



DYNAMIC SOD MULCHING AND USE OF RECYCLED AMENDMENTS TO INCREASE BIODIVERSITY, RESILIENCE AND SUSTAINABILITY OF INTENSIVE ORGANIC FRUIT ORCHARDS AND VINEYARDS

YEARLY REPORTS OF ECONOMIC AND ENVIRONMENTAL IMPACT OF MANAGEMENT PRACTICES (2019-2020)





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1. INTRODUCTION

The work performed during the first year by the partners of the DOMINO project was meant to set up a methodology in order to gather data suitable for the assessment of the economic impact of the new orchard management methods at on-farm level and to evaluate the possible ecosystem services that the innovative methods could bring to farmers.

The determination of the economic impact is a basic condition for the adoption of the new agronomical practices by farmers into common practice. It shall be based on the analysis and comparison of cost of production and profits between current and with new methods. This allows considering explicitly the effects of proposed soil management practices on all aspects of farm assets and operations (Fig.1).

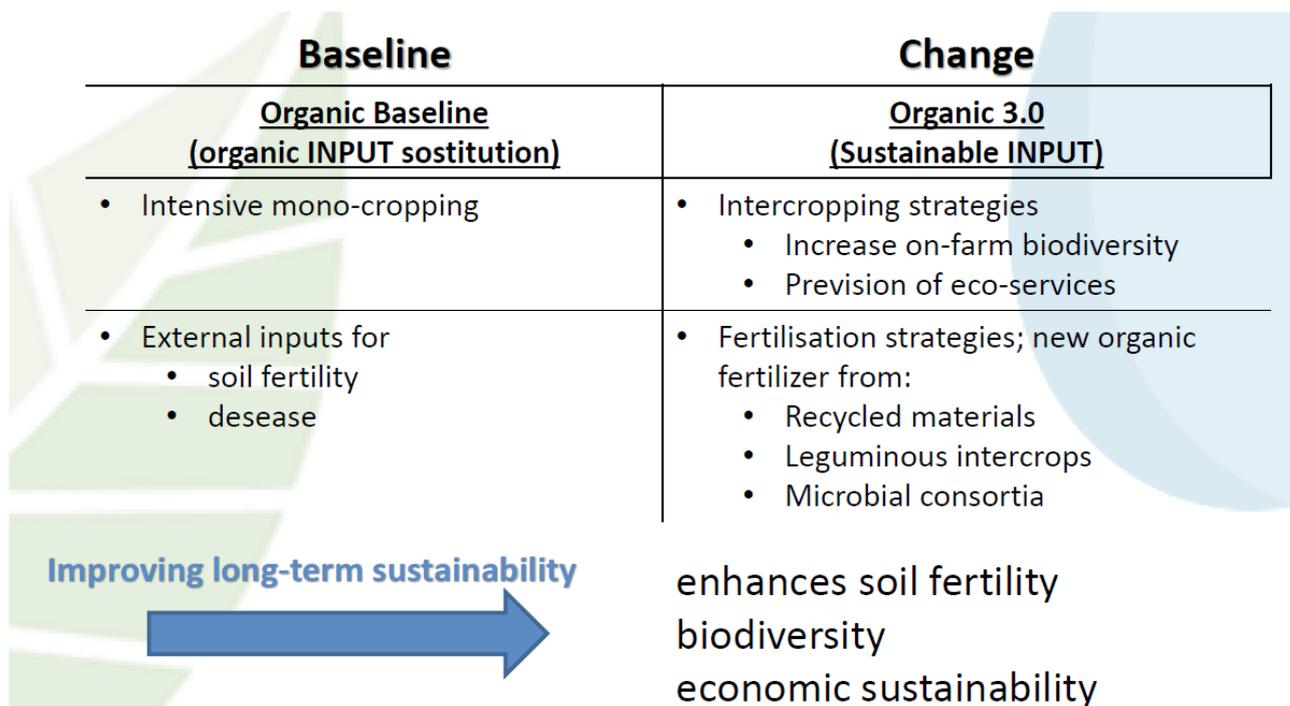


Figure 1. Estimated impact on ecosystem services by the project.

The evaluation of ecosystem services considers the potential reduction of external inputs and increase of ecological benefits deriving from the new practices tested by the project. The evaluation is thus carried out in terms of environmental benefits through reduction in e.g. water contamination or energy use or increase in soil and agro-ecosystem biodiversity, which can provide data to policy makers necessary to support national and EU policies.



2. Activities performed

A. Assessment of economic impact

On the basis of the methodology prepared for collecting the data from the trial sites and comparing them with the baseline (current organic) practices, a set of data was gathered by the partners related to the 2019 season. These data related to the activities and work necessary to manage the innovative methods introduced by the project: inter-row management with new leguminous species, row management with introduction of a second cash crop for different purposes, use of locally produced organic fertilizers and installation of temporary nets for plant protection.

Outcomes of the activity

Data about the production costs related to the practices introduced with the trials have been gathered utilizing the form and method developed in 2018 and will be used for the economic elaborations planned under Task 6.2.

B. Assessment of ecoservices

Ecosystem services are defined as services provided by the natural environment that directly and/or indirectly affect human wellbeing. This definition can be linked to an economic assessment of agronomical practices that foster such kind of services. Four major classes of eco-system services are defined by the Millennium Ecosystem Assessment developed by the UN:

1. Provisioning Services: these are ecosystem services that describe the material or energy outputs from ecosystems. They include food, water and other resources;
2. Regulating Services: they are services that ecosystems provide by acting as regulators eg. regulating the quality of air and soil or by providing flood and disease control;
3. Cultural services: they are nonmaterial benefits people obtain from ecosystems through cognitive development, reflection, recreation, and aesthetic values;
4. Supporting services: these are services that are necessary for the maintenance of all other ecosystem services. Some examples include biomass production, production of atmospheric oxygen, nutrient and water cycling.

Within the list of possible types of ecoservices for each of the above mentioned four services, the project has selected nine services that are likely to be affected by the innovation practices tested. This list was used to prepare a questionnaire that meant to gather information about the “feeling” of operators (farmers, advisors, technicians) on the innovative practices proposed by the project.

Outcomes of the activity



The major outcome of this activity was the collection of the filled questionnaires. A set was already collected in 2018-2019 but further questionnaires were also collected during different dissemination events organized by the project partners. In particular, the methodology was discussed and the questionnaire requested to be filled during a specific workshop organized in the framework of the 19th Ecofruit conference held in Hohenheim on February 2020, where about fifty questionnaires were collected. The analysis of the answers has started and shall allow to prepare a publication about the perception of operators on eco-system services and the new practices proposed by the project.



Figure 2. Example of herbal and officinal plants introduced for row management of apple orchards.