USAID
FROM THE AMERICAN PEOPLE

SCALE
Strengthening Capacity in Agriculture Livelihoods and Environment

Permagarden

Technical Checklist Guidance

October 2021

About SCALE

SCALE (Strengthening Capacity in Agriculture, Livelihoods, and Environment) is an initiative funded by USAID's Bureau of Humanitarian Assistance (BHA) and implemented by Mercy Corps in collaboration with Save the Children. SCALE aims to enhance the impact, sustainability and scalability of BHA-funded agriculture, natural resource management, and off-farm livelihood activities in emergency and non-emergency contexts.

Recommended Citation

Brush, Warren, Thomas Cole, Kristin Lambert and Andrea Mottram. 2021. *Permagarden | Technical Checklist Guidance*. Produced by Mercy Corps as part of the Strengthening Capacity in Agriculture, Livelihoods, and Environment (SCALE) Associate Award.

Photography credits

Front cover photo(s): Thomas Cole, African Women Rising

Graphics and icons developed by Evan Walbridge for Mercy Corps as part of the SCALE Award (www.fsnnetwork.org/scale).

Contact information

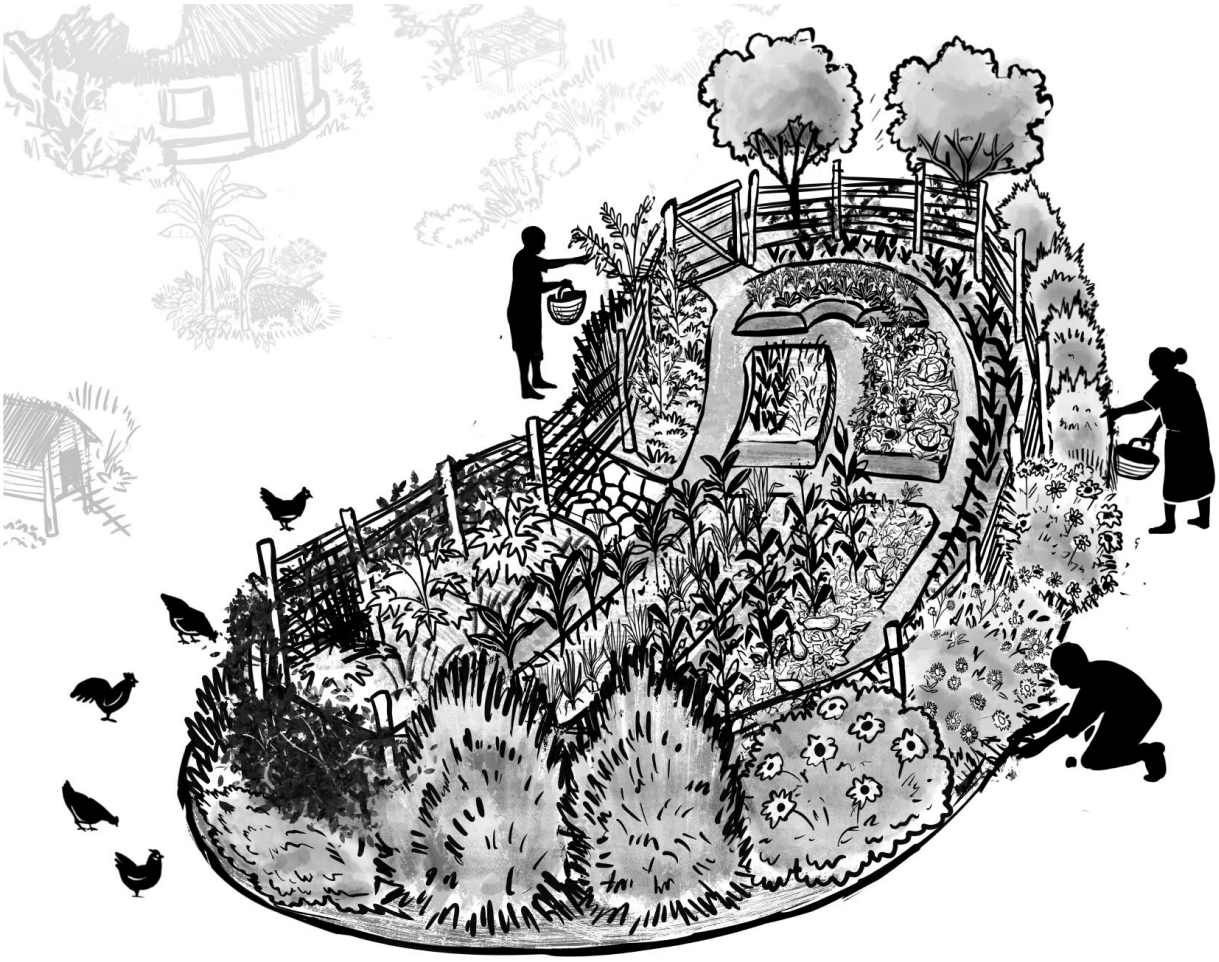
Mercy Corps
45 Ankeny St
Portland, OR 97204
www.fsnnetwork.org/SCALE
scale@mercycorps.org

