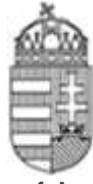


**NATIONAL PLANT
PROTECTION ACTION PLAN
2019-2023**



Ministry of Agriculture

NATIONAL PLANT PROTECTION

ACTION PLAN

2019-2023

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Summary

Article 4 of Directive 2009/128/EC of the European Parliament and the Council establishing a framework for Community action to achieve the sustainable use of pesticides, as adopted by the European Union in 2009, requires Member States to adopt National Action Plans (NAPs). The NAP sets up quantitative objectives, 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 agricultural risks posed by the use of plant protection products.

In addition to the above targets, the conservation of natural habitats and of wild fauna and flora, as well as the principles laid down in Directive 2000/60/EC of the European Parliament and of the Council, the so-called Water Framework Directive (WFD) also had to be considered when drawing up the National Action Plan. The WFD introduces a new scheme for the control and prevention of chemical pollution of water which must be presented in detail in the river basin management plans. The WFD requires the compilation of a list of priority substances and the definition of their environmental limit values (EQS Directive 2008/105/EC). Priority substances are chemical pollutants, including plant protection products, which may be harmful to human health or the functioning of aquatic ecosystems. As regards groundwater, Directive 2006/118/EC on the protection of groundwater against pollution and deterioration establishes quality standards for plant protection products and derivatives, and if those standards are exceeded, measures have to be taken for the re-establishment of good status. As regards surface waters, the WFD and the EQS provide for regular monitoring of priority substances, assessment of the chemical status of water bodies and for undertaking basic and additional programmes if environmental standards are exceeded.

The quantity of plant protection products used in Hungary in the last 20 years (between 1989 and 2009) decreased by 60 %. Since Hungary's accession to the European Union, the competent authority responsible for authorisation has withdrawn the authorisations for placing on the market and use of hundreds of plant protection products. In most cases the reason was that the EU review of the active substances of plant protection products did not confirm that their use would meet the strictest safety requirements. It is important to find a solution as soon as possible to replace the plant protection products authorised in Hungary the withdrawal of which is expected or justified in accordance with the Annex II Procedure and criteria for the approval of active substances, safeners and synergists pursuant to Chapter II of the new authorisation regulation, i.e. Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market.

In addition to the restrictions made until now, Hungary's further objective is to use the plant protection products as and to the extent necessary for sustainable agriculture, for the protection of plants and plant products from harmful organisms and for producing high quality and safe foods. As under the above conditions the reduction of quantities of plant protection products used, expressed purely in natural units (kg, l), does not necessarily coincide with a decrease in environmental and health risks, the primary aim of the National Action Plan is to moderate the risks posed by the use of plant protection products and to render their reasonable use widespread. Furthermore, another aim of the NAP is to suppress avoidable or improper use, to substitute the application techniques requiring plant protection products by organic agricultural methods, and in doing so, to mitigate the risks. The Plant Protection Committee reviews the National Action Plan every five years following its approval.

The objective of the present National Action Plan is to encourage the development and introduction of

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integrated pest management and safer alternative approaches in Hungary.

1. Evaluation of the situation

In Hungary, the establishment of a plant protection administration started in 1954, when the county plant protection stations were set up. The plant protection management of that time recognised that qualified and trained experts were needed for this activity, which was not without risks, and that any plant protection activity should be governed by an adequate framework. Therefore, the first plant protection legislation entered into force in 1956 and required agricultural farms to employ plant protection experts. In Hungary, higher education in plant protection was set up in 1958. In addition to training experts, training for plant protection workers and technicians was also organised; in other words primary, secondary and tertiary education in plant protection was established and both fundamental and applied research were built on it.

From the early 1960s, development of pest management programmes and the establishment of a plant protection administration were an important task together with dissemination of new information among farmers.

Biological laboratories were set up at the county stations for the reliable identification of plant pathogens and pests. As a result of thorough supervision, they were the first in the world to ban the use of certain chlorinated hydrocarbons (e.g. DDT, aldrin, dieldrin) in 1968 because of their unacceptable impact on the environment.

In the early 1970s, laboratories for pesticide residue analysis were established in the 19 administrative counties of Hungary in addition to the laboratories for human toxicology, wildlife toxicity and the hydrobiology laboratory which tested the toxicity of aquatic organisms. During this period the other important sector of chemical industry in agriculture, i.e. the large-scale use of fertilizers, gained ground in practice and its technical conditions had to be ensured. Thus, in 1976 the county plant protection services were transformed into plant protection and agrochemistry stations. New staff and technical conditions had to be ensured and a technical foundation had to be laid down for the new technical field. With this in mind a uniform methodology for soil sampling, soil testing and for an advisory service was worked out. Altogether 11 soil testing laboratories were built within 2 years, in 1977-1978.

In the first three years of the 1980s, significant innovations were carried out in the field of both plant protection and agrochemistry with a positive influence on the whole of the agricultural sector.

After the change of regime, the privatisation of arable land resulted in production being managed, in several cases, by people having neither agricultural farming experience nor plant protection qualification.

Both the act on plant protection (which meets modern requirements) and the act on the plant protection chamber (unique in the world) entered into force in 2000.

The ideal is high quality, 'European multifunctional' agriculture which provides valuable, pesticide residue-free, healthy and safe foods, as well as local energy and other resources, and protects soils, drinking water abstraction areas, wildlife and landscape together with human beings, human communities and culture. Reaching these global aims coincides with the traditional objectives of the plant protection and soil conservation service, which fulfils the State's responsibility with an integrated approach regarding the above issues.

This is confirmed by the fact that each of the seven strategic fields of the 6th Environment Action Programme touch upon how the plant protection and soil conservation administration functions.

It is therefore necessary to devise a philosophy in line with the rural development strategy and reflecting the message of integrated production which can be built on plant protection and soil conservation experience.

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Conditions

Hungary's geographical and natural conditions helped the development of diverse landscapes and a rich natural wildlife which merge into a unique ecological unit in the Carpathian Basin.



Some 80-85 % of the Hungarian territory is covered by soil types which are good for agricultural cultivation, thus arable land is a significant resource of the country. Overall, the status and productivity of the soils are good.

This traditionally agricultural country is endowed with excellent arable lands, including both ideal climatic conditions for production and farmers who are ready to make a good living from these lands.

Problems and challenges

As a result of modern consumer habits, nowadays 80 % of foods are of plant origin. Safety of agricultural production means much more than the quantitative and qualitative safety of foods produced, i.e. food safety. It also includes the long-term maintenance of the environment used for food production, starting from the protection of the agri-environment (particularly the safeguard of arable lands and soil conservation), as well as sustainable and reasonable integrated pest management and plant health. The long-term interests of communities and short-term interests of individuals cannot be harmonised without the purposeful engagement of the State. Cooperation between the plant protection authority and experts and the use of integrated pest management programmes result in the production of foods with minimum pesticide residues.

Status and productivity of the soils are good, as a whole, but soils' functions are hindered and productivity reduced by risks of degradation processes. One of the major soil degradation processes is induced by water erosion which damages almost one third of the agricultural area and by wind erosion accounting for some 1.4 million hectares. Organic matter in soils is decreasing. Harmful effects are increased by the fact that the use of farmyard manure has been pushed into the background. The soils with inhibited functions produce more vulnerable crops strongly needing human interventions, among others, significant use of agrochemicals. The basis of reasonable crop production is adequate soils.

Pesticide residues occur in about half of both domestic and import foods, but the ratio of products



containing non-approved active substances or pesticide residues exceeding the allowed maximum residue levels (MRL) in force is very low. In spite of this the plant protection products used at present impose both health and environmental risks. The objective is to reduce the pesticide residue content of all products below the accepted levels and it is desirable to have as large a proportion of residue-free produce as possible. In accordance with the requirements of Regulation (EC) No 1107/2009 the withdrawal of a number of additional active substances will be necessary in the near future if they impose risks to human health and the environment. In addition, by 2013, the European Commission has to make a list of active substances to be replaced because they pose a risk. Based on recent years' studies it can be confirmed that the residues of several pesticides can be detected more and more frequently in various produce. The joint effects may be additive but there are also cases where the active substances contained by different plant protection products enforce the harmful actions of each other. Several plant protection products are known to have stronger joint effects in each other's presence. The current legislation does not consider the joint effects of the active substances.

