STANDARD SUMMARY PROJECT FICHE

1. Basic Information

1.1 CRIS Number: 2003-005-026.07.03

1.2 Title: Development of Plant Protection Products analyses in Estonian Control Center of Plant Production (CCPP)

1.3 Sector: Agriculture

1.4 Location: Estonia, Saku

2. Objectives

2.1 Overall objective:

EU requirements on determining the quality of plant protection products and plant protection products residues in plant materials, foodstuffs and soil fulfilled.

2.2 Project purpose:


2.3 Accession Partnership and NPAA priority:

NPAA 2002-2003

Plant health
The sector is regulated with the Plant Protection Act (in force since 2000) and its secondary legislative acts. Expertise carried out in 2001 and the amendments in the EU legislation cause the need to amend the majority of legislative acts of this sector in 2002.

Plant protection products
As a EU member state Estonia must be ready to fulfill the obligations deriving from the plant protection sector acquis. This would inter alia mean the capacity to assess the data (on safety of a products to human or animal health, environment, ground water, to analyze pesticide residues in products of plant and animal origin, etc) within the framework of EU assessment system of substances, as well as to assess the characteristics of certain plant protection product for registration under Estonian conditions.

In 2002 the amendment and improvement of the Plant Protection Act and its secondary legislative acts are planned to ensure the fulfillment of our obligations. The residues and contaminants laboratory of the CCPP performs the testing of residues and quality of plant protection products. The equipment of laboratory has been upgraded in previous years in the framework of the EU Phare project and enables by now to perform all
analyses for the monitoring of residues. Many testing methods of residues of plant protection products have been accredited.

In 2002 the accreditation is expanded by installation of new testing equipment to new matrixes. The full renovation of premises of residues and contaminants laboratory of the CCPP is started in 2002. The new liquid chromatograph will be procured for analyzing the quality of plant protection products, one additional specialist will be recruited. The training of specialists will be continued to increase the capacity and quality of results of the laboratory. The training is very important as new substances of plant protection products are introduced continuously and the testing methods also change.

**Accession Partnership**

Complete alignment of veterinary and phytosanitary legislation and up-grade inspection arrangements, with particular emphasis on improvement of laboratory capacity, with a view to fulfilling the obligations of control of domestic production and at future external borders.

### 3. Description

#### 3.1 Background and justification:

The project mainly relates to **EU directive 91/414**, which contains rules and regulations for the registration of plant protection products on the European market and defines the duties of member states in relation to these tasks. This directive describes the pesticide registration procedure which involves such matters as toxicological and ecotoxicological evaluation and risk assessment of plant protection products, handling and labelling of the products, et cetera.

Annex II Part 7, p.7.1.1.2.2. of 91/414/EEC concerning field studies, says that soil residue studies should provide estimates of the soil residue levels at harvest or at time of cowing or planting succeeding crops.

Annex VI p.2.5.1.1. of 91/414/EEC referred that Member State (MS) shall evaluate the possibility of plant protection products reaching the soil under the proposed conditions of use; if this possibility exists they shall estimate the rate and the route of degradation in the soil, the mobility in the soil and the change in the total concentration of the active substance and of relevant metabolites, degradation and reaction products that could be expected in the soil in the area of envisaged use after use of plant protection products according to the proposed conditions of use.

According to Annex VI p.2.5.1.2. and p.2.5.1.3. of 91/414/EEC, MS shall evaluate the possibility of the plant protection products reaching the groundwater and surface water under the proposed conditions of use; if this possibility exists, they shall estimate using a suitable calculation model validated at Community level, the concentration of the active substance and of relevant metabolites, degradation and reaction products that could be expected in the groundwater and surface water in the area of envisaged use after use of plant protection products according to the proposed conditions of use.

Further issues related to water and pesticide residues and environment are regulated by the directive 2000/60/EC (Water Framework).
DG (SANCO)/9188/VI/97 rev. 8/2000, Guidance document on persistence in soil, deals with persistence of active substances in plant protection products as well as, where they are relevant from the toxicological, ecotoxicological or environmental point of view, metabolites, breakdown or reaction products resulting from these active substances (According to Annexes II, III and VI of the Council Directive 91/414/EEC).

DG (SANCO)/825/00 rev.6, Guidance document on residue analytical methods attempts to provide guidance to Member State on possible interpretations of the provisions of section 4, part A of Annex III of Council Directive 91/414/EEC as amended by Commission Directive 96/46/EC which represents the minimum validation requirements for residue analytical methods:

3. Analytical methods for residues in soil (Annex IIA, Point 4.2.2)
Methods for highly phytotoxic compounds possibly demand highly sophisticated equipment to meet the required LOQ. Therefore techniques like LC-MS/MS, which are not considered as commonly available, can be accepted…/

EU directives 76/895/EEC, 86/362/EEC, 86/363/EEC, 90/642/EEC and 91/2092/EEC give the MRL-s (Maximum Residue Limits) for pesticide residues in cereals, fruits, vegetables, other products of plant origin and foodstuff of animal origin, as well as in organically grown plant products.

The use of crop protection products is related with potential risk on human health and environment. At the same time the use of crop protection products is frequently inevitable in common agriculture to ensure the producers with yield of high quality.

In Estonia, it is not allowed to import and use crop protection products before the parameters of thereof have been assessed and the respective products have been registered. In course of registration the producer shall declare the composition of the product, that is, the content of active ingredients, additives, foreign matter and contaminants, being one of the quality parameters of such products.

In Estonia it is the task of the Control Center of Plant Production, acting as supervisory institution, to see that the market is supplying high quality crop protection products that are in conformity with the parameters declared by producers. Pursuant to the provision prescribed by the EU Directive 91/414/EEC, enacting the procedures for admission to the market of crop protection products, constant surveillance over the application of the requirements for the registration of crop protection products, performed by competent authorities of the Member States, is requested.

Requirements on Estonian legislation on plant protection products arise mostly strictly from Acquis.

**Estonian Plant Protection Act referees:**

3. Control samples and analysis thereof

(2) Analyses shall be carried out in the laboratories, which are accredited according to the international requirements. /…/

3. Financing of ordering of analyses from laboratories of foreign states
Until entry into force of subsection 90 (2) of this Act with regard to laboratories located in Estonia, analyses may be carried out in other laboratories, or analyses may be ordered from laboratories, which are located in foreign states and are accredited according to the international requirements. In the future, analyses, which cannot be carried out in Estonia as required shall be ordered from foreign states. /…/

At the moment, there are no possibilities in Estonia to perform the formulation analysis on the crop protection products as Estonian laboratories including CCPP lack the respective analytical equipment. This will call the administrative capacity of Estonia as the future member state of the European Union to perform the surveillance over crop protection products within its territory into question.

Lacking of appropriate laboratory equipment, at the moment CCPP will determine only the activity substances, the total package of sample analyse includes determine of water content, emulsion stability, etc. Such analyses are long-term and will need specific equipment.

As the soil types in Estonia are very different and diversified all over the reference areas, great attention must be paid to the analysis of soil data. This is required to explain the impact of the different measures, implemented under the agri-environment measures, on the soil as an environmental resource. The condition of soil has also both the direct and indirect effect upon the water resources as plant nutrients, pesticides residues, etc. can be leached into water from soil.

The main beneficiary laboratories of CCPP are Laboratory for Residues and Contaminants (RCL) and Laboratory of Agrochemistry (ACL). The structural units of the Center are shown in Annex 7.

By the Decree of Estonian Control Center of Plant Production the main tasks and operation areas of the Center are:

/…/ testing of pesticides before registration for attestation of conformity, analysis of the control samples of crop protection chemicals; analyses of plant diseases and pests in control samples; /…/

Laboratory for Residues and Contaminants performs the laboratory analysis of the quality of pesticides, pesticide residues in fruit and vegetables, crop protection chemicals, the content of residues and contaminants in fodder, food products and soil, laboratory is also participating in corresponding monitoring programs. The level of analytical equipment of the lab has been improved significantly during past years with the assistance from the EU Phare project. This enables to cover most of testing methods in respect of monitoring of residues of plant protection products. The laboratory was accredited in March 2001 according to ISO 17025 standard. The accreditation covers many methods of analysing the residues of plant protection products. The improvement of quality system is continued and it is planned to accredit more testing methods and more matrices. The full renovation of premises of the Residues and Contaminants Laboratory started in May 2002.