Disclaimer

This resource is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the SCALE Award and do not necessarily reflect the views of USAID or the United States Government.

Table of Contents

Quick Facts 1
Introduction to the Checklist 2
How to Use the Permagarden Monitoring Checklist 3
Step 1: Complete a Staff Training on How to Use the Checklist 3
Step 2: Train Household Members on How to Use the Checklist 4
Step 3: Collect Data Using the Checklist 4
Step 4: Analyze, Reflect and Adapt 5
Scoring Key 6
Descriptions of Indicators and Further Guidance 7
Design 7
Water 8
Soil Health 9
Biodiversity 10
Protection 11



Quick Facts

WHAT:

A quality monitoring and management tool for enhancing the implementation of the Permagarden method.[1] The checklist is based on the Resilience Design for Agroecological Production Minimum Standards and is focused on six core elements of the Permagarden approach that are readily observable and should be monitored frequently: resources, design, water, soil health, biodiversity and protection.[2]

WHY:

To ensure technical accuracy, track progress, and inform adjustments that lead to more productive and sustainable permagardens.

WHO:

The following guidance is tailored to agriculture advisors, extension agents, and other practitioners that are supporting individuals to implement the Permagarden approach. The checklist can also be used by the permagarden owners themselves to manage and improve their gardens.

WHERE:

Anywhere a permagarden is established, in both emergency and non-emergency contexts.

HOW:

The checklist can be completed by a single person building and managing their own permagarden or it can be part of the monitoring and evaluation plans of a food security program.

For programs, there are four key steps that guide the use of the checklist:

- Complete a checklist training for staff
- Train household members on how to use the checklist
- Collect data with local partners
- Analyze, reflect and adapt

[1] The Permagarden Technical Manual, Training Guidelines, and Adult Education materials are available at: https://www.fsnnetwork.org/resource/tops-permagarden-toolkit.

[2] The Resilience Design for Agroecological Production Minimum Standards include additional process-related elements that are not readily observable and therefore not captured in this checklist: *community-led* and *adaptation*. Additional information on the Standards is available here.

Introduction to the Checklist

Derived from the general Resilience Design for Agroecological Production Minimum Standards, the Permagarden checklist is based upon six core elements of the approach that are readily observable on a permagarden site and should be monitored frequently to ensure technical accuracy:

RESOURCES: The RD site maximizes the use of locally available natural and man-made materials and waste streams to increase and diversify production and reduce dependence on external inputs. *Because resource use is a cross-cutting issue, it is woven into the five other indicators rather than treated as a stand-alone indicator.*

DESIGN: The RD site has a context-specific design that optimizes resources and external influences for improved efficiency, production, resilience, and regeneration.

WATER: The RD site has multiple strategies to slow, spread, sink, and manage rainwater and other water resources.

SOIL HEALTH: The RD site creates a healthy soil food web that supports sustained production and regenerative growth.

BIODIVERSITY: The RD site has plants, trees, and animals that work together in ways that support the overall health and production of the growing environment.

PROTECTION: The RD site includes strategies to protect soil and plants from any negative effects of people, animals, insects, disease, and other external influences.

Every permagarden must, at a minimum, have these components in place on the site. Through the use of this quality monitoring checklist, program staff will be able to identify whether the practices on a site meet these minimum standards, where practices are falling short and where there are opportunities to enhance the process to create a more productive and resilient garden.

Two RD minimum standards are not included in the permagarden checklist, as they are process-related elements that are not readily observable on a monitoring visit. These are:

COMMUNITY-LED: The design, establishment, and maintenance of the RD site is farmer-led and informed by community members to ensure local relevance and ownership; and

ADAPTATION: Farmers continually observe and record feedback from the RD site and surrounding environment, and adapt their practices to improve production and resilience to shocks and stresses.