The herbicides used in agriculture may appear in surface waters and may even reach drinking water through river bank filtration. Information on pesticide residues appearing in surface waters and drinking water is insufficient, as only a few substances have to be monitored in relation to the number of active substances used in practice. The majority of active substances detected in waters may be withdrawn for hazard reasons because they are included in the preliminary list of the European Commission on endocrine disruptors. The substances having endocrine disrupting properties must be withdrawn from the market in accordance with Regulation (EC) No 1107/2009.

Plant protection products used illegally or not in compliance with their authorisations can lead to poisoning in non-target organisms, in particular protected and strictly protected fauna species. Safeguarding of these protected living beings is also justified for reasons of plant protection, environmental and nature conservation. Crop production cannot be thought of without the principles of reasonable and integrated pest management. Pest management, an activity to suppress the organisms posing a risk to plants and indirectly to consumers' health, has become a multidisciplinary science by this day. Its foundations are life science, biology and chemistry but many other fields are concerned, including machinery, economics as well as more recently information technology and geographic information systems with the spread of precision plant production. An increase in the number of plant health problems that occurred recently demand a joint solution where scientific, technical and economic results and consequences must be taken into account.

Plant protection must be shaped to face today's and tomorrow's demands and challenges and must be re-evaluated with a view to sustainability. Plant protection based on the use of plant protection products is less risky if performed by qualified users, though it cannot be the final and reliable solution from all

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aspects. It is important to use those plant protection products the active substances of which mean a solution for the particular plant protection problem and at the same time pose the lowest possible risk to the environment and human health. When using past and recent scientific results we have to follow a new philosophy which applies the lowest pressure from harmful substances to the environment in addition to attaining the necessary quantity and quality of crops. The way to reach this objective is the application of integrated pest management in all fields where plant products are produced.

2. Framework for planning and implementing the National Action Plan

In response to the economic crisis and the pressure on public financing the European Union has worked out 'Europe 2020', a strategy for smart, sustainable and inclusive growth. To create a better harmony with the Europe 2020 strategy, and in particular, as regards the efficiency of resources, the long-term strategic objectives of rural development policy will gain higher importance, i.e. agricultural productivity should increase by encouraging and providing an incentive to research, share knowledge, cooperate and innovate, in addition to raising environmental awareness.

Furthermore, efforts in the field of agriculture and in rural regions must be redoubled in order to meet the climate and energy targets of the Europe 2020 strategy and to achieve the strategy concerning biodiversity. Agricultural producers and forestry farmers will need support in applying and maintaining cultivation systems and techniques which best promote the objectives of environmental protection and climate policy. After 2013, the future Common Agricultural Policy (CAP) aiming at establishing dynamic rural regions with more sustainable agriculture will not only be a significant policy of the EU economy that only deals with a minor part of it, but also a policy of strategic importance regarding food security, environmental protection and territorial balance. The essence of a really common agricultural policy lies therefore in making the most efficient use of limited budgetary resources in a way that ensures, at the same time, sustainability of agriculture, addresses climate change and other important cross-border problems across the EU as well as strengthens solidarity among the Member States and also provides the needed flexibility in implementation in order to meet local standards.

The European Union drafts its major political and policy objectives in different programmes. The objectives of EU Environmental Policy are published in environmental action programmes. The 6th Environment Action Programme contains the priorities of EU environmental policy, i.e. it aims to mitigate the effects of climate change, protect nature, safeguard biodiversity, protect the environment and human health, safeguard and use sustainably national resources, as well as manage waste.

Seven thematic strategies have been prioritised in the action programme and the incentive to use plant protection products sustainably is one of them, i.e.:

- minimisation of the hazards and risks imposed on health and the environment by the use of plant protection products,
- increased level of control of the use and trade of plant protection products, reduction of the use of dangerous active substances (particularly the substitution of the most harmful active substances by safer alternatives),
- support either of production which uses the minimum amount of plant protection products or of pesticide-free production,
- set up of a transparent reporting and monitoring system in relation with the measures taken for achieving the objectives.

3. Target areas of the National Action Plan

- Maintenance of plant health safety in Hungary by applying the minimum amount of plant protection

products.

- Mitigation of the risks imposed on human health and the environment originating from the use of plant protection products and from pest management techniques and keeping the risks at low level by providing for appropriate risk mitigating measures particularly in the following fields:
 - Reduction of the exposure of the users of plant protection products to health risks and poisoning.
 - Reduction of risks in relation to the consumers of products treated with plant protection products, promotion of the production of safe foods.
 - Reduction of the pollution of soil, surface and subsurface waters and air.
 - Protection of non-target organisms (particularly pollinators and protected animal species) and mitigation of the related risks.
 - Replacement of plant protection products of particular concern, suppression of their use.
 - Promotion of the use of low-risk plant protection products.
 - Promotion of the sustainable and environmentally friendly use of plant protection products.
 - Significant suppression of unnecessary treatments or of treatments made with doses higher than necessary.
 - Termination of the placing on the market and use of illegal plant protection products.
 - Reduction of the damage caused to the environment by the use of plant protection products and by the wastes they generated.
 - Promotion of the competitiveness of sustainable crop production, reduction of the producers' costs by reducing the number of treatments and providing alternative techniques.
 - Mitigation of the risk factors occurring in aerial spraying in order to perform the activity safely.
 - Promotion of integrated pest management, biological pest control and organic farming.
 - Establishment of biological diversity in the agricultural ecosystems by encouraging agricultural afforestation.
 - Raising the level of plant protection qualifications and technical practices, with special attention to the principle of prevention; running an objective, independent plant protection administration network.
 - Promotion of the development and use of non-chemical alternatives for the prevention of epidemics, outbreaks and invasions in support production safety.
 - Encouraging communication and dissemination of information that is understandable to the general public.
 - Development of a coordinated national programme for plant protection research and innovation.
 - Information on project resources for tenders supporting developments and investments in sustainable pesticide use.

4. Legal framework of the National Action Plan

EU legislation

- Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC

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- Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC
- Regulation (EC) No 1185/2009 of the European Parliament and of the Council of 25 November 2009 concerning statistics on pesticides
 - Regulation (EC) No 178/2002 of the European Parliament and of the Council laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety



- Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides
- Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
- Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council
- Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration
- Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91
- Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

Hungarian legislation

- Act No XLVI of 2008 on the food chain and official supervision thereof
- Act No LXXXIV of 2000 concerning the Hungarian Chamber of Professionals and Doctors of Plant Protection
- Act No CXXIX of 2007 on the protection of arable land

- Act No LIII of 1996 on nature conservation
- Government Decree No 201/2001 of 25 October 2001 on the quality requirements of drinking water and the procedures of control
- Government Decree No 219/2004 of 21 July 2004 on the protection of groundwater
- Government Decree No 220/2004 of 21 July 2004 laying down rules on the protection of the quality of surface waters
- Government Decree No 221/2004 of 21 July 2004 laying down certain rules for the management of water catchment areas
- Government Decree No 123/1997 of 18 July 1997 on the protection of catchment areas, future catchment areas and the protection of water facilities providing drinking water
- Decree No 89/2004 of 15 May 2004 of the Minister for Agriculture and Rural Development on the authorisation of placing on the market and of use, as well as on the packaging, labelling, storage and transport of plant protection products
- Decree No 43/2010 of 23 April 2010 of the Minister for Agriculture and Rural Development on plant protection activities
- Joint Decree No 44/2005 of 6 May 2005 of the Ministers for Agriculture and Rural Development, for Economy and Transport, and for Environment and Water on agricultural and forestry aerial activity
- Decree No 103/2003 of 11 September 2003 of the Minister for Agriculture and Rural Development on the treatment of pesticide contaminated packaging waste
- Decree No 36/2006 of 18 May 2006 of the Minister for Agriculture and Rural Development on the licensing, storage, distribution and use of crop-enhancing substances
- Decree No 66/2010 of 12 May 2010 of the Minister for Agriculture and Rural Development on maximum residue levels of pesticides in or on food and feed of plant and animal origin and their official control
- Decree No 61/2009 of 14 May 2009 of the Minister for Agriculture and Rural Development laying down the detailed conditions of support for agricultural environmental management under the European Agricultural Fund for Rural Development
- Joint Decree No 6/2009 of 14 April 2009 of the Ministers for Environment and Water, for Health, and for Agriculture and Rural Development laying down limits necessary for the protection of geological formations and groundwater against pollution and on measurements of pollutants
- Decree No 10/2010 of 18 August 2010 of the Minister for Rural Development providing limit values for water pollutants in surface waters and their rules of application
- Decree No 30/2004 of 30 December 2004 of the Minister for Environment and Water laying down certain rules for testing groundwater
- Decree No 31/2004 of 30 December 2004 of the Minister for Environment and Water laying down certain rules for monitoring and evaluation of surface waters