The task of Laboratory of Agrochemistry is to determine the lime and fertilization requirements of soil, checking the quality of soil, fertilizers, growth substrates and compost. In the period September 2001 – May 2002 the renovation of Agro-Chemistry Laboratory of the CCPP was finished. The equipment of the lab was improved by
procurement of new mills for fertilisers and soil and new testing equipment. Preparatory work is about to be finished for accreditation of the lab according to ISO 17025.

Reference to increasing need for performing national surveillance analyses on pesticide residues is also mentioned in DG (SANCO)/8646/2002 from 8-12 July 2002 in order to evaluate food safety control (food hygiene, contaminants and pesticide residues. (See 3.5. Lessons learned).

Responsibilities for official control of pesticide residues in food and pesticide residues in plant materials and in soil, also control of plant protection products has been designated to Estonian Plant Production Inspectorate (PPI), Veterinary and Food Inspectorate (VFI) and Consumer Protection Inspectorate (CPI). Provider of official control analyses (pesticide residues in plant material and soil and pesticide quality analyses) is CCPP. CCPP has a contract with the PPI and VFI, CPI participates in national monitoring program.

The framework contract is further regulating the co-operation between CCPP and PPI in performing the tasks set to these institutions by legislation. The contract also includes number of controls PPI is entitled to order from CCPP. Currently there is not one laboratory in Estonia which could perform the soil and pesticide controls, PPI has to order relevant determination from abroad. As CCPP is indicated as provider of OFFICIAL control analyses, PPI will use CCPP for the analysis. The relevant indications can be added to the contract as soon as CCPP will be able to perform the tests as required.

CCPP will use the equipment for the analyses required by Estonian laws and after Estonia’s accession to EU according to EU directives and regulations. According to the statute commercial activities are not the task of CCPP.

The conclusion of the EC Food and Veterinary Office inspection mission (DG (SANCO)/8638/2002) to Estonia from 10 June to 14 June 2002 in order to assess the plant health control systems for harmful organisms and marketing and use of plant protection products referred that:

(6) the process of upgrading of the CCPP laboratories has to be completed, especially for the PPPs (plant protection products) formulation analyses. Extra training courses should be considered for staff.

The new equipments will enable to extend the amount of accredited analytical methods of pesticides by ISO Standard 17025.

Training needs
The practical implementation of Good Agricultural Practice and the production of agricultural commodities complying with the MRLs cannot be achieved without pesticides of good and constant quality. The use of products of inferior quality may result in non-compliance with Codex MRLs (Maximum Residue Limits) and may adversely affect the entire export of agricultural commodities of the country. The regulatory authority cannot make any efficient measure against the distribution and use of unregistered or low quality pesticide without an operational laboratory to monitor pesticide quality. Therefore, regular monitoring of the quality of pesticides is an integral
part of the regulatory system in many countries. Proper training of key staff is necessary in order to assure reliable operation and facilitate service training of further staff in CCPP.

According to current international requirements the laboratories should work in compliance with the principles of ISO Standard 17025.

As the results obtained by using any kind of analytical instrumentation are highly depended on the correct and meaningful set-up of instrument parameters one part of the training in frame of this project should be dedicated specially to these issues.

*Considering the nature of the project, no NGOs were consulted during the project preparation process. The project aims at institution building at the central government level and the NGOs are not seen as directly benefiting or having a role in the project's activities.*

3.2. Linked activities:

Phare project “Development of Phytosanitary Control Services; the investment component “Equipment for Development of Estonian Phytosanitary Control Services” (ES 9803.01.02; 2000-2001; 1,8 MEUR)” included the provision of equipment to the CCPP relevant to the needs of the new project. The overview of purchased equipment is added in the Annex 11.

FAO and IAEA training in Hungary (1 person from CCPP) in April 2001 “Testing the quality of commercial pesticide products”, objective of the training was to introduce the concept of multi-pesticide analytical procedures, advanced laboratory methodology, instrumental techniques used in the analysis of pesticide formulations and elements of quality control quality assurance of the analytical procedures and laboratory operations.

The training of specialists of the CCPP is continued to increase the capacity of laboratories and improve the quality of analyses, as the analytical equipment of labs is also upgraded and new testing methods introduced. The following cooperation projects are underway with the member states of the EU:

1 employee of the Residues and Contaminants Laboratory was trained for 3 weeks in Germany and 2 employees for 3 weeks in Norway in the framework of the Estonian-Danish cooperation project “Training of pesticide residue and heavy metal chemists from Estonia and Lithuania. Implementation of analytical equipment in Poland”.

In addition to training sessions carried out in the framework of cooperation projects the employees of the laboratories of the CCPP participated in the following training courses:

1 employee of the Residues and Contaminants Laboratory participated in 2-day training in Finland (new directions in chromatography);

Testing Chamber of the Tartu University organised two 4-hour training sessions on “Assessment of measuring uncertainty in chemical laboratories. Gas chromatography – practical aspects and assessment of measuring uncertainty. Basic courses.” All respective specialists of all laboratories participated in the course (altogether 20 persons).
World Bank loan No: 3983 EE for “Laboratory Equipment for Estonian Food and Veterinary Laboratories”. CCPP purchased double beam auto spectrometer and HPLC.

3.3 Results:


The project results are designed to collectively contribute to this purpose and the projected results are as follows:

1. **Contract 1 - Training**
The CCPP staff (2 persons) is trained to ensure reliable operation and facilitate service. General training is focused to develop the new laboratory to fulfill the gaps in plant protection products analyses to meet the EU requirements.

2. **Contract 2 – Laboratory equipment and training**
CCPP has the necessary laboratory equipment and staff (8 persons) is trained for:
- Pesticide quality analyses on the level required by EU
- Pesticide residue analyses on the level required by EU
- Soil analyses in the level required by EU

3.4 Activities:
1. **Contract 1 – General training, (Phare 22 000 EUR, Estonia 3 500 EUR incl. 1 000 EUR for international travelling costs and 2 500 for publications)**
   Training for 2 persons from CCPP for 21 calendar days

   As CCPP is establishing new laboratory for plant protection products quality analyses, general training in a Member State’s relevant laboratory on requirements for this type of analyses is needed. At the moment one person in CCPP have been qualified in similar field but that is not sufficient for organizing new laboratory system. Trained persons will be eligible for qualifying other staff in CCPP.

   The training in an EU Member State laboratory should be on the concept of multi-pesticide analytical procedures, advanced laboratory methodology, instrumental techniques used in the analyses of pesticide formulations and elements of quality control, quality assurance of the analytical procedures and laboratory operations.

   The program should comprise of theory explaining the principles and related theory of operation. The theoretical training should be complemented with extensive laboratory exercises and procurement of necessary publications (CIPAC Handbooks, The Pesticide Manual, Library of Mass Spectra of Environmental Standards etc.). The procurement of publications will be financed by Estonian co-financing.

   The cost is calculated on the basis of previous experience and preliminary market research and bids from companies providing this kind of training. As Phare tendering procedures will be used, the best offer will be taken.

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1 All the results are measurable. For indicators of achievement see Annex 1.
2. Contract 2 - Laboratory equipment and training (Phare 673 300 EUR, Estonia 225 000 EUR)

Procurement of necessary laboratory equipment for pesticides quality analyses, pesticide residue analyses in soil and water and for soil and water analyses. For feasibility study see Annex 4. For the list of equipment already existing in CCPP see annexes 11 and 12.

