Report from a visit to Estonia February 3-6, 1998: Identification of possible partners in Environment Related Sector Programs of the Danish Ministry of Food, Agriculture and Fisheries.

Erik Kirknel
Bent Bromand
Margrethe Høstgaard
Danish Institute of Agricultural Sciences (DIAS)
The Ministry of Food, Agriculture and Fisheries
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Background

The Directorate of Development, of The Danish Ministry of Food, Agriculture and Fisheries, has requested The Danish Institute of Agricultural Sciences (DIAS), through the Department of Crop Protection, Research Centre Flakkebjerg to carry out project identification in Poland and the Baltic Countries. Possible projects should fit into The Ministry's Environment Related Sector Program 1996 and 1997 and the Sector Integrated Environmental Co-operation Programme of 1998.

The Ministry has asked for a survey of the need for co-operation in the harmonisation process to the EU directives, with respect to an efficacy testing system for pesticides, quality assurance systems and residue analysis for pesticides suitable for the purpose of registration as well as a basis for environmentally sound advising of the farmers. In addition, the Ministry wants a survey of the need for a certificate for sprayers and an obligatory system for control and acceptance of the spray equipment. Furthermore, an evaluation of the possibility of implementing a computerised Plant Protection decision support system should be carried out. Finally, an assessment should be made of the degree to which the country is interested in receiving support and participating in co-operation within defined projects.

Objectives

The overall objective of the first mission is project identification within the framework described under "Background".

Projects will be identified even if they are outside the normal DIAS activities. This first mission is planned to initiate a constructive dialogue with the counterpart institutions ending up with concrete suggestions from Estonia.
Activities

The following

Letter of Introduction

Was sent to potential partners in Estonia:

Fouulum, 23rd January 1998

Re.: Visit to Estonia in February

Dear Sir (In this case, Director Professor Hindrek Older)

I am addressing you on behalf of The Danish Institute of Agricultural Science’s International Unit, to ask for your help to identify suitable areas for future collaboration on agricultural and environmental projects between Estonian and Danish research institutes.

You may be aware that DIAS is a sector research institute working with strategic and applied research under the auspices of The Danish Ministry of Food, Agriculture and Fisheries. DIAS has given a high priority to establishing contacts to the Baltic countries with a view to co-operative work.

The Directorate of Development of The Danish Ministry of Food, Agriculture and Fisheries, has requested the institute, through International Unit and Research Centre Flakkebjerg to carry out project identification in the Baltic countries and Poland.

The Ministry has asked for a survey of the need for co-operation within certain agricultural-environmental areas and in the harmonisation process to the EU directives, especially the Uniform Principles. Areas of interest include:

- adaptation and harmonisation of the laws, regulations and procedures for efficacy testing of pesticides and other activities concerning bringing plant protection agents on the market.
- pesticide sprayers certificate,
- inspection system for spray equipment
- computer based decision support systems within the area of plant protection

The main development objectives of these projects will be to develop safe use of pesticides, both in terms of human and environmental aspects, in agriculture in the Baltic countries and Poland.
We would appreciate some contacts, especially within the area of pesticide residue analysis in food (also control body), soil and water, as we have not been in contact with this sector in the past. The different quality assurance systems (GLP, GEP, EN-45 000) will be included in the work as well.

We would like to ask if you would be interested in receiving a visit by two scientists from the Research Centre Flakkebjerg as well as myself in the beginning of February (week 6)? We will cover all our expenses.

The Ministry have given us until 1st April to be finished with this first project identification mission, so time is rather short. I envisage organising a final programme next week and visiting Estonia the week after. When we return to Denmark we will write a report and send it to you for comments. There is likely to be a need for a further visit in March to finalise discussions and ensure that we agree on areas of support and the ensuing work needed in order to make project application to The Danish Ministry of Food, Agriculture and Fisheries. I hope that you can accommodate this proposal in your plans for February and March.

