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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 Lithuania.
Activities

The following Letter of Introduction was sent to potential partners in Lithuania:

Fouulum, 27th January 1998

Re.: Visit to Lithuania in February

Dear Sir (In this case: Director Zenonas Dabkevicius)

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 Lithuanian and Danish research institutes.

You are 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, as you have already seen with your PC-Plant Protection project.

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. As I already know Kestas, I will send this to him as well. Please help us identify people on the other areas.
We would like to ask if you would be interested in receiving a visit by two scientists from the Research Centre Flakkebjerg: Mr. Erik Kirkenel and Mr. Bent Bromand, as well as myself in week 8 in February (19th)? 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 in week 7 and visiting Lithuania 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 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 Lithuania week 8, 1998:

February 19th, 1998

Meeting at Lithuanian Institute of Agricultural Engineering, Raudondvaris

Participants: Dr. Algimantas Valusis, Deputy Director
Mr. Algirdas Bakasénas, Ph.D., Head of Field Cultivation Department
Kestutis Tamosiunas, Senior scientist, Lithuanian Institute of Agriculture
Dangira Sidlauskiené, Interpreter, Lithuanian Institute of Agriculture

The Institute is under the auspices of The Ministry of Science and Education.

At the present a sprayers certificate is required under the Plant Protection Law and is given after a one day course. The course gives the most necessary information on spray equipment, storage of pesticides, the label etc. We were told that there is no requirements when purchasing pesticides from dealers. No testing of equipment is built into the law and no activities in this area at present. New equipment is not tested for performance and can be freely imported, even though such requirements are included in the law.

The Institute has some plans regarding testing of spray equipment, consisting of a stationary unit at the centre and mobile test units in the districts. Different European institutions in Belgium, Germany and Sweden have been visited in order to choose a testing system, but no decisions have been made so far. It is estimated that 3,500 pieces of spray equipment are available, mostly old Russian sprayers and home made models.

Future education of sprayers could be done at agricultural schools or arranged by the technical inspectors in the 44 districts. The institute already has good contacts with the inspectors through the running of training courses.

The Institute would like a closer co-operation with Danish experts on testing of spray equipment all the way from the planning phase. There are some plans of co-operation between the Institute and colleagues in Uppsala, Sweden. An eventual co-ordination with the Swedish partners was discussed.

Non-chemical weed control is an area of interest for the institute. They are aware of the problems of an eventual increase in the use of herbicides in the future and proposed co-operation in this area. The Institute is already working with mechanical weed control and band spraying.

As the Institute is working in many other areas, e.g. solar energy, wind energy and biogas they were very interested in scientific contact with similar Danish institutes. (Bygholm)

Meeting at Agrochemical Analysis Centre, Kaunas.

Participants: Dr. Antanas Antanaitis, Head of Department
Ms. Jadvyga Lubyte
Kestutis Tamosiunas, Senior Scientist, Lithuanian Institute of Agriculture
Dangira Sidlauskiené, Interpreter, Lithuanian Institute of Agriculture

This chemical laboratory (belonging to Lithuanian Institute of Agriculture) performs all kinds of traditional agricultural chemical analysis including heavy metals, pesticide residue analysis in fruit and vegetables on the market and for export and quality control of formulated pesticides. They analyse 5-600 samples of fruit and vegetables from the market for pesticide residues per year. 90% of the budget originates from contractual activities.

The laboratory has from The National Agency of Accreditation a temporary accreditation for performing analysis (apparently EN 45.000), but is very interested in receiving training in a laboratory fully in compliance with EN 45.000. Interest in training in methodologies and modern instrumentation was expressed. It is very difficult to get necessary calibration standards of pesticides. The instruments are generally old Russian types, but still functioning. Purchase of instruments are highest priority and evaluated by the mission to be in need of updating in order to meet the requirements of EU.