5. The scope of activity of the NAP: measures and opportunities

5.1. Marketing of plant protection products

Directive 2009/128/EC provides for setting up systems of both initial and continuous training for distributors, experts in charge and professional users of pesticides. Hungarian legislation has prescribed

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requirements of professional qualifications in the fields of both marketing and use (of plant protection products) for several decades. In line with the requirements of Directive 2009/128/EC the current legislation on plant protection activity governs any activities performed with plant protection products as follows:

Any person possessing a higher education qualification specialised in plant protection is currently entitled to obtain a licence for marketing, purchasing and using plant protection products under marketing category I, which furthermore enables them to perform any activities (market, use, transport, store and purchase, etc.) irrespective of the marketing category of the plant protection product.

In Hungary, the Hungarian Chamber of Professionals and Doctors of Plant Protection (the Chamber) and the plant protection administration jointly operate a system of non-higher education upon completion of which a licence can be obtained for the marketing, purchase and use of plant protection products under marketing category II. The thematic curriculum of the basic plant protection training complies with the requirements of Directive 2009/128/EC therefore the participants of the trainings will be taught the same material as laid down in Annex I to the Directive referred to. Any person possessing a qualification specified in the special decree on plant protection activities (who have participated, among others, in the Chamber's training) and having a licence for marketing, purchasing and using plant protection products under marketing category II are entitled to perform any activities (except for servicing) with plant



protection products under marketing categories II and III, thus marketing as well.

Purchase and use other than servicing of plant protection products under marketing category III are not subject to qualification and licence. The plant protection authority keeps a register of category I and II licences for marketing, purchasing and use it has issued. In view of obtaining the most recent plant



protection information, the holder of a licence for marketing, purchasing and use of plant protection products must participate in regular training every five years in order for the competent authority to re-validate their licence.

Hungary intends to maintain the currently existing two level education system in the future with certain

unavoidable modifications in order to improve training efficiency and to comply with both the new category system to be introduced and the philosophy of integrated pest management. Further information on the modification of the training system is available under point 6.1.1 of the National Action Plan. All wholesale operators marketing plant protection products as well as operators carrying out wholesale and retail marketing of plant protection products are subject to supervision by a plant protection inspector at least once a year.

The competent authority controls 100 % of the retail operators and over 50 % of the operators packaging plant protection preparations at least once a year. These official procedures aim at controlling the distributors' activities (do they have an appropriate licence for the site and for operating, is a person who has the necessary qualification and licence present, are plant protection products properly stored and transported) and the compliance of plant protection products marketed (label, packaging, expiry, registration, etc.).

Objectives:

- Safe operation of operators marketing plant protection products
- The end-users should be provided advice when they purchase plant protection products.

Necessary measures:

- Examination of the possibility of separating trade from administration
- Introduction of electronic prescriptions, phasing out of paper-based prescriptions
- Restricting by law the marketing of category III plant protection products to small packages only (Taking into account that they may continue to be marketed in larger packages in accordance with the requirements for category II products.)
- Secondary and tertiary level trainings should include instructions on appropriate technological solutions for integrated and biological pest control, as well as the protection of pollinators, thus allowing the training participants to learn modern methods of integrated and biological pest control. - In progress.
- Supervision of whether users received the necessary advice concerning the use of the preparations and the cleaning and disposal of packaging materials when they purchased the plant protection products.
- Control of how packings (wastes) of plant protection products are handled at the collectors.
- Control of plant protection product distributors and packers, as well as sampling for quality controls of plant protection products.

Indicators:

- Ratio of non-compliance found in the course of official controls carried out at commercial establishments. The goal is to keep the ratio of non-compliance under 5 %.

5.2. Use of plant protection products (technology, requirements, controls, training)

In Hungary, crop production is widespread in home gardens and hobby gardens among the general public, as a result of which professional production (as producers of goods for sale) and production for own use aren't so sharply divided. In order to ensure the safety of the food chain, the use of plant protection products classified in categories I and II is only allowed by the competent authority for professional users having licences for marketing, purchase and use under the relevant categories. Any user of plant protection products who does not have a licence is only entitled to buy plant protection products classified under category III as regards marketing, purchase and use and to use them for their own purposes.

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Objective:

- Professional and amateur users should only use the preparations in accordance with the requirements of the licence.
- Professional and amateur users should use the best method (chemical, biological, organic agricultural) at the appropriate time to protect against pests.

Necessary measures:

- Dissemination of information on good plant protection practices among professional and amateur users of plant protection products.
- Control of the handling of packings (waste) of plant protection products at the farmer's holding or the plant protection product user's premises.
- Control of the appropriate use of plant protection products and control of compliance with legal requirements at the place of production and other facilities, as well as sampling for pesticide residue analysis.
- Extension of the spraying log.
- Introduction of an electronic spraying log.

Indicators:

- Ratio of irregularities found during official controls carried out on the premises of professional users. The goal is to keep the ratio of irregularities under 5 %.
- Number of poisoning cases caused by plant protection products among people.
- The ratio of users who carry out plant protection treatments based on forecasts to the total number of users controlled in the course of technological controls.

5.2.1. Reducing exposure of users

Authorisations for placing on the market and use of plant protection products (and their label) must provide for personal protective equipment based on a risk assessment, in a uniform way that it is understandable to the user and allows the user to easily identify the personal protective equipment in question. Thus it is ensured that both the user (who works with plant protection products) and the trader selling the personal protective equipment know and familiarise themselves with the necessary protective equipment. If during work several different chemical preparations are used and a number of protective equipment of various levels of protection would be necessary, the protective equipment which provides a higher level of protection should always be used.

The use of the personal protective equipment prescribed should be widely controlled (during preparations and work), and information on proper use must be provided during training and continuous training. Thus wearing personal protective equipment will become generally accepted, and their proper and ergonomic use will preclude an unacceptable level of pesticide pressure arising from occupational factors.

Objective: To minimise the exposure of the person applying plant protection products, which may otherwise cause acute or chronic diseases. Wearing of personal protective equipment to become widespread, their proper and ergonomic use thus precluding any health impairment caused by pesticides in an occupational setting.

Necessary measures:

- Classification of personal protective equipment that may or should be used during treatment with plant protection products. - In progress.

- Provision of information to users on the necessity of using the prescribed protective equipment and promotion of their use.
- Broad control of the use of personal protective equipment during storage of and work with plant protection products.
- Provision of information on the purchase and proper use of personal protective equipment in training and continuous training courses.
- Adequate theoretical and practical training and education should be developed concerning the use of personal protective equipment.
- A monitoring system for mapping and documenting poisoning incidents caused by exposure to plant protection products should be operated.
- The use of more modern models for estimating exposure should be introduced for the review of authorisations of plant protection products on the market and for the authorisation procedures of new plant protection products. The new models make more precise risk assessment possible.
- Drafting an informative leaflet concerning proper practices of pesticide use for the general public. The leaflet should be freely available (e.g. in shops selling plant protection products).
- Minimisation of the exposure of the person applying plant protection products which may otherwise cause acute or chronic diseases.
- Lectures, presentations and demonstrations on the proper practices of pesticide use (on the premises of municipal farm managers, farmers' shops, gardeners' clubs, etc.).

Indicators:

- Number of poisoning incidents caused by plant protection products at the workplace.
- - Ratio of irregularities observed during controls. (The number of irregularities observed during controls of protective equipment compared to all controls.) The goal is to keep the ratio of irregularities under 5 %.

