemicals like pesticides • It makes plants stronger and more resistant to diseases
Challenges	
Common Issues	• Some plants may compete with each other for light or space • It takes planning to match the right crops together • Harvesting may be tricky if crops grow at different times
Solutions	• Use intercropping guides to find good plant partners • Try a few combinations first and learn what works in your garden • Leave paths or rows between plant types to make harvesting easier • Observe plant health and spacing regularly

3.8 Rainwater Harvesting

The next organic gardening practice identified and documented by the Consortium is the rainwater harvesting, a practice identified and shared by the World Health Organisation (WHO).

Table 8: Organic Practice 8

General Information	
Practice Name	Rainwater Harvesting
Source	World Health Organisation. Rainwater collection and storage. 2020. https://www.sare.org/resources/crop-rotation-on-organic-farms/
Description	
Summary	Rainwater harvesting is the practice of collecting rain from rooftops and storing it to water your garden. It helps save money on water bills, reduces the use of tap water, and is especially helpful in places with dry summers or not much rain throughout the year.
Plants Involved	Many plants love rainwater—especially those used to dry conditions. These include vegetables like zucchini, beans, and okra, Mediterranean herbs like rosemary, thyme, and oregano, and fruit trees like olives, figs, and pomegranates. These plants grow well when watered deeply and less often with clean, soft rainwater.
Key Methods	• Set up gutters and pipes to direct rain into storage barrels or tanks. • Use filters or diverters to keep leaves and dirt out of the water.

	• Keep water in closed, shaded containers to stop algae and mosquitoes. • Use drip irrigation, soaker hoses, or a watering can to water your plants. • Use mulch in the garden to help the soil hold onto the water longer
Suitability	
Environmental needs	Best suited for regions with seasonal rainfall. Requires roof surface, storage space, and a safe catchment area.
Space requirements	Minimal ground space; requires access to a rooftop or canopy and a location for storage tanks or barrels.
Seasonal considerations	Most effective during rainy seasons (e.g., winter/spring in Mediterranean climates). Water collected can be stored for use in dry months (e.g., summer). Winter maintenance may be needed in frost zones.
Benefits	
Environmental	• It saves tap water and reduces demand on water systems • It prevents rain from washing away soil and nutrients • It helps protect streams and rivers by reducing runoff • Rainwater is free from chlorine and better for plants and soil life
Health	• It keeps the garden productive, even during drought • It helps grow fresh food at home • It reduces use of treated water on edible plants
Challenges	
Common Issues	• Dirty roofs or gutters can lead to polluted water • Tanks may fill up quickly during big storms • Open barrels can attract mosquitoes • Water can freeze in barrels during winter
Solutions	• Clean gutters regularly and use screens or filters • Add overflow pipes or link barrels together for more space • Keep containers sealed and use mosquito dunks if needed • Insulate or drain tanks before freezing weather

3.9 Native Plant Gardening

The ninth practice for organic gardening identified is called native plant gardening and has been identified by the National Wildlife Federation.

Table 9: Organic Practice 9

General Information	
Practice Name	Native Plant Gardening
Source	National Wildlife Federation. Native Plant Habitats. 2025. https://www.nwf.org/Native-Plant-Habitats/Plant-Native/Why-Native
Description	
Summary	Native plant gardening involves cultivating plants that are naturally adapted to a specific region's climate, soil, and ecosystem. These plants co-evolved with local wildlife, making them ideal for creating sustainable landscapes that support

	biodiversity, require less maintenance, and thrive with minimal inputs like fertilizers or irrigation.
Plants Involved	Native plant gardens support a wide variety of region-specific flora including wildflowers (e.g., Echinacea, Black-eyed Susan), grasses (e.g., Little bluestem, fescues), shrubs (e.g., sumac, serviceberry), and trees (e.g., red maple, oak, olive, carob). These plants benefit pollinators (e.g., bees, butterflies), birds, and beneficial insects.
Key Methods	• Identify and select plants native to your local region or ecoregion using local nursery guides or conservation lists. • Prepare the soil with minimal disturbance—native plants often thrive in existing local soil. • Group plants with similar water and light needs. • Limit mulching and fertilization, as native plants usually require minimal amendments. • Avoid pesticides and herbicides to protect local wildlife.
Suitability	
Environmental needs	Adapted to local climate and soil conditions.
Space requirements	Suitable for gardens of all sizes.
Seasonal considerations	Plant in fall or early spring to allow root establishment before summer heat. Many native plants are drought-tolerant but may need occasional watering during the first season.
Benefits	
Environmental	• Supports biodiversity and native pollinators. • Reduces water consumption. • Minimizes need for synthetic fertilizers and pesticides. • Restores local ecosystems and builds climate resilience.
Health	• Creates low-maintenance, chemical-free spaces for people and pets.
Challenges	
Common Issues	• Availability of native plants • Competition with invasive species.
Solutions	• Source plants from local native plant nurseries or regional seed banks. • Regularly monitor and remove invasive species before they spread. • Favor true native species over ornamental “nativars” for wildlife benefit.