Additional details on how to integrate these elements in your permagarden approach are available in the Permagarden Toolkit.

How to Use the Permagarden Monitoring Checklist

Step 1: Complete a Staff Training on How to Use the Checklist

Consistent and objective observations and scoring are essential for the checklist to produce accurate data. All programs planning to use the permagarden monitoring checklist should begin with a short training to ensure their frontline staff understand the checklist and agree on how to handle context-specific circumstances.

Tips for Organizing a Successful Checklist Training

- Ensure the checklist is translated into the appropriate language(s) for the program area.
- Conduct the training on a permagarden site to provide real-life examples of the checklist indicators.
- Review each indicator and its scoring criteria as a group. Ensure the descriptions and techniques are clear, referring to on-the ground examples. If the group agrees that locally-used terms are preferred to those in the standard checklist, adjust the wording as needed.
- Include multiple examples for each of the indicators, varying their quality and other characteristics, such as the crops and trees involved and the shape and size of water harvesting structures. This will help the team learn how observations should be made in different contexts and situations.
- Conduct a practice scoring. Have each team member individually score the same permagarden, then compare scores and discuss observations with one another. Repeat with a few different examples until the team begins to reach a shared consensus on their scores. This is especially important in the initial design, layout, and building of the permagarden to ensure the garden meets the minimum standards.

- Remember that training is not a one-time event. As each program team member begins using the checklist on their different sites, the team leader should make time to provide regular review and feedback to maintain consistent scoring and to reinforce skills.

Step 2: Train Household Members on How to Use the Checklist

The checklist can be a powerful tool for enhancing the skills of the program participants who are managing permagardens at their households. With the proper training, they may begin to use the checklist to inform the initial construction and ongoing management of their permagarden site, as well as any adjustments. Trainings for program participants can include the following:

- Conduct the training at a permagarden household, inviting any interested neighboring household members to join. Share copies of the checklist in the local language with all participants.
- Describe the purpose of the checklist, the key elements, and the scoring criteria.
- Complete a checklist as a group, walking through each indicator and encouraging the participants to ask questions and to share their observations as you go.
- Guide participants in assigning scores. Ask participants to explain the scores they would give, discuss any differences of opinion, and provide feedback.
- Discuss strategies for enhancing interventions in the permagarden and surrounding compound to be more productive and resilient. Work together with the household members and community to help make these improvements. Ideally, program staff should complete the checklist with household members on every monitoring visit, using this time as an opportunity to provide feedback and technical assistance.

Step 3: Collect Data Using the Checklist

The checklist is designed to be completed on-site, by walking through and observing the Permagarden and surrounding compound to identify innovations and challenges and to inform adjustments.

Key Components of the Checklist

- Fill out basic information at the top left (name, date, location).
- Note the indicators and scoring criteria are in the first column. Refer back to this guidance document and the Permagarden Manual for more detailed information on technical terms and practices, as needed.
- Each checklist sheet has room to score and take notes on multiple permagardens (for extension agents supporting multiple sites) or to take notes on the same permagarden over time (for individuals monitoring their own gardens).
- The last column is for recording notes. For example, you could make a note of any factors that might have influenced your observations, such as whether it recently rained, what the temperature was, or whether the garden was recently harvested. You might also record priority actions for follow up or questions to ask those managing the site.
- Complete the checklist in collaboration with your local partner(s). This should take place when the garden is being built as well as during the growing season.
- Photograph key interventions on the site for record.

- Photograph any trouble areas you might want to discuss further with your program team lead or other partners and colleagues.
- Share the data with your program monitoring team as agreed upon with your team lead and in line with your M&E protocol. This might include transferring scores into a database, geolocating on a map, typing up notes, and uploading and labeling photos.

Step 4: Analyze, Reflect and Adapt

After all team members/extension agents have completed their monitoring visits, the team lead should analyze the data collected, identify areas and/or individuals that need further support or training, and convene the team for a meeting to reflect on the data together.