5.2.2. Aerial plant protection activity

Directive 2009/128/EK, under the conditions laid down in Article 9(2), allows Member States to authorise aerial plant protection activities at national level, if they strictly respect risk mitigating restrictions and if the given plant health case cannot be solved by other means. The long history of aerial spraying in Hungary dates back several decades, under very strict legislation and conditions. In view of the structure of Hungarian agriculture, Hungary's geographic and climatic conditions and the risks of extreme phytosanitary situations arising from time to time, it is justified to maintain the possibility of aerial plant protection activity within the given legal framework.

According to current legislation, an aerial plant protection activity can only be carried out under the supervision of a person having higher education qualifications in plant protection and with plant protection products authorised for aerial application. This activity is subject to a licence from the authorities, and the authorities keep records of the licences issued.

Objective: To reduce the risks posed by drifts of plant protection products during aerial plant protection activities.

Necessary measures:

- Harmonised review of authorisations issued for aerial applications, based on risk assessments. - In progress.

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- Disclosures of authorisations of aerial spraying. - Completed, continuous.
- Control of anti-drift agents, materials and the respect of other risk mitigating measures laid down in legislation concerning aerial plant protection and in the authorisations. - Completed, continuous
- Elaboration of a legal framework related to the use of drones for plant protection. - In progress.

Indicators:



- Ratio of damage caused by drifts of plant protection products during aerial spraying to total aerial sprayings. The goal is to keep this value under 1 %.
- Ratio of plant protection product drifts observed during aerial and ground spraying to total plant protection product drifts.

5.2.3. Collection of information on plant protection practices

In accordance with Regulation (EC) No 1185/2009/EK concerning statistics on pesticides, it is compulsory to report on the registration of data on pesticide use. Annex II to this Regulation specifies the data which must be indicated concerning the active substances (listed in Annex III to this Regulation) contained in the plant protection products that are used on certain selected plants.

In order to meet the information requirements set out in this Regulation, data concerning the application of plant protection products should be collected in a way to be as cost-effective as possible without causing an unnecessary administrative burden on the data supplier. The simplest way to implement this is if adequate data are collected from the users of plant protection products who are listed in already existing databases.

At present some 90 % of plant product producers in Hungary are listed in the database of the Hungarian State Treasury. Furthermore, the producers receiving support for agricultural environmental management (approximately 13 thousand clients) are already obliged to electronically report spraying logs certifying their use of plant protection products on an annual basis to the Directorate of Plant Protection, Soil Conservation and Agri-Environment of the National Food Chain Safety Office.

A representative sample of data suppliers (of appropriate distribution, location and covering an adequate area size) must be selected with the participation of the competent public bodies, from producers who meet previously set criteria, by using the two databases jointly. The sample of data suppliers must be determined in such a way as to be able to model the total plant protection product usage in Hungary as regards the major crops (winter wheat, maize, sunflower, rape, vineyards and apples) from the usage data by applying a procedure of statistical estimation.

The data thus arrived at, together with the results of environmental monitoring ensure a solid basis for the

necessary measures and control of the efficiency of measures defined in the National Action Plan. Based on an evaluation of the data, those possibilities for development have to be studied which may be of help for solving any problems and which may be widely disseminated with the help of experts in charge.

Objective: Registration of data on pesticide use in Hungary.

Necessary measures:

- Amendment of the decree on plant protection activity in order to oblige a client to provide such data, if requested to do so by the public authority.
- Elaboration of a cooperation agreement between the State and administrative bodies involved in data collection in order to use the information available in the database.
- In order to implement this task, the elaboration of filter criteria (with the involvement of experts) that comply with the guidelines defined in Annex II to Regulation (EC) No 1185/2009 concerning statistics on pesticides, which will help the selection of data suppliers.
- Building a data reporting system.

Indicators:

- The number of plant protection product treatments applied to the six indicator crops.
- Completion of extensive data collection with regards to plant protection practices. The goal is to conduct at least one such extensive data collection every five years.

5.2.4. Introduction of integrated crop management techniques

Nowadays food consumption habits are going through great changes. Integrated farming makes for good harmony between the protection of human health, production of quality food as well as protection and safeguarding of the environment. Integrated farming is a farming practice which requires harmonised and complex knowledge ranging from the selection of a production site to consumption. This comprehensive philosophy covering the entire food chain is perhaps best represented by the well-known EU expression ‘from the farm to the fork’ which is at the same time the motto of the Hungarian National Food Chain Safety Office.

Accordingly, establishment of a legal framework for integrated farming serves as a basis for sustainable production in Hungary as well. A decisive element of this objective is the requirement laid down in Directive 2009/128/EC on the sustainable use of pesticides which states that from 1 January 2014 onwards, all farmers have to respect the provisions on integrated pest management (IPM) set out in special legislation.

Changes in production techniques across several tiers are necessary to disseminate integrated farming methods, taking into consideration that the introduction of integrated pest management is compulsory:

- respect of mandatory provisions on integrated pest management as from 1 January 2014 in accordance with Directive 2009/128/EC;
- respect of conditions of integrated farming in accordance with the relevant legislation

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The compulsory requirements concerning IPM introduced under this Directive are drafted in Decree No 43/2010 of the Minister for Agriculture and Rural Development as a fundamental plant protection obligation. Changes in consumption demands and market conditions necessitate the introduction of certification with a trademark for integrated farming, the implementation of which is possible only to a high professional standard making it only possible on a voluntary basis.

The following elements form a part of this scheme:

- Use of the right agricultural practices suited to Hungary's ecological conditions
- Selection of an area and reasonable choice of crops that can be successfully grown on the particular place of production.
- Well established crop rotation: diseases, pests and weeds of the consecutive crops should be different. It is important to consider the value of preceding crops and the time of new sowing.
- Selection of varieties: selection of the best varieties for the particular place of production, production practices and aims, taking into account resistance characteristics.
- Use of healthy, controlled propagating materials with special attention to the materials being virus-free and phytoplasma-free.
- Organic plant protection:
 - Soil tillage: reasonable soil tillage does not only offer optimum conditions for plant growth but contributes to reducing pressure from infection (the pathogen cannot overwinter if plant residues are turned into soil, stubble training may reduce the weed seed population of soil).
 - Nutrition: good nutrient supply helps plants resist pests.





- Sowing: proper selection of sowing date and mode is important for the development of crops.



- When selecting the direction of planting/sowing the rules concerning the respect of land use based on soil conservation principles should be met.
- Pruning in plantations: the objective is not simply to establish a good balance of crop productivity, because it also has many plant protection effects (removal of infected parts, pathogens are less able to infect in the well aerated canopy, etc.).
- Irrigation, use of energy-efficient irrigation techniques to protect the soil structure (special attention to water quality, irrigation date and duration).
- Plant protection forecasting (regular monitoring and trapping of plant pests, measuring the weather, data storage and use of data for making decisions on the necessity of controls, etc.).
- Selection of control methods, precise timing of treatments.
- Mechanical plant protection: e.g. in-row tillage by machines, hoeing, bark scraping.
- Physical plant protection methods: e.g. soil steaming.
- Biological plant protection: reasonable and targeted use of the natural enemies of pests. Wide application of this technique is desirable, following the study of their effects on the environment and the existing eco-system.
- Chemical plant protection: Besides the use of the listed possibilities, it may be necessary to apply plant protection products based on forecasting and in a targeted manner over space and time. If plant protection products are used, the plant protection products that burden the environment the least should be used, application should take place with the appropriate machinery, resistance developing in the

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pests should be prevented or delayed, effects should be controlled (observations should be recorded).



- Establishment of ecological corridors, surfaces for ensuring ecological balance, forest belts, groups of bushes and trees providing hiding, feeding and breeding sites for non-target organisms and enhanced protection of beneficial living organisms established there.
- Forming and maintaining strips of land sown with flowering plants that attract pollinating insects at the edges of arable lands between the fields in order to safeguard and increase the population of pollinating insects.



- Establishment and maintenance of optimal protective vegetation strips on the banks of water bodies (width, plant communities) in order to prevent contaminations caused by the use of plant protection products.
- Properly carried out harvests and storage (determination of date and methods, taking into consideration pre-harvest intervals and withholding periods).