I know from a colleague here at Research Centre Fouulum, that the following people have participated in a researchers course "Decision Support Systems in Plant Protection" held in Lithuania the 13-19 April, 1996: Piia Karpa, Elo Tuubel, both from your Institute, and Peeter Soobik, Head of Division, Department of Plant Protection. These people have knowledge about the Danish DSS and may have an interest in meeting us.

I look forward to hearing from you as soon as possible.

Best regards

Margrethe B. Høstgaard
International Projects Manager
International Unit
Danish Institute of Agricultural Sciences
Notes from Meetings in Estonia week 6, 1998

February 3rd and 4th, 1998

Meetings at The Estonian Research Institute of Agriculture (ERIA) in Saku.

Participants: Hindrek Older, Director
Leonhard Kevvai, Head of Agro Ecological Dept.
Sulev Uusna, Chief of Plant Protection Sector
Piia Karpa, researcher, Plant Protection Sector
Johannes Müur, entomologist, Plant Protection Sector
Elo Tuubel, entomologist, Plant Protection Sector
&
Erik Kirknel, researcher, DIAS
Bent Bromand, senior scientist, DIAS
Margrethe Høstgaard, International Projects Manager, DIAS

The Estonian Research Institute of Agriculture (ERIA) presently employs 86 people. Earlier the institute had a staff of some 450. Three trial stations in Estonia belong to the Institute. The Department of Agro Ecology has 3 full time researchers and 2 technicians employed today. Belonging to this department is the Plant Protection Sector, which carries out efficacy trials for registration purposes. Earlier there were 20 people, of which 11 were researchers carrying out this work. 72 % of the 1997 budget was financed by the state. The registration trials are financed by chemical companies.

Test data from ERIA are sent to the Ministry of Agriculture and from here data are available for e.g. Farmers Union. There is no direct contact between researchers and Farmers Union. ERIA staff act as consultants for private advisers in Estonia.

Director Hindrek Older expressed a wish for collaboration with Denmark especially in order to understand the EU-directives for Uniform Principles. Sulev Uusna, head of Plant Protection Sector, specified this, by stressing that the department is very interested in the process of harmonisation to EU directives 91/414 and 93/71, which means GEP (Good Experimental Practice).

The department already participates in the project: "Harmonising and Upgrading Pesticide Efficacy Testing in the Nordic/Baltic Region", funded by The Nordic Council of Ministers and started in 1997. The project funding will be finished by the end of 1999. The aim for the department is to be approved as a testing unit.

It is most likely that one person from the Estonian Plant Production Inspectorate, Division of Registration of Pesticides, will become responsible for GEP, but no decision has been made, as yet.
At the Agricultural University in Tartu some testing of pesticides in orchards takes place and the Department of Forestry carries out trials, although only to a minor extent. No contact has been made to these institutions, but a strong indication was given that they too would be interested in the harmonisation process to the EU directives.

The Danish **PC-Plant Protection** programme was demonstrated. Sulev Uusna and Piia Karpa expressed considerable interest in the system. They expressed doubt about their ability to make available the necessary resources for field trials in connection with the testing of **PC-Plant Protection**. Trials with 4 replicates would have to be carried out comparing the standard Estonian spray programmes with the recommendations from the **PC-Plant Protection** programme. The exact needs could be clarified through ERIA participation in a **PC-Plant Protection** workshop in Denmark in March, 1998 planned in conjunction with this project identification work. Piia Karpa suggested, that they could start gradually by focusing only on barley diseases.

Leonhard Kevvai expressed interest in **PC-fertiliser planning** belonging to the Danish Farm Management System. He would like to learn more about the normative figures used for manure and crops in Denmark.

**February 4th and 5th, 1998**

Meeting with **Farmers Union, ETKL** in Saku.

Participants:  Kaul Nurm, Director  
Ants Rütel, Head of Information Department  
EK, BB and MBH from DIAS

**Kaul Nurm, Director**  
The Farmers Union (FU) is located in Saku, very close to ERIA and the Inspectorate. FU serves mainly the smaller farmers (average 10 ha) which account for 38% of the total agricultural area. The private advisory services serve the rest, which are mainly big farms.