Tips for Effective Reflection Meetings

- Ensure all team members have access to the data from the monitoring visits. You might summarize the data in a table, distribute printed copies, or have each team member briefly present the key takeaways from their visits.
- Facilitate a discussion with the group to analyze and reflect on the data. Key questions to guide the discussion include:
    - What major trends do we see? Are our permagardens generally progressing in a positive direction or negative direction?
    - What variations do we see between sites? Why might that be the case?
    - What conflicting information exists that needs more analysis? How can we get that information?
    - What weak spots do we see and how can we address those?
    - Where did we find innovation? How can we learn from those farmers? Farmers showing innovative work and creative problem-solving in their permagardens can be positive influencers to others in their communities. Team members should seek opportunities to elevate these farmers as leaders and to support them in sharing their knowledge with others, such as through community site visits to their plots or by requesting their assistance on monitoring trips.
- Provide targeted follow up mentoring. If certain sites are consistently scoring low (√-) for the same technique, it might mean that additional skills or training are needed for the team member or extension agent assigned to that site, so they can provide better technical guidance to the farmers they support. The team lead should determine what is needed in conjunction with the relevant staff and develop a targeted plan to address and track capacity development.
- Team leads should continue to follow up to ensure problem areas are rectified, work plans and interventions are adapted as needed, and permagarden roll-out continues smoothly.

Scoring Key

The following table describes the tick scoring method users of the checklist should apply in completing the checklist. This simple scoring method is recommended because of its ease of use, familiarity across cultures, and simplicity in quickly revealing trends and trouble spots.

Score	Description
√-	Practice is of low quality or not present.
√	Practice is in place and of adequate quality. Every permagarden is expected to achieve at least a √ for each practice to meet the minimum standard.
√+	All practices in the √ field have been met or exceeded, plus additional Resilience Strengthening practices are in place. This is ideal permagardening in practice.
*	All practices in the √ and √+ fields have been met or exceeded. Practices demonstrate innovation and problem solving in ways that enhance production, water availability, food and nutrition throughout the year. All practices on demonstration sites should meet the * level.

If useful for transferring this information into M&E databases, programs may choose to also assign numerical values to this approach (for example, a √- may be entered into software as a "1", a √ as a "2," etc.). Do not average the scores across indicators; the scores identify where improvements are needed for specific interventions and should not be combined.

Descriptions of Indicators and Further Guidance

Design

Permagarden site has a context-specific design that optimizes resources and external influences for improved efficiency, production, resilience, and regeneration.

The permagarden is integrated with the household compound in ways that maximize the use of natural resources and external influences. Structures and interventions are designed and placed to fit the specific context, and to reduce input costs and labor (e.g., planting beds on contour, water harvesting upslope from planting beds, management of water, protection of crops, integration of animals, and biodiversity).

Observational Evaluation

√-

There is no intentional permagarden design to maximize the use of local resources (e.g., water) or external influences (e.g., sun): The garden is randomly situated in the compound (e.g., it is not near the kitchen and/or it is downslope from a trash/rubbish pit). There are no rainwater harvesting or water management structures present. Planting beds are not on contour. There is no fencing of any kind.

√

There is some thought to permagarden/compound design and the use of local resources (e.g., water and mulch) and external influences (e.g., sun and wind): The permagarden is located in the compound near to the kitchen, with external influences in mind (e.g., sun, slope, water movement). Beds are on contour and protected with mulch and shade. At least one swale and one berm are present and on contour to protect the fenced garden. Compost pit(s) are strategically placed to collect daily sweeping or kitchen wastes.

√+

The permagarden/compound is intentionally designed to maximize resources and external influences: Water harvesting structures are present and have overflows. A greywater mulch basin is in use and the system is designed to bring runoff water to the site. Animals are thoughtfully integrated without causing damage. The farmer has a planting plan that staggers their crop planting to produce year-round harvests with crops that add to their nutritional needs in the lean times. The farmer has intentionally placed resources to optimize production (latrine near a fruit tree, animal pens located for manure fertilization, appropriate shade, etc.).

*

The permagarden/compound is maximized for year-round production and includes a mix of annuals and perennials. Dry season strategies for nutrition and income are in place. The site incorporates windbreaks, multiple animals, and water harvesting structures with overflows used for irrigation. Multiple vertical layers (cover crops to trees) are planted for increased yields year-round. Farmer follows a planting plan that considers specific income needs (e.g., school fees, savings group contribution).

Water

Permagarden site has multiple strategies to slow, spread, sink, and manage rainwater and other water resources.

Examples may include: rainwater infiltration, soil banking, use of wastewater from household activities (such as bathing, cooking, hand washing, ablutions, clothes washing, and dishwashing to irrigate plants), mulching, and on-contour beds.

