Appendix 1 to the Directive No 57 of 28 February 2013 of the Minister of Agriculture “Approval of the action plan for sustainable use of plant protection products for 2013-2017” and its operational programme

ACTION PLAN ON SUSTAINABLE USE OF PLANT PROTECTION PRODUCTS FOR 2013-2017
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Introduction

The European Parliament and the Council approved with their Decision No 1600/2002/EC of 22 July 2002 (further the Decision 1600/2002/EC) the Sixth Community Environment Action Programme, which priorities are climate change, nature and biodiversity, environment and health and quality of life, and natural resources and wastes. The action programme obliged the European Commission (further the Commission) to develop and implement thematic strategies for each area in cooperation with NGOs, industry, other social partners and public authorities. Pursuant to Article 7 (1) of the Decision 1600/2002/EC the general goal of the thematic strategy of sustainable use of pesticides is reducing the impacts of pesticides on human health and the environment and more generally to achieve a more sustainable use of pesticides as well as a significant overall reduction in risks and of the use of pesticides consistent with the necessary crop protection.

During preparation of the thematic strategy and within the framework of impact assessment the Commission ascertained the main shortage of valid legal acts and policies of the European Union (further EU), which is a legal gap in the stage of use. Basing on the results of the impact assessment of the thematic strategy of plant protection products, adoption of new legal acts was considered the most efficient method of application of the measures of this strategy. Although the term „plant protection products“ is used throughout the thematic strategy, the Commission focused first only on pesticides in its drafts, leaving the amendments of biocides to a later period. The pesticide package included four drafts, which were adopted as legal acts in 2009:

Pursuant to Article 4 (1) of the Directive 2009/128/EC the Member States shall adopt National Action Plans, which can also be considered an essential measure of the thematic strategy of plant protection products.

The European Union is protecting the quality of food with various measures, including the criteria for assessment and approval of active ingredients of plant protection products and rules for placing of plant protection products on the market (Regulation 1107/2009) as well as the regulations concerning the use of pesticides (Directive 2009/128/EC). The European agricultural sector is applying constantly safer and more environment-friendly production methods, thus offering high-quality products meeting the demands of the consumers. This meets expectations of European consumers for safe and healthy food.

**Objectives of the action plan**

The action plan is drafted on the basis of the Plant Protection Act § 79³ (3). The Act provides that the Ministry of Agriculture shall draw up an action plan on the sustainable use of plant protection products, setting out measures to be implemented for the purpose of reducing the risk and effect arising from the use of plant protection products on human health and the environment and the timetable of implementation of the measures, which plan supports the drafting of the principles of integrated plant protection and other measures, in order to reduce the dependency on the use of plant protection products.

With the approval of the action plant the Directive 2009/128/EC will be fully transposed into Estonian law.

Pursuant to Section 5 of the preamble of the Directive 2009/128/EC National Action Plans aimed at setting quantitative objectives, targets, measures, timetables and indicators to reduce risks and impacts of pesticide use on human health and the environment and at encouraging the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides should be used by Member States in order to facilitate the implementation of this Directive. Member States should monitor the use of plant protection products containing active substances of
particular concern and establish timetables and targets for the reduction of their use, in particular when it is an appropriate means to achieve risk reduction targets.

Pursuant to Section 13 of the preamble Member States should describe in their National Action Plans how they will ensure the implementation of the systems for regular technical inspection of pesticide application equipment in order to minimise the adverse impacts of pesticides on human health and the environment as provided in Directive 2006/42/EC of the European Parliament and of the Council.

Pursuant to Section 19 of the preamble Member States should describe in their National Action Plan how they ensure the implementation of the principles of integrated pest management, obligatory pursuant to Regulation (EC) no 1107/2009 and this Directive, with priority given wherever possible to non-chemical methods of plant protection and pest and crop management.


Pursuant to Section 1 of the article, Member States shall adopt National Action Plans to set up their quantitative objectives, targets, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment and to encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides. These targets may cover different areas of concern, for example worker protection, protection of the environment, residues, use of specific techniques or use in specific crops.

The National Action Plans shall also include indicators to monitor the use of plant protection products containing active substances of particular concern, especially if alternatives are available. Member States shall give particular attention to the plant protection products containing active substances approved in accordance with Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant products on the market [20] which, when subject to renewal of approval under Regulation (EC) No 1107/2009 will not fulfil the criteria relevant for approval laid down in Annex II, points 3.6 to 3.8 of that Regulation.

On the basis of such indicators and taking into account where applicable the risk or use reduction targets achieved already prior to the application of this Directive, timetables and targets for the reduction of use shall also be established, in particular if the reduction of use
constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. Member States shall use all necessary means designed to achieve these targets.

When drawing up and revising their National Action Plans, Member States shall take account of the health, social, economic and environmental impacts of the measures envisaged, of specific national, regional and local conditions and all relevant stakeholder groups. Member States shall describe in their National Action Plans how they will implement measures pursuant to Articles 5 to 15 in order to achieve the objectives referred to in the first subparagraph of this paragraph.

The National Action Plans shall take into account plans under other Community legislation on the use of pesticides, such as planned measures under Directive 2000/60/EC.

Pursuant to Article 8(2)(a) of the Directive, Member States may apply different timetables and inspection intervals to pesticide application equipment not used for spraying pesticides, to handheld pesticide application equipment or knapsack sprayers and to additional pesticide application equipment that represent a very low scale of use, which shall be listed in the National Action Plans.

Article 10 also provides that Member States may include in their National Action Plans provisions on informing persons who could be exposed to the spray drift.

The directive also specifies its implementation schedule. Pursuant to Article 14 (4), Member States shall describe in their National Action Plans how they ensure that the general principles of integrated pest management as set out in Annex III are implemented by all professional users by 1 January 2014.

Section 5 provides that Member States shall establish appropriate incentives to encourage professional users to implement crop or sector-specific guidelines for integrated pest management on a voluntary basis. Public authorities and/or organisations representing particular professional users may draw up such guidelines. Member States shall refer to those guidelines that they consider relevant and appropriate in their National Action Plans.
Proceeding from the abovementioned legal acts, the general objective of the action plan on sustainable use of plant protection products (further the action plan) is reducing the impacts of plant protection products on human health and the environment.

Achievement of the general objective of the action plan is supported by three areas of activity covering rising of awareness, methods of use of plant protection products and plant protection equipment. These areas are divided into sub-areas as follows.

1. Awareness
   1.1 Training
   1.2 Consultation
   1.3 Raising public awareness

2. Plant protection
   2.1 Sustainable use of plant protection products
   2.2 Integrated plant protection

3. Equipment
   3.1 Technical inspection of plant protection equipment

Operational programme of the action plan specifies measures and activities needed for the achievement of the abovementioned objectives for 2013 – 2017. Five-year term of the action plan has been established in line with Article 4 (2) of the Directive 2009/128/EC, pursuant to which National Action Plans shall be reviewed at least every five years. Measures and activities have been planned also in order to support and develop better implementation of legally regulated activities. Planning of measures and activities of the operational programme of the action plan was based on the shortages detected in the descriptions of current situation of the sub-areas and summaries of relevant surveys ordered by the Ministry of Agriculture.

