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AMENDMENTS TO THE
NATIONAL ACTION PROGRAMME FOR ACHIEVING SUSTAINABLE USE OF PLANT
PROTECTION PRODUCTS
FOR THE PERIOD 2012–2022, SPECIFICALLY FOR THE PERIOD 2018-2022

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List of abbreviations:

TRP	Targeted research programme
EIP	European Innovation Partnership
OF	Organic farming
ERA NET	European Research Network
EC	European Community
EU	European Union
PPP	Plant protection products
GERK	Graphic agricultural land use unit
GIZ	Economic Interest Association
HBM	Human biomonitoring
ISO	International Standard Organisation
IPM	Integrated Pest Management
CAFS	Chamber of Agriculture and Forestry of Slovenia
KMG	Holdings
AEP	Agri-environment payments 2007-2013
AECP	Agri-environment-climate payments 2014-2020
UAA	Utilised agricultural area
MKGP	Ministry of Agriculture and Forestry
MOP	Ministry of the Environment
NAP	National Action Programme for achieving sustainable use of plant protection products
NIPH	National Institute for Public Health
WMP	Water Management Plan
Strain index	Strain index - index of strain to areas caused by PPP
Frequency of use index	Frequency of use - Frequency of PPP use index
POPs	Persistent organic pollutants
RDP	Rural Development Programme
RS	Republic of Slovenia
SORS	Statistical Office of the Republic of Slovenia
SIST	Slovenian Institute for Standardisation
SUD	Sustainable Use Directive
HO	Harmful organisms (pathogens, pests, weeds)
CORS	Chemicals Office of the Republic of Slovenia
WPZ	Water protection zones
ZfS-1	Plant Protection Products Act (Official Gazette of the Republic of Slovenia No 83/12)

1. INTRODUCTION

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 pesticides¹ (hereinafter: Directive 2009/128/EC) was implemented by adopting the Plant Protection Products Act (*Uradni List RS* (UL RS; Official Gazette of the Republic of Slovenia) No 83/12) hereinafter: ZFFS-1)² and other implementing regulations transposing the provisions of the Directive.

In December 2012 the Government of the Republic of Slovenia adopted the National Action Programme for achieving sustainable use of plant protection products 2012-2022 (hereinafter: NAP)³ on the basis of Article 9 of the ZFFS-1, which transposes Article 4 of Directive 2009/128/EC. Directive 2009/128/EC contains the definition of pesticide which is: pesticide means a plant protection product (for protection against harmful organisms) and a biocidal product (for use to protect humans, animals, materials or products against harmful organisms) as defined in the Regulation on biocidal products (BPR, Regulation (EU) 528/2012).⁴ The Slovenian NAP concerns only plant protection products (hereinafter: PPP) which are used for plant health protection against harmful organisms (hereinafter: HO), which include pests, pathogens and weeds. According to the law, PPP are products used for pest management, including those considered to be methods with a lower risk: PPP based on microorganisms, plant extracts, pheromones, baits and the like. The purpose of the NAP was to define goals and the approach for reducing risks caused by using PPP through the use of new knowledge and technological development and by introducing innovations, educating users, introducing and promoting integrated pest management, increasing the effective use of all PPP and reducing the environmental burden caused by the use of certain PPP.

The NAP 2012-2022 lays out 24 measures and 19 risk indicators through which progress is assessed in terms of the reduction in the risk and harmful effects caused by the use of PPP for human health and the environment.

The Ministry of Agriculture, Forestry and Food⁵ (hereinafter: the Ministry) assesses the NAP every 5 years as set out in Article 9(5) of the ZFFS-1 and makes recommendations to the Government on how it should be amended. The Food Safety, Veterinary and Plant Protection Administration⁶ (hereinafter: Administration) and the Expert Committee for implementing tasks related to the NAP (hereinafter: Expert Committee) participate in preparing amendments to the NAP. The Expert Committee was appointed by a decision of the minister responsible for agriculture. It consists of experts in administrative bodies: The Ministry, the Ministry of Health – the Chemical Office of the Republic of Slovenia (CORS)⁷, the Statistical Office⁸, the Agricultural Institute of Slovenia, the Biotechnical Faculty of the University of Ljubljana, the Faculty of Agriculture and Life Sciences of the University of Maribor⁹ and non-governmental organisations: the Chamber of Agriculture and Forestry of Slovenia (CAFS)¹⁰, the Economic Interest Association of Producers and Distributors of PPP (EIA)¹¹ and the Slovenian Consumers' Association¹². The Expert Committee participates in discussions of the contents of the NAP, produces reports and prepares amendments to the NAP.

In cooperation with the Administration and the Expert Committee, the Ministry prepared a Report on progress in implementing the NAP for the period 2013-2015 in 2016. The Report on

¹ <http://eur-lex.europa.eu/legal-content/SL/TXT/?qid=1400754368156&uri=CELEX:32009L0128>

² <https://www.uradni-list.si/pdf/2012/Ur/u2012083.pdf>

³ Website of the NAP:

http://www.uvhvvr.gov.si/si/delovna_podrocja/fitofarmaceutvska_sredstva/nacionalni_akcijski_program/

⁴ <http://eur-lex.europa.eu/legal-content/SL/TXT/?uri=OJ:L:2012:167:TOC>

⁵ Website of the MAFF: <http://www.mkgp.gov.si>

⁶ Website of the Administration: <http://www.uvhvvr.gov.si/>

⁷ Website of the CORS: <http://www.uk.gov.si/>

⁸ Website of the SORS: <http://www.stat.si/statweb>

⁹ KIS: <http://www.kis.si/>; BF: <http://www.bf.uni-lj.si/dekanat/novosti/>; UM FK BV: <http://www.fkbv.um.si/>

¹⁰ Website of the CAFS: <http://www.kgzs.si/>

¹¹ Website of the PPP EIA: <http://fitofarmacija.si/>

¹² Website of the Slovenian Consumer's Association: <https://www.zps.si/>

progress in implementing the NAP for the period 2013-2015 was sent to the European Commission and was published on the website of the Administration.¹³

On 7 November 2017, the Government adopted a position on the approval of the active substance glyphosate and issued a decision to work towards prohibiting the use of glyphosate by giving an appropriate adjustment period to the agriculture sector. In the NAP, the Government of the RS undertakes to reduce the use of chemical PPP in general, to restrict the use of herbicides in public areas and to reduce risks caused by the use of PPP to health and the environment by reducing the volume of use over the long term.

In its position, the Government explained that there is a need to review legislation on issuing licences for PPP, in particular so as to ensure that consumers' and civil society's interests are taken into account, as well as expert and scientific arguments. The complexity of laws, based on strict professional decision-making criteria on the acceptability of a particular risk, is ultimately reflected in the fact that risk assessments are not understandable to the public, which gives rise to doubts about the suitability of decisions adopted.

The Government made its position clear in the explanation:

- reducing the use of PPP, especially in public areas;
- changing the criteria for PPP which are permitted for non-professional use; and
- reducing or restricting the use of PPP in agriculture over the long term.

The starting points of the Government of the RS are included in the measures of this NAP. Consideration should be given to the question of how to inform and appropriately educate the public; perhaps by introducing basic material in primary and secondary school programmes on risk assessment of chemicals, possible measures for reducing risks, and the protection of health and the environment.

In 2014, the European Commission reviewed and assessed the NAPs of all EU Member States and reported thereon to the European Parliament. In its Report, it found that all NAPs were well designed but, as they had been prepared without the Commission's directions, they differed significantly from one another and were difficult to compare. The Commission gave certain recommendations on how to improve the contents of NAPs when they come up for their 5-year review.