According to the feasibility study, CCPP lacks the following equipment that will be procured in the frame of this project:

<table>
<thead>
<tr>
<th>No</th>
<th>Laboratory equipment</th>
<th>No of equipment</th>
<th>Price EURO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gas chromatograph (GC) with ECD and NPD detectors</td>
<td>2</td>
<td>94 000</td>
</tr>
<tr>
<td>2.</td>
<td>Gas chromatograph (GC) with MSD and FID detectors</td>
<td>1</td>
<td>76 000</td>
</tr>
<tr>
<td>3.</td>
<td>Liquid chromatograph LC-MS</td>
<td>1</td>
<td>172 000</td>
</tr>
<tr>
<td>4.</td>
<td>LC-MS/MS chromatograph</td>
<td>1</td>
<td>223 000</td>
</tr>
<tr>
<td>5.</td>
<td>FTIR-Spectrometer</td>
<td>1</td>
<td>90 000</td>
</tr>
<tr>
<td>6.</td>
<td>X-ray fluorescence spectrometer</td>
<td>1</td>
<td>60 000</td>
</tr>
<tr>
<td>7.</td>
<td>Particle size laser analyser</td>
<td>1</td>
<td>47 000</td>
</tr>
<tr>
<td>8.</td>
<td>Microwave decomposition system for wet digestion</td>
<td>1</td>
<td>33 000</td>
</tr>
<tr>
<td>9.</td>
<td>Automated solvent extraction</td>
<td>1</td>
<td>59 300</td>
</tr>
<tr>
<td>10.</td>
<td>Ultrasonic cleaner (bath)</td>
<td>2</td>
<td>2 500</td>
</tr>
<tr>
<td>11.</td>
<td>Laboratory density meter</td>
<td>1</td>
<td>5 500</td>
</tr>
<tr>
<td>12.</td>
<td>Equipment for processing monitoring data</td>
<td>3</td>
<td>6 000</td>
</tr>
</tbody>
</table>

TOTAL: 868 300

Providers of the equipment are obligated to take care of the technical assistance for 32 calendar days (service contract, including 12 training courses for instrument operators in order to ensure efficient use of new sophisticated equipment.

These courses have to be focused on the following two aspects:

- **Instrument manipulation and operation** enabling operators to use instrument and its possibilities as efficiently as possible (training for 4 persons – 14 000€).

The training is included within the equipment tender as it is absolutely necessary to be able to efficiently use the equipment. The producer itself will provide training and set-up and development of analytical methods regarding specific needs of equipment.

The cost is calculated on the basis of previous experience and preliminary market research and bids from companies providing this kind of training. As Phare tendering procedures will be used, the best offer will be taken.

The courses must consist theoretical as well as practical sessions and also include an introduction to the instrument configuration and principles of operation. The courses should cover instrument operation, data acquisition and handling, data calculation and reporting. As the result of these courses the participants should get expert skills how to operate the particular instrument.

The courses could be arranged as follows:
1. GC-, ECD, NPD 1 person 3-4 days
2. GC-MS, FID 1 person 3-4 days
3. LC-MS 1 person 3-4 days
4. LC-MS/MS 1 person 3-4 days
5. Particle size laser analyzer 1 person 3-4 days
6. X-ray fluorescence spectrometer 1 person 3-4 days
7. FTIR- spectrometer 1 person 3-4 days

- **Set-up and development of analytical methods** (training for 4 persons – 16 000€).

The training should concentrate on method development and optimization for determination of pesticide formulation, pesticide residues, trace elements, pesticide residues in soil and water as well as interpretation of analytical data.

Within the frames of these courses the trainees should study the basic principles of setting up the analytical method on particular instrument in case of different analytical tasks, what are the recent developments etc. Those courses should have theoretical as well as hands-on sessions. As the result of these courses the participants should get a sound basis for method development and optimization.

The courses could be arranged as follows:
1. GC- ECD, NPD 1 person 2-4 days
2. GC-MS, FID 1 person 2-4 days
3. LC-MS 1 person 2-4 days
4. LC-MS/MS 1 person 2-4 days
5. Particle size laser analyzer 1 person 2-4 days
6. X-ray fluorescence spectrometer 1 person 2-4 days
7. FTIR- spectrometer 1 person 2-4 days

3.5 Lessons learned:

The Annual Assessment Report R/ES/AGR/99031 suggested that project activities should be implemented in a logical sequence and designed to optimise the benefits of the activities. All Phare activities in Ministry of Agriculture are in accordance with long-term priorities of Development Strategy for Estonian Agriculture.

On general management the last Interim Evaluation Report No. IE.EE.AGR.02.043 prepared by EMS Estonia stated the following recommendations:
Chapter 4 Recommendation 4.1.7 In relation to the overall management of Phare assistance in the agriculture sector the National Aid-Co-ordinator, the Ministry of Agriculture and the agencies underneath it are recommended to consider the following:

The Ministry of Agriculture should introduce closer and more formal monitoring of all projects and alert the Ministry of Finance and the EC Delegation of any inconsistencies in their implementation. Immediate action should be taken, if necessary, to re-allocate funds within the project budget and within the Programme. Fully accepted.

The Ministry of Agriculture and the Ministry of Finance should enforce the contingency of Phare assistance concerning co-operation of the agencies in the agriculture sector to ensure regular and efficient information exchange, prevent the misunderstandings and time loss.
The co-operation between the agencies of agricultural sector is regulated in line with legislation. Still the more formal steering group procedure will be used for project monitoring. The Ministry of Agriculture should review the existing system of Phare/EU assistance programming, management co-ordination and monitoring. The Ministry should take stronger ownership of the remaining Phare assistance to avoid critical slippage that may hinder Estonia’s progress towards meeting its accession negotiation commitments. More staff should be directly charged with these functions. The Phare co-ordinator needs a clear, written Terms of Reference from the Chancellor, which fully set out his remit. Concerning the Phare project management the lines of responsibilities are determined by official work descriptions in Ministry of Agriculture. One person is nominated to act as PO in the whole agricultural sector. Two additional persons were included in Phare team dealing with project management and communicating directly with project managers.

Project ES 9803.01.02 showed that there are still gaps in the field of pesticide control and soil contamination that should be filled up.

Need for relevant equipment and training, have been assessed by following EU Missions and visits of experts:

- DG (SANCO)/825/00 rev.6, Guidance document on residue analytical methods /.../ 3. Analytical methods for residues in soil (Annex IIA, Point 4.2.2) Methods for highly phytotoxic compounds possibly demand highly sophisticated equipment to meet the required LOQ. Therefore techniques like LC-MS/MS, which are not considered as commonly available, can be accepted.
- DG (SANCO)/3420/2001 Report of Mission carried out in Estonia from 24 to 28 September 2001 in order to evaluate the application of production rules and the effectiveness of inspection measures in organic farming
- DG (SANCO)/3433/2001 Final Report of a Mission carried out in Estonia from 15.10.2001 – 19.10.2001 in order to make a general assessment of food safety controls and the readiness of Estonia to meet EU Food Safety Standards
- DG (SANCO)/8638/2002 Final Report of a Mission carried out in Estonia from 10.06.2002 to 14.06.2002 in order to assess the plant health control system for harmful organisms and the marketing and use of plant protection products
- DG (SANCO)/8646/2002 Final Report of Mission carried out in Estonia from 8.-12.07.2002 in order to evaluate food safety controls (food hygiene, contaminants and pesticide residues) /.../(3)The competent authorities should improve horizontal co-ordination between the competent services, in particular in the annual planning of official control and in the collation of data concerning the official control of foodstuff for food hygiene, contaminants, and pesticide residues.

(4)The level of sampling, which has fallen markedly in the last year, should be increased to level, which will ensure adequate consumer protection. In particular the competent authorities should plan for sampling of Pesticide residues in food of non-animal origin taking account of main food groups consumed in Estonia. /.../

4. Institutional Framework:
The Ministry of Agriculture (MoA) will be the Estonian coordinator of the project. By statute of the MoA, the Phytosanitary Bureau will carry responsibility for the project theme. The Ministry of Agriculture will be responsible for the overall technical implementation of the project. Tendering and contracting will be carried by the CFCU in Estonia.

CCPP is a state agency within the jurisdiction of the Ministry of Agriculture, administrated by the Ministry.

