

Organic Farmers' Experiments: How do organic farmers research and innovate in Austria, Cuba and Israel?

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Introduction

Farmers' experiments and research have been an integrated part of farming activities over thousands of years. The historical development of the world's agricultural systems demonstrates the power of farmers' experiments. Trying out new methods or tools is one of the main practices of agricultural production. Since people started cultivating plants and domesticating animals, farmers were engaged in continuous experimentation in order to deal with changing environmental, agroecologic, and socioeconomic conditions; or in order to solve problems. The evolution of agriculture would not be possible without continuous processes of experimentation and innovation. Therefore, farmers' experiments are one important source of information and knowledge that supports the evolution of agricultural practices and systems.

All over the world...

...farmers use their traditional knowledge and experience to improve their farming systems. The combination of local knowledge and continuous experimentation can lead to adaptations, innovations or even inventions. Innovation processes are largely self-guided, yet they are affected by the acts of communication. For as long as people have been engaged in agriculture, farming has been at least partly a collective business. Local groups and institutes, formal and informal, have long played an important role in rural and agricultural development. Thousands of grassroots innovations presented in the Honey Bee database are a vivid proof to the existence of the intensive process of farmers' experimentation in India, as well as to the significance of the communication processes within the farming community.

Rising interest in farmers' experiments

In many countries the capacity of farmers to find viable solutions for a large variety of problems was underestimated for many years. Creative farmers were seldom encouraged to develop their own solution for arising problems. Scientific research and multinational companies in many cases had overtaken the role of the farmers and caused a devaluation of the importance of informal research on farm level. Small-scale farmers were commonly left out of the formal agricultural research process as sources of information and innovation. Also today, scientific research is rarely based on indigenous concepts and farmers' local needs. This can result in inaccurate diagnosis of agricultural problems and creation of technologies that neither meet the needs of the farmer nor are suitable for their production environment. However, due to the rising interest on participatory and on-farm research, farmers' capacity to experiment and innovate have gained attention among the scientific community during the last decades. Nowadays, participatory approaches, which are based on farmers' capacity to

experiment on their own and, which integrate farmers' local knowledge and needs, are gaining recognition among extension agents, scientists, and policy makers.

Which role plays experimentation in organic farming practices?

Farmers experimented with organic farming methods long before scientists showed their interest in organic farming. These farmers had to deal on their own with problems and challenges of organic production. The conversion to organic farming requires complex and often drastic system modification. Within the conversion period the farmers have to deal with significant changes. It is obvious that experiments are necessary to adapt a conventional farming system to the new conditions of an organic system. Organic farmers proved creativity and capacity in finding sustainable solutions for arising challenges with new production methods, during and after the conversion process to organic farming.

In Austria, pioneer farmers started practicing bio-dynamic farming, which was defined by Rudolf Steiner, already in the 20-ties of the last century. After the Second World War, some farmers were concerned about the negative effects that synthetic pesticides and fertilizers, as well as intensive crop and livestock production, had on their soils, crops, farm animals, or even on human health. These farmers conducted experiments on the production and elaboration of compost and various manure treatments, in order to enhance health and productivity of soils.

A well known "organic pioneer" in Austria is Helga Wagner. She got to know organic farming in the year 1945 and became convinced, that "healthy crops" can only be cultivated on "healthy soils". She started an intensive experimentation activity to find the best way of compost elaboration. Until today she holds regular courses for farmers about how to improve natural soil fertility. Another major emphasis in the early organic movement in Austria was the breeding of locally adapted crop varieties. The members of the organic farmers' association "Erde & Saat" for example (established in 1988) started producing their own seed in order to be independent of hybrid crop varieties.

Self-harvesting – an example for organic farmers' innovation in Austria

"Self-harvesting" is an example for an innovative concept of direct marketing developed by organic farmers and consumers in Austria. The concept works well in urban or periurban areas where consumers have easy access to the self-harvest-fields. The agricultural plots are ploughed by the organic farmers, who also fertilize organically and sow/plant the crops (figure 1). These plots are later divided into sub-plots (figure 2) of 40 to 160 m² and handed over to consumers for one harvesting season. Consumers pay a rental fee to the farmer and are responsible for clearing of weeds, irrigation and of course for harvesting. To establish this kind of organic farming, organic farmers had to experiment with new crop rotations, manure regimes, crop species and varieties, as well as with new ways of interaction with consumers.