Cohesion with other development documents

Objectives of the action plan are related mainly with the following national development and action plans and other strategic documents:

National plan „Estonia 2030+”
The objectives of „Estonia 2030+” include prevention of undesirable impact on the environment, which is in line also with one objective of the action plan on sustainable use of plant protection products.
Ministry of Agriculture


Estonian Rural Development Plan 2007–2013 is targeted to the improvement of the quality of life in Estonia, including rural areas and sites. Peculiarity of Estonian rural life has been taken into account during preparation of the development plan. Environmentally sustainable production methods, including plant protection, are facilitated within the framework of support to agricultural environment.


The measure of development and intensification of supervision will ensure food safety, which precondition is efficient supervision system of plant protection equipment. Regular updating of necessary databases will be ensured, which will be the basis for risk analyses and relevant decisions. Consumers will be informed of recommended standards within the framework of the measure of improving availability and quality of information.


The activities performed within the framework of the Estonian Organic Agriculture Development Plan are also targeted to the improvement of competitive ability of organic agriculture through environmentally sustainable management. The directive on sustainable use of pesticides obliges member states to promote agricultural production with low pesticide input, including organic agriculture. The action plan on sustainable use of plant protection products contributes mainly to the promotion of agricultural production with low pesticide input.

• *Agricultural Research Development Plan 2007 - 2013*

Agricultural Research Development Plan concentrates on the improvement of the quality of life and ensuring of environmental sustainability through the development of agricultural research and implementation of research activities. Broader objectives are the production of competitive food and feedstuff, ensuring of safety and quality of food, rural development and improvement of living environment. The activities planned in sub-areas of the action plan on sustainable use of plant protection products concentrate also on the improvement of living environment and ensuring of safety and quality of food.

• *Estonian Seed Management Action Plan (draft)*

An objective of the draft of the seed management action plan is increase of the percentage of certified seed and propagating material and use of varieties suitable for Estonian conditions and resistant to local pests. This principle belongs into the main principles of integrated plant
protection (further IPP) and IPP activities are planned in the action plan on sustainable use of plant protection products.

Ministry of the Environment

• *Estonian National Strategy on Sustainable Development „Sustainable Estonia 21“*

Sustainable development is long-term coherent and harmonious development of social, economic and environmental areas, which objective is to ensure high quality of life and safe and clean living environment today and in the future. The measures for reducing the risks related to the use of plant protection products, described in the action plan on sustainable use of plant protection products, are indirectly set to achieve the same objectives.

• *Estonian Environmental Strategy until 2030*

The Environmental Strategy until 2030 specifies long-term development guidelines for preservation of good condition of the entire living environment. Also the activities planned within the framework of the action plan on sustainable use of plant protection products are targeted to the achievement of better condition of living environment.

Ministry of Social Affairs

• *National Cancer Strategy 2007 – 2015*

A measure of a sub-area of the strategy contributes to the achievement of general objective of the action plan on sustainable use of plant protection products, prolonging human life through reducing premature mortality due to cancer. A strategic goal of cancer prevention is to achieve lower cancer risks in working and living environment. Prevention activities of the strategy are targeted to raising awareness of the population of the cancer risks proceeding from the environment, mainly the factors that can be prevented (incl. impact of chemicals).

**Overview of the current situation**

**Plant Protection Act**

The first Plant Protection Act of Estonia was adopted in the parliament in 1994 and after this also relevant implementing provisions were drafted. The mentioned legal acts regulated for the first time obligations of land users related to plant protection and use of chemical plant protection products and were a measure for reducing the risks related to the use of plant protection products. Legal acts of the area of plant protection have been amended several times, the major amendments were made in 2000 and 2004. The most extensive amendments
were made in 2004 mainly due to the need to harmonise Estonian legal acts with legal acts of the European Union, including the Directive 91/414/EEC concerning the placing of plant products on the market. Last major amendments were made in 2011, when the Plant Protection Act was amended in order to bring it into conformity with Regulation 1107/2009 and Directive 2009/128/EC.

Plant Protection Act and its implementing provisions were amended as follows to bring them into conformity with the Directive 2009/128/EC:

1. *Training of distributors and users of plant protection products* – organisation principles of plant protection training were specified, possibility to prepare different training programme for different target groups was provided, invalidation procedure of plant protection certificates, training obligation of advisers and amended list of training themes were established;

2. *Requirements to the marketing of plant protection products* – the legal act specified the details of information submitted to the purchaser of a plant protection product; a new restriction was added, pursuant to which in an authorisation of a plant protection product classified as toxic, very toxic, carcinogenic, mutagenic or toxic to reproduction under the Chemicals Act, the Agricultural Board shall designate the professional category of users, in result of which home users have no access to such products;

3. *Information and raising of awareness* – regulation covering improvement of public awareness was established;

4. *Technical inspection of the equipment* – the concept of plant protection equipment was specified, resulting in extension of the list of equipment types subjected to the obligation of technical inspection. The interval between inspections remained the same, but longer interval was established as an exception for aerosol dispensers and seed treatment equipment. Plant protection equipment in use, which was not formerly subjected to the obligation of technical inspection and for which exception was not established, shall pass technical inspection before 26.11.2016.

5. *Spraying from the air* – general prohibition for spraying from the air remains in force with no exceptions in the future;

6. *Special measures for the use of plant protection products or reducing their use in specific areas* – in addition to the existing requirements to the use of plant protection products a restriction was established to plant protection activities in public areas, with additional obligation to prefer plant protection products with low risk level and
methods of biological control. For other restrictions to the use of plant protection products references were added to relevant national legal acts;

7. Handling and storage of plant protection products and handling of packages and residues of plant protection products – all stages of use of plant protection products (from purchase to handling of packages and residues) are regulated, references were added to relevant national legal acts;

8. Integrated plant protection – the provision of recommended application of IPP principles was made obligatory, thus all professional users shall apply general principles of IPP from 01.01.2014. Conditions and method of IPP shall be specified with implementing provision;

9. Risk indicators – relevant indicators are first adopted in this action plan.

Marketing and use of plant protection products

Until now, European statistics of plant protection products included only the data concerning marketed quantities of plant protection products. Data concerning used plant protection products are still being collected and Eurostat will publish the first results in 2014. Thus the comparison between countries can be made only on the basis of marketing data. Quantities of plant protection products marketed in Europe are available on the web page of Eurostat. Last regular submission of data took place in 2001, when 21 countries out of 22 submitted data concerning marketed plant protection products to Eurostat. Most plant protection products were marketed in 2001 in France (99,635 t/y) and Italy (76,346 t/y), while Estonia was next to last (20th) in 2001 with marketed quantities of plant protection products (Figure 1).

PPP marketed in Europe in 2001

<table>
<thead>
<tr>
<th>Country</th>
<th>Quantity (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>100,000</td>
</tr>
<tr>
<td>Italy</td>
<td>90,000</td>
</tr>
<tr>
<td>Spain</td>
<td>40,000</td>
</tr>
<tr>
<td>Germany</td>
<td>20,000</td>
</tr>
<tr>
<td>UK</td>
<td>10,000</td>
</tr>
<tr>
<td>Portugal</td>
<td>5,000</td>
</tr>
<tr>
<td>Greece</td>
<td>2,000</td>
</tr>
<tr>
<td>Poland</td>
<td>1,000</td>
</tr>
<tr>
<td>Belgium</td>
<td>500</td>
</tr>
<tr>
<td>Netherlands</td>
<td>250</td>
</tr>
<tr>
<td>Hungary</td>
<td>100</td>
</tr>
<tr>
<td>Austria</td>
<td>50</td>
</tr>
<tr>
<td>Denmark</td>
<td>30</td>
</tr>
<tr>
<td>Ireland</td>
<td>20</td>
</tr>
<tr>
<td>Sweden</td>
<td>10</td>
</tr>
<tr>
<td>Finland</td>
<td>5</td>
</tr>
<tr>
<td>Slovenia</td>
<td>2</td>
</tr>
<tr>
<td>Norway</td>
<td>1</td>
</tr>
<tr>
<td>Latvia</td>
<td>0.5</td>
</tr>
<tr>
<td>Estonia</td>
<td>0.2</td>
</tr>
<tr>
<td>Malta</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Figure 1. Sold quantities of plant protection products in Europe (quantity of active substances in tons).