The law prescribes a review of the NAP every five years. The amendments to the NAP for sustainable use of plant protection products 2012-2022 were prepared for the period 2018–2022 and take into account the findings of the Report on progress in implementing the NAP 2013-2015, the recommendations of the Expert Committee, the recommendations of the European Commission and the positions of the Slovenian Government. They set out amendments to the NAP's contents, goals, measures, time limits and risk indicators according to the experience gained in the first 5-year period of implementing the NAP, namely in the period 2012-2017.

2. LEGAL BASIS FOR THE NATIONAL ACTION PROGRAMME

In 1991 the European Union started to systematically govern the use of PPP at their origin, which is at the time of registering PPP, by prescribing a uniform tool and criteria for assessing the suitability of PPP in the EU area in Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market. Over the years a comprehensive system for assessing the risk to human health and the environment caused by the use of PPP was developed at EU level. Despite the existing legal framework, undesirable quantities of certain PPP in the land, water and the wider environment can still be found within the EU. In agricultural products in the EU, there are still some residues that exceed prescribed limits. The reason is the phase of use of PPP which is the base for determining the overall risk concerning PPP. Risks for the environment and human health can arise from direct exposure (farmers that use them) and through indirect exposure (consumers, locals and other people present), in particular during their use in agriculture and in other activities, or after their use.

¹³ http://www.uvhvvr.gov.si/si/delovna_podrocja/fitofarmaceutvska_sredstva/nacionalni_akcijski_program/

For these reasons, the EU adopted a Decision of the European Parliament and of the Council on the need to further reduce the harmful effects of PPP on human health and the environment in 2002. On the basis of this Decision the **Thematic Strategy on sustainable use of pesticides** was adopted in 2002, containing a number of measures for realising the common goal of reducing risks to human health and the environment caused by the use of pesticides and reducing pesticide use.

One of the first measures for realising the common goal was the adoption of a new **Regulation on limit values of pesticide residues in food and animal feed** in 2005, which replaced four directives and, through its new measures, is helping to limit risks for consumers at the end of the food chain. To realise the Strategy's goals it was necessary to revise the Directive on registering PPP, which was replaced by a new **Regulation on placing plant protection products on the market**.

It was not possible to include all the measures planned in the Strategy in the EU legislation in force at that time, and new legislation was prepared and adopted in 2009, namely the **Directive on sustainable use of pesticides**, the **Regulation on statistics on plant protection products** and the **Directive on certifying devices for applying plant protection products**, which together constituted the EU laws required for realising the goals of the Thematic Strategy on sustainable use of pesticides.

Through the Plant Protection Products Act of 2001, as well as later, in the new Plant Protection Products Act of 2012 and its implementing regulations, Slovenia introduced provisions, in accordance with EU law, governing the placing on the market of active substances which are PPP and their supervision, the registration of PPP, their trade, use and supervision, PPP residues, the keeping of a PPP register and a register of legal and natural persons involved in placing PPP on the market, reporting of information and keeping records on PPP and technical requirements for PPP application equipment. Additionally, regulations on chemicals govern the production of chemicals needed for the production of PPP and the placing of these chemicals on the market, good laboratory practice, the procedure for prior informed consent, persistent organic pollutants, PPP classification, packing, labelling and supervision, whereas PPP waste, PPP waste packaging and emissions of PPP into the environment are governed by environmental protection legislation.

Through these measures Slovenia reduced the dangers of using PPP that are controversial for people and the environment; however, this did not resolve all the difficulties associated with the use of PPP. Unsuitable or excessive use of PPP may always have negative effects on the environment and human health. Some countries, such as Denmark, developed a plan for reducing the use of PPP and for sustainable use of PPP back in the second half of the 1980s because of obvious irregularities and negative effects of the industrial type of agricultural production. As already mentioned, the European Parliament and the Council adopted a legislative package on marketing and using PPP in 2009. On 14 June 2011 Directives 79/117/EEC and 91/414/EEC were replaced by Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market. The Regulation introduced additional exclusion conditions for active substances used in PPP. These conditions refer in particular to substance properties such as: carcinogenicity, developmental toxicity, mutagenicity, genotoxicity, persistence in the environment, bioaccumulation, etc. The Regulation allows for the application of the precautionary principle.

The EU legal basis for the National Action Plan was adopted at the same time in Directive 2009/128/EC of the European Parliament and of the Council establishing a framework for Community action to achieve the sustainable use of pesticides, which was transposed into Slovenian law by the new Plant Protection Products Act (Official Gazette of the RS No 83/12). The National Action Programme (hereinafter: NAP) which Slovenia, like the other EU Member States, had to adopt by the end of 2012, defines goals, measures, time plans and indicators for reducing risks caused by the use of PPP and the effects of these products on human health and the environment, with special emphasis on integrated pest management, and alternative approaches and techniques for pest management due to the reduced use of PPP.

Directive 2009/128/EC of the European Parliament and the Council provides, in Article 4, that the NAP measures take into account plans in other Community legislation on the use of pesticides, such as the measures planned in Directive 2000/60/EC.

3. USE OF PLANT PROTECTION PRODUCTS IN SLOVENIA

Until the middle of the last century, chemical substances used for plant protection were mostly inorganic products based on sulphur, copper, zinc and initially also arsenic. With the development of the chemical industry, many synthetic preparations were developed, making it possible to carry out appropriate control of harmful organisms. Knowledge of the effects of these chemical substances on humans and the environment lagged behind their use, with the result that their temporary, sometimes also permanent, negative effects on the environment and even human poisoning were only discovered later on. General environmental protection awareness only emerged in the 1980s and helped to change the uncritical attitude towards using PPP.¹⁴ At that time the most dangerous substances in the group of mercury and persistent organochlorine compounds stopped being used, and in Slovenia they were officially prohibited in 1996, together with other persistent compounds such as herbicides from the groups of triazines, chlorinated aliphatic compounds and benzoic compounds.¹⁵

In Slovenia, most older research on PPP residues in the environment was conducted on products in the water or the ground where PPP was used directly on agricultural land. Since 1973, results of monitoring the use of PPP and research into their effect on the environment have shown pollution due to the use of insecticides (chlorinated hydrocarbons, organic phosphoric esters and carbamates), fungicides (dithiocarbamates and metalaxyl)¹⁶ and herbicides from the groups of triazines, chlorinated aliphatic compounds, benzoic compounds and phenoxy compounds (2,4-D, MCPA, 2,4,5-T)¹⁷.

When legislation was brought into line with EU requirements, the use of multicomponent PPPs based on atrazine in protected zones of water sources was restricted by the Plant Protection Products Act, and their use was prohibited in areas where monitoring information on pesticides in drinking water and sources of drinking water, springs, ground water and the land showed that limit values for residues of atrazine and its metabolites and degradation and reaction products in drinking water were exceeded.¹⁸ The Plant Protection Products Act followed three key aspects of scientific assessment of every active substance in the registration procedure: that it is safe (not harmful to human health through direct or indirect contact), specific (effective for controlling specifically identified harmful organisms, acceptable for non-targeted organisms) and non-persistent (decomposes into simple chemical substances without harmful effects on the environment). Old active substances were assessed anew, and dangerous ones taken out of use. Registration of a particular PPP is for a maximum of 10 years and can be extended several times when appropriate. If, on the basis of technical and scientific lessons learned, there is a justified suspicion that some already registered PPP constitutes a danger to human health and the environment, the Minister for Agriculture is competent to limit or prohibit its use, which has already happened due to many cases of water pollution and bee poisoning.