The main tasks of the Center in course of performing the analysis and field trials required for national surveillance, arising from legislation, in force in Estonia, are:

1) performance of registration and economic tests on varieties to be added to the List of Varieties; performance of ex post tests on batches of seed; laboratory analysis of the seeds for seed certification and duplicate samples;
2) testing of crop protection chemicals (pesticides) before the products are registered for attestation of conformity, analysis of the control samples of crop protection chemicals; analyses of plant diseases and pests in control samples
3) attestation of conformity of fertilisers, analysis of control samples;
4) attestation of conformity of fodder/feedstuff, analysis of control samples;
5) analysis of food control samples.

Structural units and the main tasks and operating areas of CCPP are shown in Annexes 7 and 8.

CCPP as the public body under the MoA will be able to deliver needed list of equipment to the expert for the preparation of the technical specifications for the equipment. Owner of the purchased laboratory equipment will be CCPP. The beneficiary laboratories of CCPP are Laboratory for Residues and Contaminants and Laboratory of Agrochemistry.

The task of Laboratory of Agrochemistry (ACL) is to determine the lime and fertilization requirements of soil, checking the quality of soil, fertilizers, growth substrates and compost.

Laboratory for Residues and Contaminants (RCL) performs the laboratory analysis of the quality of pesticides, pesticide residues in fruit and vegetables, cereal protection chemicals, the content of residues and contaminants in fodder, food products and soil, laboratory is also participating in corresponding monitoring programs.

During 2002, Laboratory for Residues and Contaminants determined 400 samples of plant protection products residues and some active substances of which 185 samples were requested by the Plant Production Inspectorate (PPI). Prognoses for 2003 is 600 samples in total, of which 170 samples are requested by PPI and 200 samples by FVB.

Purchased equipment will be divided in CCPP as follows:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Laboratory in CCPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gas chromatograph (GC) with ECD and NPD detectors</td>
<td>RCL</td>
</tr>
<tr>
<td>2. Gas chromatograph (GC) with MSD and FID detectors</td>
<td>RCL</td>
</tr>
<tr>
<td>3. Liquid chromatograph LC-MS</td>
<td>RCL</td>
</tr>
<tr>
<td>4. LC-MS/MS chromatograph</td>
<td>RCL</td>
</tr>
<tr>
<td>5. FTIR-Spectrometer</td>
<td>RCL</td>
</tr>
</tbody>
</table>
6. X-ray fluorescence spectrometer
7. Particle size laser analyser
8. Microwave decomposition system for wet digestion
9. Automated solvent extraction
10. Ultrasonic cleaner (bath)
11. Laboratory density meter
12. Equipment for processing monitoring data

PPI is a government institution in the area of government of the Ministry of Agriculture responsible for official inspection and applying the enforcement powers of the state on the basis of and within the limits provided for by the laws.

The field of activity of the PPI is the official inspection of plant health at the customs border and within the territory of the Republic, control of plants and plant products, production and importation of plants and plant products, certification and control of seeds and plant propagating material, registration of varieties and variety protection, official inspection of production, processing, importation and marketing of seeds, plant propagating material, fertilisers and feedstuffs, registration of plant protection products and supervision of marketing and use of plant protection products, control of quality requirements of horticultural products on the spot of production and in wholesale enterprises, and official inspection of organic production and importation of products indicated as being organic products of plant origin. PPI participates in the inspection of veracity of data submitted in the applications for income support.

The CCPP is responsible for providing the Estonian Plant Production Inspectorate with laboratory analyses and field tests. CCPP has a contract with the PPI to provide plant protection products residues analyses. Special allocations for procurement of laboratory services were for the first time in the 2001 state budget of the PPI, for procurement of analyses not carried out by the CCPP or to be procured as reference analyses from abroad.

As formulation analyses can’t be carried out in Estonia, PPI has ordered necessary sample analyses from foreign state laboratories.

The framework contract between CCPP and PPI is further regulating the co-operation between CCPP and PPI in performing the tasks set to these institutions by legislation. The contract also includes number of controls PPI is entitled to order from CCPP. Currently there is not one laboratory in Estonia which could perform the soil and pesticide controls, PPI has to order relevant determination from abroad. As CCPP is indicated as provider of OFFICIAL control analyses, PPI will use CCPP for the analysis. The relevant indications can be added to the contract as soon as CCPP will be able to perform the tests as required.

CCPP will use the equipment for the analyses required by Estonian laws and after Estonia’s accession to EU according to EU directives and regulations. According to the statute commercial activities are not the task of CCPP.

Co-operation between CCPP and PPI in the field of pesticide and pesticide residue analyses is shown in Annex 10.

For better understanding of administration of pesticide and pesticide residue analyses in Estonia see Annex 9.
5. **Detailed Budget (€)**

<table>
<thead>
<tr>
<th></th>
<th>Phare support Investments (I)</th>
<th>Institution Building (IB)</th>
<th>Total Phare Co-financing</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contract 1 – General training (Service)</strong></td>
<td>22 000</td>
<td>22 000</td>
<td>3500</td>
<td>25 500</td>
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<tr>
<td>The operation and facilitate service training</td>
<td>22 000</td>
<td>22 000</td>
<td></td>
<td>22 000</td>
</tr>
<tr>
<td>International transportation costs</td>
<td></td>
<td>1 000</td>
<td>1 000</td>
<td></td>
</tr>
<tr>
<td>Publications</td>
<td>2 500</td>
<td></td>
<td>2 500</td>
<td></td>
</tr>
<tr>
<td><strong>Contract 2 – Laboratory equipment and training</strong></td>
<td>643 300</td>
<td>30 000</td>
<td>673 300</td>
<td>898 300</td>
</tr>
<tr>
<td>Laboratory equipment for pesticides quality analyses, pesticide residue analyses in soil and water</td>
<td>643 300</td>
<td>643 300</td>
<td>225 000</td>
<td>868 300</td>
</tr>
<tr>
<td>Instrument manipulation and operation,</td>
<td>14 000</td>
<td>14 000</td>
<td></td>
<td>14 000</td>
</tr>
<tr>
<td>Set-up and development of analytical methods</td>
<td>16 000</td>
<td>16 000</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>643 300</td>
<td>52 000</td>
<td>695 300</td>
<td>228 500</td>
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</tbody>
</table>

The amounts for co-financing indicated in the table correspond to cash co-financing. In addition, in-kind contributions from the Estonian administration for a good implementation of the technical assistance may be developed in the technical specifications.

The co-financing expenses will be monitored by the beneficiary and the NAO. For the earmarked co-finance, a clear and verifiable set of costs will be provided. The beneficiary will define which budget lines are the source for co-finance. Flow and stock data on co-finance will be submitted quarterly for steering committees, twice a year to the Sector Monitoring Working Group.

The beneficiary together with the NAO commits to sound financial management and financial control.

National co-financing is foreseen in the CCPP 2004 budget line for co-financing foreign projects. Contract 1 – national parallel co-financing of 1 000 EUR is foreseen to cover the expenses on international transportation costs of CCPP staff to Member State’s laboratory and
2500 EUR on procurement of necessary publications. Contract 2 – national joint co-financing of 225 000EUR will be used for procuring laboratory equipment.

6. Implementation Arrangements

6.1 Implementing Agency

The CFCU of the Ministry of Finance is the implementing agency responsible for tendering, contracting and payments. Responsibility for technical preparation, implementation and control will remain with the Ministry of Agriculture.

**PAO:**
Mr Renaldo Mändmets  
Deputy Secretary General  
Ministry of Finance  
Suur-Ameerika 1, Tallinn  
Ph +372 6113 545  
raldo.mandmets@fin.ee

**PO:**
Mr Olavi Petron  
Deputy Head of the Department of Public and Foreign Affairs  
Ministry of Agriculture  
Lai 39/41, Tallinn  
Ph +372 6256 255  
olavi.petron@agri.ee

**Project manager:**
Ms Merike Toome  
Laboratory for Residues and Contaminants, Quality Manager  
Teaduse 6  
Saku 75501  
Harju maakond  
Ph +372 672 9125  
merike.toome@tmkk.ee

The MoA will be responsible for overall co-ordination of the project. Project implementation will take place in the CCPP.