Source: Eurostat

From 2002 to 2010 marketing of plant protection products has generally increased (table 1). 551.95 tons of plant protection products were marketed in 2010 in total, which is 57% more than in 2002.

Table 1. Quantities of plant protection products marketed in Estonia (based on active substances) in 2002-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantities marketed in Estonia (tons)</td>
<td>329.78</td>
<td>321.44</td>
<td>357.21</td>
<td>392.67</td>
<td>465.91</td>
<td>459.87</td>
<td>551.95</td>
<td>407.19</td>
<td>517.16</td>
</tr>
</tbody>
</table>

Source: Agricultural Board

When we look at the data of marketed quantities by the action of the preparation, the following PPPs were marketed in Estonia in 2002-2010: fungicides, herbicides, insecticides, growth regulators, seed disinfectants, molluscicides, fumigants, adhesives and repellents (Figure 2). In 2010 the main marketed products were herbicides (422,552.98 kg) and fungicides (45,603.5 kg) and to less extent growth regulators (20,569.8 kg) and insecticides (19,202.7 kg). The list of active substances of plant protection products marketed in Estonia has also expanded year by year. In 2002 plant protection products were marketed in Estonia, which contained 103 different active substances in total, while in 2010 the relevant number was already 113. Compared the data of plant protection products marketed in the so-called old European countries to Estonia, it can be said that there is still space for development, but also the data of quantities marketed in Estonia show continuous rising trend, therefore attention should be paid to the aspects of use of plant protection products.
I area of activity – Awareness

1. sub-area – Training

1.1. Description of current situation

Until the enactment of the Directive 2009/128/EC the legal acts of EU included no provisions concerning plant protection training, but in the Plant Protection Act they were provided also in the period before accession of Estonia to the European Union. Thus harmonisation of the Directive 2009/128/EC (obligation to pass plant protection training) did not bring new obligation to Estonian legal space, but some readjustments shall be done in the content of plant protection training.

Plant protection training has essential role in reducing the risks related to the use of plant protection products. Unskilful and negligent use of plant protection products may cause damage to the people as well as to the environment. In addition to health and environmental risks, exceeding of the usage norms specified in the permit of a plant protection product can cause significant loss of crop yield. Training themes cover the management methods of health and environmental risks, overview of relevant legal acts concerning the use of plant protection products, details of use and maintenance of plant protection equipment and the principles of selection of suitable spraying methods.
Pursuant to the valid version of the Plant Protection Act, distributors of plant protection products and, in the events specified in a decision to authorise a plant protection product, also the persons who purchase or use the plant protection product shall have undergone training in plant protection. A person having undergone training in plant protection will receive a plant protection certificate, on which basis the person may market, buy and use all plant protection products, except those classified as very toxic. The right to organise training has been assigned to adult education institutions, who shall draft training programme before organisation of training and submit it to the Agricultural Board. The list of training themes has been established with Regulation No 20 of the Government of the Republic of 31 January 2005 “Training programmes of plant protection and requirements for obtaining plant protection certificates and procedure for issuing of certificates”.

In 2001–2010 the Agricultural Board has issued 5346 plant protection certificates (Table 2). Most plant protection certificates were issued in 2001–2010 in Põlva, Viljandi and Järva counties (Figure 3).

![Plant protection certificates issued in 2001-2010](image)

Figure 3. Plant protection certificates issued in 2001-2010.

*Source: Agricultural Board*

From 2011 the interested persons shall pass training in plant protection with the load of 16 hours and the persons, whose plant protection certificate has expired, shall pass training in plant protection with the load of 8 hours. Plant protection certificates issued before February
1, 2011 will remain valid until expiration of the term of validity specified on the certificate. Term of validity of a plant protection certificate issued on the basis of a certificate issued before February 1, 2011 is ten years.
Table 2. Number of persons holding plant protection certificate in 2001–2011

<table>
<thead>
<tr>
<th>Number of persons</th>
<th>Year of issue of the plant protection certificate</th>
<th>Term of validity of the issued plant protection certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1376</td>
<td>2001</td>
<td>2011</td>
</tr>
<tr>
<td>1168</td>
<td>2002</td>
<td>2012</td>
</tr>
<tr>
<td>604</td>
<td>2003</td>
<td>2013</td>
</tr>
<tr>
<td>340</td>
<td>2004</td>
<td>2014</td>
</tr>
<tr>
<td>548</td>
<td>2005</td>
<td>2015</td>
</tr>
<tr>
<td>304</td>
<td>2006</td>
<td>2016</td>
</tr>
<tr>
<td>217</td>
<td>2007</td>
<td>2017</td>
</tr>
<tr>
<td>311</td>
<td>2008</td>
<td>2018</td>
</tr>
<tr>
<td>230</td>
<td>2009</td>
<td>2019</td>
</tr>
<tr>
<td>250</td>
<td>2010</td>
<td>2020</td>
</tr>
<tr>
<td>1376</td>
<td>2011</td>
<td>2016</td>
</tr>
</tbody>
</table>

Source: Agricultural Board

It has already been mentioned that amendments shall be made in the section of plant protection training, in order to achieve compliance with relevant EU requirements. The main amendments are planned for the content and organisation of training. Training programme shall be drafted on the basis of the target group, i.e. users and distributors of plant protection products and advisers, taking account of their different role and responsibility and enabling different handling of themes. Division of the trainees into different target groups is also more suitable for the participants, because in such case the emphasis of themes can be set on the basis of the background of the persons; e.g. in case of distributor training it is possible to concentrate more on the properties of plant protection products and in case of user training on the introduction of general principles of use of plant protection products and equipment, suitable control methods, agricultural equipment etc. Role of a user as end user of plant protection products is decisive, because plant protection products are taken into the environment in the usage stage and aware behaviour of the users can prevent damages to the health and the environment. The role of an adviser is somewhat more important, as they must know the aspects of marketing as well as use and be able to give advice for solution of various situations related to plant protection products. Distributors, advisers and users have different roles and responsibilities and therefore organisation of training with similar content and level for them is not practical.

The experience in organisation of plant protection training shows that the level of training varies between the organisers. Also new training themes are added into the programme, which
are lacking relevant training material and for which the knowledge of the trainers shall be improved. In order to ensure availability of more consistent training it is practical to draft common training and examination materials and to plan activities for harmonisation of professional preparation of the trainers. In connection with the setting of the requirement of plant protection training on EU level a need has arisen for mutual recognition of training passed in another member state; analysis shall be conducted for clarification of essential circumstances and the necessary procedure shall be drafted.