Observational Evaluation

√-

There are no structures or interventions to slow, spread, or sink water or to use household wastewater. Rainwater catchment structures are in place but inadvertently drain water away from the permagarden site. Garden beds are off contour. There is no mulch coverage on beds or in compound pathways. Crops and trees show signs of water stress.

√

There is some thought to permagarden/compound design and the use of local resources (e.g., water and mulch) and external influences (e.g., sun and wind). The permagarden is located in the compound near to the kitchen, with external influences in mind (e.g., sun, slope, water movement). Beds are on contour and protected with mulch and shade. At least one swale and one berm are present and on contour to protect the fenced garden. Compost pit(s) are strategically placed to collect daily sweeping or kitchen wastes.

√+

Multiple water harvesting structures are linked across the site with overflow water directed to productive use. Excess water from the compound is diverted into permagarden water harvesting structures, and water infiltration pits are present in the garden to bank excess water. Wastewater is captured from 2-3 different sources and applied to mulched areas of the garden, mulched tree basins, and/or a greywater mulch basin exists near the kitchen. Garden beds have shade in the dry season. There is adequate mulch on the beds and in swales. Every tree and plant has a catchment basin or micro-basin. Crops and trees show minimal signs of water stress.

*

Integrated permagarden/compound water harvesting systems are designed to capture and re-use all forms of wastewater for plant growth (e.g., washing areas for clothes and dishes, dish-drying stand, ablution water, bathing area, hand-washing stand). The system catches run-on water from offsite. Living mulches are present and one-rock check dams are used for places with water moving down slope. The farmer has multiple strategies to provide shade to reduce evaporation (e.g., trellis, trees, and taller crops to sunside). The entire site is well mulched, including compound pathways. The farmer's water management strategies facilitate year-round crop growth. Crops and trees show no sign of water stress.

Soil Health

Permagarden site creates a healthy soil food web that supports sustained production and regenerative growth.

Key practices include deep soil preparations, use of soil amendments, and nutrient/waste cycling.

Observational Evaluation

√-

There are no intentional soil improvement strategies in use. There is no compost pit or it is established but not used correctly (no daily sweeping, lack of organic materials inside of it, mix of plastics and trash). Permagarden planting beds are shallow in depth (<40 cm) with 0-1 soil amendments used. There is no mulch in the garden or on trees in the compound. Garden beds are not on contour. The farmer only uses inorganic fertilizers or pesticides. The plants show visible stress. Brix reading is below average for the specific crops.

√

There is some use of soil improvement strategies. A compost pit system has been established and is filled regularly with leaves, manures, and other organic materials from regular sweeping of compound. There is no trash or inorganic matter in the pit. Trees in the compound are mulched, and animal droppings are placed into tree basins to feed the trees. The top of the garden planting bed is level and beds are dug on contour. 2-4 soil amendments are used to prepare the beds, and they are >40 cm deep. The farmer applies mulch and has used a single biofertilizer strategy (e.g., compost teas to fertilize crops). Brix reading is average for the specific crops.

√+

There are intentional soil improvement strategies in place. There are multiple, separate pits in the compound for trash (plastics, batteries, non-biodegradable materials) and organic materials. Materials in the compost pit are occasionally aerated (mixed) and the farmer regularly puts the compost soil back into the permagarden beds and tree basins. Permagarden planting beds are > 50 cm in depth, and more than 5 soil amendments were used to prepare them. The top 10cm of growing beds are fertilized with compost before each planting. Shade structures are in place to protect the planting areas and water. The majority of the area is mulched. The farmer uses a close planting pattern to maximize production. They intercrop legumes and practice crop rotation. Multiple strategies are in place to fertilize crops including the farmer makes their own liquid biofertilizers. Brix reading above average for the specific crops.

*

There are integrated soil improvement strategies in place. The farmer grows plants to use as garden amendments. The compost pits are linked to water harvesting structures to ensure adequate moisture, and food scraps, kitchen wastes, and other organic materials are regularly added to them. The farmer applies multiple fertilizer strategies to the soil and plants within the garden beds during the growing season, including foliar feeding, root drenching (for early growth of crop before flowering) and layering of multiple mulch materials. Brix reading is at the top of the scale for the specific crops.

Biodiversity

Permagarden site has a diversity of plants, trees, and animals that work together in ways that support the overall health and production of the growing environment.

