



Organic farming in private protected area, Russia

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Short title: Organic farming in Russia

Key Message: Important lessons can be learned from the difficulties encountered in an organic farming project in Russia.

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1. What was the problem that was tackled in the project?

The uplands of Siberia's Amur region in far Eastern Russia are in large parts very fertile and have therefore been developed as farmland by Russian settlers since the mid-19th century. Even though local climate and soil offer excellent conditions for crop growing, farming practices such as burning straw or using large quantities of pesticides and herbicides have caused considerable damage (Smirenski 1998).

The wetlands adjacent to the farmlands serve as a breeding habitat for pairs of Red-Crowned (*Grus japonensis*) and White-naped Cranes (*Grus vipio*), as well as for many other endangered species, e.g. Hooded Cranes (*Grus monacha*) and Oriental White Storks (*Ciconia boyciana*) (FAO 2003). The nearby croplands often provide excellent feeding areas (Smirenski 1998). Since the birds tend to forage in the farmer's fields, a human-wildlife conflict arose between the farmers and the protected birds (S.Smirenski, pers. comm.).

As an approach to solve the conflict between farmers and birds and as a contribution to sustainable land use practices, Muraviovka Park for Sustainable Land Use was instituted in 1996 and became the first independent, non-commercial, privately-operated protected territory in Russia (Smirenski 1998). The overall aim of the park was to research new strategies of environmental conservation and sustainable development through techniques of sustainable agriculture, protection and improvement of wildlife habitat and ecotourism. The park covers an area of more than 6,500 hectares of wetland and plateau lands surrounded by croplands, and was declared a RAMSAR site in 1995 (FAO 2003; Woodland Park Zoo 2004; Smirenski, 1998).

Unfortunately, after over a decade of developing organic farming measures, the project eventually had to switch to a more conventional way of growing crops, although it is still firmly committed to excluding pesticides and herbicides that poison

the wetlands and endangered waterbirds the park is protecting (Elena Smirenski, pers. comm. 2013).

This TEEBcase outlines the development of the organic farming project, as well as the difficulties encountered and the lessons to be learned.

2. Which measures were taken to solve the problem?

To test and showcase sustainable agricultural practices, a Demonstration Farm (460 ha) was developed by the park, showing how sustainable agriculture fields near wetlands can offer breeding, roosting and feeding habitats for birds, while at the same time yield a good return. The principal crops planted on the demonstration farm were wheat, barley, oats, soybeans, and corn (to lure the cranes into the safety of the park) (FAO 2003).

During several initial years, production costs on the organic farms were higher than in conventional agriculture due to additional expenses for row planters and several cultivations. At the same time, soil fertility initially dropped (since organic fertilizers such as manure were not available in the area). The park lacked capacity to conduct direct soil testing but it was obvious that yields from test plots with nitrogen fertilizers under small grain crops were significantly higher than from the organic plots.

However, after 6-7 years that were necessary for the mulched straw to decompose, the soil fertility began to increase. For a number of years, since there were no expenses for fertilizers and herbicides, the organic farming, even with lower yield, became more profitable than the conventional method (S. Smirenski, pers. comm.). Unlike surrounding co-ops that burn piles of straw after harvest, the park mulched and ploughed straw into their fields. As a result, the park not only steadily increased soil fertility but also prevented the spread of wildfires (Smirenski 1998). A fallow strategy was developed and strict crop rotations were followed. In combination with the use of traditional varieties and multiple cultivations, these practices at some point allowed the elimination of pesticides and agrochemicals (FAO 2003).

To solve the human-wildlife conflict, corn was intentionally planted as a lure crop for the birds to forage on and hence keep them out of agricultural fields and away from other crops. This measure helped reduce crop damage as well as disturbance to birds and therefore diminished the conflict between birds and farmers (S. Smirenski, pers. comm.). As a result of education efforts and wildlife management the number of cranes and storks in the park increased by 250% until 1998 (Smirenski 1998).