- Prevention of point pollution of soil and water during work.
- Waste treatment (proper treatment and disposal of wastes produced during crop production).

Both integrated farming and IPM are extremely complex where all production technique elements constitute a single system therefore their introduction and implementation are only viable if highly qualified experts are employed. The foregoing make it necessary that legislation provides for the obligation to employ doctors of plant protection, i.e. plant protection administration can only be ensured if a written contract is concluded with an expert who has higher education qualifications in plant protection.



As a result of the obligatory employment of a plant protection expert in charge:

- the success of integrated practices is based on better knowledge which will entail a measurable decrease in the quantities of plant protection products used, and thus the pressure arising from plant protection products on the environment is also reduced;
- a crop which is under reasonable IPM will give higher quality produce;
- the tasks of plant protection experts in charge are extended: in addition to ensuring the availability and good application of plant protection products the experts have to supervise plant protection activities in an integrated system.

The technical knowledge necessary for IPM can be ensured by the following:

- higher education in plant protection of an adequate standard,
- continuous training of plant protection experts in charge every five years,
- initial and continuous plant protection training required of the producers.

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The necessary plant protection treatments must be based on forecasting. At farm level, pest forecasts are indispensable for determining the necessity of treatments and the optimal timing of efficient controls. It practically means the study and survey of the ecological conditions of pest infection, pest developmental cycles and population numbers in critical developmental stages of crops. Pests should be monitored on a continuous basis with reliable methods and available tools. Adequate tools are observations carried out on-the-spot, scientifically sound forecasting and early diagnostic systems, furthermore the proposals of qualified advisers should also be taken into consideration.

A nation-wide integrated forecasting system should be created from forecasting systems cumulated on a territorial basis. This could be established and operated within the organisational structure and with the expertise of the Hungarian Chamber of Professionals and Doctors of Plant Protection, in compliance with the legal framework. Plant-specific integrated techniques should be developed on the basis of uniform models, continuously reviewed and updated and should furthermore be made available to the producers.

Objective: To develop and spread an integrated production system which is uniform, ensures a high level of protection for health and the environment, ensures profitability, maintains biological diversity and natural resources, as well as produces high quality and healthy foods.

Spread of this integrated philosophy of farming will contribute to:

- food safety, protection of human health and the environment by means of proper use of plant protection products,
- production of healthy and safe plant products (lower levels of pesticide residues, less active substances detected in the produce),
- reduction of the burden on the environment (in particular, the protection of subsurface waters, surface waters and soils),
- safeguarding biological diversity,
- strengthening of consumers' confidence in plant products of national origin.

Necessary measures:

- Drafting of guidelines on integrated crop production and IPM, - Continuous.
- Preparation of pest risk analyses. Encouraging the use of non-chemical control alternatives and biological control methods.
- Expansion of farmers' technical knowledge on a regular basis (courses, continuous training, electronic and printed media).

Indicators:

- Number of farmers pursuing certified integrated farming and the size and share of the area cultivated by them (compared to the total agricultural area).

5.2.5. Organic farming



EU Ecolabel

Hungary's favourable climate, the good quality of its arable land and the great traditions of its crop production and animal production make it possible that under certain circumstances

the food industry is able to produce high quality food even without synthetically produced substances. Furthermore, national restrictions on activities concerning genetically modified plants also ensure a more favourable environment for organic food production. Organic farming has a favourable influence on biological diversity, the long-term conservation of soil fertility and serves the conservation of nature.

Trends in farming on arable land and pasture and meadow cultivation that have been dominant in the structure of crop production appear stable, but in terms of shares, the area of permanent crops, including vineyards, has increased the most during the past five years.

Aid and regulatory policy instruments provided for transitioning to organic farming or maintaining organic farming contribute significantly to increasing the number of organic farmers and thus the area under organic control as well. In the past five years the share of the area under organic control increased by over 1 % to 3.73 % (in 2017) of the total area under agricultural production.

As a result of a review of legislation on organic production, new regulations will be applied as of 1 January 2021 in the Member States of the EU, including Hungary. The new regulations will simplify legislation, it will be possible to certify more products, trade in organic products will become smoother between the EU and third countries and exceptional production rules will gradually be phased out. The latter may present the greatest challenge for Hungarian organic farmers as for instance significant progress still cannot be observed in the production of propagating material certified to be of organic quality in Hungary.

Objective: To increase the number of farmers falling under the organic control and certification system, as well as the size of the area under organic control and the volume of certified products.

Necessary measures:

Organic farming is the best suited to widespread application even in areas of enhanced environmental and/or natural sensitivity (e.g. nitrate vulnerable areas or areas under legal protection) because of its nature.

- Encouraging the spread of biological plant protection methods by amending the legal framework, appropriately taking into account its particularities, among others.
- Supporting research, development and innovation in nutrient management and plant protection, on which the competitiveness and yield stability of organic farming are based.
- Providing information on and raising awareness of already available technological methods that facilitate

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organic farming.

- Furthering the preparedness of the experts in charge of facilitating organic production.
- Pursuing plant protection practices suited to the needs of beneficial organisms, in particular those of pollinators.



Support for organic farming

- Drafting simple and clear requirements on the conditions for aid to facilitate the wider spread of organic farming.
- Maintaining a system of technical and legal supervision and control.



Logos of Hungarian certification bodies

Raising awareness and spread of organic farming:

- Drafting recommendations for organic production which are plant-specific and crop rotation-specific and which present agricultural techniques and forecasting and signalling tools, as well as the necessary control methods in case plant protection problems arise.
- Rolling out a supported administration system with the involvement of producers who have already gained experience in organic farming:
 - Making use of the phytosanitary effects of the agricultural techniques of organic farming.
 - Building a central forecasting system.
- Integration of environmental risk mitigating measures into organic farming – support of programmes for the maintenance of biodiversity and the protection of beneficial living organisms (e.g. edges and strips of land are not cultivated, hedgerow plants are planted to assist pollinating insects in feeding).

Indicators:

- Number of farmers dedicated to organic farming.
- Size and share of areas under organic farming and their distribution according to crops.
- Market share of organic produce of non-animal origin.

- Number of plant protection products and crop-enhancing/active substances authorised for use in organic farming.
- Volume of marketed plant protection products authorised for use in organic farming

5.3. Environmental effects of the use of plant protection products

5.3.1. Water environment and the protection of drinking water abstraction areas

The use of plant protection products poses a risk to both non-target aquatic organisms and human health through surface and subsurface water pollution. The granting authority is responsible for reducing this risk to an acceptably low level through the introduction of risk mitigating requirements.

Objective:

- Prevention of the pollution of surface and subsurface waters, in particular in drinking water abstraction areas
 - Protection of the environment of surface waters
 - Protection of aquatic organisms

Necessary measures:

- Improving the environmental awareness of amateur and professional pesticide users through raising awareness of risk mitigating measures, farming courses, continuous training sessions, etc.
- Designing data collection in such a way that it ensures the availability of data on the quantities and places of use of pesticides that were actually used in order to determine as precisely as possible the effects caused by specific substances.
- Facilitating access to techniques that burden the environment less when pesticides are applied and promoting their spread through publications and leaflets.
- Drawing up and publishing a list of low-risk plant protection products that may be used in the vicinity of drinking water abstraction areas, especially sensitive groundwater conservation areas and surface waters.
- Compulsory establishment of windbreak trees and vegetation on the banks to reduce the drifts of plant protection products in the vicinity of surface waters.
- In especially sensitive groundwater conservation areas and in the vicinity of surface waters, restrictions on the use of pesticides on surfaces where water runs off quickly, along roads, railway tracks, easily permeable or impermeable surfaces, as well as the promotion of the use of pesticides classified as low risk.
 - Designing protective strips of land covered with vegetation that are at least five metres wide along the banks of surface waters.
- During inspections, the restrictions prescribed in the authorisations for the use of pesticides and in legislation, risk mitigating measures, application of low-risk plant protection products and application techniques are taken into account with great emphasis.
- Continuous monitoring of environmental media (soil, surface water vegetation, groundwater) with regard to the presence of pesticides' active substances in sensitive areas – analysis and publication of such data and, if necessary, modification of the restrictions on pesticide use and determination of new buffer zones.
 - Periodic reviews and expansions of the list of monitored active substances.