Meeting at Lithuanian Institute of Agriculture, Dotnuva-Akademia, Kédainiai

Participants: Dr. Zenonas Dabkevicius, Director
Dr. Irena Brazauskiené, Deputy Director
Dr. Sigitas Lazauskas, Head of International Integration Department
Dr. Jonas Sūrkus, Head of Plant Protection Department
Dr. Irena Kavoliunaité, Head of Laboratory of Plant and Environmental Protection, Voké branch
Kestutis Tamosiunas, Senior Scientist, Lithuanian Institute of Agriculture
Dr. Kristinas Matusevicius, Director, Agrochemical Analysis Centre, Kaunas

The Lithuanian Institute of Agriculture is under the auspices of the Ministry of Science and Education.

This meeting was arranged as a group meeting with relevant heads of the different departments.

The pesticide residue laboratory in Voké only analyses for herbicides in research projects such as leaching experiments. The laboratory expressed interest in visiting a similar laboratory in Denmark for training in methodology and quality assurance.

The institute is aware of the potential increase in the consumption of herbicides in the future in Lithuanian agriculture and is interested in co-operation in mechanical weed control.

An area of high priority is seed borne diseases, which have not yet been given a very high priority in Lithuania, despite the fact that they are a great practical problem. The institute is very interested in training in methodologies.

PC Plant Protection for diseases has been implemented in Lithuania in the past, and is a project on the track and well organised. The Institute would like to collaborate on the scientific basis of the pest and disease models adapted to the Lithuanian conditions (e.g. Septoria). They would also like to extend this to the PC-P Weather module, based on real time weather data from the already
established network of weather stations. The institute expressed interest in being introduced to the weed model of the decision support system. Participation in the planned workshop in Denmark in March on PC Plant Protection was agreed upon. The institute will, in the near future, select 1-2 active scientists working in these fields, to participate in the workshop. The institute will also participate in the NEGFRY Internet project and tests of NEGFRY.

Co-operation in GEP and efficacy testing is already established through the Nordic/Baltic project which was started in 1997 and will continue in this program. Efficacy testing takes place at the Institute of Horticulture in Babtai, at the Institute of Forestry in Kaunas, at the Department of Plant Protection in Dotnuva and at the Vokė branch.

February 20th, 1998

**Meeting at State Plant Protection Service of Lithuania, Vilnius**

Participants: Mr. Edmundas Morkevicius, Head of State Plant Protection Service of Lithuania
Mrs. Kristina Valionienė, Chief agronomist

The State Plant Protection Service was reorganised January 1, 1998, when The Plant Quarantine Station and State Plant Protection Station were merged into one organisation, employing 202 specialists.

The State Plant Protection Service has the responsibility for education of farmers in handling pesticides. Dealers are given licence before they are allowed to sell pesticides. The course is a one week course and is regulated under the Plant Protection Law. The mission was informed that the farmers need a certificate for buying certain pesticides. This contradicts the information we received at the Lithuanian Institute of Agricultural Engineering!

The State Plant Protection Service evaluated that there was no need for co-operation in educating farmers in handling pesticides, but they would like, in the future, to co-operate with Danish colleagues on information of the Danish system of testing the farmers spray equipment and they want to learn about the Danish rules.

The State Plant Protection Service is of the opinion that the Commission for Registration of Pesticides should be responsible for administration, control and inspection of GEP testing units.

**Meeting at Joint Research Centre, Environmental Protection Ministry, Vilnius**

Participants: Dr. Bronius Giedraitis, Director, Environmental Research Centre
Dr. Nijole Striupkuvinė, Head of Physical – Chemical Analysis Laboratory

The laboratory and a similar laboratory in Kaunas, analyses for chemicals, among which was pesticides which are environmentally interesting. The laboratory in Vilnius is by far the best equipped with modern analytical instrumentation. This contrasted with the situation in the laboratory in Kaunas. There is close co-operation between the two laboratories, who share the analytical tasks between them. The laboratories analyse water, plants, soil and air. One of the heavier tasks were Organochlorine (OC) compounds from use in the past. These pesticides are
slowly metabolised and persist in most agricultural soils. The presence of both OC-compounds and triazines in river sediments has become a problem. Triazines like simazine are a problem in agricultural areas.