The Farmers Union training centre in Jäneda has been established with help from The Danish Advisory Service in Skejby. 18 advisors work at the centre. At present 50 advisers are connected to the service which cover the whole country.

Last year the government changed the policy concerning the advisory system, so instead of giving money to The Farmers Union, each adviser is paid from a fund, to which the government pay 85% of max. 3000 EKK per farmer per year, and the farmer pays the rest of what he has agreed to pay for service from the adviser. This change has been made possible through a PHARE project managed by DLV, which is a Dutch commercial advisory company. Today they have established a commercial advisory company in Estonia, EDLV, which is 80% owned by DLV in Holland and 20% by
Estonians. To obtain money from the Fund the adviser must be certified by a commission. (Non technical, Kaul Nurm is one member.) Kaul Nurm expressed his satisfaction with the collaboration with Skejby and would like to continue this. He was in Denmark to discuss the possibilities in December 1997.

Kaul Nurm expressed need in the future for:
1. Increased technical level of the advisers.
2. **Tested spray equipment** for farmers.
3. Collaboration with ERIA to further **develop the DSS** made by Farmers Union.

**Ants Rütel, Head of Information Dept.**
A DSS developed by The Farmers Union in collaboration with the University in Tartu was demonstrated. The system was based on the same principles as the Danish DSS, which Ants Rütel was shown during a visit to Skejby in Denmark in 1993. The system has a main economical module, which is integrated with modules for fertilisation, plant protection, and management programmes for pig and cattle production. The system also contains forest management.

The PPP is a collection of data for all used pesticides. When a specific problem is chosen, a specific solution is given. The fertilisation programme calculates the amount of N, P and K in a chosen amount of fertiliser. Normative figures for crops and manure are integrated in the programme. The selected solution to a problem is transferred to the management program to keep account of the total amount of resources of the farm.

The Estonian DSS does not incorporate conditions for low doses.

Interest was expresses for incorporating warning systems, but input from The State Centre of Plant Protection (which they have no contact with) are necessary.

**February 5th, 1998**

**Meeting at Estonian Plant Production Inspectorate in Saku**

**Participants:**
- Roland Nymann, General Director
- Jaanus Müüri, Director-General
- Enn Liive, Head Division of Registration of Pesticides
- Ants Rookäär, Head of Division of Inspection
- Merike Toome, Head of Lab., Estonian Control Centre of P-Production.

Estonian Plant Production Inspectorate was earlier called State Department of Plant Protection.

Roland Nymann knows Denmark very well, as he has already participated in projects with Denmark before.
Enn Liive informed about the Inspectorate which consists of:

- Division of Registration of Pesticides (Enn Liive)
- Inspection Division (Ants Rookääär)
- Plant Health Division
- Division of Plant Production Inspection
- Division of Fertilisers and feed

They do not feel that they can use the PC-Plant Protection for giving advice about low dose rates. This would transfer the product responsibility from chemical companies to the Directorate. They would like, however, to participate in work with the PC-Plant Protection.

All regional inspectors will through a PHARE project in 1998 have a computer and will be able to enter the Internet DDS, which the Directorate has implemented in collaboration with The Farmers Union in Saku.

They were very interested in the Danish registration system.

Ants Rookääär is responsible for testing of spray equipment and education of sprayers. At present no education system exists which leads to a spray certificate for sprayers. There is a 2-3 day course covering safety, plant protection products, label etc. leading to a "user certificate", which is necessary for sprayers using more toxic pesticides and agricultural advisers. The course emphasises the understanding of the label following the pesticide container and safety precautions. Nothing is informed of the spray equipment as calibration, check of nozzles etc. The courses have been arranged by the Plant Protection Inspectorate. Ants Rookääär had plans for the future in which the pesticide dealers, spray contractors and other users will be obliged to follow relevant courses.

We were told that plans have been made to declare by law in the near future an obligatory education for spray men, which could be held at agriculture schools. Ants Rookääär expressed considerable interest for a co-operation with Denmark in order to promote these plans.