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Indicators:

- extent of contamination of surface waters, drinking water, groundwater and soil with the active substances of plant protection products
- ratio of irregularities found in the course of inspections carried out in the vicinity of water conservation areas to the number of inspections

5.3.2. Areas requiring special attention from the perspective of plant protection product use

In certain specific areas complete prohibition/restrictions on the use of pesticides may be necessary in order to protect human health and to conserve the biodiversity of non-target organisms and their density.

The following are considered especially sensitive areas:

- parks
- playgrounds
- sports grounds
- the vicinity of public institutions (e.g. hospitals, schools, nursery schools)
- permanent way
- queen bee raising sites
- any other public space
- and areas of conservation.

Objective: Reduction of exposure of both humans and non-target organisms due to plant protection product use.

Necessary measures:

- Incentive to use low-risk plant protection products for pest management of inhabited areas. - Completed, continuous.
- Elaboration of criteria for the use of substances in specific areas.
- Continuous monitoring of environmental media (soil, surface water vegetation, groundwater) with regard to the presence of pesticides' active substances in order to demonstrate the effects on sensitive areas – analyses and publication of such data and, if necessary, restrictions on pesticide use and determination of new buffer zones,
- periodic reviews and expansions of the list of monitored active substances,
- increased level of control of compliance with risk mitigating measures required in the authorisations of plant protection products and in legislation,

Indicators:

- Extent of pollution of soils, surface waters, subsurface water, vegetation in priority areas.
- Ratio of irregularities found in the course of inspections carried out in high risk areas to the number of inspections

5.3.3. Reduction of environmental pollution caused by wastes from residues of unused plant protection products and packaging materials

In Hungary, some 2000-2200 tons of containers, mainly plastic cans (70 %), contaminated with plant protection products, as well as contaminated paper bags (20 %), associated waste (10 %) and metal scrap

are produced each year. Collection and disposal of packaging materials and packings contaminated with pesticides is organised in a closed system by a non-profit company in accordance with relevant legislation and financed primarily by the manufacturers/distributors of plant protection products.

The quantity of expired, obsolete plant protection products has decreased in recent years which is partly due to the collection programmes announced in previous years, however the wastes from plant protection products that have not yet been collected still pose significant environmental and health risks. They are not expected to rebound due to economic and administrative reasons (the high price of plant protection products, deadline for the use of active substances to be withdrawn under the EU review programme can be planned, storage requirements, recycling).

Objectives: An actual increase in the ratio of and in the utilisation of collected packaging materials and containers contaminated with plant protection products, as well as the environmentally safe disposal of the stocks of plant protection products eventually remaining at the holdings of farmers and users of plant protection products.

The EU directive on packaging and packaging waste together with the Hungarian decree on packaging which harmonises the directive state that in 2012 at least 60 % of the annually marketed mass of packaging materials should be recovered of which at least 55 % should be recycled. Of course, this general obligation includes the packaging of plant protection products, too. Handling of packaging waste (potentially) contaminated with plant protection products should be managed separately from general waste management.



Necessary measures:

- Amendment of Decree No 103/2003 of 11 September 2003 of the Minister for Agriculture and Rural Development on the treatment of pesticide contaminated packaging waste in accordance with the new act on waste management.
- Measures to be taken to mitigate risks arising from residues of plant protection products and their packaging materials:
 - Organisation of collection programmes for the final disposal of wastes from obsolete plant protection products in counties which were left out of previous programmes. Following these programmes, an increased level of control in the relevant counties.
 - The expired plant protection products may only be disposed of/used in a hazardous waste incineration plant.
 - Energy recovery of packings contaminated with plant protection products and recycling of

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plastic packings.

- Increased level of control for the collection, transport and treatment of packaging materials contaminated with plant protection products, plant protection products and pelleted seed packings as well as an increased level of control for the operation of waste management facilities and equipment.
- Strengthening cooperation between national (environmental, plant protection) authorities in their technical work and during official controls.
- Periodic joint official controls to detect stocks of obsolete plant protection product wastes.
- Regular and efficient dissemination of information among farmers on the proper methods of treating and collecting empty contaminated packings and on the disposal (recycling) of any remaining plant protection products without posing a risk to the environment.
- Regular and efficient dissemination of information among the general public on any risks arising from the use of empty packings of plant protection products for other purposes. In addition to the non-profit company which has provided such information up to now, other advocacies concerned with the sales of plant protection products also take part in disseminating information to farmers and the general public.
- Prevention of the repeated accumulation of plant protection product wastes.

Indicators:

- Number of counties where collection programmes are carried out. - Every county is involved in the collection programmes.
- Volume of detected but not collected obsolete plant protection products which have expired.
- Ratio of collected packaging material wastes.

5.3.4. Reduction of the risks arising from any failure or improper use of pesticide application equipment

As regards their technology and technical condition, the pesticide application equipment and sprayers used at present in Hungary show a rather diverse picture. In accordance with the relevant legislation, new machines (less than 10-12 years old) have authorisations for placing on the market. Illegal trade of machines is not a characteristic feature in Hungary. There is a legal framework for official inspections of application equipment at regular intervals.



Objectives: Design, introduction and operation of a system for the inspection of pesticide application equipment subject to controls at regular intervals. Establishment of a regulatory, tendering and economic

environment that supports the safe operation of pesticide application equipment which are of a high standard, economical in the use of plant protection products and least contaminate the environment.

Necessary measures:

Measures for the introduction of a scheme of periodic inspections of pesticide application equipment:

- Multi-level and efficient dissemination of information among farmers and users of plant protection products subject to inspections.
- Further circumstances and proposals related to the periodic inspections:
 - Inspections should concern all equipment with a tank volume of at least 100 l,
 - Inspections should be extended to and designed for spraying equipment mounted on trains and aircraft
- Establishment of a uniform database. Deadline: continuous

Indicator: Number and ratio of equipment subject to periodic inspections The goal is to inspect 100 % of equipment within three years.

5.3.5. The protection of bees and other pollinating insects

Bees and other pollinating insects are responsible for pollinating the majority of food crops that are significant from an economic perspective and wild plants, thus their environmental and economic roles are both indisputable. From an environmentalist perspective, pollinating organisms play an important role in maintaining a good ecological balance and for this reason, their disappearance or extinction would have a catastrophic impact on animal and plant life. Domestic honeybees' importance in economic terms is key because the apiculture industry is an integral part of Hungarian and European agriculture. The most important product of this industry is honey, which, in addition to being an excellent, tasty food, protects health thanks to the vitamins and minerals it contains. For this reason the presence and thus the protection of bees and other pollinating insects is indispensable from both an environmental and economic perspective.

Climate change, shrinking habitats and food supplies, bee health problems (e.g.: varroosis, diseases) and in a prominent position, the use of plant protection products, especially insecticides, have had an impact on pollinating organisms.



Bee poisonings caused presumably by plant protection products may be individual cases or may occur nation-wide. For their examination, procedural rules adopted by representatives of the profession have to be followed since 2013; the rules determine the tasks of plant protection and animal healthcare. The procedure is initiated by a notification made by the injured bee-keeper and is closed by a case report drawn up by the public authority, which will provide a basis for any subsequent legal proceedings.

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Besides the death of domestic honeybees and their abnormal behaviour (e.g. the phenomenon of ‘crawling bees’) due to irregular plant protection product use, a decline in the colonies of other pollinators, wild bees, butterflies, etc. must also be taken into account. Thus the person who has caused damage must also be held liable for environmental damage in addition to the damage to the bee-keeping farm.

The National Hungarian Bee-keeping Association (OMME) conducts regular consultations with representatives of plant protection product licensing to address problems that may be resolved jointly. Taking into account experience and the arguments of experts, it is possible to suspend certain uses, change a phenologic condition, etc.

Crop field trials are initiated on flowering plants nation-wide in order to screen for illegal or irregular pesticide use thereby improving the living conditions of insects. The simultaneous communication of the results encourages environmentally aware pesticide use.