1.2 Main problems of the sub-area

- Legal acts concerning training programme need updating – until now, only users and distributors of plant protection products have been trained within the framework of plant protection training, while no attention has been paid to the training of plant growing advisers. The valid legislative framework does not enable to take account of the different role and responsibility of users, distributors and advisers upon preparation of the training programme;
- Different level of training – common training materials are lacking and knowledge of trainers about new training themes need updating;
- Plant protection training passed and certificate issued in another member state is not recognised in Estonia.

1.3. Measure – Development of the system of plant protection training

Objective of the measure is to ensure availability of plant protection training with consistent level. The valid plant protection training programme will be brought into compliance with the requirements of the Directive 2009/128/EC. Activities cover timely preparation of draft legal act concerning plant protection training, drafting of training and information material needed for the conduction of training and it’s updating as necessary. Training sessions are organised for the persons conducting plant protection training.
2. sub-area – Consultation

2.1. Description of current situation
To ensure high-quality consultation, the provision of vocation of agricultural adviser is organised on the basis of vocational qualification framework. Rural Economy Research Centre is dealing with provision of the vocation of agricultural adviser. List of agricultural advisers currently holding a valid certificate is published on the web page of Rural Economy Research Centre. Representative organisation of agricultural advisers is Estonian Association of Agricultural Advisers. On 31 December 2011 there were 216 agricultural advisers holding professional certificate in Estonia, some of whom has acquired the vocation in two or more fields. According to the data of Rural Economy Research Centre there are 30 plant production advisers in Estonia. Every agricultural adviser must verify his/her professional qualification after every 3, 5 or 8 years, depending on the level. Although agricultural advisers of consultation centres participate in the trainings in extent of more than 70 hours in a year instead of obligatory 18 hours, the level of competency of agricultural advisers has still space for development. Training sessions targeted to advisers last usually one or two days, the number of study cycles raising the level of qualification is low.

The new version of Plant Protection Act which will take force 26.11.2013 will oblige agricultural advisers operating in the field of plant production and providing advice on safe use of plant protection products to pass plant protection training. Also IPP will belong into the main themes of plant protection training in the future. Successful development of IPP can take place mainly in result of application of the pest control solutions functioning in Estonian climate, which presumes availability of relevant test and research data. Advisers are an essential intermediate stage in transmission of information between research and agricultural production, therefore their knowledge has a major role also for the development of IPP. It is estimated that 30 advisers operating in the field of plant production must pass plant protection training by 2013.

2.2. Main problems of the sub-area
- Agricultural advisers are not obliged to pass plant protection training;
- Up-to-date improvement of the awareness of agricultural advisers of safe use of plant protection products is not regular;
• Awareness of agricultural advisers of IPP is low.

2.3. Measure – Raising the awareness of plant production advisers
Objective of the measure is to ensure availability of advice on safe use of plant protection products basing on up-to-date knowledge in Estonia. Main activity of this measure is development of consultation service on safe use of plant protection products through raising the awareness of advisers, thus ensuring availability of qualified advisors, incl. those having passed plant protection training.

3. sub-area – Raising public awareness
3.1. Description of the current situation
No major attention has been paid to the transmission of information about plant protection products targeted to the public. Also, dealing with activities preventing intoxication cases related to plant protection products has not been sufficient. Since the enactment of amendment to the Plant Protection Act on 26.11.2011 (RT I 25.11.2011,3) this has been a task of the Agricultural Board, who makes available balanced information of the risks related to the use of plant protection products and potential acute and chronical impacts on human health, organisms outside the target group and the environment, and information about the use of chemical-free alternatives. Relevant information can be made public in the internet, in official journal or on an information board, but also through broadcasting, printed press or in other relevant ways, such as public campaigns or distribution of relevant information material. A distributor of plant protection product is also obliged to provide to amateur users relevant information about plant protection product, its use and storage.

A research ordered by the Ministry of Agriculture and conducted by the Estonian Institute of Economic Research in 2009¹ revealed that the persons using plant protection products in home gardens are generally aware of the hygiene and safety requirements related to plant protection activities and spraying and follow these requirements. The same research revealed also circumstances, where home users of plant protection products did not follow safety principles. Shortages in the following of safe use of plant protection products were mainly related to storage of plant protection products, handling of empty packages etc.

Poisons Information Centre was established for mediation of intoxication information in Estonia, which is also the most reliable source of information about intoxication for medical staff as well as people in need of help. Objective of the centre is possession of new and relevant information about intoxications, ensuring of availability of intoxication information to the population and medical staff. Aim of an operating hotline is to decrease the number of emergency calls caused by intoxication cases and the number of visits to emergency medical departments. According to the call statistics of the centre, 1% of intoxication cases in Estonia in 2009 were caused by weed and plant disease control products.

Main causes of intoxication in different age groups in 2010:
- 19-35 y – insect and plant disease control products;
- 36-65 y – insect, plant disease and weed control products.

Calls to the centre are anonymous, thus the names of calling institutions/companies are not registered. In case of need to assess the severity of intoxication also the conditions of exposure of the caller are found out (long-term exposure, use of concentrated solutions, protection equipment and other important details for every specific case).

General information about plant protection products is available at following websites:

3.2. Main problems of the sub-area

- People are not aware of the health risks proceeding from living and working environment and methods for their decrease;
- Home users of plant protection products have problems with user manuals of plant protection products;
- Knowledge of home users of plant protection products about safe use of plant protection products need updating;
- There is no common system, which would enable to get reliable and independent information about plant protection products;
- Prevention of intoxication cases related to plant protection products is not directly conducted.

3.3. Measure – *Raising public awareness*

Objective of the measure is to ensure sufficient availability of information about plant protection products to the public. Main activity of this measure is raising awareness of the public of the aspects related to plant protection products through organisation of awareness campaigns, drafting and distribution of relevant information material and conducting surveys on the need for information.

**II area of activity – Plant protection**

4. sub-area – *Sustainable use of plant protection products*

4.1. Description of the current situation

Protection of human health and the environment is an essential part of the safety of food chain, whereby plant protection has a major role, because plant protection activities are performed (plant protection products are used) during growing of agricultural products, i.e. in the beginning of the food chain. The role of plant protection is to control or limit the impact and development speed of pests, plant diseases and growth disorders through the use of various methods and thus ensure the quality and sufficient yield of crop products.

Chemical plant protection products used for chemical pest control are widespread due to their efficiency. Various pests cause decrease of the yields and quality of crops, but chemical control should not become a separate objective, in order to compensate the mistakes done in agriculture. The main methods of use of plant protection products are spraying, dusting, disinfection, fumigation, aerosol treatment and use of pheromone traps.

Objective of the legal acts concerning plant protection products is to ensure that only the plant protection products having received permit in Estonia are marketed, plant protection products are used properly and residues of plant protection products in plant products remain within standards and do not endanger the consumers.
To minimise the risks to the environment and animal and human health it is essential to ensure following of the requirements set to the use of plant protection products and national supervision over the activities of their users. The Agricultural Board is performing national supervision over the use of plant protection products.