The Plant Protection law, act no. 14, June 23 1996, says that spray equipment must function properly, but the authorities have no way of enforcing the law due to lack of organisation and lack of appropriate equipment. There exist approximately 2000 pieces of spraying equipment, half of which are old Russian models and the other half are imported second hand spraying equipment from the western countries. There was a clear tendency that each farmer wants to have his own equipment. An estimated, but probably conservative number, of pieces of spraying equipment needed within a few years could very well be more than 15.000.

It was estimated that Estonia needed 2-3 places for testing of spraying equipment and 2 mobile test vans.
There have been contacts to European (Germany and Belgium) colleagues regarding which guidelines should be chosen for testing the spray equipment, but the decision has not yet been taken.

**Meeting at Estonian Control Centre of Plant Production, Saku**

Dr. Merike Toome, head of "Pesticide residues analysis and quality sector" (under "Agrochemical laboratory", which is under "Estonian control centre of plant production").

Dr. Merike Toome, due to her belonging to the Control centre, has the possibility of making contracts with private companies and others, in order to supply the activities with economic resources. This was in contrast to the Division of Registration of plant protection products. Dr. Toome has two main activities, quality control of formulated pesticides, and pesticide residues in products for export.

The Quality Control Laboratory is well separated from the residue laboratory. 75 analyses were made in 1997. The analyses were requested by importers of pesticides and check of quality for products more than 3 years old. This laboratory was apparently the only one existing in Estonia doing quality control. The Quality Control Laboratory was not visited.

The pesticide residue analyses concentrates mainly on products for export such as fish and milk. 320 samples were analysed in 1997. The laboratory does not carry out any monitoring of pesticide residues in fruit and vegetables from the market at present. Two other laboratories have up until now taken care of this activity, namely The Central Chemical Laboratory of the Health Board under The Ministry of Social affairs. We were not informed of this when planning the mission, but a visit was arranged through the Ministry of Agriculture, Friday the same week.

We were informed that a monitoring program for pesticides in fruit and vegetables was planned to take place in the near future as a co-operation between the three laboratories and a research laboratory. We were also informed from the Division of Registration of Plant Protection, that the pesticide residue monitoring program in the future was an activity belonging to the Ministry of Agriculture.

The instrumentation in the pesticide residue laboratory was not up to date. In most of the procedures, out-dated techniques were used such as packed columns for Gas Chromatographs. Pollutants like PCB’s were not analysed due the lack of modern techniques. It was obvious that the laboratory needed to be up-dated in terms of equipment and technical installations such as the ventilation system. The organisation and degree of systematics in the laboratory, seemed to be as good as could be expected taken the economic situation in consideration. A quality control system has not yet been implemented, as for example EN-45 000, but is planned to be introduced by the help of the above mentioned two laboratories under The Ministry of Social Affairs. Training in pesticide residue methodology seemed necessary and was requested.
February 6th, 1998

Meeting at Ministry of Agriculture, Tallinn

Participants: Ms. Ene Lepp, Deputy Head, Dept. for Foreign Relations  
Mr. Enn Gutmann, Environmental Counsellor  
Jens Skrumsager Skau, from Ministry of Agriculture, Denmark  
Mr. Martin Minjajaev, Dept. of Food Control

At this meeting we presented what we had heard at the different institutions and Ms. Ene Lepp and Mr. Ene Gutman expressed their support for projects concerning GEP, residue analysis, and PC-Plant Protection. Mr. Ene Guttman will be our contact person on possible future projects.

We were informed that future residue analysis in food will probably take place in three different laboratories in Tartu, Saku and Tallinn, and will probably be controlled by the Estonian Control Centre of Plant Production, which we visited in Saku.

Mr. Gutmann stressed that projects in PC-Plant Protection, GEP, and residue analysis are all in line with the Estonian ideas for future agricultural development.

All agreed that it would be a good idea to try to design a PC-Plant Protection project based on the present DSS already developed and used by The Farmers Union and Plant Production Inspectorate in collaboration with ERIA and DIAS and the Danish Agricultural Advisory Service.

It was stressed from Danish side, that a project in PC-Plant Protection is only possible, if a close collaboration between research and advisory service and farmers is established.

