

A participative rice farmer project for the adoption of weed management practices helps to increase environmental and naturalistic value of rice production

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Poster

A rice farmer participative project, named "Riso Amico+", was started in 2020 as a PEI-AGRI Operational Group in the Piedmont region, NW Italy, with the aim of defining 'good' management techniques helping to maintain high rice yield and quality, while increasing resource efficiency and improve the environmental and naturalistic value of rice cropping systems. The project team includes 10 rice farms, agronomy and crop researchers, experts on biodiversity and environmental preservation working for the local authorities and in the protected areas, where part of the rice area is included. The rice farmers, with the help of the other project partners, listed a selection of 'good' agronomic practices, for both dry and wet seeded rice, able to maintain or improve yield, lower the risk of environmental impact from plant protection products and protect high natural value sites. The most promising practices were then selected and introduced in the rice farms as demonstration sites. Some of the agronomic practices, mainly aimed at managing weeds, have positive environmental side-effects, such as early flooding and stale seed bed, winter flooding, mechanical weed control, site-specific weed management, cover crops, green mulching, crop rotation, and mechanical rice transplanting. These techniques are important to reduce herbicide use, increase rice competitiveness over weeds, while preserving the natural environment and the natural animal and plant biodiversity. In addition, the maintenance of field margins and sown or spontaneously vegetated drainage ditches, only managed through mowing, contributes to preserve the biodiversity of the rice area. A set of agronomic, environmental and biodiversity indicators will be calculated to evaluate the farm sustainability and efficiency improvement after the introduction of the 'good' practices. The indicators will be calculated using a specifically developed online tool that will allow farmers to self-evaluate farm performances and to display sustainability scores to attract potential customers. In this way, the project will help design innovative cropping systems able to increase the competitiveness of best-performing rice production, show citizens the ecosystem services provided by the rice cultivation, and build a rice production chain with a focus on its environmental sustainability. Moreover, the demonstration fields of the 'good' agricultural practices will provide useful information and stimulus to other rice growers and to all the stakeholders in the rice chain.

Keywords: *rice, sustainability, indicators, environment, agronomic practices*

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