The main factor for minimising the risks related to the use of plant protection products is the user himself or his knowledge and skills related to the use of plant protection products. Therefore, in the plant protection training programme currently under preparation special attention is paid to all relevant legal acts concerning the use of plant protection products and this can be considered the basic measure for achievement of the objectives related to the minimising of risks related to the use of plant protection products. One major theme of the training of the users of plant protection products covers the principles enabling to prevent flow, seepage or diffusion of plant protection products out of the area of treatment, which may cause risk to non-target organisms. In case of problems or in result of relevant researches conducted for assessment of the after-effect of legal acts the establishment of additional requirements to the use of plant protection products may be considered. One possibility is promotion of implementation of the most efficient usage methods of plant protection products (facilitation of the use of special plant protection equipment e.g. in case of tall crops). In order to collect necessary comparative data, comparison tests are first conducted with different types of plant protection equipment, or relevant research data are consolidated and distributed. When efficient technologies preventing diffusion of the working solution of a plant protection product are determined, this will provide basis for the establishment of certain exceptions in

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Figure 4. Quantities of used plant protection products
the restrictions (e.g. small buffer zone). Methods of use of plant protection products are different and depend mainly on the peculiarities of plant protection products, treated crop or product, and in some cases also on the peculiarities of the field of use (e.g. maintenance of road, railway and public areas). Thus there is a justified need for drafting of up-to-date instruction materials for safe use of plant protection products. These materials should include guidelines for all professional groups of users of plant protection products (agriculture, non-agriculture, furbishing, maintenance of roads and railways), providing relevant recommendations basing on the development of science and technology.

Plant protection products and their use are related to the interests of many different parties, from the importers to the companies of various areas of production located in the vicinity of the users of plant protection products, such as producers of honey, drinking water or other food, who have special interest in the activities performed around them. Generally the chain of plant protection products is quite well regulated with legal acts from placing a product on the market to the use of the product, but certainly some aspects exist, which may cause problems, if information is not exchanged between the parties. The solution for prevention of such problems is probably common impartial basis of discussion, which would encompass representatives of all related parties, who should meet on regular basis.

The criteria for proceeding the authorisations of a plant protection product have been specified on EU level and enable to issue six different authorisations. The Regulation (EC) no 1107/2009 amended the criteria for issuing authorisations and thus added new possibilities for application for authorisations, but the target groups are not always aware of all options. This can be seen from the low number of special authorisations issued by the Agricultural Board (e.g. extension of the area of use specified in an authorisation of a plant protection product or emergency authorisation for 120 days). Thus a need exists for raising awareness of the potential recipients of authorisations of their possibilities.

All active substances entered into Appendix I to the Directive 91/414/EEC (list of active substances that may be used in plant protection products) are also considered approved on the basis of the Regulation 1107/2009 and they have been entered into the Appendix to the implementing regulation (EC) no 540/2011 of the Commission. However, for the sake of safety the validity period of the approval of an active substance is limited and the initial approval is granted for up to ten years, after which the active substances will be re-assessed.
Due to the adoption of stricter approval criteria for active substances, the substances with carcinogenic, mutagenic or reproductive-toxic properties may not be placed on the market in the future. This will cause a situation, where all plant protection products containing currently approved active substances will not be allowed to the market any more. According to the data of 2010 register of plant protection products of the Register of Plant Protection Products, 34 plant protection products are allowed to the market in Estonia, which may have carcinogenic, mutagenic or reproductive-toxic properties, including 30 fungicides, 3 herbicides and 1 insecticide. Three plant protection products, which may have the abovementioned properties, can be purchased and used without plant protection certificate. This shows the need to pay more attention to the plant protection products containing such active substances.

Multiannual inspection plans cover the supervision over retail and wholesale outlets of plant protection products. Agricultural producers and other end users are also inspected, in order to ensure safe use of plant protection products. Samples are taken from marketed plant protection products and compliance of the results with approved specification is analysed in the course of supervision. Objective of the national monitoring programme of residues of plant protection products is to prevent occurrence of the residues of plant protection products in foodstuff at higher level than allowed. To prevent potential risks, maximum levels of the residues of plant protection products have been established in the European Union. These levels are applied to ensure the lowest and toxicologically acceptable amount of residue. Samples are taken during the monitoring programme pursuant to the principle of random sampling, concentrating on the production, where residues of plant protection products have formerly been detected or for which a warning has been received through rapid alert system for food and feed (RASFF). Attention is also paid to the production, which consumption in Estonia is significant.

In order to assess the changes in the operation of the users of plant protection products achieved in result of the activities performed in this sub-area, regular surveys are needed.

**Storage of plant protection products, removal of empty packages and residues**

For the sake of safety, a user must pay attention to the residues of plant protection products and tank mixtures left over from use and empty packages. Storage space of a plant protection product must prevent discharge of plant protection products into the environment.
Detailed requirements and relevant risk control methods for all stages of use of plant protection products are specified in Regulation No 90 of the Minister of Agriculture of 29.11.2011 “Detailed requirements to the usage and storage sites of plant protection products” and Regulation No 49 of the Minister of Agriculture of 20.04.2006 „Safety requirements for use, cleaning, maintenance and storage of plant protection equipment“.

In Estonia it is allowed to use only plant protection products that have received authorisation of a plant protection product and have been entered into the Register of Plant Protection Products. Plant protection products, which authorisation has been expired or cancelled and which have therefore been deleted from the register or have become unfit for use, must be handled as hazardous waste. Plant protection products left over from use or having become unfit for use, including tank mixtures and plant protection products deleted from the register must be delivered to hazardous waste management facilities. Empty packages of plant protection products must be collected and returned to the distributor, if possible, or delivered to package handlers. Professional users must also ensure that they are using proper plant protection products, i.e. authorisation and term of use has not expired.

Use of plant protection products in non-agricultural area

In addition to agriculture, forestry and home gardens plants must be protected also in the maintenance of roads and public green areas. These operations are performed with mechanical methods as well as plant protection products. In the course of their professional activities, Estonian companies and institutions use plant protection products for maintenance of tramways, railways and roads, sporting and recreation areas, parks and gardens, areas located in immediate vicinity of health care and child care institutions.

A research ordered by the Ministry of Agriculture and conducted by the Estonian Institute of Economic Research in 2009\(^3\) revealed that average quantities of weed control products used by non-agricultural users in the growth period in 2009 were following: for maintenance of tramways 15 litres, for maintenance of railways 6250 litres, for maintenance of roads 66.3, for maintenance of sporting grounds 2.3 and for green areas 10.1 litres (average quantities per company operating in this area in the growth period).

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Improper use of plant protection products may cause risks and hazards to people, animals and the environment. Therefore it is justified that in public places plant protection products may be used only by professional users, who have passed plant protection training and has thus sufficient knowledge to control the risks related to the use of plant protection products. Also the plant protection products with lower risk level must be preferred and biological control methods must be applied in public areas. However, this presumes availability of sufficient information of plant protection products with lower risk level and biological control methods.

**Use of plant protection products in protected and special conservation areas**

Restrictions to the use of plant protection products in a limited management zone of a protected area and in a special conservation area are specified in the Nature Conservation Act. Use of plant protection products in limited land or water management zone of a protected area is usually prohibited and it is allowed only when specified in the protection rules. Special conservation area is established to ensure favourable conservation status of fauna, flora and fungi. In a special conservation area the destruction and damaging of habitats, for which protection the area was established, and extensive disturbing of the protected species is prohibited, as well as activities endangering favourable conservation status of habitats and protected species. If use of plant protection products is planned, the possessor of an immovable located within a special conservation area must submit relevant notice to the administrator of the special conservation area. The notice must include description of the planned activities, their volume and time and scheme of the place of work, and it must be submitted to the administrator of the special conservation area at least one month before starting of work.