3.10 Companion Planting

The tenth identified organic gardening practice is the companion planting, a practice used to for growth improvement and enhanced productivity.

Table 10: Organic Practice 10

General Information	
Practice Name	Companion Planting
Source	Farmers’ Almanac. How To Use Companion Planting Strategies

	To Maximize Your Home Garden Yield. 2025. https://www.farmersalmanac.com/companion-planting-guide
Description	
Summary	Companion planting is the practice of growing certain plant species together to improve growth, deter pests, attract pollinators, and enhance productivity. It uses natural plant relationships, based on scent, chemical properties, and physical structure, to create a balanced, self-supporting garden ecosystem without synthetic inputs.
Plants Involved	Common combinations include vegetables (e.g., tomatoes with basil, carrots with onions), herbs (e.g., dill with cabbage, rosemary with beans), flowers (e.g., marigolds to deter nematodes), and legumes (e.g., beans with corn). These plants work synergistically to protect one another, improve flavour, or optimize space.
Key Methods	• Pair pest-repellent herbs (e.g., basil, mint, sage) with vulnerable crops. • Use trap crops (e.g., nasturtiums) to attract pests away from main crops. • Combine tall plants with groundcover species to optimize sunlight and space. • Avoid antagonistic combinations (e.g., onions near beans or peas). • Stagger planting times to support pollinators and beneficial insect cycles.
Suitability	
Environmental needs	Works in most climates; effectiveness increases with healthy, fertile soil and diverse microhabitats. Natural rainfall and sun exposure enhance benefits.
Space requirements	Highly adaptable. Ideal for small gardens, raised beds, container gardens, and intensive growing systems like square-foot gardening.
Seasonal considerations	Seasonal planning is essential. Match crops with similar growing periods (e.g., warm-season plants together) and align flowering periods to support pollinators throughout the season.
Benefits	
Environmental	• Reduces need for pesticides and fertilizers. • Improves soil health and microbial diversity. • Supports pollinators and beneficial insects. • Maximizes biodiversity and garden resilience.
Health	• Produces higher-quality, more nutritious crops. • Minimizes chemical exposure for gardeners and consumers. • Encourages ecological gardening habits that benefit human well-being.
Challenges	
Common Issues	• Lack of scientific consistency in companion claims. • Ineffective combinations due to poor planning or local conditions. • Possible overcrowding or nutrient competition. • Difficulty identifying plant pairings suited to specific environments.
Solutions	• Use tested combinations from reputable organic gardening sources. • Keep a planting journal to track successes and failures.

	• Observe plant health and spacing carefully; thin when needed. • Experiment gradually with a few pairs each season to build local knowledge.

3.11 Mound Gardening

Mound gardening is the eleventh organic gardening practice identified, relating to the specialised shaping of the soil. Details on the practice are described in the table below.

Table 11: Organic Practice 11

General Information	
Practice Name	Mound Gardening
Source	RHS. Leafmould. 2025. https://www.rhs.org.uk/soil-composts-mulches/leaf-mould
Description	
Summary	Mound gardening is the practice of shaping soil into raised, dome-like planting beds to improve drainage, increase soil warmth, and enhance root development. It is especially useful in poorly draining or compacted soils.
Plants Involved	Mound gardening benefits crops sensitive to waterlogging or requiring warm soil, especially vegetables (e.g., squash, tomatoes, corn, melons), legumes (e.g., beans), and root crops (e.g., carrots, sweet potatoes).
Key Methods	• Build mounds 15–30 cm high and 60–120 cm wide, adjusting based on plant size and soil condition. • Mix compost or aged manure into the soil before shaping the mound. • Space mounds apart to allow for root spread and airflow. • Apply mulch to prevent erosion and retain moisture. • In dry regions, surround the mound with a shallow basin or trench for water capture.
Suitability	
Environmental needs	Suitable for heavy or clay soils, flood-prone areas, or regions with cool, wet springs.
Space requirements	Works in small gardens, raised beds, or large plots.
Seasonal considerations	Best created in early spring or fall. Mounds warm earlier in the season, allowing for earlier planting, but may require mulching in summer to reduce water loss.
Benefits	
Environmental	• Improves drainage in compacted or waterlogged soils • Increases soil aeration and promotes healthy root growth • Boosts soil temperature for early-season crops • Enhances nutrient uptake and reduces erosion
Health	• Supports stronger, more productive plants • Allows earlier planting and better yields in cold or wet climates
Challenges	
Common Issues	• Mounds can dry out quickly in hot, dry weather • Prone to erosion without proper mulching