Disposal of obsolete pesticides is a problem due to leaching of the pesticides from storage places before incineration. 6.000 tons in 40 stores (DDT, lindane, Simazine etc.) The problem is more a political problem of where to incinerate than a technical problem.

The head of the laboratory expressed a desire for training in pesticide residue methodology, EN-45.000 quality assurance system and soil analysis.

Meeting at Ministry of Agriculture, Vilnius

Participants: Dr. Antanas Maziliauskas, Ministry of Agriculture and Forestry, Land Reclamation and Environment Protection Division.

Mrs. Viktorija Maceikaité, Danish EPA Programme Co-ordinator
Environmental Protection Ministry.

Mr. Sarunas Ruzgys, Ministry of Agriculture and Forestry
Department of International Organizations & Projects

Mr. Niels Schnedler-Sørensen, Danish Chief Advisor
Ministry of Agriculture Food and Fishery.

Director Edmundas Morkevicius, Ministry of Agriculture
State Plant Protection Department.

Mr. Vilnis Gibaorcius, Ministry of Agriculture, Project Division.

Mr. Arunas Cepele, Head of Soil Division, Environmental Quality Department
Environmental Protection Ministry
Dr. Zenonas Dabkevicius, Director, Lithuanian Institute of Agriculture

The meeting was arranged by Mr. Niels Schnedler-Sørensen and held at the Ministry of Agriculture. The result of the mission was presented to the participants. The Danish initiative was warmly welcomed and was especially backed up by representatives from the visiting institutions. All the topics presented were characterised as high priority projects.

The agreement between the two countries on technical assistance and co-operation was briefly discussed. Regarding spray certificate and test of spraying equipment it was stated from State Plant Protection Service, that as soon as the new Plant Protection Law was signed, Lithuania will welcome Danish assistance in the planning and implementation of these two activities. There was a broad agreement among the Lithuanian participants, that if mutual agreement on the technical issues was reached between the two parties, it would be possible to find the necessary economic resources in Lithuania.
Main conclusions of the mission to Lithuania:

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 Lithuania.

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 Lithuanian 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 Lithuania. It was the impression of the Danish delegation, that the following items had the interest of our Lithuanian 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).
   Efficacy testing in Lithuania takes place at the Lithuanian Institute of Horticulture in Babtai, at the Institute of Forestry in Kaunas, at the Department of Plant Production of the Lithuanian Institute of Agriculture in Dotnuva and at the institute’s Vokė branch. Efficacy testing is part of the registration procedure.
   According to Directive 93/71 EEC, Part 6, enclosure II, points 6.2 - 6.7 tests and analyses must be carried out by official or officially recognised testing units. Information must be provided to the relevant national authority and inspections must be accepted at any time.
   At the Lithuanian Institute of Agriculture it was pointed out that efficacy trials for registration are only made by official institutions and therefore, it is not necessary to form a controlling body. This seems illogical as for instance results from residue trials are accepted from chemical companies. If other institutions than the above mentioned wish to make efficacy trials it is necessary that an independent controlling organisation is formed. It may not in the future be possible to retain the monopoly situation concerning efficacy trials.
   The State Plant Protection Service believe that the Commission for Registration of Pesticides should be the controlling and certifying organisation.
   There was a strong wish from the Lithuanian representatives to continue and further develop GEP.
From the Danish side it must be stressed, that in order to fulfil the requirements of the EU directives, to document the quality of efficacy testing and to stand up to mutual recognition it is important that an independent controlling and certifying body is formed to evaluate and inspect the testing units.