Meeting with Vice Counsellor Toomas Kevvai, Ministry of Agriculture

Mr. Kevvai is responsible for education of sprayers and test of spray equipment. Mr. Kevvai gave his full support to projects concerning spray certificates for sprayers and control of spray equipment. He would like two people from the Plant Production Inspectorate and two inspectors to go to Denmark on a visit to learn how the system for control of spray equipment is built up.

Mr. Kevvai indicated, that perhaps it would be possible to find money from other sources within the Ministry for future projects with Denmark concerning sprayer education and test of spray equipment. He asked for a estimate of needed Estonian labour included in the project.

Meeting at The Environmental Central Laboratory of Chemistry, Tallinn
Dr. Aare Laht

The laboratory carries out a wide range of chemical analyses from heavy metals to pesticides, PCB's and mycotoxins. The pesticides residue analyses in fruit and vegetables are done in the same number of samples per year as the laboratory in Saku. The instrumentation is mainly old Russian instruments, still working but requiring maintenance. The laboratory seems to function well, although the staff and the leader expressed a severe need for updating the knowledge for modern pesticide residual work. Although some interactions between the three laboratories (Tallinn, Saku and Tartu) have already been established.

The laboratory has gone quite far in developing a quality assurance system, as far as we could evaluate, consisting of the most important elements of EN-45 000.

We received different indications regarding the future placing of the activities of pesticide residue laboratory. A final decision has not been made at the present time. Our conclusion is that we have defined a clear need for the analytical chemists to be familiarised with multi-residue methods used in the western countries, including the type of apparatus available on the market. A training program in Denmark at an appropriate central laboratory can be recommended. After the training program, implementation of much needed equipment would be necessary, by the help of the visiting Estonian chemists.

The team recommend a co-ordination between the three laboratories before the final Estonian decision is taken on participating in any program.

We were told that The World Bank was investing in this area in 1998. This indicates that the area is given a high priority. Possible Danish co-operation should be synchronised with this activity.

**Main conclusions of the mission to Estonia:**

**Introduction**

The missions main objective was to initiate the identification of projects that may be eligible for support from The Danish Ministry of Food, Agriculture and Fisheries within the following areas:
- adaptation and harmonisation of the laws, regulations and procedures for efficacy testing of pesticides and other activities concerning bringing plant protection agents on the market.
- pesticide sprayers certificate, e.g. residue analysis,
- inspection system for spray equipment
- computer based systems for decision making on the use of pesticides in plant protection
The main development objectives of these projects will be to develop safe use of pesticides, both of human and environmental aspects, in agriculture in Estonia.

This report presents the main finding of the project identification mission fielded in February 1998. It summarises the impression on the Danish delegation to be presented to the Estonian counterpart institutions for comments and to be used in the further planning process.

**Main Conclusions**

A series of meetings were held with relevant institutions in Estonia. It was the impression of the Danish delegation, that the following items had the interest of our Estonian colleagues. The items can be fully recommended for future co-operation:

1. A Nordic/Baltic project: "Harmonising and Upgrading Pesticide Efficacy Testing in the Nordic/Baltic Region" was started in 1997. This project includes harmonising to EU directives 91/414 EEC and 93/71 EEC, which means GEP (Good Experimental Practice). Testing of efficacy in Estonia is carried out by the Plant Protection Sector of the Estonian Research Institute in Saku; by the Department of Forestry and by the Agricultural University in Tartu. These three institutions may be the ones which are interested in obtaining a GEP certificate. The controlling body for GEP will most probably be The Division of Pesticide Registration, but no decision has been made yet. This may imply employment of one person. A strong wish to continue and further develop GEP was expressed from the Estonian Research Institute of Agriculture.

2. Projects concerning **PC-Plant Protection** were supported by Ene Lepp, Deputy Head, Dept. of Foreign Relations and Mr. Enn Gutmann, Environmental Counsellor, both Ministry of Agriculture. Both feel there is clearly a need to start looking at PC-Plant Protection to keep the low pesticide consumption from increasing drastically. (There has been a 49 % increase in active ingredient use from 1996 to 1997).