At the EU level, the area of PPP is also governed by laws on water protection. Important directives in this area are Framework Directive 2000/60/EC¹⁹ and its daughter directive -

¹⁴ Urek, G., M. Knapič, M. Zemljič Urbančič, V. Škerlavaj, A. Simončič, J. Persolja, M. Rak Cizej, S. Radišek, M. Lešnik (2012) Use of plant protection products and examination of possibilities for their more rational use in Slovenia, Agricultural Institute of Slovenia, 163 s.

¹⁵ Decision on the prohibition and/or restriction of use and the placing on the market of certain toxic substances and preparations derived from them used as plant protection products, UL RS No 29/96.

¹⁶ Urek, G., Gartner, A., Gregorič, A. 1995. Potato and potato field pollution with plant production product residues. The Collection of lectures and reports of the second Slovenian consultation on plant protection, 1995, p. 163–175.

¹⁷ Maček, J. 1992. Contamination of ground and plant products with plant protection products' residues in Slovenia in the period 1973-1991. The Collection of the Biotechnical Faculty at the University of Ljubljana, 1992, vol. 59, p. 229-240.

¹⁸ Order concerning the prohibition or restriction of marketing and/or use of plant protection products containing certain active substances. Official Gazette of the Republic of Slovenia No 105/01

¹⁹ <https://eur-lex.europa.eu/legal-content/SL/TXT/?uri=CELEX%3A32000L0060>

Directive 2006/118/EC on the protection of groundwater against pollution and deterioration²⁰ and Directive 2008/105/EC on environmental quality standards in the field of water policy.²¹ When adjusting internal laws to the EU requirements, two decrees were adopted which set out the criteria for realising the goals of the Water Framework Directive (2000/60/EC), namely the Decree on surface water status (Official Gazette of the RS No 14/09, 98/10, 96/13 and 24/16) and the Decree on groundwater status (Official Gazette of the RS No 25/09, 68/12 and 66/16). These two Decrees lay down, inter alia, environmental quality standards for individual pollutants or groups of pollutants presenting a significant risk to the water environment or risks carried through the water environment, including risks to waters used for the abstraction of drinking water.

Since 2001 the Slovenian Plant Protection Products Act has obliged all users of PPP to undergo mandatory training (it is not possible to buy PPPs without taking an exam and obtaining a certificate of knowledge of phytomedicine (hereinafter: card)) and to have inspections carried out of equipment for applying PPP to plants. By upgrading prognostic services for plant protection in 1997, the accuracy of forecasting critical periods for pest management of main plants in production has improved and the information has become more accessible to producers.

Measures until then were directed towards informing users about correct use of PPP, with emphasis on protecting surface and ground waters, protecting bees, safe disposal of waste and waste PPP packaging. Promoting integrated and organic production in agricultural policy contributed both to the testing of biological protection and other non-chemical methods, where available, and to the provision of advice on using less dangerous, less persistent and more quickly degradable PPP and the better application of these products.

According to information available in 1995, there were 1 130 ha, representing almost one quarter of intensive orchards, participating in Slovenian integrated fruit production, which involved the application of PPP with special nozzles to reduce the use of water and to non-targeted drift. 93 % of all fruit producers had technically suitable sprinklers. Two thirds of private fruit producers had equipment adjusted for lower use of water and no less than 87 % of orchard holdings had such sprinklers.²²

After the introduction of payments for more environmentally acceptable production methods in 2011, the proportion of participating integrated production orchards reached 56.51 %, and 2.25 % of ha (table 1) participated in certified organic production. The bases of integrated plant protection and selection of more environmentally- and consumer-friendly PPP became the foundation for integrated fruit, vegetable, viticulture and crop farming which became established in Slovenia as a higher level of quality and, in certain sectors, was recognised in marketing (fruit and vegetables).

Table 1: Volume (ha) of integrated and organic fruit, vegetable, viticulture and crop farming in 2011

	conventional (ha)	integrated (ha)	IP/conv. %	organic (ha)	ECO/conv. (%)
fruit production	4 942.00	3 451.43	69.84	193.03	3.91
vegetable production	1 497.00	977.06	65.27	147.69	9.87
viticulture	16 351.00	8 581.40	52.48	287.19	1.76
crop farming	176 000.00	46 298.03	26.31	2 399.99	1.36

Source: MKGP

²⁰ <https://eur-lex.europa.eu/legal-content/SL/TXT/?uri=CELEX%3A32006L0118>

²¹ <https://eur-lex.europa.eu/legacontent/EN/TXT/?qid=1527169399930&uri=CELEX:32008L0105>

²² Tojnko, S., Schlauer, B., Vogrin, A. Slovenian integrated production of fruit. *Sodobno kmetijstvo* [Modern Farming], 1996, vol. 29, 4, pp. 171–175.

In the Rural Development Programme 2014-2020 agricultural production schemes were changed, mandatory integrated plant protection in accordance with EU legislation was introduced and integrated production became a voluntary higher standard.

Because of typical weather conditions, conditions and types of production, PPP used in Slovenia are different from those in other European countries. Among PPP, herbicides are most frequently sold in Europe (42 %), followed by fungicides (39 %). In Slovenia, fungicides are most frequently sold (67 %), followed by herbicides (24 %) and insecticides (7 %). It should be emphasised that, of all PPP sold, 35 % are inorganic based on sulphur and copper.

In Slovenia, the use of PPP almost halved between 1990 and 2010: according to ARSO information²³, the amount of PPP was 1 134 t in 2010 and 2 031 t in 1992. As far as the structure of PPP is concerned, it is encouraging to see that less harmful substances predominate. Among fungicides, more than half of PPP is based on copper and sulphur; among herbicides, more than a third of PPP are based on glyphosate; among insecticides, more than half of PPP are based on mineral oils used in organic agriculture.

Table 2: Sale of PPP in Slovenia in 2010

GROUP OF PPP	SUB-GROUPS	SALES (T)	PROPORTION (%)
INSECTICIDES	insecticides based on pyrethroids	0.5	0.0
	insecticides based on chlorinated hydrocarbons	0.2	0.0
	insecticides based on carbamates	3	0.3
	insecticides based on organophosphorus	7	0.6
	other insecticides	51	4.5
	INSECTICIDES TOTAL	62	5.5
FUNGICIDES	inorganic fungicides based on copper compounds	52	4.6
	other inorganic fungicides	405	35.7
	fungicides based on dithiocarbamates	154	13.6
	fungicides based on benzimidazoles	375	33.1
	fungicides based on diazoles and triazoles	9.5	0.8
	fungicides based on diazines and morpholines	7	0.6
	other fungicides	161	14.2
	FUNGICIDES TOTAL	789	69.6
HERBICIDES	herbicides based on phenoxy phytohormones	16	1.4
	herbicide based on triazines	24	2.1
	herbicide based on amides	76	6.7
	herbicide based on carbamates	8	0.7
	herbicide of dinitroaniline derivatives	8	0.7
	herbicides based on urea derivatives	7	0.6
	other herbicides	115	10.1
	plant-growth regulators	0.4	0.0
	HERBICIDES TOTAL	254	22.4
OTHERS	OTHERS TOTAL	29	2.6
TOTAL		1 134	100

Source: MKGP, Phytosanitary Administration of the RS, 2011

²³ http://kazalci.arso.gov.si/?data=indicator&ind_id=810

Through the new, more extensive review of active PPP substances, the number of permitted active substances on the EU market has been halved in the last ten years (before the review there were 1 000 active substances, since the review there have been around 500). The main criterion was the risk to human health and the environment.