A Steering Committee will be established consisting of representatives of the MoA, PPI, Ministry of Finance, EC Delegation, CCPP and CFCU. Main function of the Steering Committee is to ensure the surveillance of the project.

6.1. Twinning:

Twinning is not foreseen.

6. 3. Non-standard aspects

No no-standard aspects are foreseen. The PRAG will strictly be followed.
6.4. Phare Contracts:

The total number of contracts is expected to be 2:

<table>
<thead>
<tr>
<th>No.</th>
<th>Contracts</th>
<th>Contract type</th>
<th>EURO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Training</td>
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<td>22 000</td>
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<tr>
<td>2.</td>
<td>Laboratory equipment and training 673300 from Phare, 225000 joint co-financing</td>
<td>Supply</td>
<td>898300</td>
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<td></td>
<td>Total Phare support:</td>
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<td>695 300</td>
</tr>
</tbody>
</table>

7. Implementation Schedule

7.2. Start of project activities - November 2003
7.3. Project Completion - May 2004

8. Equal Opportunity

During implementation of the project there will be no discrimination on the grounds of race, sex, sexual orientation, mother tongue, religion, political or other opinion, national or social origin, birth or other status. Equal opportunities for women, men and minorities will be ensured by the Steering Committee during the implementation of the project. The Estonian laws and regulations concerning the equal opportunities for women, men and minorities will strictly be followed. Equal opportunity for men and women to participate in the project will be measured by recording the experts and consultants employed.

9. Environment

Environmental issues can be considered in the widest sense – with the improvement of laboratories of CCPP the effect on the environment will be achieved through the better fulfilment of requirements.

10. Rates of return

The feasibility study and preparation of the technical specification for purchase of equipment for quality testing of pesticides took place in March 2003 and was carried out in the Estonian Control Centre for Plant Production (CCPP), located in Saku. Feasibility study was carried out by Sibylle Mueller. For more details please see Annex 4

Summary of feasibility study:

“CCPP needs some additional investment to update the laboratory facilities required for sample analysis. It will enable the CCPP to put into effect the EU directives concerning the registration of plant protection products on the European market and help fulfil the duties of member states in relation to these tasks.”
The approximate costs for the purchase and procurement of laboratory equipment are realistic. The specialists of CCPP have got acquainted with the relevant equipment in other countries (Denmark, Hungary). The evaluation has been made on the basis of enquiries made to some manufacturers of equipment needed (Hewlett Packard, Dionex, Waters etc). The experience of former procurement for CCPP in frames of PHARE project has also been very useful.”

Cost-effectiveness:

The announced price of 1 analyze of pesticide formulation in Denmark (EUR 2564.-) includes everything starting from sample preparation (excl. transportation cost) to final report (it includes also the required number of determination and repeated determinations etc). Under these circumstances we will return our investment to equipment (~ EUR 900 000.-) within 360 analyses, which is almost equal to the predicted amount samples in 4 years.

In addition to the formulation analysis this instrumentation is used also for the analyses of pesticide residues in soil and plant material. The total number of these analyses is about 1500 in year (1000 soil and 500 plant material). The price of these analyses is usually higher as it includes more determinations and the sample preparation is much more expensive than formulation analysis.

The pesticide formulation analysis usually requires one or two determination for one sample (we only need to study the content of main component and look for main impurities); for the analysis of pesticide residues in soil and plant we are using the multi-method, which enables to determine about 130 different pesticides in one analysis. However, this is only a screening method and any positive result requires an additional conformation using the more dedicated analytical method, like GC/MS, LC/MS and LC/MS/MS. This means that if the lab receives 1000 samples the minimum number analyses is also at least 1000.

Coming back to the cost effectiveness and return of investment we can make the following estimations:

Investment to the equipment is approximately EUR 900 000. Average life-time of the modern equipment is 8-9 years, which means that our annual calculated investment to the equipment is about EUR 100 000.- (assuming that the residual value of the equipment is 0).

Our calculated cost for 1 analyses of pesticide formulation is EUR 480.-.

Doing 100 formulation analysis in year here will cost 48 000 + 100 000 = 148 000 EUR

Outsourcing these 100 formulation analysis from Denmark will cost us 256 400 EUR. It means that counting only on formulation analysis we could save around EUR 100 000 in year.

Our calculated costs for 1 analyses of pesticide residues in soil and plant is EUR 575.-

Doing 100 formulation analyses and 1500 analyses of pesticide residues in soil and plants will cost us 48 000 + 862 500 + 100 000 = EUR 1 010 500.-

Doing the same number of analysis in Denmark (assuming that the price of all analysis is EUR 2564) will cost us EUR 4 102 400.-
Currently we are not performing pesticide formulation analysis and analyses of pesticide residues in soil at all. According to the requirements (EU directive 91/414/EEC) we must start with these analyses as soon as possible.

The major benefit is also the sustainable utilization of natural resources and protection of the environment.

11. **Investment criteria**

11.1. Catalytic effect:

Phare support is essential for upgrading the laboratory basis to the level acceptable to the EU.

11.2. Co-financing:

Phare funds will be supplemented by 2004 Estonian State budget funds. Estonia will co-finance the purchasing of equipment for the laboratory system and training in the framework of the project with 228 500 EUR.

11.3. Additionality:

Not applicable as this is state institution and no private investments are foreseen (relevant). Phare support does not replace other financiers.

11.4. Project readiness and Size:

The project will be ready for implementation as soon as funds are available. Total project size is 923 800 EUR.

11.5 Sustainability:

The project will be sustainable, as Estonia has undertaken to adopt the EU Common Agricultural Policy without reservation. All maintenance costs of the equipment shall be borne by national resources.

11.6. Compliance with state aids provisions:

State aid is regulated by Estonian Competition Law, which is harmonised and in compliance with European Union regulations\(^2\). All state aid provisions deriving from

the Estonian Competition Law will strictly be followed during the implementation of the project.

CCPP is acting according to the statute confirmed with the decree of Minister of Agriculture nr 51 issued on 23rd July 2001 (RTL 2001, 96, 1326). Commercial activities are not the task of CCPP and the equipment will be used only for the tests required by the legislation.

11.7. Contribution to National Development Plan:

Not applicable

12. **Conditionality and sequencing**

**Sequencing**
Activities to be carried out before the commencement of the project:

1. Government of Estonia will foresee funds from 2004 budget;
2. Preparation of detailed project documentation by CCPP;
3. Feasibility study completed by March 2003;
ANNEXES TO PROJECT FICHE

1. Logical framework matrix
2. Time implementation chart
3. Contracting and disbursement schedule by quarter
4. Reference to feasibility/pre-feasibility studies
5. List of relevant Laws and Regulations
6. Reference to relevant Government Strategic plans and studies
7. Structural units of CCPP
8. Main tasks and operating areas, and structural units of the CCPP
9. Administration of pesticide and pesticide residue analyses in Estonia
10. Cooperation between CCPP and PPI in the field of pesticide and pesticide residue analyses
11. Overview of purchased equipment supported by Phare project ES 9803.01.02
12. Overview of the laboratory equipments in CCPP (including Phare project ES 9803.01.02 equipments)
13. Specification for the project (indicative list)
# LOGICAL FRAMEWORK

## LOGFRAME PLANNING MATRIX FOR

### Project title:

**Development of Plant Production Products analyses in Estonian Control Center of Plant Protection**

<table>
<thead>
<tr>
<th>Overall objective</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
</tr>
</thead>
</table>

### Project purpose


<table>
<thead>
<tr>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticides analyses, pesticide residue analyses, soil and water analyses are implemented in accordance with EU directives by June 2004</td>
<td>1. Annual Report by CCPP 2. Project reports</td>
<td></td>
</tr>
</tbody>
</table>

### Results

**Contract 1**

**General training.** The CCPP staff (2 persons) is trained to assure reliable operation and facilitate service. General training is focused to develop the new laboratory to fulfill the gaps in plant protection products analyses to meet the EU requirements.

