

Participatory Approach for Developing Knowledge on Organic Rice Farming in Italy

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There is a lack of knowledge concerning the organic rice performance and management, probably due to the limits encountered by the reductionist approach in studying complex systems such as an organic paddy. The study proposes a knowledge-intensive and qualitative research methodology based on researcher-farmer participatory approach, with the aim to improve the state of knowledge on organic rice, explore the yield potential and variability, and identify the successful agronomic practices.

A wide range of cropping systems placed in North Italy were monitored and analyzed during three years by a multi-actor network. Knowledge was generated from collected data and information, integrating the scientific and empirical knowledge on the basis of the DIKW hierarchy and through mutual learning and knowledge sharing tools. The organic rice field proved to be a complex and difficult system to predict, which evolves over the time, under the on-going pressure of the bottom-up innovations, and whose performance depends on many interacting elements.

The results highlighted three main knowledge-intensive management strategies, not involving universal recipes but a range of agroecological principles and flexible solutions that the farmers adapt to the time- and space- variability through an active adaptive management. Yield showed a wide variability (0–7 t/ha) and normal distribution (median 4 t/ha). The lower, middle and upper quartiles of yield showed a mean of about 2, 4 and 6 t/ha, respectively, with high variance associated with upper and lower quartiles. The variability sources related to the management and effectiveness in weed control have mainly determined the productivity gap, “Know-how” (suitability of the chosen management plan), “optimization” (timely and accuracy of interventions) and “seed bank” (previous operations and land uses affecting the weeds dynamics) were responsible of the low yield in 77%, 54% and 31% of the cases, respectively, drowning out the impact of climate, soil and variety. Results are useful to drive further scientific inquiries and evaluations consistently with the reality faced by the farmers and suggest that improvements in the farmer’ know-how and skills can lead to further yield increase and variability reduction.

The participatory research, adopted to explore complex systems, has worked in this direction, fostering the co-creation of knowledge and innovation and the social cohesion. However, the methodology showed constraints mainly related to the time-consuming surveys and its nature affected by human component.

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