4. GENERAL OBJECTIVES FOR THE PERIOD 2018-2022

The general objective of the NAP is to reduce the influences and effects which can be caused to human health and the environment by the use of PPP. The detailed objectives of the NAP for the period 2018–2022 are as follows:

- reducing risks associated with the use of PPP;
- reducing risks and the use of PPP by introducing restrictions on the use of certain PPP in public areas;
- limited access to PPP for professional use by non-professional users, monitoring and examining options for reducing risks associated with the use of PPP that contain substances of concern (defined in Regulation (EC) No 1107/2009), in particular in cases where alternatives are available;
- monitoring risks to human and animal health caused by PPP residues in food and animal feed; monitoring trends in PPP residues in products from the EU and from third countries and in food produced in Slovenia;
- reducing the level of active substances in drinking water that are harmful to health, reducing the number of measuring points of ground water where environmental quality standards for presence of PPP are exceeded, monitoring PPP pollution in surface water;
- encouraging agricultural production using the principles of integrated pest management by ensuring that chemical PPP are used only where absolutely necessary or economically justified, in particular by informing users about safe use of PPP, encouraging organic production and other environmentally friendly farming practices;
- providing information and training to PPP users, examining equipment for PPP application and encouraging the use of advanced techniques for reducing risks caused by the use of PPP.

For realising these goals, the monitoring method, measures and risk indicators are specified and described in the next chapter.

The general goals of the NAP are based on the principle of reducing risk caused by the use of certain PPP in agricultural production and reducing the volume of PPP sold by restricted use of PPP in agricultural production and in public areas. According to information from the Statistical Office of the Republic of Slovenia, the amount of agricultural land in use in 2016 was 479 589 ha. For products which are produced in large volumes and for widespread harmful organisms (fruit production, viticulture, crop farming) there is a sufficient number of necessary PPP while for products which are produced in smaller areas and have less widespread HO there are fewer PPP available, which, in turn, is linked to the economics of their sale. Despite research and development investments in integrated plant protection around the world and in the RS, effective alternative non-chemical plant protection methods that could replace the use of chemical PPP while providing a comparable level of crop or plantation protection are mostly not available, and this has a direct effect on the economics of agricultural production. The assessment system of active substances in the EU on the basis of criteria laid down in Regulation (EC) 1107/2009 concerning the placing of plant protection products on the market removes certain PPP from the EU market, but the lack of sufficient new methods of plant protection entering the market and the lack of appropriate PPP for agricultural production in current conditions is a significant problem. Under these circumstances it is possible to envisage reducing the use of PPP by restricting their use in public areas. The NAP is focused on all measures for reducing risks brought about by the use of PPP, from training and information, technical conditions for marketing PPP and their use through the monitoring and official

supervision of the use of PPP, food production and drinking water, and reducing the use of PPP in public areas.

Through the adoption of appropriate regulations, the use of herbicides on public areas is restricted, which promotes the use and development of alternative non-chemical methods. The sale and use of PPP in the next 5-year period is to be significantly lowered. The registration and use of PPP with lower risk, the development of alternative non-chemical methods for plant protection and reduced use of PPP are all being promoted.

5. SITUATION MONITORING, GOALS, MEASURES AND RISK INDICATORS BROKEN DOWN BY SUBJECT AREA

Each measure required by the law (in ZFfS-1 and in Directive 2009/128/EC) describes obligations under EU legislation, the methods of implementation and their transposition in the RS as well as goals, measures and risk indicators for realising the objectives established for the period 2018-2022.

5.1 Monitoring the sale and use of all PPP and PPP containing substances of concern

5.1.1. Obligations under EU legislation

In accordance with Article 4 of Directive 2009/128/EC, all Member States must establish measurable goals, measures and time limits for reducing risks or the use of chemical PPP. The monitoring of the use of PPP containing substances of concern in accordance with Regulation (EC) 1107/2009 is governed by Paragraphs 2 and 3 of Point 1 of Article 4 of Directive 2009/2009/EC. Member States must define risk indicators for monitoring certain harmful substances.

5.1.2. Regulations in the RS

The use of PPP is monitored in two ways: by monitoring the sale of PPP and assessing their use, and by SORS's research carried out in accordance with the provisions of Regulation (EC) No 1185/2009 concerning statistics on pesticides.

From information on sales of PPP it is possible to calculate the indicator of the frequency of use - the frequency of use index and the strain index. Calculations of these two indicators in the Progress Report on implementing the National Action Plan 2013-2015 on the basis of statistics on active substances sold and areas in which particular crops are grown, in comparison with calculations of potential actual use of certain PPP on specific crops, produced significantly different results, on average. Both indices are lower in case of a more accurate calculation of potential use of PPP when calculating the average use for factor 2. This comparison can be carried out only for active substances that have a registered limited number of uses. Where there is a higher number of PPP based on the same active substance and more registered uses of PPP, it is not possible to establish which PPP were used on which areas or for which crops. Therefore, these two indicators are less suitable for assessing the use of all PPP on the market.

From information of SORS on the use of PPP in agriculture in the years in which the research was conducted, the frequency of use of PPP and their strain can be calculated with the assistance of these indicators and a comparison with the registered use of these PPP can be made.

Substances of concern: Substances used in PPP must be first approved on the basis of Regulation (EC) No 1107/2009 concerning the placing of PPP on the market before they are registered as PPP in EU Member States and in the RS. On the EU market there are substances which were approved under previous EU laws (Directive 91/414/EEC) which have not yet been assessed anew under the EU programme for review of approval in accordance with the stricter criteria of Regulation (EC) No 1107/2009. It is anticipated that their approval will not be extended when they are reviewed in accordance with Regulation (EC) 1107/2009. These substances are called substances of concern in accordance with the definition under Point 4 of Article 3 of Regulation (EC) No 1107/2009. Of four such approved substances at EU level, there are two PPP registered in Slovenia: epoxiconazole and glufosinate.

Epoxiconazole: In the RS there is one preparation registered on the basis of this substance that is used as a fungicide for controlling pathogens of fungus in cereals (barley, wheat, oat, rye,

triticale and spelt). It is currently being reviewed at EU level; its EU approval is valid until 30 April 2019. The status of this preparation in the RS will be decided according to the decision concerning extension of the approval of this substance in the EU.

Glufosinate: In the RS there is one preparation registered on the basis of this substance that is used as a herbicide for controlling weeds in orchards and vineyards. Glufosinate is currently being reviewed at EU level; its EU approval is valid until 31 July 2018. The status of this preparation in the RS will be decided according to the decision concerning the extension of the approval of this substance in the EU.

The Plant Health Protection Service²⁴ will in a timely manner examine alternatives to the use of these substances before PPP are removed from the market.

5.1.3. Goals, measures and risk indicators

Goal: By the end of this NAP (2022), substances of concern will no longer be present on the European and Slovenian market.

Measures and time limits: Withdrawal from the market of PPP based on these substances in accordance with an approval decision of the European Commission. In 2018, experts of the Plant Health Protection Service are reviewing the use of other PPP and alternative methods to replace these PPP and sending information to users of PPP.

