7/13/2005

Final Report Project Summary

Koenders – Agro-Soyuz

‘Introducing the Alfalfa Leafcutter Bee Industry into Ukraine’

Project under FARM Responsive Mechanism

April 2004 – May 2005

RM 6

I. Executive Summary

This project will introduce a new industry to Ukraine; the raising of alfalfa seed and rearing of leafcutter bees. Alfalfa seed is a crucial component in producing hay, which sustains dairy and beef cattle. Ukraine currently has a rapidly expanding dairy and beef industry that requires large amounts of alfalfa hay. However, the few alfalfa seed producers that are currently operating in Ukraine are having difficulties producing seed crops because they do not use leafcutter bees to pollinate their alfalfa. Therefore, this project proposes providing me ntoring, support and training to establish the infrastructure to rear leafcutter bees to adequately pollinate alfalfa in order to increase seed production to meet the demands of the domestic and international market.

II. Summary Project Description

a. Background and Rationale for the Project

This project revived an industry in Ukraine; the raising of alfalfa seed and rearing of leafcutter bees. Alfalfa seed is a crucial component in producing hay, which sustains dairy and beef cattle. Ukraine currently has a rapidly expanding dairy and beef industry that requires large amounts of alfalfa hay. However, the few alfalfa seed producers that are currently operating in Ukraine are having difficulties producing seed crops because they do not use leafcutter bees to pollinate their alfalfa. Therefore, this project proposed to provide mentoring, support and training to establish the infrastructure to rear leafcutter bees to adequately pollinate alfalfa in order to increase seed production to meet the demands of the domestic and international market.

This was to be accomplished by mentoring 1 woman, 4 farmers and 2 extension representatives. This mentoring program is the basis for giving Ukrainian trainers the ability to train other farmers in Ukraine about the alfalfa leafcutter bee industry. All the participants in the mentoring program participated in 7 seminars over the course of 3 training trips along with participants from the agricultural, academic and governmental sector in Ukraine. The seminars were advertised locally and nationally and were open to the public.

Furthermore, a demonstration site using the most advanced, effective and uncomplicated alfalfa leafcutter bee technology was established.

In regard to the “Three Pillars” of FARM, this project will provide:

1. Agricultural extension:

Members of the FARM agricultural extension programs, which are currently active in Ukraine and Dniepropetrovsk will be invited to attend all training seminars. This will allow the various extension programs and offices to network and exchange ideas on developing this new industry further.

2. Civil Society:

Ukrainian civil society will benefit as a new industry based on sustainable development and agricultural diversification will be introduced. Agro-Soyuz and Koenders are both well known and widely recognized for contributing to the development of civil society in Ukraine and Canada respectively. Agro-Soyuz is committed to bringing new technology from around the world to the Ukraine for the benefit of all Ukrainian farmers and Ukrainian agriculture. Koenders is committed to bringing new technology to developing markets for the benefit of Ukrainian farmers and Ukrainian agriculture and has a reputation for extensive community involvement and investment in Canada.

b. Project Goal/Objectives

The objective of this project is to introduce the alfalfa leafcutter bee industry into Ukraine. Accomplishing this objective entails training Ukrainian farmers to:

1. plant, pollinate and harvest alfalfa seed in Ukraine,
2. incubate, manage and harvest leafcutter bees in Ukraine, and
3. establish a domestic alfalfa seed industry to produce hay for livestock operations in Ukraine.

Training for trainers:
Mentoring 5 leafcutter bee specialists selected from Agro-Soyuz' current employees and 2 FARM extension specialists from the Dniepropetrovsk office. The mentors will participate in the same seminars described below that are open to the public, but unlike the public, will be required to attend.

Training for the public:
The training will be delivered in the form of five seminars open to the public with a minimum of 25 participants per seminar, excluding those in the mentorship program. The seminars will focus on:

1. Shipping, Handling and Storage of leafcutter bees.
2. Incubating leafcutter bees.
    - Blueprints for setting up an incubator will be provided and can be freely distributed. Consultation on construction will be provided to Agro-Soyuz and all interested parties.
3. Establishing and Operating a leafcutter bee field site.
4. Harvesting alfalfa seed.
5. Training on Operating the Eggerman leafcutter bee harvester.