2. The three pesticide residue laboratories which the mission visited are in need of training in modern pesticide residue methodology in soil, water and food, quality control of pesticide products, familiarisation with and upgrading of modern analytical equipment. It should also be considered at this point to identify minor important items for laboratory use, such as pesticide calibration standards. The activity and quality is evaluated to be extremely dependent on these factors mentioned for co-operation.

3. The Lithuanian Institute of Agriculture has already been deeply involved in a basic PC-Plant Protection project in collaboration with DIAS the last 1½ years. LIA would like to continue and develop the scientific work with the DSS, also including the weed control part of PC-Plant Protection. LIA would also like to start on NEFRY projects, this will include the Internet-NEFRY and basic tests of the Danish NEFRY-programme. The first step will be to send an appropriate participant representing cereal diseases, potato diseases and weed control to a workshop planned to be held at Flakkebjerg from the 18th to the 20th March. At the workshop the Lithuanian researcher together with the Danish PC-P researchers will be able to discuss more exact project specifications.

4. The Plant Protection law includes a sprayer certificate, but test of spray equipment is not mentioned. Apparently there was no desire for co-operation in farmers education, but a strong wish for co-operation for testing of spray equipment ready for when this becomes obligatory in the new plant protection law. No detailed discussions of need were made. It is recommended to take contact with Lithuanian Institute of Agricultural Engineering regarding technical assistance.
Appendix 1:

Itinerary

Programme for Project Identification mission to Lithuania, week 8, 1998

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

Wednesday, February 18th:

21.15: Transport from airport to Lithuanian Institute of Agriculture, Kedainai

Thursday, February 19th:

11.00: Visit to the Lithuanian Institute of Agricultural Mechanisation, Kaunas
14.00: Visit to LIA Agrochemical Centre, Kaunas
16.30: Meeting and discussion with key persons at Lithuanian Institute of Agriculture, Kedainai (Director Zenonas Dabkevicius)

Friday, February 20th:

10.30: Visit to State Plant Protection Service, Vilnius
13.00: Visit to Joint Research Centre, Ministry of Environment, Vilnius
15.00: Meeting with people from Ministry of Agriculture and Ministry of Environment.
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Appendix II

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

Population:
Lithuania has a population of 3.700.000.
The average population density is about 58 persons/km².

Total area: 6.520.000ha.
Area of agricultural land (53,7% of total area) 3.500.000ha.
- Area of arable land (84% of agricultural land) 2.940.000ha.

In spite of processes of privatisation, almost one-third of the agricultural land (1.2 million ha) was farmed by 2000 agricultural companies (Bendrove) in 1997. Individual farms accounted for 34% of agricultural land, whereas small private household plots accounted for the rest.

Farm sizes (average) in Lithuania:
Individual farms: 8,4 ha.
Household plots: 2,1 ha.

Production:
Milk: 1.800.000t
Beef meat: 87.000t
Cereals: 2.500.000t
Pig meat: 93.000t

Agricultural partnerships dominate the production of grain (45%), and sugar beet (50%), and possess most cattle (60%) and pigs (54%). Household plots produce two-thirds of potatoes, 60% of vegetables and have 51% of dairy cows. Private farms hardly share in the livestock sector, but produce some 30% of arable crops.

Lithuania is self sufficient in many products, e.g. milk, beef meat and vegetables, but not for cereals and pig meat.

Approximate volume of pesticides use in Lithuania:
The amount of pesticides used in Lithuania was highest in the late eighties (around 10.000 tons annually). After independence the amount dropped to around 1,2 tons in 1994, but figures for 1995 and 1996 indicate that it has started to increase again.
Agriculture’s contribution to the Lithuanian economy:
The share of agriculture in the Gross Domestic Product has started to increase again after a sharp fall in the beginning of the transition period. In 1996 agriculture accounted for 11.4% of GDP compared to 9.4% in 1995. The number of people employed in agriculture is growing too, which is mainly due to the lack of alternative employment. The number has gone up from 18% of the total population in 1990 to 24% in 1995.

Sources: Papers distributed by The Lithuanian Institute of Agriculture