Risk indicators: Monitoring of information on PPP sold, the volume of PPP sold that contain substances of concern, the assessment of their use for the period 2018–2022 based on information on their sale and registered use, the use of PPP in agriculture (the frequency of use index and the strain index) from research by SORS, and the comparison with registered use of these PPP. Reducing the sale of substances of concern by 100 % by 2022.

5.2. PPP residue in food and animal feed

5.2.1. Obligations under EU legislation

On the basis of Article 4(1) of Directive 2009/128/EC, Member States may set out goals that include PPP residues in food and feed.

5.2.2. Regulations in the RS

The Administration regularly carries out the annual supervision programme of pesticide residues in food and feed in accordance with EU laws. Information is regularly sent to the European Food Safety Authority that collects information from all Member States and, on the basis of these reports, draws up an annual report on the monitoring of pesticide residues in the EU. The Administration draws up an annual report on the situation in the RS and publishes it on its website.²⁵

Samples are taken for analysing residues of PPP in products on the market from the EU and from third countries as well as in domestically produced products.

The information obtained from supervision is used to monitor the situation regarding pesticide residues in food and animal feed by comparing different sources of products and production against each other.

Aside from this, supervision of correct use of PPP in the RS is also carried out, including 'green sampling' of agricultural plants. Parts of agricultural plants are sampled before harvesting to check the use of PPP, which makes it possible for appropriate action to be taken if irregularities in the use of PPP are found, before produce is placed on the market.

5.2.3. Goals, measures and risk indicators

²⁴

http://www.uvhvvr.gov.si/si/delovna_podrocja/zdravje_rastlin/javna_pooblastila_in_javna_sluzba/

²⁵ http://www.uvhvvr.gov.si/si/delovna_podrocja/ostanki_pesticidov/

Goals: *Monitoring of PPP residue levels in food and animal feed, comparing residues in organically produced produce and other produce under supervision in domestic production.*

Measures and time limits: *When preparing the NAP Progress Report, a report on PPP residues and a report on green sampling by year are prepared. These reports make it possible to establish trends in occurrence of PPP residues in produce and correct use of PPP. The Report on residues in food and animal feed is drawn up by produce items from the EU Member States, from third countries, domestic production and organic production. The Report is available on the Administration's website. Once trends have been determined, appropriate measures are adopted as necessary.*

The supervision of the use of PPP (number of samples in green sampling) is increased while agricultural plants are growing, to make it possible for action to be taken before they are placed into the food chain.

Risk indicators: *The number of samples for analysing PPP residues in food and feed, the results of analysis of residues in products from EU Member States, third countries, domestic products and organic products; the number of samples in green sampling and the results of analyses, increasing the number of analyses of PPP residues in food and animal feed by 10 % by 2022.*

5.3. Use of PPP in public areas

5.3.1. Obligations under EU legislation

On the basis of Article 5 of Directive 2009/128/EC, Member States must provide appropriate training for users of PPP. On the basis of Article 6 of Directive 2009/128/EC, Member States must adopt measures to restrict the sale of PPP for professional use to non-professional users of PPP.

5.3.2. Regulations in the RS

In the RS, a training system has been set up²⁶ as well as a method of selling PPP and criteria for determining the sale of PPP for professional and non-professional use.²⁷ In accordance with Article 15 of the ZFfS-1, PPP that are permitted for professional use may be sold only to buyers who at the time of purchase present a valid card certifying training in PPP. To purchase PPP permitted for non-professional use it is not necessary to show this card. For every PPP the method of its sale is specified in a decision on registering PPP in accordance with the criteria. A seller may request to check the identity of a buyer at the time of purchasing PPP, to ensure the buyer is the person named on the training card.

On the basis of directions of the Slovenian Government which, under the NAP, is committed to achieving a long-term reduction of risks to health and the environment from the use of PPP, additional measures for restricting access to PPP by non-professional users are being introduced, namely: non-professional users are allowed to use PPP which are permitted for use in organic production, specifically those packaged for use in areas up to 500 m². To this end, it is planned to amend the regulation governing criteria for specifying PPP for non-professional use, giving an appropriate transitional period to undertakings and users of PPP to adapt to the new conditions.

5.3.3. Goals, measures and risk indicators

Goals: *Restricting the access to PPP by non-professional users and the use of certain PPP on public areas.*

Measures and time limits: *The Ministry issues amended Rules on the use of PPP, laying down restrictions or prohibitions regarding the use of PPP on public areas.*

The Ministry prepares new criteria on the use of PPP permitted for non-professional use.

²⁶See point 3.4.

²⁷Rules on the conditions for placing plant protection products on the market and on the management and transmission of data on plant protection products placed on the market (Official Gazette of the RS No 107/13).

The supervision of use on public areas, including roads, railways, cemeteries, other public areas, including areas for sport and recreation, is increased.

Risk indicators: The volume of sale of PPP for professional use is reduced by 10 % by 2022; the number of inspections of the use of PPP in public areas and the proportion of established irregularities.

5.4. Training on PPP

5.4.1. Obligations under EU legislation

In accordance with Article 5 of Directive 2009/128/EC, Member States must provide appropriate training for all people who use PPP professionally or who sell or provide advice on them. Basic and further training must be provided and must contain information on protecting health and the environment and reducing risks caused by the use of PPP. Member States must authorise organisations to provide training and issue a training certificate to participants. The system for issuing the certificate must make it possible for the certificate to be renewed or withdrawn.

5.4.2. Regulations in the RS

In the RS, the training system for users and distributors of PPP and for training staff was laid down back in 1994 on the basis of the law that governed PPP at that time. After this law was published, further training of users and sellers of PPP commenced. In 2009, when Directive 2009/128/EC was published, further training in Slovenia was well established. The provisions of Directive 2009/128/EC were transposed into Slovenian law by the new ZFfS-1 (Articles 22-26 ZFfS-1). Subsequently, new Rules were issued that govern this area, namely: Rules on training on plant protection products (Official Gazette of the RS No 85/13)²⁸ which added an obligation to train all advisers who provide advice on the use of PPP, while the provisions on the material to be covered in training were expanded.

Training is mandatory for users of PPP for professional use, for sellers of PPP and for advisers on PPP. Training participants receive a card after successfully passing an exam, and the validity of the card must be extended at refresher courses. No provision is made in law for a card to be withdrawn but it has a limited period of validity.

Training includes:

- **basic training** at which participants receive a training card that is valid for three years for advisers on and sellers of PPP, and five years for users of PPP for professional use. The basic training consists of 35 hours for advisers on PPP, 20 hours for sellers of PPP and 15 hours for users of PPP.

- **further training** at which participants extend their training card must be attended every five years by users of PPP for professional use and every three years by advisers and sellers. Further training consists of eight hours for advisers on PPP, six hours for sellers of PPP and four hours for users of PPP.

Training is provided by authorised organisations, selected in public invitations to tender. Authorised organisations satisfy prescribed conditions on registering educational activities, staff, premises and equipment. The authorisation is valid for five years, after which it can be extended. A contract is concluded with every training provider. The contract can be cancelled in case of irregularities, and the authorisation revoked. The list of training providers is available on the Administration's website: In 2017, there were 16 such providers.

