

Study Tour to Southern Sweden, February 4-8, 2013

Swedish Experience in Improving Crop Yields through Alternatives to Open Field Burning

Themes and organizations visited:

- *Straw residue management at smaller, medium and larger farms, demonstrating different ways of management and machinery systems (including energy production at farm level)*
 - **Felestad**: Family farm using straw for heating (50 ha)
 - **Alfahills Gård**, Tågarp: Mid-size family farm (500 ha) with a variety of crops and straw handling methods
 - **Rönneberga Jordbruks AB**, Asmundtorp: Larger farm (1,200 hectares) practicing no-till agriculture for over 20 years
 - **Whaxta AB**, Axelvolds Gård: (1000 hectares), straw burning for heating, many alternative methods. Presentation from local Landskrona and Svalöv health and environment authorities and local fire brigades
- *How Swedish local, national and EU levels work together to improve yields and encourage more productive alternative methods and develop new ones.*

Seminar at Alnarp:

- Swedish Board of Agriculture (Jordbruksverket)**: "Greppa Näringen ("Grab the Nutrients") campaign for farmers
- JTI (Swedish Institute of Agricultural and Environmental Engineering)**: research and development
- HIR Malmöhus AB**, an advisory company (consultants on crops, business, machinery and environmental issues): information and education efforts

Other presentations:

- **Research Farm Visit: Borgeby**, owned by HS Malmöhus, cooperating with farm owned by Swedish University of Agriculture
 - Lund Kommun**: Permitting process and history of requests to burn under certain conditions
- *Large-scale straw management and new cultivation from abandoned lands*
 - **Gårdstånga Nygård**: (1000 ha): Controlled Traffic Farming and strip tillage, handling large amount of straw in top soil, and local education and regulation on straw use
 - **Kalset Mjök** (dairy farm): Reclaiming land with low-till methods

Participants Comments:

In general, the study tour participants were *very* pleased with both the content and the arrangements. They all found the trip very well planned and executed and enjoyed seeing techniques in practice.

The farmers enjoyed experiencing the farmers' lifestyles and wanted the Swedish farmers to visit them during the sowing and harvesting seasons to work side-by-side for a few days for a direct exchange of experience. All Swedish participants said they would welcome such an opportunity, which should be feasible because the seasons are different enough that it would be possible to schedule.

Participants from the research institutes found the information from the state agencies and consulting services to be interesting and informative while the farmers found them to be less so. In general, representatives from research wanted a complete research agenda for alternative technologies to uncover any possible negative consequences. The Swedish (and some Russian) farmers felt the initial research was adequate and that any negative consequences would lead to adjustments and adaptations underway, but that the gains outweighed any potential consequences. The researchers also thought the optimal strategy was to return straw residue to the soil and alternative uses should be secondary.

The farmers all said that an important next step was an information campaign to be conducted on several levels. One level should be at the Russian Academy of Agricultural Sciences and the research institutes through the dissemination of scientific and technical research, and one participant offered to start with her own research institute. It is also important to present such materials to and involve the Russian Ministry of Agriculture to try to get high-level support for alternative techniques and policies. Information also needs to be made available to farmers and agricultural workers, perhaps in a simplified format, through the media and associations of farmers and AKKOR (Association of Farmers in Russia).

It is also necessary to conduct a public awareness campaign with simple and popularized materials, for example, the cartoon shown in the Gårdstanga Nygård presentation where the farmer is relaxing and the worms are doing all the work in improving the soil. It is important to involve rural schools and school children in general to educate the younger generations about the dangers of burning. A particular request was for demonstration farms to show off the alternatives techniques in the field, as well as an exhibition area or rooms where videos, posters and other informational material would be available.

The Rostov farmers said they had the technologies, equipment and resources needed. They were pleased that the study tour showed them that Russian agriculture was going in the right direction. They stressed, however, that the smaller farmers in Rostov oblast lack the necessary

knowledge, equipment and resources and the next steps of the pilot project and a future study tour in Rostov should be directed towards them.

One Rostov farmer said that he had stopped burning three years ago but was undecided about whether this was the best policy economically and environmentally. After the tour, he said he was now 80% convinced this was the best policy, as opposed to 50% before.

The farmers in Leningrad oblast were in a very different situation. They are smaller, often marginal enterprises and need all kinds of financial, equipment, information and technical support. There is a particular need for smaller cultivators for abandoned lands covered with grass and shrubs and for clearing and cultivating smaller fields full of stones, such as they saw at the Kalset dairy farm.

The challenges of the future project and more widespread use of alternatives in Russia were apparent due to different cultural and historical experiences with market- and law-based societies in Russia and Sweden. As one example, the Russians wanted to know to what extent farmers in Skåne burned illegally? The Swedish farmers replied that they did not burn illegally for three reasons: farmers understood the negative impacts of agriculture burning and were completely supportive of the ban; the landscape is flat and open and any illegal fire would be immediately seen and reported; and most importantly, most Swedes who disagree with a law or policy would not break or ignore the law but would seek to have it amended or overturned through the system.

To cite another, the Russian farmers were suspicious of the private consulting firms and the extension service (Lantmännen), and wanted to know what kind of insurance or compensation was available to farmers if they were advised to try useless or damaging additives or techniques? The Swedes replied that while mistakes and even fraud could occur, of course, these organizations strive for quality and would not long be in business in a transparent marketplace if they promoted unhelpful or damaging approaches. Indeed, they would likely seek to make immediate restitution for any mistakes they might be responsible for, even without a formal system to ensure against errors.

All model farmers and researchers were supportive of the continuation of the project, and of their own continued participation as model farms, in the coming growing season.