Observational Evaluation

√- **There is no intentional diversity of plants, trees, and animals on the site.** Less than 3 plant and tree species can be found in the compound and no new plants are being planted. Less than 5 different types of plants are present in the permagarden. There is little vegetation coverage and mostly bare ground. Only one crop is growing in the garden beds (monocropping).

√ **There is some thought given to the diversity of plants, trees and animals on the site.** 4-5 multi-functional plants (herbs, trees, vines, shrubs) are present around the compound and 1-2 recently planted trees. There are 6-9 different types of plants (fertility, medicinal, pollinators, fruit, fodder, pest repellent) in the permagarden. The garden berms are planted. There is a mix of annuals, biennials and perennials. The farmer has intercropped 2-3 crop varieties in the beds, using some locally preferred and available seeds.

√+ **There is intentional diversity of plants, trees, and animals included on the site with some thought to integration.** There are 6-10 multi-functional plants (herbs, trees, vines, shrubs) and 3+ new trees planted strategically around the compound (e.g., west side of house for shade, windbreak, and habitat for bees). In the permagarden, there are 10-12 multi-functional plants growing within a fence and surrounding berm. The farmer has integrated 4+ crops in the planting beds for year-round production, with 1-2 crops grown to provide food in the lean/hungry times and dry season. The entire bed area is planted to the edges. Quick maturing plants are intercropped with longer maturing varieties.

***** **There is an integrated diversity of plants, trees and animals working together on the site.** 10+ multi-functional plants are present in the well-vegetated compound that provides year round production for food and marketing. 13+ multi-functional plants are growing and providing shade, soil fertility, fruit, organic material, fodder, pollinators, and pest deterrents. Fence has a minimum of 3+ species of living plants growing within it. Site has year round growth and more than three crops growing for the hunger season harvest. The farmer practices intercropping within garden beds, crop rotation and seed saving for locally adapted varietals.

Protection

Permagarden site includes strategies to protect soil and plants from any negative effects of people, animals, insects, disease, and other external influences.

Observational Evaluation

√-

There are no strategies in place to protect soil and plants. The compound shows signs of erosion, compaction, and structural damage from water. Damage from grazing animals or poultry on both growing and stored foods is evident. The garden has no protection from intense sun, heavy rainfall, flooding, or animals. No measure to protect against pests or disease. There is no fence or a fence is present but not effective, allowing for chickens and other animals to access the garden.

√

There are some strategies in place to protect soil and plants. Strategies are in place in the compound to limit unwanted grazing of animals on productive plants. The farmer has water management strategies in place to reduce the impacts of flooding and rain. Shade structures protect against negative impacts of sun exposure. A permagarden fence is intact and effective (made of wooden poles, bamboo, palm fronds, tree or shrub branches, and dried grass). The soil is mulched to protect it from sun, wind, compaction, and heavy rainfall. The farmer is applying a basic integrated pest management (IPM) strategy.

√+

There are multiple strategies in place to protect soil and plants. Damage from animals and poultry are eliminated from the compound and they now provide benefits to the land through grazing, manure, and pest reduction. Water damage is eliminated and any excess is turned into productive use. The existing shade strategies are protecting the crops and plants effectively (e.g., trees, trellis, etc. placed to the west). Living plants are integrated in the permagarden fence structure. The farmer has an effective biological pest control strategy including use of trap crops, pest repellant plants, and multiple IPM techniques. Edges of garden beds are protected with stones. Dry season strategies are in place (shade structures, heavy mulch). Newly planted beds are mulched and shaded as necessary.

*

There are robust integrated strategies in place to protect soil and plants. Plants are healthy and resilient (e.g., no insect damage, good germination rates, fruiting and flowering are robust, minimal stress in drier times) and provide year round productivity with no apparent damage from people, animals, pests, disease and other external influences. The permagarden living fence is growing, maintained, and pruned with a diversity of living plants in the fence that provide multiple benefits (fruit, medicine, thorns, structure, plant fertility, etc.) as well as protection. Integrated water management strategies reduce dry season stress and extend conditions for growing throughout the year. [3]

[3] Additional Guidance: The Permagarden Toolkit, including Technical Manual, Training Guidelines and Adult Education Resources in English, French, Spanish and Amharic is available at: www.fsnnetwork.org/tops-permagarden-toolkit. To view resources for applying the Permagarden principles at a larger scale, refer to the Resilience Design in Smallholder Farming Systems Approach.