Objective: Reduce the occurrences of bee poisoning, maintain colonies of pollinating organisms, improve their living conditions

Necessary measures:

- Surveys of the biodiversity of non-target insects and their density
- Within the framework of a crop field trial programme covering the entire territory of Hungary, sampling of flowering plants in cultures that are attractive to bees (joint monitoring with OMME)
- Investigations of alleged bee poisonings on the basis of rules of procedure covering several fields, evaluation and publication of the results, continuous review of the rules of procedure and their amendment as needed
- Construction of a pesticide residue database using official trials for an objective assessment of the residue content of samples taken in cases of bee poisonings
- Review and continuous updates of the precautionary provisions of plant protection product authorisations concerning bees and other non-target arthropods
- Promotion of universities and research organisations’ faunistic research and surveys in the vicinity of agricultural areas
- Promotion of the establishment of nesting sites and food supplies for useful pollinating organisms alongside agricultural land in the form of flowering strips of land and bee hotels, in order to maintain biodiversity.

Indicators:

- Ratio of the number of bee deaths proven to be caused by pesticides to the number of cases reported. The goal is to keep this value under 10 %.
- Ratio of the number of bee poisonings reported compared to the total number of bee-keeping farms. The goal is to keep this value under 1 %.

5.4. Ending illegal use of plant protection products and illicit techniques

5.4.1. Suppression of illicit techniques¹

In Hungary a high number of active substances and hence several plant protection products were withdrawn in the last decade. In the case of certain crops, the efficient control of certain pests and

¹Illicit techniques: Application of a preparation not authorised for the crop.

pathogens became almost impossible when authorised plant protection products were reduced or eliminated. In order to maintain crop production and food safety the authorisations of the plant protection products specify the requirements concerning the use of plant protection products for each crop precisely.

Objective: It should be set as a goal that authorised uses should be available for producers for all important crops (major and minor crops) grown in Hungary if damage cannot be controlled with non-chemical, preventive alternatives. The number of illicit/unauthorised uses will decrease if the pest can be controlled with authorised uses.

Results to be expected: by implementing the planned measures, the ratio and extent of illicit techniques will be reduced and consequently any damage to human health and pressures on the environment will also decrease.

Necessary measures:

- Transparent, rapid and smooth handling of applications submitted to end problems of minor crops and of pest management. - Completed, continuous
- - If possible, acceptance of authorisations granted in other Member States, mutual recognition of authorisations. - Completed, continuous
- Tracing objectionable levels of pesticide residues from an authorisation point of view ('post-registration monitoring'). - Completed, continuous
- Increased level of control of spraying logs, with appropriate sanctions, if necessary. - Completed, continuous
- Detection and sanctioning of illegal uses of unauthorised plant protection products. - Completed, continuous

Indicators:

- Number of official technological controls, ratio of non-compliances. - Objective: To keep this below 5 %
- Evaluation on the basis of results obtained in pesticide residue trials and the ratio of contested products.
- Objective: To keep this below 5 %
- Number of plant protection products authorised for minor crops (number of extensions, number of amended authorisations and newly granted authorisations). - Objective: Should concern at least five crops annually.

5.4.2. Suppression of contamination caused by illegal plant protection products

Making use of the free movement of goods within the European Union, unauthorised plant protection products have appeared in Europe. Strict documentary requirements regulate the proper and safe use of authorised plant protection products, while the application of illegal plant protection products poses severe risks to food safety, the environment and human health:



and

- health effects of illegal plant protection products have not been examined (they may have a direct toxic effect on humans, or may accumulate as dangerous substances in humans, or may even cause allergies) and they may contain potentially dangerous and toxic contaminants and uncontrolled by-products which may have chronic or acute effects on the health of users;
- the toxic substances of unexamined illegal plant protection products may pose risks to the environment in either the short or long term and may enter the food chain from environmental media;
- the produce to be protected may be damaged or even destroyed;
- the produce cannot be consumed, traded, it must be fully disposed of;
- because of the uncertain composition of counterfeit or illegal plant protection products and their properties, the harvested crop may contain unknown and untested pesticide residues, degradation products and may pose risks to consumers' health and the environment;
- counterfeiting of plant protection products is a branch of organised crime and is also a matter of national security (e.g. their explosiveness may give rise to catastrophes);



- the manufacturer will not accept any responsibility for counterfeit plant protection products, does not provide advice for their use and there is no servicing;
- in case of counterfeit plant protection products, the antidote is unknown, should poisoning occur; data protection rights and intellectual property rights are infringed because of counterfeiting of plant protection products. Opinions on the industry and on pesticides in general will take a turn for the worse, the safety of production and the food chain will weaken, which will hinder innovation and reduce competitiveness and consumers' confidence. In the long run, this may have a very severe negative social and economic impact. The black market also causes significant harm because taxes are

not paid. In order to stop and turn back the increasing trend of counterfeiting, both international and national co-operation are needed. Estimates show that the ratio of counterfeit and illegal plant protection products in Hungary is 2-3 %, which means a volume below the suspected European average (5-7 %). The demand side is mostly motivated by increased price sensitivity caused by a volatile economic environment and production, profitability that is still low and a lack of capital. The supply side may be encouraged by certain producers' groups' lack of information regarding the hazards and risks that may eventually arise.

Objective: Suppression of contamination caused by illegal plant protection products.

Necessary measures:

- Increased level of control by the authority, planning, concentration and differentiation of controls/samples taken based on risk assessment. - Completed, continuous. Enabling work at official laboratories.
- Equipping the quality control laboratory of plant protection products with appropriate instruments, expansion of its capacity. - Completed, continuous.
- Organisation of multi-level, efficient information campaigns targeted at users running continuously before and during the peak seasons of use that include content concerning the risks and suspicious signs of pesticides of counterfeit/suspicious origin as well as ways to avoid them. – Completed, continuous.
 - Continuous operation of a free notification platform for investigating any suspicious cases (on-line help desk). - Completed, continuous.
- Closer cooperation with the National Tax and Customs Authority and the Police to investigate specific cases and, if necessary, with the involvement of international authorities. - Completed, continuous.
- Closer cooperation between advocacies (of chambers, manufacturers, traders, producers) in this area: organisation of joint workshops, preparation of publications. Building close and continuous contacts with the National Board Against Counterfeiting in Hungary (HENT). - Completed, continuous.

Indicators:

- Official controls (of manufacturers, producers, distributors, users). Ratio of non-compliances observed during controls. - Objective: To keep this below 1 %.



5.5. Increased regulatory controls of the use of plant protection products in accordance with the provisions of good plant protection practices

Respecting technological provisions concerning the use of plant protection products is of high importance for the protection of the environment and of human health. Plant protection authorities perform facility and production site inspections at the producer's holdings to check whether the provisions of legislation and authorisations are respected when plant protection activities are carried out. By increasing the number of controls, farmers' awareness can be improved and a culture of compliance during spraying activities can be encouraged.

Objective: Fulfilment of the criteria set out in the Directive, improvements in the respect of professional discipline.

Necessary measures:

- Data collection concerning the plant protection products used - Completed, continuous.
- Strengthening the activities of the administration which concern the good and necessary use of plant protection products. - Completed, continuous.
- Introduction of a plant protection regulatory monitoring system that is based on risk analysis.
- Publication of annual reports on official controls – marketing of products – Completed, continuous.
- Control of the respect of good agricultural practice in accordance with the provisions of authorisations.
 - Completed, continuous.

Indicators:

- Ratio of irregularities observed during official controls to the total number of controls. - The goal is to keep the ratio of irregularities under 1 %.

5.7. Raising social awareness – organisation of campaigns

Objective: Raising awareness among users of pesticides, farmers, garden owners and the general public



Necessary measures:

- Launch of programmes for raising the general public’s awareness with the participation of trade associations and civil society organisations. - Completed, continuous.
- Encouraging a reduction in the use of pesticides.
- At request, informing those interested in detail. - Completed, continuous.
- The summary results of annual pesticide residue trials must be published on-line in a form allowing comparisons with earlier years.
- The authority responsible for issuing plant protection product authorisations must publish the approved active substances and the authorised plant protection products:
 - Database accessible on the internet on the approved active substances and the authorised plant protection products; - Completed, continuous
 - Database on plant protection products authorised by derogation (essential uses, authorisation for emergency uses for 120 days) accessible on the internet – Completed, continuous
 - The authorities will publish the authorisations granted for aerial spraying. - Completed, continuous.
- Raising environmental awareness through specialised training at agricultural universities and farming courses. Introduction of measures to improve the quality of life of pollinators, in addition to prudent pesticide use, such as placing nesting sites for wild bees, establishing strips of land with plants with long blossoming periods that provide pollen, etc.
- Preparation of publications targeting amateur users on irregular plant protection product use, on interpretations of risk mitigating measures and on the importance of respecting such measures. Dissemination of information on leaflets and at events.