	• Requires time and effort to shape and maintain • May collapse or compact if poorly constructed
Solutions	• Apply mulch to retain moisture and stabilize structure • Add compost to improve soil texture and nutrient content • Rebuild or reshape mounds annually if needed • Use edging or companion planting to hold soil in place

3.12 Seed Bombs

The final organic gardening practice identified is called seed bombs and its explanation is presented below.

Table 12: Organic Practice 12

General Information	
Practice Name	Seed Bombs
Source	Epic Gardening 2024. *How to make seed bombs: 3 different methods*. Retrieved from https://www.epicgardening.com/how-to-make-seed-bombs/
Description	
Summary	Seed bombs, also known as seed balls, are small spheres made of seeds mixed with clay and compost or soil, designed to be thrown or placed on land to promote spontaneous vegetation. Originally developed by Japanese farmer Masanobu Fukuoka and later adopted by guerrilla gardeners, seed bombs are used to revegetate barren land, attract pollinators, and introduce native plants with minimal disturbance to the soil.
Plants Involved	Seed bombs are commonly made with wildflowers (e.g., poppies, cornflowers, cosmos), herbs (e.g., dill, basil, thyme), and hardy vegetables (e.g., radish, lettuce).
Key Methods	• Mix 1 part seeds with 3 parts compost or soil and 5 parts clay powder (acts as a protective shell). • Add a small amount of water and roll the mix into small balls (~2–3 cm in diameter). • Dry for 24–48 hours before scattering. • Distribute on bare soil or degraded areas before rainfall to ensure germination. • Choose seed varieties suitable for local climate and growing season.
Suitability	
Environmental needs	Ideal for areas with open, bare soil and light vegetation. Requires seasonal rain or manual watering for seed germination. Avoid highly compacted or paved areas.
Space requirements	Perfect for small-scale greening, urban lots, roadside verges, school gardens, or inaccessible land.
Seasonal considerations	Best used in spring or early fall when moisture and temperatures support germination. Avoid freezing conditions or extremely dry periods without follow-up watering.
Benefits	
Environmental	• Revitalizes neglected or barren land with minimal intervention • Supports pollinators by introducing native flowering species

	• Reduces soil erosion and improves urban biodiversity • Requires no tilling, preserving soil structure and micro-life
Health	• Promotes ecological literacy and sustainable habits in schools • Improves mental well-being through urban beautification and nature access
Challenges	
Common Issues	• Low germination if seed mix is poorly selected or soil is unsuitable • Seed bombs may be eaten by birds or washed away by heavy rain • Success depends on timing and moisture availability • Potential spread of non-native or invasive species if not properly selected
Solutions	• Use fresh, locally adapted, non-invasive seed varieties • Throw seed bombs just before rainfall or water manually after distribution • Avoid compacted or polluted sites, and use protective mesh in bird-heavy areas • Research local regulations for urban planting in public spaces

3.13 Integrated Perspective on Organic Gardening Practices

The twelve practices identified in the desk research are not isolated techniques; rather, they form a holistic toolkit that supports healthy, sustainable, and community-driven gardening. They can be grouped into four thematic categories:

- Soil fertility practices such as composting, crop rotation, and mulching restore and maintain soil health, ensuring productive yields over time without synthetic inputs. Composting recycles waste into valuable nutrients, crop rotation prevents depletion and breaks pest cycles, while mulching conserves soil structure and microbial life. Together, these techniques ensure long-term sustainability of the gardening spaces created in SeniORGarden.
- Water efficiency practices, including rainwater harvesting, mulching, and mound gardening, address one of the most pressing environmental concerns: water scarcity. By collecting and reusing rainwater, reducing evaporation, and optimising soil drainage, these practices make gardens more resilient to climate variability. For seniors, water-efficient methods also mean reduced maintenance burdens, as plants remain healthier with less frequent watering.
- Pest management and biodiversity practices like companion planting, beneficial insects, and native plant gardening create ecologically balanced gardens. They minimize reliance on chemical pesticides, attract pollinators, and improve plant resilience. These methods also promote intergenerational learning, as seniors and younger participants can experiment together with plant combinations and observe natural ecological relationships in action.
- Space optimisation practices such as vertical gardening, intercropping, and seed starting maximise productivity in limited areas, making them particularly valuable in urban or communal settings where ground space is restricted. Vertical systems, for example, not only save space but also increase accessibility for seniors by reducing the need for bending and kneeling. Seed starting allows for controlled, accessible engagement indoors before transitioning outdoors, while intercropping encourages diverse harvests within compact garden plots.