The Estonian Research Institute is very interested in starting testing the PC-P programme. This could be limited to diseases in cereals. The Institute has no collaboration with the advisory service and very few resources are available for trials work. Support to solving these problems is need. As both The Farmers Union and Plant Production Inspectorate have shown interest in collaboration regarding PC-P, a solution should be possible.

If the Ministry of Agriculture and ERIA decide to support a project concerning PC-P, the first step is to send a researcher from ERIA to the PC-P workshop at Research Centre Flakkebjerg in week 12 to identify the appropriate areas to start with.
3. Pesticide residue analyses are carried out at several laboratories in Estonia. It seems likely that a reorganisation of the tasks will take place in the near future. There is a strong desire and need for training in pesticide residue analysis methodology, quality assurance (EN-45.000) and purchase of equipment in the area of pesticide analysis for pesticide registration, monitoring of pesticides in fruit and vegetables on the market and quality control of formulated products. The mission team gives a high priority to training as the first phase of co-operation. Due to the present situation, it is difficult for the team to decide which laboratories should be preferred in the training program. This should be decided locally.

4. The Estonian Plant Production Inspectorate expressed strong wishes for co-operation in a test system for spray equipment. Test of spray equipment was included in the present Plant Protection Law, but due to a lack of money and organisation, the law was not enforced. Co-operation in spray certificate for sprayers was also expressed as desired.

The Ministry of Agriculture expressed their agreement and interest in the conclusions presented in a preliminary form before the visiting DIAS delegation departed from Tallinn.
Appendix 1:

Itinerary

Programme for Project Identification mission to Estonia, week 6, 1998

Participants: Mr. Erik Kirkenel. Researcher, Dept. of Crop Protection at DIAS, Research Centre Flakkebjerg.
Ph.D. Bent Bromand. Senior Scientist, Dept. of Crop Protection, DIAS, Research Centre Flakkebjerg.
Ms. Margrethe Høstgaard, International Projects Manager, International Unit, DIAS.

Tuesday, February 3rd:

13.00: Meeting with Prof. Hindrek Older, Director of The Estonian Research Institute of Agriculture.
15.00: Meeting with Dr. Sulev Uusna, Head of Section of Plant Protection

Wednesday, Feb. 4th:

09.00: Meetings at Estonian Research Institute of Agriculture, Saku

Thursday, Feb. 5th:

09.00: Meetings at the Plant Production Inspectorate, Saku.

13.00: Meeting with Farmers Union, ETKL

Friday, Feb. 6th:

09.30: Meeting at the Ministry of Agriculture with:
Ms. Ene Lepp, Deputy Head, Ministry of Agriculture
Mr. Enn Gutmann, Co-ordinator for Environment, Ministry of Agriculture
Mr. Jens Skrmsager Skau, Chief Adviser, Danish Ministry of Agriculture

11.00: Meeting with Mr. Toomas Keevai, Vice chancellor, Ministry of Agriculture

12.00: Meeting with Central Laboratory of Chemistry, Tallinn
Addresses:

**The Estonian Research Institute of Agriculture (ERIA)**
Teaduse 4  
Saku  
Harju County  
EE3400 Estonia  

Phone: +372 2 721 970  
Fax: +372 2 722 599  
(E-mail: annet@netexpress.ee)

Hindrek Older:  
Mob. phone: +372 5100786

Leonhard Kevvai:  
Phone: +372 2 721 720  
Fax: +372 2 771 385

Sulev Uusna:  
Phone: +372 2 721 879

Piia Karpa:  
Phone: +372 2 721 456  
Fax: +272 2 722 599

Elo Tuubel:  
Kemira Agro Eesti AS  
Merivälja Tee 5  
EE 0019 Tallinn  

Phone: +372 630 0155  
Mob. phone: +372 250 30 155  
Fax: +372 630 0157

**Estonian Farmers Central Union**
Teaduse 1  
Saku  
EE3400 Estonia

Kaul Nurm, Director  
Phone/fax: +372 2 721 783
Ants Rütel, Head of Information Dept.
Phone: +372 2 721 955
Fax: +372 2 771 385 / +372 2 721 783
e-mail: etkl@online.ee