Indicator: Number of people reached by these campaigns.

5.6. Running a plant protection administration network with the participation of public entities and professional public bodies

In order for farmers to make the right decisions concerning their choice of sustainable, environmentally friendly and profitable plant protection techniques to be used for producing high quality products and for preventing any epidemics and outbreaks, they need to cooperate with an objective and impartial expert in charge who is independent from manufacturers and traders. This is justified by the fact that most farmers are not familiar with environmentally friendly farming practices, methods of integrated production and IPM, modes of reasonable use of plant protection products and their mode of action, or the biology and ecology of pests. With the establishment of a plant protection administration network, it will be possible for the farmers in a particular production district to use environmentally friendly, low or no pesticide-input

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pest management or preventive methods on the advice of a doctor of plant protection who is familiar with the area.

Objective: To integrate the results of trials designed for micro-regions and organised and evaluated by professional public bodies into annual forecasts based on multi-annual series of data and to optimise and reduce the number of plant protection treatments.

Necessary measure: Operation of a professional plant protection administration network by the Hungarian Chamber of Professionals and Doctors of Plant Protection (proposal: creating a legal framework within which cooperation with a doctor of plant protection is obligatory). - Completed, continuous

Indicator: Ratio of farmers cooperating with the plant protection experts in charge to the number of farmers receiving aid. The goal is to keep this value above 25 %.

6.1. National Plant Protection Programmes for Education, Research and Innovation

6.1.1. Introduction of a training system complying with the philosophy of integrated pest management

Objective: In plant protection education, efforts must be made to spread the philosophy, skills and practices of integrated and organic plant protection, taking into account the objectives of the National Action Plan.

Necessary measures:

- To set up of the structure, programmes and curriculum of plant protection education and to organise training and communication with State supervision ensured.
- The material of the basic curriculum must be integrated into primary and secondary level agricultural education in the OKJ (National Qualifications Register) system. Efforts must be made to integrate the material on plant protection into higher education in agriculture and horticulture (BSc, MSc) at least at the level of basic courses and to encourage an integrated philosophy in the education of agricultural subjects.
- Education on the protection of catchment areas and reinforcing the aspects of environmental and health protection.
- Plant protection administration, servicing activities, administrative management, placing on the market and use of prescription only plant protection products, plant protection forecasting, training of farmers outside the school system, continuous training for doctors of plant protection and for experts having higher education qualifications in plant protection may only be pursued by persons who have higher education qualifications in plant protection.
- The system of higher education in plant protection has to be revised, with special attention paid to integrating general agronomic knowledge and the most recent scientific achievements into an education that is practice-oriented and based on an integrated philosophy. The possibility of introducing a five year, undivided programme (MSc) into the system of training doctors of plant protection should be studied.
- In the education of doctors of plant protection, efforts must be made to spread the philosophy, skills and practices of integrated and ecological plant protection, taking into account the objectives of the National Action Plan.
- Plant protection experts must take part in training sessions every five years or on a continuous basis in

accordance with Decree No 43/2010 of 23 April 2010 of the Minister for Agriculture and Rural Development. - Completed, continuous.

- Teaching of safe pesticide use at agricultural vocational schools, universities and continuous training sessions.

Indicator: Number of participants in the training.

6.1.2. Development of National Plant Protection Programmes for Research and Innovation

The objectives set out in the National Action Plan cannot be implemented without significant support from research.

Objectives: To ensure the strategic production of basic materials of food and to maintain and promote the competitiveness of farms, sustainable, integrated, alternative pest management systems should be developed, the implementation of which will result in the least pressure on the environment from the use of agrochemicals, in addition to achieving the greatest possible yield security. All possibilities for reducing the use of plant protection products (spread of natural enemies, pollination, etc.) should be examined. Preparations should be made for eventual changes in the spread of pests (pathogens, insect pests and weeds) over time and space due to climate change.

Necessary measures: Development of National Plant Protection Programmes for Research and Innovation:

A. Setting priorities on the basis of available techniques and crop-specific plant protection methods:

- pursuing research that helps in the development of IPM
- study of the possible replacement of substances marked for substitution
- research needed into the synergistic effects of active substances,
- research, modelling needed concerning the pathways where plant protection products (active substances) spread in the environment as well as their environmental effects,
- encouragement for research to improve biological efficiency,
- study of the joint effects of various plant protection products with regard to their efficacy, effect on the environment and health,
- development and technical improvement of biological, organic agricultural and biotechnological control methods aimed at optimising the use of plant protection products,
- research into environmentally friendly and alternative plant protection methods posing the lowest possible risk to human health.
- Simplifying the Hungarian authorisation procedure of macro and micro-organisms used for biological control, their integration in pest management programmes and facilitating their use.
- Support for the development and licensing of tools and equipment used for trapping or repelling predator pests as well as their integration into plant protection programmes, encouragement of their use.
- Development of the basis of a pest forecasting system.



- Research must be conducted on the expected impact of climate change and possible solutions for acclimatisation, especially with regard to plant protection (warming, increase in the frequency and extent of extreme weather and as a consequence appearance of new pests, more severe and frequent occurrences of fungal diseases during wet periods, changes in the overwintering of pests due to warming, etc.),

- Carrying out cost-effectiveness analyses concerning the use of plant protection products.
- Breeding for resistance
- Renewed production of old, traditional resistant arable crop, fruit, grape, vegetable and medicinal plant species,
 - Use of old, traditional, resistant arable crop, fruit, grape, vegetable and medicinal plant species (biological bases, gene banks) which are presently not commonly grown, in further breeding work,
 - Domestic production of new (not genetically modified) resistant arable crop, fruit, grape, vegetable and medicinal plant species,
 - Commonly growing newly bred (not genetically modified) domestic and foreign, resistant arable crop, fruit, grape, vegetable and medicinal plant species,
 - Targeted support of domestic institutes responsible for maintaining and safeguarding old varieties (gene banks, Centre for Plant Diversity (Növényi Diverzitás Központ), Tápiószele), and for breeding (e.g. Cereal Research Non-Profit Ltd. (Gabonakutató Nonprofit Közhasznú Kft.), Centre for Agricultural Research of the Hungarian Academy of Sciences (MTA Agrártudományi Kutatóközpont); National Fruit and Ornamental Plant Research and Development Non-Profit Association Ltd. (Állami Gyümölcs- és Dísznövénytermesztési Kutató Fejlesztő Közhasznú Nonprofit Kft.), Cegléd, Érd, Újfehértó; Research Institute for Viticulture and Oenology (Szőlészeti és Borászati Kutatóintézet), Badacsonytomaj, Eger, Kecskemét, Pécs, Tarcis; ZKI Vegetable Crops Research Institute Ltd. (Zöldségtermesztési Kutató Intézet), etc.) (breeding for resistance),
 - Scientific study of food security issues based on agricultural plant protection practices (pesticide residues, mycotoxins, GM products), support of research aimed at ensuring and improving food security based on the philosophy ‘from the farm to the fork’,
- Authentic demonstration of results (variety demonstrations, television and radio reports, newspaper articles, etc.) – strengthening confidence,
 - Development of crop-specific IPM guidance,
 - Development of research programmes,
- Considering the farmers’ demands and local conditions when developing research programmes.

A. Laying down the scientific foundation of national IPM policy,

B. Support of participation in international research programmes and cooperation (IOBC, ENDURE,

EUPHRESCO),

C. Ensuring the necessary resources.

Indicators:

- Number of alternative plant protection techniques developed and the resulting reduction in the use of plant protection products.
- Number of participants in international research.