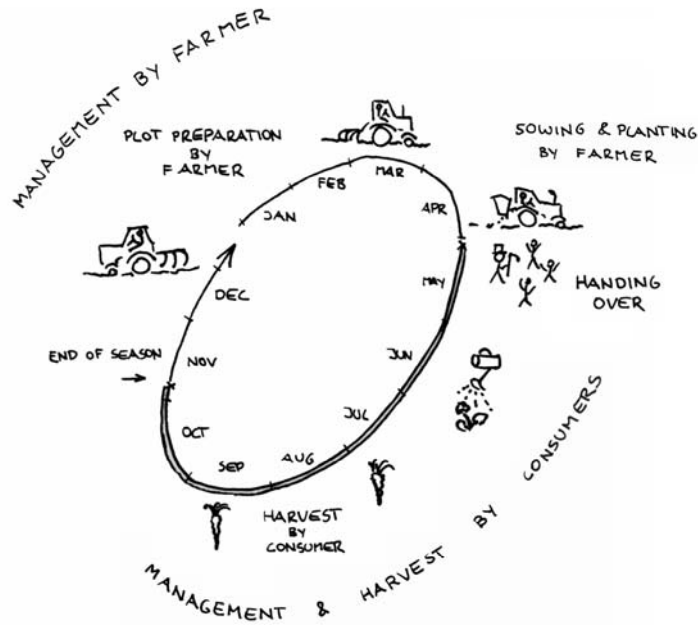


Figure 1: The labor is divided between organic farmers and consumers (Vogl et al. 2004).

Compost turning machine

Fast, efficient and labour saving composting methods depend on the use of a turning unit – a vehicle fitted with a device to turn the windrows of composting material, to fluff the material, thoroughly mix it, and provide air to the piles. Nowadays, machinery to turn the compost is available; however, these machines are very expensive and represent a significant capital investment in single-application equipment. Therefore a compost turning machine is usually not available for small scale farmers. That was the reason why several organic farmers started building these machines on their own, experimenting with diverse tools, trying different size, speed and number of the turning units, various transportation possibilities etc, while maintaining minimum expenses. E.g. one Austrian farmer built a compost turning machine which fitted exactly his needs (figure 3, figure 4). The 2,5m wide machine consists of a self welded frame which contains two spiral metal rollers, by which the compost is turned over. The frame is located on a trailer and is hydraulic controlled to enable comfortable transportation of the machine. A concrete block, built on the trailer keeps the machine steady. While working, the trailer is carried with a tractor, and the turning power comes from the tractor's shaft.



Figure 2: Self made, transportable, compost turning machine



Figure 3: Compost turning machine “in action”

Research project tracing organic farmers’ experiments

Organic farming has spread worldwide, and yet maintained its basic principles. Our research team, based in Austria at the University of Natural Resources and Applied Life Sciences (BOKU), is conducting an international research project¹ about organic farmers’ experiments in Austria, Israel and Cuba. The study aims at generating empirical knowledge on the processes by which organic farmers generate new and sustainable knowledge. We want to understand how organic farmers experiment, innovate and learn. Therefore the focus is laid on the motives, topics, methods and results of organic farmers’ experiments, and the sources of ideas that lead to experimentation. We are also interested in identifying the factors, which influence the propensity of organic farmers towards experimentation. Another emphasis will be on the transmission and transformation of knowledge generated through experimentation and the relationship between experimenting farmers and their social network. Conducting the research in three countries, which differ in environmental conditions, agricultural systems, socio-economic conditions and the phase of the organic farming movement, will permit us to analyze the significance of factors associated with variation in the nature of the experimentation process, within and among sites, and thus to better understand the role that experimentation plays as a mode of learning and creative innovation.

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The project has started only recently and we will keep you updated with our results in forthcoming articles.

Contact

If you are interested in this project, do not hesitate to contact us:

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