For SeniORGarden, which focuses on empowering seniors, fostering intergenerational collaboration, and promoting sustainable lifestyles, certain practices stand out for their adaptability and participatory potential:

- Vertical gardening is senior-friendly, highly visual, and rewarding, making it easy for participants with mobility challenges to engage in planting and harvesting. It also lends itself well to collaborative tasks between seniors and younger companions.
- Seed starting in pots allows seniors to begin gardening indoors in comfortable conditions, creating an accessible entry point. It provides a sense of achievement early in the season, reinforcing motivation and engagement.
- Native plant gardening aligns with both the environmental and social goals of the project. It promotes biodiversity, reduces maintenance, and connects seniors to local ecological heritage, while also educating younger participants about sustainability and conservation.

By combining these accessible and low-cost methods with complementary soil, water, and pest management practices, SeniORGarden can establish gardens that are sustainable, inclusive, and resilient. The emphasis on hands-on participation, ecological awareness, and shared learning ensures that the project not only produces healthy food but also nurtures social bonds and environmental responsibility.

4 Communal Garden Species

The selection of crops for SeniORGarden should reflect not only their nutritional and culinary value but also their suitability for seniors and intergenerational gardening.

4.1 Fruiting Vegetables

Tomatoes, cucumbers, eggplants, peppers, and zucchini are excellent core crops for communal gardens. They adapt well to practices such as seed starting in pots, vertical gardening, and companion planting, which are accessible and engaging for seniors. These plants are highly productive, yielding abundant harvests that can be shared across the community. Their popularity in Mediterranean diets further ensures relevance and cultural acceptance. Additionally, their cultivation provides hands-on opportunities for younger participants to support seniors with tasks such as tying plants to vertical supports or pruning for better airflow.

4.2 Leafy Greens and Root Crops

Lettuce, spinach, carrots, beets, and radishes are quick-growing and provide regular harvests, making them highly motivating for participants. They fit well into intercropping systems, where their fast maturity complements slower-growing plants, and they are ideal for succession planting to extend productivity across the season. Leafy greens are particularly suitable for seniors, as they require less physical effort to harvest and can be cultivated in raised beds or containers, improving accessibility. Root crops, on the other hand, contribute to soil enrichment when integrated into crop rotation systems.

4.3 Legumes

Beans, peas, and lentils stand out for their dual role in providing nutritious yields while also improving soil health. Their nitrogen-fixing capacity enriches the soil for subsequent crops, making them essential for sustainable rotations in communal gardens. Legumes thrive in mound gardening systems, which improve drainage and root health, and they require minimal care, making them well-suited for senior-friendly cultivation.

4.4 Culinary Herbs

Basil, thyme, oregano, mint, parsley, dill, and rosemary are compact, aromatic plants that fit easily into small spaces, vertical structures, or containers. They not only enhance the flavour and nutritional quality of meals but also provide ecological benefits by attracting pollinators and deterring pests. Herbs are particularly practical for seniors, as they are light to handle, simple to maintain, and highly rewarding due to their fragrance and frequent harvest cycles. Their adaptability makes them perfect for balconies, small plots, and intergenerational gardening activities where children or young companions can easily participate.

4.5 Beneficial Flowers and Native Plants

Lavender, marigolds, nasturtiums, echinacea, and black-eyed Susan play a crucial supporting role. These flowering plants attract pollinators, discourage harmful pests, and contribute to the overall ecological balance of the garden. They also enhance the aesthetic and therapeutic value of garden spaces, which is especially meaningful in the context of active ageing and wellbeing. Their resilience, low maintenance needs, and adaptability to local climates make them ideal for creating colourful, welcoming communal gardens that promote both biodiversity and social interaction.

These plant groups complement each other in terms of nutritional diversity, soil health, accessibility, and ecological value. Fruiting vegetables and legumes provide substantial yields, leafy greens and root crops ensure fast results, herbs offer daily rewards with minimal effort, and flowers create a multisensory, therapeutic environment. The mix of quick returns, long-term productivity, and ecological benefits ensures that the gardens will remain engaging for seniors while fostering collaboration with younger generations.