In the Rules on training on plant protection products, the Administration laid down the content of training; on the basis of this content the Administration issued new material for training on plant protection products²⁹ which includes all the elements in Annex I to Directive 2009/128/EC:

- laws on PPP;
- information on counterfeit PPP;

²⁸

http://www.uvhvvr.gov.si/si/delovna_podrocja/fitofarmaceutvska_sredstva/promet_uporaba_usposabljanje_i_n_naprave/usposabljanje_o_fitofarmaceutvskih_sredstvih/

²⁹The fundamental principles of good agricultural plant practice and safe use of plant protection products: http://spletni2.furs.gov.si/FFS/IZO/UVHVVR_TISK_FFSDN79261-13_brosura_high.pdf

- information on risks caused by the use of PPP and measures for reducing risks (risks to humans; symptoms of poisoning with PPP and information from the field of monitoring health for poisoning with PPP; risks for non-targeted plants and organisms, water and the environment);
- information on techniques and methods of integrated pest management;
- information on selecting PPP with lower risks;
- information on health protection at work, on safe work when mixing pesticides, on the use of personal protection equipment, on correct filling of sprayer containers, emptying, rinsing and collecting packaging;
- information on protecting bodies of water used or intended for public supply of drinking water against pollution and other types of strains;
- information on testing sprinkler and spraying devices, on their calibration before use and on correct use of all types of sprinkler and spraying devices, including hand-held and backpack sprayers for which regular inspection is not required;
- information on action to be taken in event of spillage of PPP, and on correct warehousing and disposal;
- information on mandatory completion of the prescribed form for recording the use of PPP and other methods of plant protection.

5.4.3. Goals, measures and risk indicators

Goal: Providing effective transfer of knowledge and innovations on PPP to users, sellers and advisers.

Measures and time limits: The basic and refresher training system for advisers, sellers and users of PPP intended for professional use was set up already before 14 December 2014. Providers that issue cards are authorised to provide training. We consider that all potential users of PPP allowed for professional use and all sellers of PPP have participated in the training. In the NAP 2018–2022, the existing training system continues.

The material on which an inadequate level of knowledge in handling PPP was shown on the basis of information and analysis is included in the training. Innovations in the wider field of expertise, such as information on new standards, are also included (for example: SIST EN 16636:2015 Pest management services - requirements and skills to be satisfied by providers of pest management services for protection of human health, property and the environment). A survey on the quality of training is given to participants. The training is revised according to answers and proposals given by the training participants.

Risk indicators: The number of basic and further training courses conducted on PPP; the number of participants and the number of training cards issued and extended for advisers, sellers and users of PPP; the information from inspection supervision of the training system. The proportion of advisers completing the basic training is to increase by 5 % by 2022 in relation to the number of advisers who completed the training in the period 2012-2017.

5.5. Requirements for selling PPP

5.5.1. Obligations under EU legislation

In accordance with Article 6 of Directive 2009/128/EC, Member States must ensure that distributors of PPP to be sold have adequately trained staff that hold a certificate of additional training on PPP. Sellers of PPP and advisers on PPP must be available to buyers at the time of selling PPP to provide information on correct and safe use of PPP. Small distributors that sell only PPP with lower risks to non-professional users are not subject to these requirements. PPP for professional use can be sold only to buyers holding a training card. Buyers of PPP for non-professional use must be given general information at the time of purchase.

5.5.2. Regulations in the RS

The PPP sale system was also regulated in Slovenia for the first time in 1994 in accordance with the laws in force at that time. Basic training and a system of additional training were

required for sellers and responsible persons in shops; a reporting obligation on quantities of PPP sold was also prescribed. The method of selling PPP, as laid down by Directive 2009/128/EC, was implemented by ZfS-1 and the Rules on the conditions for placing plant protection products on the market and on the management and transmission of data on plant protection products placed on the market (Official Gazette of the RS No 107/13)³⁰.

Conditions for distributors of PPP: The PPP sale system is governed in the RS by Articles 10 to 16 of the ZfS-1, which provide that distributors engaged in wholesale and retail sale of PPP must have a licence from the Administration. To obtain the licence they must satisfy the conditions laid down in the Rules regarding their established place of business, premises and staff; when the Administration issues the licence they are entered in the register of PPP distributors. Distributors must employ an adviser on PPP and a seller of PPP. Sellers of PPP and advisers on PPP must have a card certifying completion of training on PPP. Sellers of PPP must be available in shops for buyers all the time PPP are sold, while advisers on PPP may be present for a shorter time, but their presence must be indicated on the shop door.

Sale of PPP permitted for professional use: Upon the registration of PPP, the Administration also lays down the method of selling these PPP in accordance with the prescribed criteria, namely whether PPP can also be sold for non-professional use or only for professional use, and this must be stated in the PPP registration. PPP that are permitted for professional use may be sold only to buyers who show a valid training card on PPP at the time of purchase.

There is an exception for distributors that sell PPP for non-professional use only. In such a case there is no requirement to have particular staff. They do have to register in the register of PPP distributors, kept by the Administration, for the purpose of receiving information from the Administration on correct and safe use of PPP.

The sale of PPP is regularly supervised by the Administration's inspection services according to the programme of regular supervision.

Information on correct and safe use of PPP is available to non-professional users in shops in the form of leaflets, brochures and prospectuses on correct use of preparations and on protecting health and the environment, as well as on the website of the Administration.

5.5.3. Goals, measures and risk indicators

Goals: Shops selling PPP have adequate staff holding a training card on PPP; PPP allowed for professional use are sold only upon presentation of a valid training card on PPP; information on the sale of PPP is collected.

Measures and time limits: The system of selling PPP was set up before 14 December 2014. Conditions for sellers' and advisers' qualifications are prescribed; PPP are categorised for professional and non-professional use; the sale of PPP for professional use is permitted on presentation of a training card. In the NAP for the period 2018-2022, the sale of PPP is monitored in the manner already established. The sale of PPP is regularly supervised by the Administration's inspection services according to the programme of regular supervision.

Supervision of the sale of PPP is intensified regarding the prohibition of the purchase of PPP by non-professional users.

Risk indicators: Number of shops with PPP; supervision inspections in shops and number of infringements; reduction in the proportion of infringements by 10 % by 2022 in relation to the situation in the period 2012-2017.

5.6. Information and awareness regarding PPP

5.6.1. Obligations under EU legislation

In accordance with Article 7 of Directive 2009/128/EC, Member States must implement measures to inform the public of risks presented by PPP, possible acute and chronic effects on health, non-targeted organisms and the environment caused by the use of PPP, and of options to use non-chemical alternatives.

³⁰ <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/115549>

Member States must set up a system for collecting information on acute poisoning with PPP and, where possible, also on chronic poisoning, in particular among workers and residents constantly exposed to PPP.

5.6.2. Regulations in the RS

The requirement to provide information to the public is laid down in Article 37 of the ZFfS-1. The Administration regularly publishes on its website all information on PPP, regulations, registered PPP and their use, training on PPP, the sale and testing of sprinkler and spraying devices. The Administration co-financed the publication of a database on pesticides' properties (Pesticide Properties DataBase) which was partially translated into Slovenian.³¹ Access to the database is available from the website of the Administration.

The Administration's website on plant protection products contains all information on the administrative aspects of placing PPP on the market and their use; the information is also available in English.³²

Every spring the Administration prepares a public awareness programme and carries out an information campaign on correct use of PPP and risks on health and the environment presented by the use of PPP. The campaign includes the use of PPP in general and separately also a campaign on informing users of PPP about the protection of bees. The campaign includes information on the website of the Administration, publications in all types of media, including the national radio and television network, preparation and distribution of leaflets and brochures.

