MEMBER

Living Lab for the agroecological weed management in cherry crop in Extremadura region

Living Lab Spain

AGROECOLOGY FOR WEEDS

Our Living Lab (LL) was born out of the *GOOD_Agroecology for weeds* project (H2020). It is based in the north of the Extremadura region (southwestern Spain). Our activity is closely related to fruit production (mainly cherry crop) in mountain systems. The LL board is coordinated by CICYTEX (Center for Scientific and Technological Research in Extremadura) and it is composed by local organic and conventional farmers, advisors, local enterprises and cooperatives (Cooperativa Agroecológica de Montaña, Agrupación de Cooperativas del Valle del Jerte, Cooperativa del Campo de Navaconcejo, Grupo Alba), researchers, representatives from the Regional Government related to Organic Farming, CAP subsidies, Plant Health Service and Farmers Information Service and a local organization that conduct projects related to agroecological food consumption and farmers training (Asociación Paisaje, Ecología y Género).

Aim

The LL is focused on improving the weed management practices and soil health parameters in organic and conventional fruit mountain systems. The main challenges faced by cherry growers are the proper management of the spontaneous cover in the interrows and the reduction of herbicide use in the tree line, taking into account that most farms have difficulties in mechanisation due to their small size and orography. In the Cherry LL, agroecological management alternatives are being proposed that combine the sowing of permanent cover crops with mechanical weed control practices, mulching and herbicide applications reduced to 50% (only in conventional farms, in their transition pathway to a total elimination of herbicides).

Background information

The first experimental activities started in autumn 2023 by sowing the cover crops in both conventional and organic participatory farms located in the Jerte Valley (Cáceres province).

Since the establishment of the LL, meetings, workshops, field days and seminars have been held to discuss in a participatory manner the experimental activities carried out (at least 2 or 3 meetings per year). The needs of the different stakeholders have also been gathered to better understand stakeholder needs and refine agroecological practices accordingly. The second year of field research activities is currently underway. The design and performance of the

agroecological practices are jointly discussed and co-created to find affordable and sustainable solutions adapted to the reality of small family cherry farms in mountain systems.

Funding structure

The research activities are financed through the GOOD project, but also with the support of CICYTEX's own funds, and the cession of private farms of local cooperatives and farmers. The cooperation between the main actors of the LL has a history of previous collaboration and will continue after the GOOD project.

Activities

- Sowing cover crops in conventional and organic farms. Four different species or mixtures have been tested: *Trifolium subterraneum, Ornithopus sativus*, grass mixture (*Lolium spp, Dactylis spp, Festuca spp.*) and a biodiverse mixture (legumes and grasses). Diversity, biomass and coverage parameters regarding the cover crops performance are being assessed.
- Testing agroecological practices for weed management and soil health in the cherry tree lines (mulching, mowing)
- Living Lab Board meetings for evaluation and discussion of the LL activities
- Field days (weed identification, use of a roller crimper for cover crop termination, using of cover crops ect.).
- Workshop for testing and co-improvement of AWM Tool Box (support decision app) and co-learning about Agroecological performance assessment tools (TAPE, OASIS, ect.).
- Materials for dissemination of results (practice abstracts, factsheets, local weed guides, ect.).
- Interviews to local stakeholders (baseline knowledge, willingness to apply agroecological practices, ect.).
- Gathering information for joint activities with other partners in the GOOD project (LCA assessment, cost assessment, ect.).
- Cross visits with other LLs (Portugal-Spain).

Field days with farmers and advisors. Source: Cerry Spain

Showing the use of roller crimper. Source: Cherry Spain

Trifolium subterraneum cover crop. Source: Cherry Spain

Organic cherry orchard in the Jerte Valley. Source: Cherry Spain

Mustard (Sinapis alba) cover crop in an organic cherry orchard. Source: Cherry Spain

Field day with experts from the University of Lleida (Spain). Source: Cherry Spain

LL board meeting. Source: Cherry Spain

Co-creation workshop. Source: Cherry Spain

Methods, stakeholder engagements and tools

In order to improve agroecological weed management in organic and conventional cherry farms, different methods both in the interrow and in the tree rows are tested: sowing of annual and perennial cover crops, termination by mowing or use of a tailored roller crimper; using mulches (agro-textile and organic mulches), mowing under the trees. A weedy treatment is tested to compare the effects of these methods.

Stakeholder engagement: initial contact is established through the CICYTEX network and its alliances (including cooperatives, the Plant Health Service, and others). Further engagement is pursued through various activities such as co-creation workshops, meetings, field days, and regular email communication. The role of the different stakeholders to develop the different activities is discussed during the LL Board meetings.

Tools: dissemination materials (practice abstracts, factsheets, guidelines, ect.). A new app will be created within the GOOD project for supporting farmers decisions and translated to Spanish (AWM Tool Box).

Achievements

- The innovation activities are under evolution following the local stakeholder demands and interests, so that the number of local farmers/advisors/ enterprises engaged with the LLs are increasing (more than 80 contacts). Some activities have been done following the stakeholder's interests: field days for weed identification, publishing of a local weeds guide (ongoing), etc.
- More and more farmers are willing to abandon the use of herbicides and introduce the use of cover crops thanks to the support of the LL.
- Design of a tailored roller crimper for small farms to spread the use of this

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Field day with farmers, advisors, researchers and policy makers of the LL in the cherry experimental fields. Source: Cherry Spain

Publications

- https://www.researchgate.net/p...
- Technical article: María Ramos, María Dolores Osuna, Ana de Santiago, Valentín Maya, Laura Méndez, Antonio García-Calvo, Helena Freitas y Alexandros Tataridas. (2024). Manejo agroecológico de Malas Hierbas en arroz y cerezo. Vida Rural, nº13, pp.26-29

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