**Contract 2**

CCPP has the necessary laboratory equipment and stuff is trained for:

- Pesticide quality analyses in the level required by EU
- Pesticide residue analyses on the level required by EU
- Soil analyses in the level required by EU

<table>
<thead>
<tr>
<th>Assumptions</th>
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<tbody>
<tr>
<td>• Necessary staff available for training</td>
<td></td>
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</tbody>
</table>

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3 Dibursement period expires 3 years after the Financing Memorandum is signed.
<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Cost (€)</th>
<th>Assumptions</th>
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</thead>
<tbody>
<tr>
<td><strong>Contract 1</strong>&lt;br&gt;General training&lt;br&gt;Training for 2 persons from CCPP for 21 calendar days&lt;br&gt;The training in an EU Member State laboratory should be on the concept of multi-pesticide analytical procedures, advanced laboratory methodology, instrumental techniques used in the analyses of pesticide formulations and elements of quality control, quality assurance of the analytical procedures and laboratory operations. The program should comprise of theory explaining the principles and related theory of operation. The theoretical training should be complemented with extensive laboratory exercises and procurement of necessary publications (CIPAC Handbooks, The Pesticide Manual, Library of Mass Spectra of Environmental Standards etc.).</td>
<td><strong>Contract 1</strong>&lt;br&gt;Service contract for training of laboratory staff. International transportation costs&lt;br&gt;Publications</td>
<td><strong>Phare</strong>&lt;br&gt;22 000&lt;br&gt;22 000</td>
<td><strong>Estonia</strong>&lt;br&gt;3 500&lt;br&gt;1 000&lt;br&gt;2 500</td>
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<tr>
<td><strong>Contract 2</strong>&lt;br&gt;Laboratory equipment and training&lt;br&gt;Procurement of necessary laboratory equipment for pesticides quality analyses, pesticide residue analyses in soil and water and for soil and water analyses. Providers of the equipment are obligated to take care of the technical assistance for 32 calendar days, including 12 training courses for instrument operators in order to ensure efficient use of new sophisticated equipment. Training should be provided also in&lt;br&gt;* Instrument manipulation and operation&lt;br&gt;* set-up and development of analytical methods</td>
<td><strong>Contract 2</strong>&lt;br&gt;Laboratory equipment for&lt;br&gt;pesticides quality analyses, pesticide residue analyses in soil and water&lt;br&gt;Instrument manipulation and operation, Set-up and development of analytical methods</td>
<td>673 300&lt;br&gt;643 000&lt;br&gt;14 000&lt;br&gt;16 000&lt;br&gt;Total: 695 300</td>
<td>225 000&lt;br&gt;225 000</td>
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<td>Preconditions</td>
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<tr>
<td>1. Government of Estonia will foresee funds from 2004 budget</td>
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</table>
## TIME IMPLEMENTATION CHART

**Project N°: ES**  
**Project Title:** Development of Plant Protection Products analyses in CCPP

<table>
<thead>
<tr>
<th>Contract 1</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
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<td>Contract 2</td>
<td>2003</td>
<td>2004</td>
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<tr>
<td>Laboratory equipment and training</td>
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| Contract 2 | 2003 | 2004 | 2005 |
| Laboratory equipment and training | | T | T |
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| | | I | I |
### CUMULATIVE CONTRACTING SCHEDULE (by quarters)  
**ANNEX 3a**

<table>
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### CUMULATIVE DISBURSEMENT SCHEDULE (by quarters)  
**ANNEX 3b**

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</table>
REFERENCE TO FEASIBILITY STUDY

Project N°: ES
Project title: Development of Plant Protection Products analyses in CCPP

The feasibility study and preparation of the technical specification for purchase of equipment for quality testing of pesticides took place in March 2003 and was carried out in the Estonian Control Centre for Plant Production (CCPP), located in Saku. Feasibility study was carried out by Sibylle Mueller.

The main problems according to feasibility study are:

- At the moment, there are no possibilities in Estonia to perform the formulation analysis on the crop protection products as the CCPP lacks the respective analytical equipment. This will put the administrative capacity of Estonia as the future member state of the EU to perform the surveillance over crop protection products within its territory into question.

Lacking of appropriate laboratory equipment, at the moment CCPP will determine only the activity substances, the total package of sample analyse includes determination of water content, emulsion stability, etc. Such analyses are time consuming and will need specific equipment. Furthermore - determination of only abovementioned parameters is insufficient for full characterization of substances.

- A monitoring program of soils was started in Estonia in 2002 and great attention has to be paid to the acquisition of the reliable analytical data as well of the pesticide residues as of the pesticide quality. The concentration levels of pesticide residues being very low calls for the very sensitive analytical equipment such as LC-MC/MS.

- Laboratories of residues and contaminants and of agrochemistry are accredited to EN ISO/IEC 17025. The accreditation covers many methods of analyses for residues of plant protection products but not all of them, because quite a lot of pesticide residues, such as glyphosate and its metabolites, N-methylcarbamates etc, widely used in Estonia, can’t be analysed on GC. Pesticides of this kind could be analysed on LC/MS.

As an official control institution there will be in the nearest future a requirement for more extensive accreditation, covering the majority of the tests undertaken. This will increase the pressure for the laboratory to be equipped to a high standard.

- As Estonia becomes a member of the enlarged European Union, the monitoring of food, feed and plant materials crossing the border into Estonia from the third countries will be of increasing importance. For this reason the equipment of the laboratory needs to be upgraded, to ensure that it is capable of monitoring products for compliance against the many EU Directives.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Determination</th>
<th>Throughput in 2003</th>
<th>Throughput in 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC-ECD/NPD</td>
<td>pesticide residues in food &amp; feedstuff</td>
<td>400</td>
<td>700</td>
</tr>
<tr>
<td>GC-FID/MSD</td>
<td>pesticide residues in food &amp; feedstuff</td>
<td>400</td>
<td>700</td>
</tr>
</tbody>
</table>
Conclusions of the feasibility study:

- The process of upgrading of the CCPP laboratories has to be completed, especially for the plant protection products formulation analyses and analyses needed for monitoring of pesticide residues in soil.

- LC-MS and LC-MS/MS are needed both for pesticide residues and pesticide quality analyses in plant material, soil and water.

- For pesticide residue analyse in the frames of soil monitoring program acquisition of LC-MS/MS is highly recommendable as the residues concentration levels in soil are very low.

- In Estonia over 100 pesticides are officially registered. Pesticide quality analysis on old GC TSVET-100 with packed column enables to determine only some twenty active substances whereby the need is surpassing a hundred. That means that in lack of equipment the laboratory cannot analyse most of pesticide formulas.

- According to the international rules (Collaborative International Pesticides Council) for pesticides quality testing there must be separate equipment and separate laboratory rooms to avoid cross-contamination, column and detector poisoning. That calls for acquisition of separate facilities for residue and quality analyses of pesticides.

- As CCPP is establishing new laboratory for plant protection products quality analyses, general training in Member State’s relevant laboratory on requirements for this type of analyses is needed.

- The new equipment will enable to extend the amount of accredited methods of pesticides by EN ISO/IEC 17025.
As to the alternative solutions for pesticides quality determination some experimental techniques are listed below:

- Extraction and titrimetric determination. The method is simple and inexpensive but it can only be used for analysis of some individual components in limited concentration ranges. If a mixture of compounds and numerous congeners has to be analysed it has no selectivity. The method is time consuming, the results of analyse are unreliable and have poor repeatability.

- Thin-layer-chromatography (TLC) after extraction. The method has better selectivity but is very unreliable in quantitative analysis (deviations in recoveries by the extractions are causing big mistakes, estimation of concentrations by sight is very subjective).

Both procedures mentioned above were researched in CCPP but neither positive result nor reliable and repeatable data was achieved.

- FT-Raman method has some advantages in comparison to the titrimetric and TLC determinations: low analysis time, improved calibration stability by using external standards. But the method is not applicable for the analysis of all the required compounds.