In the PPP registration procedure, the Administration determines which PPP must be marked as dangerous for bees on the basis of properties and classification of substances and preparations. The danger of PPP for bees must be marked on the label by the holder of the PPP registration, and the logo prescribed in the RS must be added, as laid down in Annex 1 to the Decree on the implementation of Regulations (EC) and (EU) on placing plant protection products on the market (Official Gazette of the RS No 5/2015).

The list of PPP that are not harmful to bees is available on the website of the Administration as well as the list of PPP with low risk, the list of PPP that can be used in organic production and the list of PPP permitted for non-professional use.³³ This is a higher standard and special requirement in the RS since including the logo of danger for bees and special lists of PPP is not prescribed by EU legislation.

In cooperation with stakeholders, in particular the Slovenian Beekeepers' Association (ČZS)³⁴, the CAFS and the PPP GIZ, leaflets, instructions and brochures on informing users of PPP and the wider public are produced. Such brochures have the following contents: personal protective equipment, rinsing and collecting waste packaging and waste PPP, correct use of PPP, correct use of PPP for non-professional users, recommendations for safe use of PPP, recommendations on protecting bees, correct use of the spraying technique, counterfeit PPP, instructions for users and distributors of PPP on handling waste PPP that contain dangerous substances and their packaging.

Printed leaflets, instructions and brochures are distributed in shops where PPP is sold; their electronic versions are available on the website of the Administration³⁵.

Printed material is also distributed at training courses on PPP, through advisory services and at conferences, seminars and expert meetings involving the staff of the Administration.

Collection of information on acute poisoning with PPP: Information on acute poisoning is collected by the Ministry of Health at two levels:

³¹

http://www.uvhvvr.gov.si/si/delovna_podrocja/fitofarmaceutska_sredstva/registracija_fitofarmaceutskih_sredstev/

³² http://www.uvhvvr.gov.si/en/areas_of_competence/plant_protection_products/

³³ <http://spletni2.furs.gov.si/FFS/REGSR/index.htm>

³⁴ Slovenian Beekeepers' Association (Čebelarska zveza Slovenije), Brdo 8, 1225 Lukovica; <http://www.czs.si/>

³⁵

http://www.uvhvvr.gov.si/si/delovna_podrocja/fitofarmaceutska_sredstva/promet_uporaba_usposabljanje_in_naprave/uporaba_ffs/brosure/#c19176

the National Institute for Public Health collects information on hospital treatment;
the Poison Centre of the Clinical Hospital collects information on urgent treatment.

Information on chronic poisoning with PPP: information on chronic poisoning in the RS is currently not collected. As part of national human biomonitoring (NHB), exposure to certain prohibited pesticides (organochlorine pesticides from the POPs group) was identified during its first phase (2017–2014) [sic]. In the next period (2018–2022), it is planned to expand coverage to include certain other pesticides. NHB determines aggregate exposure, i.e. exposure from all possible sources, which means that exposure does not necessarily originate from PPP, as the same substances may also be used as biocidal products. Determining biomarkers of PPP effects should be one of the long-term activities.

In a current targeted research project entitled 'Exposure of children and youth to selected chemicals in the environment (2016–2019)', it is planned to identify certain pesticides (organophosphorus insecticides, pyrethroids and glyphosate). The project will be completed in September 2019.

5.6.3. Goals, measures and risk indicators

Goals: Public information campaigns on risks of PPP are carried out; the number of cases of acute poisoning in humans is reduced; the monitoring of chronic poisoning in professional users of PPP is introduced. As well as measures to protect health, measures to protect bees and the environment are also carried out.

Measures and time limits: Each year, before the growth season, a public information campaign on correct use of PPP is carried out in the media and, in cooperation with the ČZS, a campaign on protecting bees when applying plant protection products. In cooperation with the PPP GIZ and the CAFS, instructions, information leaflets and manuals for informing and raising the awareness of users of PPP and other groups are produced and distributed.

In cooperation with the UKCL, the Poison Centre, and the Clinical Institute for Occupational, Traffic and Sports Medicine, information on acute poisoning by PPP is collected; monitoring of possible consequences due to chronic exposure to pesticides in professional users of PPP (biomonitoring at the workplace) is put into place.

Risk indicators: The number of information campaigns carried out; the number and type of instructions, leaflets, brochures and manuals produced. The number of cases of acute poisoning with PPP in humans and the trend of the number of cases of acute poisoning by PPP. The Ministry of Health and the Ministry of Labour, Family, Social Affairs and Equal Opportunities set up by the end of this NAP period a monitoring programme on signs of chronic exposure to PPP in occupational users. The reduction in the number of bee colonies affected by an established cause of poisoning by PPP and changes in this number.

5.7. Inspection of equipment for the application of PPP

5.7.1. Obligations under EU legislation

In accordance with Article 8 of Directive 2009/128/EC, Member States must ensure that equipment in use for application of PPP is inspected at regular intervals and that only equipment passing the inspection in accordance with the prescribed standards set out in Annex 2 to Directive 2009/128/EC can be used. To this end, they must authorise organisations to conduct inspections and put in place a system and organisation for issuing a certificate on inspected equipment that will allow for mutual recognition of certificates in Member States when an inspection time frame is comparable. The Commission is notified of such authorised organisations. Member States may prescribe that inspection is not necessary for small equipment. A system of checking that equipment has been inspected must be set up. Users of PPP that are authorised for professional use must themselves carry out regular inspections of equipment between periodic official inspections prior to use in accordance with instructions received during training on PPP.

5.7.2. Regulations in the RS

Inspection of equipment for application of PPP has been mandatory in the RS since 1994. The laws in force at that time prescribed a two-year interval between regular inspections of equipment. After Directive 2009/128/EC entered into force in 2009 and its provisions were transposed into Slovenian law by ZFfS-1 in 2012, this interval was extended to three years at the request of the CAFS.

Scheme for inspecting equipment: In this system of inspections of equipment, all equipment in use has been inspected a number of times. The system significantly contributed to improving techniques and knowledge in this area. Information on inspected equipment is included in the NAP Advancement Report 2013-2015. On 10 October 2017, there were 17 155 pieces of equipment registered in the database with a valid inspection certificate.

The system and organisation of the inspection of equipment are prescribed by Articles 27 to 30 of the ZFfS-1 and by the Rules on the requirements for the correct operation of equipment for the application of plant protection products, and on the conditions and method for conducting inspections of such equipment (Official Gazette of the RS No 101/2013)³⁶.

Only equipment holding a certificate on correct operation, obtained after its inspection, and a logo on regular inspection every three years can be used.

The logo of regular inspection is a sticker which the inspector attaches to the equipment when the prescribed conditions are satisfied. The logo contains a unique number and the date of issue, and allows inspectors to verify quickly whether equipment has been inspected.

Exceptions for small equipment: Exceptions apply only to hand-held and backpack sprayers and equipment for contact control of weeds that are not used as a tractor trailer for which inspection is not required (Rules²⁶).

The technical requirements that equipment must comply with are set out in detail in the Rules on the requirements for the correct operation of equipment that were taken over from Annex II to Directive 2009/128/EC and the standard EN 13790:2003 that was valid at that time.

SIST ISO EN 16122:2015: The Standard EN 13790:2003 was revoked in 2015 and, in accordance with Article 20 of Directive 2009/128/EC, a new Standard SIST ISO EN 16122-1-4:2015 on technical requirements to be satisfied by equipment used to apply PPP was published. The Standard on technical requirements for equipment and their inspection introduces changes that make it necessary to amend the Rules on inspection of equipment. The Standard has been published in English and can be bought from the Slovenian Institute of Standardisation (SIST)³⁷. The Administration is drawing up a manual on technical requirements and on inspections of equipment, which will make it easier for owners of equipment and inspectors of equipment to understand the requirements and procedures under the new Standard.