3. Why did the organic farming project encounter difficulties and how were they dealt with?

In a broader perspective, Russian citizens (mostly city dwellers) are getting increasingly concerned about health, especially of their children, and are looking for organic produce that is still hard to find. This was the market niche that Muraviovka Park had planned to address.

However, two aspects were creating difficulties. Firstly, since mid-2000's prices for fuel, agriculture machinery and machinery parts in Russia have been steadily climbing. While farmers with conventional methods were mostly already equipped at that time, the park was then still in the process of building up the organic farming project and had to buy the according farming equipment. Hence, the price increases came at a very unfortunate time, and made the park's farming efforts unprofitable compared to conventional farming. The project had to be "reset" to accommodate the economic, political and labor situation at the site (E. Smirenski, pers. comm. 2013; and G. Danner, pers. comm. 2013). In 2011, the project therefore had to start applying mineral fertilizers (with nitrogen) under small grain crops (barley, wheat and oats), and in 2013 will be also using phosphorus-nitrogen containing fertilizers under soybeans. The park calls this way of farming "healthy growing" since limited and accurate application of mineral fertilizers does not produce noticeable pollution in the area and helps keeping the wetlands clean.

The second main reason for the restructuring of the organic farming project was the lack of a market for an organic soybean crop. The demand does exist in the region – from China, Japan, South Korea, and central Russia - but the limited amount of hectares could not produce enough tonnage of organic soybeans to make a deal with potential buyers. Although the project tried numerous times to promote organic farming among neighboring agricultural cooperatives (so that yields could be combined and enough crop available to make a sale), it was not successful in getting them interested. (E. Smirenski, pers. comm., 2013 and G. Danner, pers. comm., 2013).

Among other challenges were:

- Lack of equipment and funds to purchase it (e.g., precision planters and cultivators to clean weeds between rows);
- Shortage of skilled farmhands in the area;
- Lack of soil fertility monitoring;
- Due to lack of funds to buy new machinery the park had to purchase old and heavily used pieces that need frequent repairs and part replacements;
- As an NGO, the park does not qualify for governmental programs (like compensation for lost crops due to weather or natural disasters) and subsidies to agriculture producers;
- Price increases on fuel and machinery, together with higher living costs that required paying higher salaries to farm workers, eventually made the park's organic farming unprofitable. In 2012, due to problems with old machinery, shortage of farmhands, and weather conditions that were extremely unfavorable for farming, the park's yield was three times lower than the targeted figure.

4. Lessons learned

- A strong manager-agronomist, dedicated to organic or at least sustainable agricultural practices, should be on staff to develop good plans for crop rotation, secure proper seeds, and oversee the work of farmhands and proper functioning of machinery and equipment (the park had such an employee during the farm's earlier years but failed to find a replacement after he left the park).

- Prior to starting an organic farm as an NGO, project managers should make sure that they have enough initial capital to hire enough skilled workers to implement all plans for the growing season and equip the farm with all necessary machinery and equipment (in good working condition);
- Proper crop rotation, seed variety selection, and farming techniques (when and how to prepare the soil for the next growing season, how and when to treat the emerging and growing crops, and how and when to treat the fields after the harvest) will allow farmers to keep their fields clean from weeds and stop using herbicides.
- Develop a source of livestock manure and/or natural mineral fertilizers to supplement the incorporated organic matter (plant biomass) so that soil fertility can support profitable yields (especially in the years of conversion to organic agricultural production). (G. Danner, pers. comm., 2013).
- Be flexible and patient in designing strategies, so that the primary mission can be maintained with a successful result. (G. Danner, pers. comm., 2013)
- Appreciate that entrenched/traditional agricultural practices are hard to change. Without local and regional political support, introduction of new strategies can produce suspicion and resistance. Perseverance and utilizing the demonstration farms educational capabilities will eventually change minds and help to initiate agricultural practices throughout a region that will provide economic benefits to people while preserving the ecosystem and its endangered or threatened species. At the same time, sales of crop yields from the demonstration farm help to provide financial support of the total project. (G. Danner, pers. comm., 2013)

References and further reading:

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