- Ordering analytical services from foreign laboratories. Preliminary calculation of price for pesticide formulation determination in CCPP has given an approximate price of 7500.-EEK (480 €) for a complete formulation analyse. Some price inquiries have been made to the laboratories of Denmark, Finland, Slovakia and Canada which are performing the same kind of analyses as CCPP. The only suitable laboratory of the inquired ones seemed to be the Danish National Environmental Research Institute (NERI), where all the same groups of compounds were being analysed on the same kind of equipment and the yearly throughput was also 100 determinations, as it was planned to be in CCPP. One complete pesticide formulation analyse in NERI costs 40000.-EEK (2564 €) that is about 5 times higher than in Estonia. Additional costs for dispatching of the samples have also to be taken into account. A further disadvantage would be the loss of time. So the ordering of analysis is evidently uneconomic.

CCPP needs some additional investment to update the laboratory facilities required for sample analysis. It will enable the CCPP to put into effect the EU directives concerning the registration of plant protection products on the European market and help fulfil the duties of member states in relation to these tasks.

The approximate costs for the purchase and procurement of laboratory equipment are realistic. The specialists of CCPP have got acquainted with the relevant equipment in other countries (Denmark, Hungary). The evaluation has been made on the basis of enquiries made to some manufacturers of equipment needed (Hewlett Packard, Dionex, Waters etc). The experience of former procurement for CCPP in frames of PHARE project has also been very useful.
LIST OF RELEVANT LAWS AND REGULATIONS

Project N°: ES
Project title: Development of Plant Protection Products analyses in CCPP

Plant Protection Act (RT I 2000, 29, 169)

Chemical Act (RT I 1998, 47, 697)

Food Act (RT I 1999, 30, 415)

Organic Agriculture Act (RT I 2001, 42, 235)


Fertilizers Act (RT I 1997, 93, 1563; 2001, 50, 283)


"The Code of Good Agricultural Practice", approved by the Estonian Agricultural Producers Union (14.02.2001) and the Estonian Farmers Central Union (01.03.2001)

91/414/EEC

76/895/EEC

86/362/EEC

90/642/EEC

91/2092/EEC

This annex is optional.
ANNEX 6

REFERENCE TO RELEVANT GOVERNMENT STRATEGIC PLANS AND STUDIES

Project №: ES
Project title: Development of Plant Protection Products analyses in CCPP


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5 This annex is optional. Government strategic plans and studies are e.g. Institution Development Plan, Business plans, Sector studies etc.
STRUCTURAL UNITS OF CCPP

Estonian Control Center of Plant Production Administration

- Laboratory of Agrochemistry
- Laboratory for Residues and Contaminants
- Laboratory of Microbiology
- Seed Testing Laboratory
- Plant Health Laboratory
- Cereals and Plant Production Laboratory
- Department of Information and Extension
- Department of Certification and Conformity Assessment
- Department of Agri-Ecology
- Department of Agricultural Monitoring
- Department of Accounting
- General Department
- Viljandi Testing Center
- Olustvere Testing Station
- Võru Testing Station
- Rõhu Testing Station
- Saku Testing Station
- Kuusiku Testing Center
MAIN TASKS AND OPERATING AREAS, AND STRUCTURAL UNITS OF THE
CONTROL CENTER OF PLANT PRODUCTION (excerpt from the bylaws of CCPP)

§ 5. The main tasks of the Center in course of performing the analysis and field trials required for
national surveillance, arising from legislation, in force in Estonia, are:

1. performance of registration and economic tests on varieties to be added to the List of
   Varieties; performance of ex post tests on batches of seed; laboratory analysis of the seeds
   for seed certification and duplicate samples;
2. testing of crop protection chemicals (pesticides) before the products are registered for
   attestation of conformity, analysis of the control samples of crop protection chemicals;
   analyses of plant diseases and pests in control samples
3. attestation of conformity of fertilisers, analysis of control samples;
4. attestation of conformity of fodder/feedstuff, analysis of control samples;
5. analysis of food control samples.

§ 6. The mains tasks of the Center, to be performed in the field of research and development and
monitoring and in course of processing the applications filed by the customers are:

   1) administration of the network of experimental stations and laboratory facilities;
   2) development of environmentally friendly agricultural technologies and organisation of
      research and development projects in the field of good agricultural practice;
   3) implementation of monitoring of agricultural environmental effects, food safety
      monitoring and other types of monitoring required;
   4) performance of laboratory analysis and field trials and attestation of product conformity
      (if the applications are filed by customers).

§ 7. The Center may participate in any foreign projects, related to the main tasks of the institutions.

§ 8. The Center organizes training courses and testing of new methodologies for analysis,
participates in development of new methodologies of determination and quality standards,
appropriation of international methodologies for analysis and participates in international lab tests
and organizes lab tests on national level.

§ 9. The Center is responsible for maintaining and replenishing the collection of micro-organisms,
kept at the laboratory of microbiology for applied research.

§ 10. The Center is responsible for development of liming and fertilisation maps and other
information materials, development and maintenance of related databases.

§ 11. The Center co-operates with research and science institutions of Estonia and other countries
and any parties, interested in joint research projects.

§ 12. The Center participates in development of agricultural advisory system within its competence,
supplies agricultural sector with information required and makes the research results available for
the public.

§ 13. The Center is responsible for the accuracy of the trial results and trustworthiness of the results
of the analysis, but also for timely presentation of related information and data.
§ 14. The Center gets approvals required for analysing the control samples, taken as a part of the national surveillance procedures and consults national bodies of supervision when choosing the methodologies for testing and sampling.

§ 15. The Center takes and analysis control samples within its administrative and operating area.

**The structural units of the Control Center of Plant Production**

1) Laboratory of microbiology, the task of which is the maintenance and replenishment of the collection of micro-organisms, selection and testing of new strains of bacteria for more efficient storage of plant materials and microbiological analysis of samples;

2) Seed control laboratory, the task of which is the seed quality control and seed infection control;

3) **Laboratory of agro-chemistry, the task of which is to determine the lime and fertilisation requirements of soil, checking the quality of soil, fertilisers, growth substrates and compost**;

4) Plant health control laboratory, the task of which is to determine the species of phyto-pathological plant, plant product and soil infections and damages;

5) **Laboratory of pollutants and residuals, the task of which is to perform the laboratory analysis of the quality of crop protection chemicals, the content of residuals and pollutants in fodder, food products and other materials of vegetable origin and soil and participate in corresponding monitoring programs**;

6) Grain crops and plant production laboratory, the task of which is the analysis of grain crops, grain products (cereals), fodder (feedstuffs), food of vegetable origin and other plant products;

7) The department of conformity and certification, inspecting and controlling the conformity of the quality of grain, grain products (cereals), fodder and raw material of vegetable origin, used for fodder and any other materials of vegetable origin, to the regulations, that issues conformity certificates and certificates;

8) Viljandi Testing Centre, the task of which is the organisation of scientific field trials and, under the methodological supervision of the representative of the Estonian Plant Production Inspectorate, also the performance of registration and economic tests on varieties to be added to the List of Varieties; performance of ex post tests on batches of seed; laboratory analysis of the seeds for seed certification and duplicate samples;

9) Department of information and extension, the task of which is the dissemination of the information produced by the Centre to the agricultural sector, interpretation of the results of lab analysis, development of publications, organisation of training and information dissemination days;

10) Department of agricultural monitoring, the task of which is monitoring of agricultural environmental effects, including the monitoring related to good agricultural practice, aquatic monitoring, soil monitoring and mapping and analysis of the soil characteristics;

11) Department of agri-ecology and environment protection, the task of which is the research in the field of agri-ecology, agri-hydrology and soil sciences and development of measures for environment protection, soil protection included;

12) Department of crop protection, the task of which is the organisation of crop protection, research on the efficiency of crop protection chemicals included;

13) Department of agricultural research, the task of which is the development of environmentally friendly and competitive agricultural technologies and organisation of co-operation between institutions of science and research, making use of the network of experimental stations and laboratory facilities available;

14) General department, the task of which is solution of issues related to information technology and provision of technical service for the Centre;