Demonstration site:

- Transfer of materials, equipment and technology necessary to establish the site.
- Consultation on setting up two, 20-hectare demonstration sites for alfalfa leafcutter bees.
- Tours and explanation of demonstration sites.

III. Project Achievements

a. Outputs/Deliverables

1. TRAINING

This project mentored 5 leafcutter bee specialists selected from Agro-Soyuz' current employees. FARM extension specialists from the Dniepropetrovsk office were present at the training as well, however the mentors were responsible for the day to day operation of the project.

Training for the public

The training was delivered in the form of seminars all open to the public which were conducted over the course of 3 different trips to Ukraine. Each of the three trips included a full 2 or 3 day seminar. The seminars generally focused on:

- Shipping, handling and storage of leafcutter bees.
- Incubating leafcutter bees.
    - Blueprints for setting up an incubator will be provided and can be freely distributed. Consultation on construction will be provided to Agro-Soyuz and all interested parties.
- Establishing and operating a leafcutter bee field site.
- Harvesting alfalfa seed.
- Training on operating the Eggerman leafcutter bee harvester.

Throughout the project, Agro-Soyuz received training in all areas and all content which is detailed in a training manual presented to FARM.

On average, approximately 15 participants attended all training seminars. Approximately 5 of the 15 participants on average were women. The minimum required number of attendees was not met because we overestimated this figure in the Project Proposal. It was apparent when conducting the training that 15 participants is the maximum number that should attend in order to ensure complete understanding of all training material. The seminars were often hands-on and intensive and with 25 people it would have been unmanageable.

A crucial reason the training was successful and ultimately that the leafcutter bees were successfully reproduced was that the Agro-Soyuz mentorees were all working together at Agro-Soyuz on the actual farm site. The mentorees worked closely together and consulted Koenders by email or telephone when there was a problem they could not solve. Therefore, there was no need to schedule a meeting to discuss problems or progress.

Reproduction Results

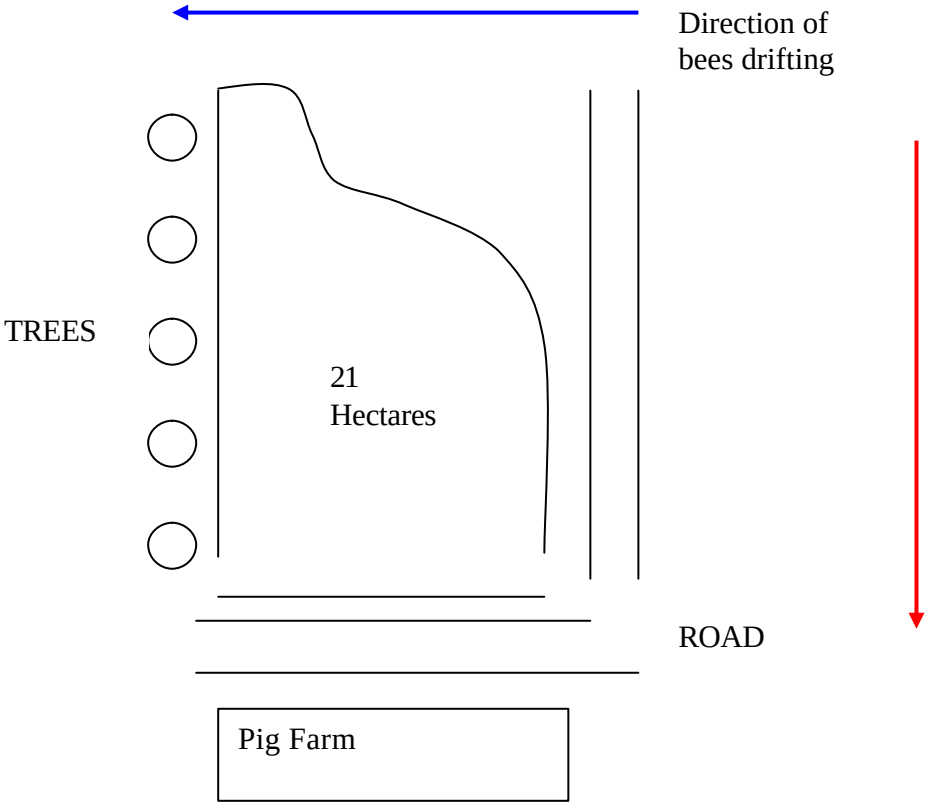
The best indication of the training is obviously the success or failure of actually running an alfalfa leafcutter bee operation. The results were overwhelmingly positive and Agro-Soyuz conducted an excellent reproduction year. The bees almost doubled and testing revealed their quality is excellent and live count very high.