**Protection measures of aquatic environment** are nationally specified in the Water Act. In areas surrounding springs and sinkholes and in a range of 10m from the boundary of the water or from the edge of a sinkhole, it is prohibited to use plant protection products. In order to protect water against non-point pollution a water protection zone shall be formed in the area of the banks of the water body. The extent of water protection zone is 20 m on the Baltic Sea, Lake Peipus, Lake Lämmijärv, Lake Pskov and Lake Võrtsjärv, 10 m on other lakes, reservoirs, rivers, brooks, springs, main ditches and channels, and artificial recipients of land improvement systems, 1 m in artificial recipients of land improvement systems with a catchment area of less than 10 km². Generally the use of plant protection products is
prohibited in a water protection zone, in exceptional case the use of plant protection products is permitted only for the purpose of clearing the outbreak site in the event of a plant disease or pest outbreak, and the permission of the environmental service shall be obtained for each separate occasion. Additional buffer zone can be specified in the conditions for use of the plant protection product, which need will be ascertained in the course of proceeding of the authorisation of the plant protection product conducted by the Agricultural Board.

The list of substances classified as hazardous to the aquatic environment on the basis of Directive 1999/45/EC and as priority substances on the basis of Directive 2000/60/EC has been established with Regulation No 32 of 21.07.2010 of the Minister of the Environment „Lists 1 and 2 of substances and substance groups hazardous to the aquatic environment and lists of priority substances, priority hazardous substances and their groups”¹. Discharge of the listed hazardous substances and priority hazardous substances into surface water and discharge of the mentioned substances and other pollutants directly into groundwater is prohibited, except in exceptional cases on the basis of a permit for the special use of water. Also the environmental limit values of hazardous substances in surface water, including priority substances, priority hazardous substances and certain other pollutants, the methods for application of the environmental limit values of priority substances and priority hazardous substances in surface water and limit values of the concentration of hazardous substances in soil are specified in Regulation No 49 of 09.09.2010 of the Minister of the Environment „Environmental limit values of surface water, their application methods and environmental limit values in aquatic fauna”¹. Objective of the listed activities is to prevent deterioration of the condition of surface water or groundwater.

4.2. Main problems of the sub-area

- There are no up-to-date instruction materials for safe use of plant protection products, which would include recommendations for all professional users of plant protection products, proceeding from the method and field of use of plant protection products;
- There are no instruction materials for safe use of plant protection products for non-professional users;
- There are no information materials about plant protection products that have received authorisation of a plant protection product in Estonia, proceeding from the properties of their active substances;
There are no regular surveys for clarification of circumstances related to the use of plant protection products and plant protection equipment;

The option of different authorisations of a plant protection product, incl. extension of the area of use, is not used sufficiently;

There is no common base of discussion, which would consolidate all interested groups related to plant protection products.

4.3. Measure – *Promotion of safer and more purpose-oriented use of plant protection products*

Objective of the measure is to minimise the health and environmental risks related to the use of plant protection products and to ensure proper use of plant protection products.

Main activities of this measure are: implementation of measures needed for the achievement of safer and more purpose-oriented use of plant protection products; drafting of information materials about the use of plant protection products for various user groups, their updating as necessary and distribution; conduction of surveys on the use of plant protection products, in order to find out development trends and shortages of the sector; grouping of plant protection products having received authorisation in Estonia, proceeding from the properties of their active substances; conduction of scientific research, in order to find out relationships between various soil preparation technologies and use of plant protection products.

4.4. Measure – *Cooperation and supervision related to plant protection products*

Objective of the measure is to promote national cooperation in the field of plant protection products and to increase efficiency of state supervision. Main activities of this measure are development of cooperation between interested groups related to plant protection products and increase of the efficiency of planning and organisation of supervision between various supervision authorities.

5. sub-area – *Integrated plant protection*

5.1 Description of the current situation

IPP is integrated use of biological, biotechnological, chemical, agrotechnical and plant breeding methods, where the use of chemical plant protection products is limited to the rate necessary for keeping the pest population on the level that will not cause undesirable economic damage or loss of crop. The principles of IPP have essential role in the achievement
of the objectives of Directive 2009/128/EC and this action plan – to contribute to the decrease of hazards and impacts on human health proceeding from the use of plant protection products and to achieve more sustainable use of plant protection products in longer perspective. In contemporary agriculture the IPP system is considered skilfully integrated use of various measures, saving the environment and ensuring ecologically clean production, which ensures limitation of the spread of pests to economically justified level. According to the general principles of IPP the activities can be divided into three stages to be applied consecutively: 1) prevention; 2) monitoring; 3) intervention. This would mean that the methods preventing the spread of pests should be applied first, followed by pest monitoring in every specific field or area and only when the spread of pests is seriously endangering the crop, control measures should be applied. Thus the complete application of IPP requires planning of plant protection activities case by case, which will make the achievement of objectives more difficult. A step further from the application of general principles of IPP would be the following of crop-based IPP guidelines, but this will be free choice of every producer.

Although contemporary chemical plant protection products are safe in case of their skilful and proper use, they should be used only in case of need in order to minimise the risk of contamination of food, feed and the environment and hazards to human health. Such need will generally arise, if application of preventive measures is not efficient enough. The fact that the Appendix to Directive 2009/128/EC provides general principles of IPP, not standards as planned in the initial draft, offers flexibility to the users, i.e. enables to take account of the grown crop, local conditions, area of activity etc. upon selection of measures. In other words, a professional user will decide the choice of plant protection measure on the basis of actual situation. If preventive measures of IPP did not provide desired results, control measures will be applied (chemical, mechanical or biological control). An important aspect of IPP principles is correct time of the use of plant protection products and their optimum use, i.e. in order to achieve maximum efficiency, sufficient quantity of the product should be used, which does not mean use of the allowed maximum monthly consumption rate. Consumption rates recommended by the producers of plant protection products are always calculated for the solution of the most difficult situation in the most complicated conditions. Therefore it should often be possible to decrease them without major deterioration of the control efficiency. On the other hand, in the growth stage of certain crops or in case of specific number of population the pest may not require any plant protection activities at all. The problem is the decision, if and when the control should be done. Here the help is provided by IT solutions (also DSS-
decision support system), which enable to decrease consumption rates of plant protection products in real time and completely based on the actual situation, or in exceptional cases even to quit spraying. Such options are offered in the internet-based plant protection advice system I-Plant Protection created through cooperation between Denmark, Poland and the Baltic countries on the basis of Danish computer advisory programmes PC-Plant Protection and NegFry and PC-P, which plant protection models have been tested and developed in field tests already since 1999 by the researchers of the Estonian Research Institute of Agriculture, Jõgeva Plant Breeding Institute, Jäneda Training and Advisory Centre and Estonian University of Life Sciences. This computer system (I-Plant Protection) analyses data and submits various recommendations on their basis. However, the user of a plant protection product will make himself the decision to follow or not to follow these recommendations. Also a consultation system has been created in Estonia, which objective is to develop agriculture through competent advice. Thus certain conditions needed for application of IPP have been established in Estonia, but they need constant improvement and development.