15) Department of accounting, responsible for provision of accounting and reporting services and dealing with personnel issues of the Centre;

16) Administrative department, responsible for the assets, financial services and administration of the Centre.
ANNEX 9

ADMINISTRATION OF PESTICIDE AND PESTICIDE RESIDUE ANALYSES IN ESTONIA

Ministry of Agriculture

(Managing authority)

Department of Agriculture
(Phytosanitary Bureau),

Department of Veterinary and Food
(Bureau of Food Inspection)

Food safety, quality and treatment, plant protection, agrochemistry

Plant Production Inspectorate

Department of plant protection products, Department of Organic Farming, Department of Feed Stuff

Registration and control of use of plant protection products, control of conformity to standards of fruits and vegetables, control of meeting requirements of organic farming, quality monitoring

Control Center of Plant Production

Laboratory for Residues and Contaminants, Laboratory of Agrochemistry

Collecting, storing and processing monitoring data, laboratory analyses

Veterinary and Food Inspectorate

Food Surveillance Bureau

Monitoring of residues, surveillance

legislation

samples

surveillance

results

monitoring

results

Samples, inspection
Cooperation between CCPP and PPI in the field of pesticide and pesticide residue analyses

Ministry of Agriculture

PLANT PRODUCTION INSPECTORATE
- Department of Plant Protection
- Department of Organic farming
- Department of Feed Stuff

County inspectors

CONTROL CENTER OF PLANT PRODUCTION
- Laboratory for Residues and Contaminants
- Determine of Mycotoxins
- Determine of trace elements
- Quality control of plant protection products
- Determine of plant protection products
- Laboratory for Agrochemistry
- Cereals and Plant Production Laboratory

County inspectors

Samples of grain, fodder, grain products inspection

Monitor of fruits, vegetables, soil, plant products, inspection

Test report

Test report, monitoring report, training of inspectors

Test report
Overview of purchased equipment supported by Phare project ES 9803.01.02

The main purpose of the project was to provide CCPP with the analytical equipments in compliance with EU requirements. In addition to the EU requirements (analytical methods) subscribing the necessary equipment existing modern apparatus were taken into account.

This project contained purchasing general laboratory equipment for all the laboratories – balances, drying cabinets, multiwaves, etc.

Purchased equipment was divided according to the laboratory profile of CCPP:

**Plant Health Laboratory:**
Varied microscopes, equipment for determine virus- and bacterium diseases in ELISA method, equipment for determine virus diseases in PCR method

**Seed Testing Laboratory**
Germination cabinets, equipment for identifying varieties with PAGE electrophoresis

**Laboratory of agro-chemistry**
Equipment for analyses of trace element in soil by ICP

**Laboratory for residues and contaminants**
Equipment for analyses of
- pesticide residues in foodstuffs and feedingstuffs by GC-ECD/NPD and GC-MSD
- mycotoxins in cereals, cereals products and feedingstuffs by HPLC and TLC
- trace elements in foodstuff, feedingstuff, fertilizers by GFAAS and FAAS

**Cereals and Plant Production Laboratory**
Additional equipments for
- quality analyses of plant material (fat, fibre, protein and quality)
- determine of macro elements (C, N, S, H, Ca, K, Na)
Overview of the laboratory equipments in CCPP (including Phare project ES 9803.01.02 equipments)

The available laboratory equipments in CCPP (including Phare project ES 9803.01.02. equipments)

**Plant Health Laboratory:**
Some autoclaves, leaf juice press, balances, different types of centrifuges, different types of incubators, different types of shakers, mixers and homogenizators, refrigerators for samples and chemicals, different types of micropipettes, dispensers, etc.

Varied microscopes, equipment for determine virus- and bacterium diseases in ELISA method, equipment for determine virus diseases in PCR method

**Seed Testing Laboratory**
Balances, varied microscopes, different types of shakers, drying ovens, bisects of samples, sample divider, centrifuges, different types of micropipettes, dispensers, etc.

Germination cabinets, equipment for identifying varieties with PAGE electrophoresis

**Laboratory of agro-chemistry**
Balances, heating plates, water baths, different types of drying ovens, flame photometers, pH-meters, different mills for soil, different types of micropipettes, dispensers etc.

Equipment for analyses of trace element in soil by ICP

**Laboratory for residues and contaminants**
Balances, rotary evaporates, microwaves for ashing, ultrasonic baths, different types of shakers, mixers and homogenizators, laboratory mills, refrigerators for samples and chemicals, atomic absorption spectrometers, HPLC for pesticide residue analysis, centrifuges, GPS (cleaning system for samples), different types of micropipettes, dispensers, water purification system, etc.

Equipment for analyses of
- pesticide residues in foodstuffs and feedingstuffs by GC-ECD/NPD and GC-MSD
- mycotoxins in cereals, cereals products and feedingstuffs by HPLC and TLC
- trace elements in foodstuff, feedingstuff, fertilizers by GFAAS and FAAS

**Cereals and Plant Production Laboratory**
Balances, different types of laboratory mills, drying ovens, refrigerators for samples and chemicals, ultrasonic baths, laboratory furnaces for dry ashing, special equipments for analysis of quality of cereals and cereals products, different types of micropipettes, dispensers, HPLC for amino acids analyses, etc.

Additional equipments for
- quality analyses of plant material (fat, fibre, protein and quality)
- determine of macro elements (C, N, S, H, Ca, K, Na)

**Laboratory of Microbiology**
Balances, different types of shakers, mixers and blenders, different types of incubators, germination cabinets, refrigerators for samples, etc.
Although the Phare project ES 9803.01.02 covered the equipment needed for pesticide residues analyses, there is still a need for similar equipment for determining the pesticide formulations.

Laboratory rooms and equipments for pesticide formulations must be separated from the pesticide residue analyses to avoid contamination of samples, because the concentrations between pesticide residues and pesticide formulation are very different (about 1000 times higher for formulations).

1. Indicative list of procurement of laboratory equipment (EUR)

<table>
<thead>
<tr>
<th>No.</th>
<th>Equipment for pesticides quality analyses, pesticide residue analyses in soil and water</th>
<th>Price</th>
<th>Price EURO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gas chromatograph (GC) with ECD and NPD detectors (2) for formulation analyses of pesticides</td>
<td></td>
<td>94 000</td>
</tr>
<tr>
<td>2.</td>
<td>Gas chromatograph (GC) with MSD and FID detectors for formulation analyses of pesticides</td>
<td></td>
<td>76 000</td>
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<tr>
<td>3.</td>
<td>Liquid chromatograph LC-MS for formulation analyses of pesticides</td>
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<td>172 000</td>
</tr>
<tr>
<td>4.</td>
<td>LC-MS/MS for determination of residues of pesticides in soil and water</td>
<td></td>
<td>223 000</td>
</tr>
<tr>
<td>5.</td>
<td>FTIR-spectrometer for formulation analyses of pesticides</td>
<td></td>
<td>90 000</td>
</tr>
<tr>
<td>6.</td>
<td>X-ray fluorescence spectrometer for determination of total content of macro- and microelements in soil and water</td>
<td></td>
<td>60 000</td>
</tr>
<tr>
<td>7.</td>
<td>Particle size laser analyser for sample preparation</td>
<td></td>
<td>47 000</td>
</tr>
<tr>
<td>8.</td>
<td>Microwave decomposition system for wet digestion for sample preparation</td>
<td></td>
<td>33 000</td>
</tr>
<tr>
<td>9.</td>
<td>Automated solvent extraction for preparing samples for analysing</td>
<td></td>
<td>59 300</td>
</tr>
<tr>
<td>10.</td>
<td>Ultrasonic cleaner (bath) (2) for formulation analyses of pesticides</td>
<td></td>
<td>2 500</td>
</tr>
<tr>
<td>11.</td>
<td>Laboratory density meter for formulation analyses of pesticides</td>
<td></td>
<td>5 500</td>
</tr>
<tr>
<td>12.</td>
<td>3 computers For processing monitoring data</td>
<td></td>
<td>6 000</td>
</tr>
</tbody>
</table>