

Conservation of Biodiversity for Organic Farming in Greece

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Author's Background

Christina Vakali has a Ph.D. in Organic Agriculture from the University of Bonn, Germany. Since then she worked in Greece in the sector of Organic Agriculture, mainly by teaching in several institutions. In the last years she works for Aegilops – Network for Biodiversity and Ecology in Agriculture in the Department of Education. She is also an organic farmer cultivating olives and herbs.

Kostas Koutis has a Ph.D. in Organic Breeding. He is an organic breeder, researcher and has a 20 years' experience on organic agriculture consultancy and agrobiodiversity. His current position is Aegilops' Heritage Wheat - Cereal Coordinator.

Summary

Although ecosystems in Greece, influenced by climatic and geographical conditions of the Mediterranean basin, are very rich in biodiversity, it is reported that Greece has one of the lowest average agricultural ecosystem quality (Reidsma, 2006). Organic Farming can in many ways help to maintain biodiversity and can profit from the use of local varieties. Seed production for Organic Farming in Greece almost doesn't exist and local varieties are marginalized. AEGILOPS is a network for Biodiversity and Ecology in Agriculture which tries to build on various pillars (seed collection, organic breeding, seed schools) to maintain and develop local varieties and to strengthen the role of the organic farmers in the conservation of genetic resources.

Background

In Greece the combination of favourable natural environment and the agricultural practices of self sufficiency, in the beginning of the 20th century, have led to the maintenance of a large number of local varieties well adapted to specific conditions. The category includes both species originated or diversified in Greece and species introduced in Greece centuries ago, which were afterwards evolved and adapted to local conditions. With the advent of modern agriculture genetic erosion took great dimensions. The erosion was particularly intense in cultivated cereals, where the local landraces and varieties cultivated today hardly account for 1% of the total allocated acreage. An analogue trend, but with a 15-20 years delay compared to this of the cereals is becoming apparent for the vegetables crops, where in the last years local varieties are rapidly displaced even from backyard gardens. Moreover, along with the seed, a great part of agricultural knowledge and practice were abandoned, during the last 30 or 40 years, and vital agrobiodiversity elements were lost. However, isolated and traditional agricultural areas, such as islands, continued to preserve landraces in niche fields. A new era for greek agrobiodiversity started in 80s primarily with the establishment of Greek Gene Bank. A number of field collections or seed samples of traditional crop varieties or breeding material are also stored at a number of Agricultural Universities, Technological Education Institutions, Botanical Gardens, and NGO's. The blooming of the Greek movement for agrobiodiversity - having its roots in organic agricultural movement from 80s - was the next serious step forward regarding the preservation of plant (and animal) genetic resources. Organic farmers along with enthusiastic gardeners and organic consumers are primarily supporters of nongovernmental actions for the protection of plant genetic resources.

Main chapter

Though organic agriculture in Greece is growing there is a great deficiency in organic seed production. Most of the organic farmers apply for derogation status to use their seeds. Half of the derogations are for farmer's seed which mostly include local varieties. Compared to commercial varieties, these ones are less productive in conventional farming and more variable, but better adapted to the specific pedoclimatic conditions of Greece and organic farming (Papadopoulos et al. 2010, Koutis et al. 2012). Moreover, their product has market desirable quality traits (i.e., easy cooking, tasteful, thin peel). Organic farmers can profit from the physiological and qualitative characteristics of such genetic material. Consumer preferences of high quality product with good physicochemical characteristics are also an important factor when selecting cultivars adapted to organic farming. AEGILOPS – Greek Network for Biodiversity and Ecology in Agriculture was established in 2004. The goals of AEGILOPS are: 1. To conserve heritage varieties and traditional agricultural knowledge and to restore both of them into contemporary agricultural practice in ways that benefit community. 2. To develop plant varieties adapted to local organic production which utilize the benefits of locally adapted genetic resources for ecological agriculture. 3. To strengthen the role of the farmers in the conservation of genetic resources as well as to protect their rights in taking part in the management and benefits of agrobiodiversity. The ongoing projects of AEGILOPS concern: 1. The restoration of local varieties. Wheat consists the main part of our seed collection which includes also other cereals, pulses, vegetables and fruit varieties. 2. Organic Breeding. A number of bread and hard wheat varieties have been evaluated, selected and regenerated to be reintroduced to organic farming, under participatory procedures since 2004. Recently a long-term research program is ongoing to select among various ancestral wheat material, including emmer, einkorn and spelt, for organic breeding purposes. 3. Seeds of Liberty. Efforts are being made to strengthen the local seed supply systems to ensure seed security and food self-sufficiency at community level, through the establishment of seed conservancies and nurseries organized by and accessible to peasants in various regions of the country. 4. Seed Schools. Enhancing farmer's ability and capacity to utilize and

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manage agrobiodiversity by training and experience exchange. 5. Campaigns. The recent economic crisis revealed the vital role of agrobiodiversity for sovereignty and food security for the country. AEGILOPS takes part in community actions undertaken by farmers and consumers in Greece and worldwide. AEGILOPS is a member of European agrobiodiversity networks (Lets Liberate Diversity, SAVE) and member of the Greek Movement Against GMOs.

Core messages and conclusions

Research in the field has already revealed that greek heritage varieties showed good agronomic adaptation under organic farming. In times of economic crisis organic farmers can ensure their income by taking part in the breeding process and by producing unique products for the market. Also on-farm conservation and selection enables landraces to evolve and play an important role in dealing with problems like climate change. AEGILOPS has collected, trialed and selected various landrace cereals and vegetables to be given to organic farmers for cultivation. This informal seed system needs bridges with the formal seed sector to flourish and not to remain a niche market. These bridges can be build mainly with the impetus of organic agricultural movement worldwide.

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