Until now the following of IPP has been recommended, but from 2014 it will become obligatory for all professional users. Conditions and procedure of application of IPP principles will be established with regulation of the Minister of Agriculture on the basis of the Plant Protection Act. In 2009 the Ministry of Agriculture ordered and Turu-uuringute AS conducted a survey\(^4\), which objective was to find out the awareness of agricultural producers dealing with intensive crop farming of IPP principles and if they are actually used in practice. Another objective was to determine the awareness of the persons using plant protection products of the internet-based programme compatible with IPP principles (I-Plant Protection) and to identify the circumstances, which would motivate agricultural producers to apply these principles more actively. The survey showed that IPP principles are already now applied to certain extent. Some producers did it consciously (i.e. they knew the concept of IPP), while some applied the principles without knowing the concept. Awareness of the respondents of the internet-based programme I-Plant Protection was low and the number of its users was therefore even smaller. According to common opinion, the factors motivating agricultural producers to apply these principles more actively would be better information, relevant knowledge and higher demand for the crop grown according to these principles, and it was

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partially found that a need exists for national support services. The activities for promotion of IPP are planned, proceeding from the shortages detected during the mentioned survey and obligations set to a member state in Directive 2009/128/EC.
Figure 5. Overview of the application of general principles of integrated plant protection

*Source: Turu-uuringute AS, survey „Awareness of integrated plant protection“*

### 5.2. Main problems of the sub-area

- Availability of information about IPP is not sufficient;
- Crop-based IPP guidelines are obsolete and therefore unfit for use;
- Scientifically grounded pest resistance levels are lacking (for crops grown in Estonia and their pests);
- There is no prediction and warning system for the spread of pests;
- There are no good examples for introduction of IPP (e.g. IPP production unit);
- Procedures/principles for assessment of the application of IPP are lacking;
- Agricultural producers are not sufficiently interested in application of IPP principles, motivating reasons are lacking.

### 5.3. Measure – *Creation of conditions needed for application of IPP principles*

Objective of the measure is to create necessary conditions for application of IPP and alternative pest control methods or measures. Priority is given to the activities resulting in the creation of conditions needed for application of IPP and ensuring availability of relevant information to the interested parties. Up-to-date instruction materials will be drafted and updated regularly.
5.4. Measure – *Promotion of agriculture with low use of plant protection products*

Objective of the measure is to develop and make available the measures facilitating implementation of IPP principles and various pest control methods or measures. Conduction of IPP-related research and introduction of research results. Analysis of the application of IPP and regular introduction of IPP principles.

5.5. Measure – *Facilitation of application of IPP*

Objective of the measure is promotion of agricultural production with low input of plant protection products. Activities facilitating adoption of plant protection with low use of plant protection products are planned within the framework of this measure.

**III area of activity – Equipment**

6. **Technical inspection of plant protection equipment**

6.1. **Description of the current situation**

Implementation of the system of technical inspection of currently used plant protection equipment started in Estonia in 2000. The Plant Protection Act first established the requirement that any plant protection equipment, which is in use, except for spray guns and knapsack sprayers, shall have undergone regular technical inspection once every three years. Regulation of the Minister of Agriculture also specified the procedure for testing, inspection and technical inspection of plant protection equipment. The authority performing technical inspection is the Estonian Research Institute of Agriculture (further ERIA).

The set objective of technical inspection of plant protection equipment was decrease of health and environmental risks, and stress was laid on an important fact that plant protection equipment in good technical repair is a key factor for the achievement of desired result, i.e. more purpose-oriented use of plant protection products. In order to train the performers of technical inspection, a short training course was organised in 2000 – 2006 at the Estonian Institute of Agricultural Mechanisation, which included a two-day seminar and ended with examination. The persons having passed the examination successfully received a relevant certificate. Seminars covered relevant legislation, standards, measuring equipment and methods, factors influencing the quality of spraying, safety, and also the practical and technical inspection was conducted during the course. Implementation of the system of technical inspection was not easy due to the lack of measuring equipment needed for the
conduction of technical inspection, but several interested persons managed to purchase them in a couple of years. The first technical inspections of plant protection equipment were conducted in 2001, in total 16. Every following year their number has approximately doubled (table 3) and in 2005 already 299 plant protection sprays were inspected. All legal acts regulating technical inspection were revised in 2004-2005 and 2008 and during this procedure some amendments were made, specifying the procedural part of technical inspection and amending the procedure of technical inspection on the basis of the standard EVS-EN- 13790-1:2005. The amendments created precondition for increasing the number of the persons conducting technical inspection, assigning the right for inspection also to private entrepreneurs, with whom relevant contracts were concluded. ERIA retained the right to conduct technical inspection, to which also obligations to consult the technical inspectors and check the quality of their work were added. Legal amendment made in 2008 added to ERIA the obligation to organise operational training of technical inspectors of plant protection equipment and to the technical inspectors or their employees (performing technical inspection) the obligation to pass theoretical and practical training. A principle was also added that the persons having passed the course and holding relevant certificate must participate in annual improvement seminar introducing the development trends of contemporary equipment. Also the bases for authorisation of national administrative task, the concept of authorised performer of technical inspection, the requirements to applicants for the rights of a technical inspector and their rights and obligations were established. A performer of technical inspection is a natural person or a legal person in private law, who is authorised to perform technical inspection of plant protection equipment on the bases specified in the Plant Protection Act. The mentioned authorisation is granted and contract under public law for performing of administrative duties is concluded by the Agricultural Board. List of authorised persons is published at the web page of the Agricultural Board.

Directive 2009/128/EC imposes on the member states the obligation to establish the system of technical inspection of plant protection equipment in professional use; all plant protection equipment in professional use must have first passed technical inspection by 26 November 2016 at the latest and so after every five year until 2020, and onwards after every three years. From the mentioned term the professional users of plant protection products may not use the equipment that have not been inspected. Options have been left for member states to allow exceptions in the interval of technical inspection of certain equipment types and a possibility to exempt spray guns and knapsack sprayers from the obligation of technical inspection. This
may be done, if the extent of use of this equipment has been assessed and analysed. Exemption of spray guns and knapsack sprayers from the obligation of technical inspection has an additional condition: during training, special attention shall be paid to the peculiarities related to the use of such equipment. The need of special attention is caused by the fact that in case of use of spray guns and knapsack sprayers contact of the user with plant protection product is most immediate.

The Ministry of Agriculture ordered and Turu-uuringute AS conducted a survey\(^5\) among the users of plant protection equipment, in order to find out the current situation in Estonia. It was found that the most common plant protection equipment are boom sprayers (74\% of the sample), spray guns (22\%), knapsack sprayers (18\%) and disinfection equipment (16\%). Gun sprayers, aircraft with sprayers, stationary equipment for greenhouses are not used or were not included in the sample. Few persons are using other equipment types such as motorised knapsack sprayers, fan sprayers, aerosol dispensers, fumigation and soil treatment equipment. Most respondents (66\%) are using only one type of equipment, less than 51\% are using more than 2 types. It was also found that most respondents are using new equipment, only disinfection equipment are relatively older. The owners of spray guns have most new equipment – 51\% has up to 2 years old spray guns. Older equipment (over ten years) are most used in case of boom sprayers (20\%).

