FROM SUNFLOWERS TO BEES: THE SUSTAINABLE CHALLENGE OF THE BEEFLOWER PROJECT

by Stefano Zenobi1 and Biagio Di Tella[2]

[1] Research Fellow within the project BEEFLOWER – Innovative systems in the sunflower supply chain for the protection of biodiversity, ecosystem services, and the use of new protein sources. Marche Polytechnic University, Department of Agricultural, Food and Environmental Sciences – Agronomy Group.

[2] PhD Candidate within the project BEEFLOWER – Innovative systems in the sunflower supply chain for the protection of biodiversity, ecosystem services, and the use of new protein sources. Marche Polytechnic University, Department of Agricultural, Food and Environmental Sciences – Agronomy Group.

Sunflower is one of the symbolic crops of the Marche agricultural landscape. The Marche region is indeed among the Italian areas where this species (Helianthus annuus L.) is most widely cultivated, thanks to its ability to adapt to hilly and drought-prone soils and to fit successfully into cereal-based crop rotations. Following the gradual abandonment of sugar beet as the main renewal crop, sunflower has assumed an increasingly important role within agricultural systems, also due to its capacity to improve soil fertility and reduce the use of external inputs.

Organic farms in the inland areas of the region, such as those within the Terre Marchigiane Organic District, are seeking renewal crops that can expand crop rotations while ensuring income, diversification, and environmental protection. In this context, traditional sunflower varieties are once again attracting interest due to their robustness and ability to offer multiple benefits. Ancient varieties, in fact, show good adaptability to variable climatic conditions and, thanks to their nectar-producing potential, represent an important resource for pollinators—silent protagonists of agricultural productivity and biodiversity.

One of the aspects currently under investigation concerns the possibility of identifying sunflower accessions that, in addition to ensuring satisfactory yields under organic farming conditions, also provide a consistent supply of nectar and pollen for foraging insects. These traits, together with competitiveness against weeds and resistance to the main diseases, are essential for sustainable crop management and for safeguarding ecosystem services.

From an agronomic perspective, sunflower is a strategic crop in organic rotations: it requires few external inputs, adapts well to moderately poor soils, and contributes to improving soil structure and fertility. The sunflower supply chain also offers interesting opportunities for valorization: its achenes yield a high-quality oil, while the press cake—a by-product of oil extraction—represents a promising source of plant proteins, useful both for animal feed and as a functional ingredient in baked goods and health-oriented foods.

The recovery of ancient varieties and the attention to the relationships among crops, bees, and the environment make it possible to integrate economic, ecological, and social objectives. Cultivating sunflowers that support pollinator life also means contributing to the stability of

agricultural ecosystems, reducing dependence on external inputs, and enhancing the overall resilience of organic farms.

The challenge, therefore, is to restore a central role in the Marche agricultural landscape to a crop capable of combining productivity, biodiversity, and quality: a concrete example of how innovation and tradition can coexist within a more sustainable agriculture that respects natural balances.

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