2. DEMONSTRATION SITE ESTABLISHED

It was determined that only one, 20 hectare field was required to adequately test the bees. In any event another 20 hectare field was not available at Agro-Soyuz and the 21 hectare field proved to be a very manageable size. In retrospect, two, 20 hectare fields would have been too difficult to manage logistically because transportation in Ukraine is not always readily available to move leafcutter bees and equipment around.

Agro-Soyuz conducted tours of the field site throughout the course of the summer. An exact number is not available, but it is estimated that hundreds of people from Ukraine, Russia and many other countries toured the site.
Leafcutter Bees

Demonstration Site



Leafcutter Bees

105 gallons of alfalfa leafcutter bee larvae were delivered successfully to Ukraine by air freight in one shipment.

Leafcutter Bee Equipment

In a separate shipment 14 large bee domes, 42 bee trays, 1 bee harvester and 168 bee nests were delivered to Agro-Soyuz.

Leafcutter Bee Incubator

Koenders consulted very closely with Agro-Soyuz about how to build an incubator. You will note from the attached training manual that considerable time was spent training Agro-Soyuz how to build an incubator. The background to the training was that if Agro-Soyuz understands why they are building certain features in the incubator they will also understand more about the actual life cycle of the leafcutter bees. The training in this regard was very successful and a fully functioning state of the art incubator has constructed and successfully used to incubate the leafcutter bees.

IV. Project Sustainability

The Partnership will continue in the future. There are currently numerous private business initiatives currently being discussed between Agro-Soyuz and Koenders which involve alfalfa seed and leafcutter bee production. There are future plans to continue increasing the size of the leafcutter bee operation in order to reproduce additional quantities of alfalfa seed. Koenders and Agro-Soyuz are in regular contact and will continue to be in the future. Plans are currently being continuing for putting together an alfalfa leafcutter bee association and possibly hosting an international leafcutter bee conference in the future at Agro-Soyuz.

The mentors at Agro-Soyuz will continue operating the alfalfa leafcutter bee operation in the following year (summer 2005). Koenders has agreed to provide consultation on an ad hoc basis in order to ensure the second year is successful. Koenders has left paper and digital copies of the Training Manual (attached in Appendix 3) which is an absolutely invaluable resources for successfully running an alfalfa leafcutter bee operation. This Training Manual has also been updated after the final and third trip to Ukraine to ensure it is up to date with the latest information, all ambiguities are resolved and all errors are corrected. The mentors will undoubtedly continue to reply on this training manual in the future.

V. Comments

The developmental goals were ultimately successful. It was clear at the outset of the project that the focus would be on knowledge transfer from one party with particular expertise to another party who is eager to gain and apply this expertise. Our opinion at the beginning of the project was that if we did not successfully raise leafcutter bees in Ukraine with Agro-Soyuz as our partner, the project would be a failure. However, we recognized that the only way that alfalfa leafcutter bees could be successfully reproduced was to train a core group of individuals (the mentors)

extremely thoroughly and give them the tools to succeed. So, this is what we set out to do with this project.

Let us look back at the question that we posed at the beginning of this project: Did we reproduce leafcutter bees successfully in Ukraine? If we answer this question in the affirmative, we have achieved the goals we set out to accomplish but if we answer this question in the negative, we have failed to achieve our goals because without successfully reproducing alfalfa leafcutter bees the training we provided was inadequate.

However, we must answer this question in the affirmative. We have almost doubled our original shipment of bees to Ukraine and the alfalfa leafcutter bee stock that has been reproduced is entirely disease free, with an exceptionally high live count and of the highest quality and standard. In addition, the participants managed to build extremely complicated incubators and harvesting machinery only from the training manuals and the training we provided, which is a sign of great success.

Therefore, we must conclude that the training was extremely successful as our primary goal of reproducing alfalfa leafcutter bees was attained.