In Estonia exemption is applied for the obligation of technical inspection as well as the interval of technical inspection, i.e. spray guns and knapsack sprayers are not subjected to inspection and longer interval of technical inspection has been established for disinfection equipment and aerosol dispensers. Exemption of spray guns from the obligation of technical inspection is proceeding from the fact that most of the equipment of this type currently in use are up to 2 years old and would not need inspection pursuant to the established interval. There are also problems with availability of spare parts of this equipment. In reality it is useful rather to purchase a new spray gun than to spend money on expensive spare parts or time for their search. There is also a common opinion that the user of the equipment, not the equipment itself, is the key factor for managing health and environmental risks. The currently valid as well as new plant protection training cover preparation for the operation of plant protection equipment, thus achieving awareness of the user of the peculiarities of the use of

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\(^5\) Use of plant protection equipment, 2010. Available in the internet:
different equipment types. A user of plant protection equipment is also obliged to perform self-inspection, i.e. he must conduct regular inspection of the equipment in use and adjustment, if necessary. In principle this is very important aspect, because only technical inspection cannot ensure proper operation of the equipment in the period between two technical inspections. The need for regular inspection and adjustment of every equipment depends mainly on the workload of the specific equipment. Efficiency of control performed with irregularly operating equipment is lower and may cause economic damage (lost crop and excessive quantities of plant protection product) as well as environmental risk. The mentioned survey also showed that 50% of the respondents maintain the equipment on regular basis, 27% on the basis of operating load of the equipment and 20% only in case of failures. Thus it can be assumed that in most cases the users of equipment are aware of the need of regular inspection and the consequences of ignoring this requirement. It was found that satisfaction with the system of technical inspection is relatively high (average assessments on 5-point scale were 4.45-4.73). The survey also showed some shortages related to the organisation of technical inspection, which solution is planned within the framework of this action plan. The problems were low availability of technical inspection as a service and lack of relevant information. As the owner of the equipment must cover the costs related to technical inspection, incl. transport costs of the performer of the inspection, low availability of this service increases the costs related to the service for the owner of the equipment. The currently performed technical inspection of plant protection equipment is basing on the European standard EVS-EN 13790-1, which has been integrated into national law in simplified form. Appendix II to the Directive 2009/128/EC establishing the requirements for technical inspection of plant protection equipment is basing on the same standard. The problem is that the mentioned standard includes inspection principles only for regular sprayers (boom sprayers), not for any other equipment types. As the Directive 2009/128/EC extends the obligation of technical inspection to all used equipment not depending on the type, the European Commission has mandated the European Committee for Standardisation (further CEN) for drafting relevant standards. As the term provided to the member states for creation of the systems of technical inspection is 26 November 2016, the time for development of necessary standards will probably be sufficient. After this, also the national legal acts regulating technical inspection can be brought into compliance with the standards. The details of technical inspections are established with Regulation No 51 of the Minister of Agriculture of 29.04.2005 „Procedure of regular technical inspection of plant protection equipment“.
By 2012, 22 persons have passed the technical inspection training organised by ERIA and received relevant certificate, 14 of whom can use the equipment intended for technical inspection. The mentioned specialists conduct technical inspection of plant protection sprayers in eight companies. 2072 technical inspections were conducted in 2001 – 2011. Legal acts of the EU do not require training of the performers of technical inspection, but such requirement has been established in Estonia on national level. This is proceeding from the need to ensure availability of high-quality technical inspection. The experiences show that operation of different performers of technical inspection has different quality. In connection with the development of contemporary equipment and taking account of the need for simplification of the operation of the performers of technical inspection (necessary data communication etc.) is relevant to search various solution for the support of this activity, incl. new IT solutions. The Directive 2009/128/EC calls up the member states to approve technical inspection performed in another member state (if the period of time and other conditions are the same), but more detailed guidelines are lacking. As Estonia has a well functioning ferry connection with Finland and southern border with Latvia, a need for approval of technical inspection performed in another country may arise in case of provision of a cross-border service. This issue can be bilateral, i.e. plant protection equipment inspected in neighbouring countries are brought here and other way round. Thus it is relevant to conduct activities that simplify and support this situation. Overview of technical inspections of plant protection equipment performed in 2001 – 2011 by counties is provided on Figure 6.

![Figure 6. Number of technical inspections of plant protection equipment performed in 2001 – 2011 by counties](image)

*Source: Agricultural Board*
6.2. Main problems of the sub-area

- The valid system of technical inspection of plant protection equipment is not completely meeting the requirements of the Directive 2009/128/EC;
- The system of technical inspection needs contemporary solutions for fast operation;
- The quality of technical inspection as state „service“ is not uniform;
- Training of the performers of technical inspection is not sufficiently ensured;
- There are no conditions/motivating factors, which would create precondition for increase of the number of performers of technical inspection.

6.3. Measure – Development of technical inspection of plant protection equipment and ensuring its sustainability

Objective of the measure is improvement and updating of the existing system of technical inspection of plant protection equipment and ensuring the availability of the service of technical inspection. Main activities of this measure are improvement of the system of technical inspection proceeding from the obligations set to a member state with the Directive 2009/128/EC, promotion of activities of the performers of technical inspection and equalisation of the quality of technical inspection.

Assessment of the achievement of objectives, financing and realisation of activities

Assessment of the achievement of objectives

Achievement of the objectives set in the action plan is assessed with relevant risk indicators. The Commission will draft harmonised risk indicators on EU level and these will be entered in Appendix IV to the Directive 2009/128/EC. After this, the member states shall use harmonised EU indicators for managing the risks related to the use of plant protection products and transmission of relevant information. Several projects are pending in EU, which objective is to draft risk indicators of plant protection products. When these activities are finished and member states have achieved consent for the establishment of the most suitable indicator for use on EU level in Appendix IV to the directive, everybody must start to use it. In order to apply harmonised indicator in Estonia, it is first necessary to acquire relevant knowledge and experience through analysis of the projects, and to test the use of such
indicators. Calculation of relevant indicators is a new task for the area, which fulfilment requires relevant expert analysis and availability of necessary resources.

Member states may also use national indicators enabling to ascertain the development achieved through implementation of the measures and to assess relevance of the chosen measure. Relevant surveys will be conducted for collecting the data needed for the assessment of the success of implementation of the action plan. Data collected during routine work of a supervision authority can be used in case of a social indicator. Sustainable use of plant protection equipment includes three components: social, environmental and economic aspects, thus the indicators must cover them.

1 Social indicator
1.1. Increase of the number of persons having passed plant protection training and holding a certificate;
1.2. Decrease of the percentage of samples of plant protection product residues exceeding the allowed limit value (domestic production);
1.3. Decrease of the percentage of samples containing plant protection product residues (domestic production).

2 Environmental indicator
2.1. Decrease of risks proceeding from the use of plant protection equipment:
   a) Increase of the percentage of agricultural producers using plant protection equipment with additional equipment decreasing drift of plant protection product or enabling the use of reduced standards;
   b) Increase of the percentage of agricultural producers using special washing grounds of plant protection equipment, incl. biopad;
2.2. Increase of the scope of implementation of IPP principles (increase of the percentage of the area of cultivated land, where IPP principles are applied, in the area of cultivated land used in a production unit).

3 Economic indicator
3.1. Availability of viable and sufficient control measures for the control of common pests and diseases:
   a) Published descriptions of control methods;
b) Published instruction material for IPP and alternative pest control measures or methods;
c) Available measures simplifying implementation of IPP principles
d) Published crop-based IPP guidelines;

3.2. Increase of the percentage of users of biological plant protection products and alternative control methods.

**Financing and realisation**

Realisation of the action plan is financed through various sources, on the basis of strategic development programmes and legal acts. The action plan will be implemented pursuant to the operational programme for the „Action plan on sustainable use of plant protection products for 2013-2017“. The costs related to performing of activities will remain within the limits of the control sum agreed in the national budget strategy and the limit sum specified in the state budget. The activities included in the operational programme can also be performed within the framework of the projects co-financed by EU or financed from other funds or the Rural Development Plan. Certain activities can be performed administratively in the course of routine operation and without additional expenses.

Ants Noot
Secretary General