Estonian Plant Production Inspectorate
2 Teaduse Str,
Saku
EE 3400 Estonia

Phone (3722) 721 667
Fax (3722) 721 662

Roland Nymann:
Phone: +372 2 721 745
GSM: + 37 250 31 982
e-mail: roland.nyman@mail.ee
http://www.plant.ee

Jaanus Müür:
Phone: +372 2 721 700

Ants Rookäär:
Phone: +372 2 721 667
Fax: +372 2 721 662
e-mail: tki@eol.ee

Estonian Control Centre of Plant Production
Teaduse 6
Saku
EE 3400 Estonia

Merike Toome, Head of Laboratory:
Phone (3722) 721 784 and
(3722) 721 057
Fax (3722) 721 074

Central Laboratory of Chemistry, Tallinn
Ministry of Social Affairs  
Health Protection Inspectorate  
Central Laboratory of Chemistry  
Kotka 2  
Tallinn EE 0013  
Estonia  
Phone and fax: (3726) 552 534

Ministry of Agriculture  
Republic of Estonia  
39/41 Lai Street  
Tallinn  
EE 0100  
Estonia

Ene Lepp, Deputy Head, Dept. of Foreign Relations  
Phone: +372 6 256 180  
Fax: +372 6 313 628

Enn Gutmann, Environmental Counsellor:  
Phone: +372 6 256 132  
Fax: +372 6 256 200

Toomas Kevvai, Vice counsellor  
Phone: +372 6 256 139  
Fax: +372 6 131 628

Jens Skrumsager Skau  
Chief Danish Adviser  
Phone: +372 62 56 183  
Fax: +372 63 13 628  
E-mail: (skau@agri.ee)
Appendix II

Key Figures Estonian Agriculture (1995 figures when nothing else is mentioned).

Population:

Estonia has a population of 1,491,600 of whom 447,500 (30%) live in the countryside. The average population density is 34.5 persons/km², but due to the high concentration of people in urban zones, only 6 persons/km² in the rural south.

Total area: 4,522,726 ha.
Area of forest and woodland (45% of total area): 2,016,000 ha.
Area of agricultural land (32% of total area): 1,449,555 ha.
Area of arable land (78% of agricultural land) 1,127,824 ha.

Sown area and average yields 1994:

Sown area of field crops: 935,000 ha
- of which cereals and legumes: 320,200 ha
  -of which barley: 217,900 ha
    (with an average yield of 1558 kg/ha)
  -of which potatoes 39,900 ha

The Estonian farm sector is currently in the process of privatisation. Large scale farming enterprises (former state farms and co-operatives) still manage 30% of agricultural land, whilst the remaining 70% is equally shared by 14,500 family farms and household plots. The large scale enterprises account for around 2/3 of the total production.

Farm sizes (average) in Estonia:

Large scale enterprises (total number in 1995: 983): 520 ha.
Family farms: 23 ha.
Household plots: 2 ha.

Production:

Cereals: 514,000t
Potatoes: 539,000t
Oilseeds: 2,000t
Milk: 812,000t  
Beef meat: 25,000t  
Pig meat: 46,000t  

Only production of milk and pig meat were above level of self-sufficiency.

Approximate volume of pesticides used in Estonia 1996-1997:

1996: Active ingredients (kg): 118,447,5  
1997: Active ingredients (kg): 176,447,5  

Increase from 1996 to 1997: 58,030 kg (+ 49%)  

Agriculture’s contribution to the Estonian economy:

Agricultural production has decreased since independence. This is reflected in its contribution to the Gross Domestic Product which in 1991 was 17% of GDP while in 1993, the contribution was reduced to 10%. Likewise the number of people engaged in agriculture has fallen from 14% of the population in 1992 to 8% just one year later.

Sources: Papers distributed by The Estonian Research Institute of Agriculture  
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