5 Conclusion

The findings of this report highlight that organic gardening offers far more than a set of cultivation techniques; it provides a comprehensive, sustainable, and inclusive framework that directly supports the objectives of the SeniORGarden project. By identifying and analysing twelve practices, ranging from seed starting and vertical gardening to composting, rainwater harvesting and native plant gardening, the consortium has compiled a practical and adaptable toolkit that strengthens soil fertility, enhances water efficiency, promotes biodiversity, and optimises limited spaces. When applied collectively, these methods create gardens that are not only ecologically resilient but also socially meaningful, providing seniors with accessible, rewarding activities while fostering intergenerational collaboration.

Equally important, the report underlines the careful selection of plant species, that is fruiting vegetables, leafy greens, root crops, legumes, herbs, and flowering plants, which combine productivity with accessibility and environmental value. Their integration into communal gardens ensures nutritional diversity, ecological balance, and aesthetic appeal, while also addressing the specific needs of older adults through low-maintenance and high-reward cultivation methods.

In conclusion, the practices and species identified here form a strong foundation for the training and implementation activities of Work Package 3 and beyond. They guarantee that SeniORGarden will not only succeed in cultivating organic produce but also in cultivating community, wellbeing, and sustainability, leaving a lasting impact that extends well beyond the project's duration.

6 References

Banerjee, C., & Adenaeuer, L. (2014). Up, Up and Away! The Economics of Vertical Farming. Journal of Agricultural Studies, 2(1), 40–60.

Canadian Organic Growers. (2011). The Organic Backyard: A guide to applying organic farming practices to your home or community garden (2nd ed.). Perth-Waterloo-Wellington Chapter. Retrieved from https://www.n2ncentre.com/wp-content/uploads/2019/04/Organic-Gardening-Guide-Canadian-Organic-Growe...

Epic Gardening 2024. How to make seed bombs: 3 different methods. Retrieved from https://www.epicgardening.com/how-to-make-seed-bombs/

Farmers' Almanac. How To Use Companion Planting Strategies To Maximize Your Home Garden Yield. 2025. Retrieved from https://www.farmersalmanac.com/companion-planting-guide
Hu, S. (2020, July 20). Composting 101. Natural Resources Defense Council. Retrieved from https://www.nrdc.org/stories/composting-101

IFOAM – Organics International. (2020, March 6). Organic Agriculture & Pesticides. Retrieved from https://www.ifoam.bio/organic-agriculture-pesticides

Martin, D. L. (2014). Rodale's Basic Organic Gardening: A Beginner's Guide to Starting a Healthy Garden. Rodale Books.

National Wildlife Federation. Native Plant Habitats. 2025. Retrieved from https://www.nwf.org/Native-Plant-Habitats/Plant-Native/Why-Native

RHS. Leafmould. 2025. Retrieved from https://www.rhs.org.uk/soil-composts-mulches/leaf-mould

World Health Organisation. Rainwater collection and storage. 2020. Retrieved from https://www.sare.org/resources/crop-rotation-on-organic-farms/

Disclaimer:

This document was produced digitally to reduce environmental impact. If printed, it uses recycled paper and eco-friendly ink.

Enhancing Active Ageing through Organic Gardening

Quality Checklist

D2.1: Organic Gardening Practices Report

Reviewer (Name)	Partner Organisation
Lucia Svata	OTI

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

CRITERIA	VERIFICATION
Conformity to Standards & Project Templates	
Logos (CyberEqual, EU)	☑
Project title, reference, author, version, revision, data	☑
Mandatory Statements (disclaimer)	☑
Conformance to the Deliverables Template Structure (i.e., Executive Summary, Introduction, etc.)	☑
Language Check (Typing Mistakes, Grammar, etc.)	☑
Coherence with the Project's Objectives	☑
Reliability of Data	
Information and sources well identified	☑
Data and information are free from factual or logic errors	☑
The analysis is reliable (previous studies have been sufficiently reviewed; qualitative information and quantitative data are balanced and appropriate)	☑
Validity of Conclusions	
Conclusions meet evaluation questions and information needs	☑
No conclusions missing according to the evidences presented	☑
Please indicate any deviations from contractual conditions (WP objectives)	
Comments/Suggestions for Revision	
Implementation of revisions/modifications suggested and explanation for possible rejections (performed by the Responsible of the Deliverable)	
Deliverable Accepted	
☒ Yes ☐ No	
If NO, please state reasons:	