Regular equipment calibration: Training of users of PPP includes a practical demonstration of calibration and inspection of equipment prior to applying PPP.

Authorised institutions: There were eight authorised inspectors of equipment in 2017. They were selected in a public call and entered into an agreement with the Administration on inspecting equipment. The list of authorised inspectors is available on the Administration's website. The Administration sent information on authorised inspectors to the European Commission. Equipment inspectors participate in training provided by the BTSF and in SPISE meetings.

Supervision of the performance of equipment inspections: The Administration's inspection services supervise the performance of equipment inspections and the work of inspectors through the regular supervision programme.

Mutual recognition of equipment inspections: Article 30 of the ZFfS-1 allows for mutual recognition of equipment inspections in other Member States on the basis of an application from an owner of equipment when inspections were carried out by officially authorised inspectors of another Member State and these inspections in the originating Member State are carried out at

³⁶ <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina?urlid=2013101&stevilka=3679>

³⁷ Slovenian Institute for Standardisation, Šmartinska cesta 152, 1000 Ljubljana; <http://www.sist.si/>

least every three years. The Administration has so far recognised one certificate on an equipment inspection from Germany.

Technical requirements that must be complied with by new equipment placed onto the market are governed by Directive 2009/127/EC of the European Parliament and of the Council of 21 October 2009 amending Directive 2006/42/EC with regard to machinery for pesticide application. Since 1 May 2013, the Standard SIST ISO EN 16119-1-4:2013 has also governed technical requirements; it was published on 1 May 2013 and replaced certain preceding standards. Holders of new equipment must obtain a logo of regular inspection in the RS from an authorised organisation even though no inspection of new equipment is required. However, a new piece of equipment has to be entered in the record of inspected equipment, for the purpose of keeping records of new equipment and for monitoring the period after which the new equipment must be inspected. When issuing these logos, authorised inspectors have found that new equipment does not always meet the prescribed requirements, as a result of which problems arise in issuing logos. If an inspector is to issue a logo on proper functioning of new equipment the equipment must have no faults or deficiencies. Otherwise inspection is required and the deficiency must be corrected. In case equipment has a deficiency the logo is not issued even if the equipment is new.

The Ministry encourages producers to reduce drift and provides information on the use of spraying techniques for reduced drift. To this end, the scientific basis for issuing a technical regulation is being examined.

5.7.3. Goals, measures and risk indicators

Goals: the condition of machinery for the application of PPP is continuously improving. The new Standard EN 13790 16122-1-4:2015 on technical requirements to be met by equipment used for applying PPP is being implemented in practice.

Measures and time limits: In 2018/2019 the Minister adopts amendments to the Rules governing the application of PPP in order to implement the new Standard SIST ISO EN 16122-1-4:2015. The Ministry promotes purchase of new equipment that is more technically suitable under rural development programmes. After publishing the Rules, the Administration prepares and issues a Manual on technical requirements for equipment in use and on the inspection thereof. The Ministry informs the Ministry of the Economy of non-compliance of new equipment placed on the market with the prescribed requirements.

Risk indicators: The number of authorised inspectors of equipment and the number of inspections carried out, the number of pieces of equipment inspected, the number of pieces of equipment that comply with the Standard, the number of pieces of new equipment in use, the average age of equipment in use, the number of checks of inspectors and holders of equipment, the number and type of infringements, the number of mutually recognised equipment inspections (the number of applications and certificates/logos issued). The key indicator is the upgrading of equipment for application of PPP, and the reduction of the average age of equipment by two years by 2022.

5.8. Treatment with PPP from the air using aircraft

5.8.1. Obligations under EU legislation

In accordance with Article 9 of Directive 2009/128/EC, Member States must prohibit treatment with PPP by the use of aircraft. It may be permitted exceptionally under certain conditions.

5.8.2. Regulations in the RS

Prohibition of treatment with PPP from the air: Treatment with PPP by the use of aircraft has not been allowed in the RS since 1994, when this type of treatment was prohibited by the law governing PPP that was in force at that time. Article 31 of the ZFFS-1 provides that treatment with PPP from the air by aircraft is not allowed.

Exceptions and conditions: No exception is allowed.

5.8.3. Goals, measures and risk indicators

Goal: In the RS, PPP are not applied by the use of aircraft.

Measures and time limits: The prohibition of treatment by the use of aircraft is in force.

Risk indicators: Treatment with PPP from the air is prohibited by the ZFFS-1; there is no derogation, and the risk does not need to be monitored.

5.9. Informing the public

5.9.1. Obligations under EU legislation

In accordance with Article 10 of Directive 2009/128/EC, Member States may include in the NAP the methods of informing the public, in particular individuals who may be exposed to PPP drift.

5.9.2. Regulations in the RS

Informing the public on the drift of PPP: Guidance on the use of PPP in areas where people reside is laid down by the laws on PPP. The Rules on the proper use of plant-protection products (Official Gazette of the RS No 71/14)³⁸ prescribe measures on preventing drift in the use of PPP in general and in areas where people reside, such as safety zones, safety barriers and information provision. Users of PPP whose land borders on kindergartens, schools, children's and sports playgrounds, healthcare institutions, retirement homes and other such facilities must inform the owner or operator of such a facility at least 24 hours before using PPP. The notification must state the brand of PPP to be used, the place, method, date and anticipated hour of application.

Boundaries between urban and intensive agricultural areas are laid down by local community spatial plans. When these plans are designed, insufficient attention is perhaps paid to the influences of existing agriculture on new urban areas, in particular in intensive agricultural areas. In accordance with Article 25(2) of the Decree on Spatial order of Slovenia, when planning settlement areas in rural settlements, it is necessary to ensure harmony between urban and agricultural functions in rural settlements according to the principle that agriculture is generally given priority in traditionally agrarian agglomerations due to the specific technological conditions. The inspection services receive complaints from the public concerning the drift of PPP from agricultural areas that are close to their homes. Consequently, in the future, to avoid conflicts, it will be necessary to take this aspect into account when planning new settlement areas and intensive permanent crops.

5.9.3. Goals, measures and risk indicators

Goal: Awareness-raising of local communities and municipal associations regarding a proposal to determine land use along the border between built and agricultural land in a local community agricultural plan, to prevent drift of PPP to urban areas in case of permanent crops.

Measures and time limits: After adopting this NAP, the Ministry and the Administration inform local communities and municipal associations of problems relating to complaints from the public concerning the drift of NPP from agricultural to rural areas and of a proposal to categorise land use along the border between built and agricultural land in a local community agricultural plan.

Risk indicators: The number of notifications sent to local communities, the number of events giving rise to complaints to inspection services and the analysis of events (the proportion of justified complaints, regional distribution of complaints).

5.10. Special measures for protecting the water environment

5.10.1. Obligations under EU legislation

In accordance with Article 11 of Directive 2009/128/EC, Member States must adopt appropriate measures for protecting the water environment that comply with regulations on water and with regulations on placing PPP on the market. These measures must give priority to registering PPP not categorised as harmful to the water environment or not indicated as priority substances in Directive 2000/60/EC; priority must also be given to low-drift treatment techniques, the use of measures to reduce risks in the event of drift, rinsing and run-off of PPP, to reduce the use of

³⁸ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV11541>

PPP or cease using PPP by roads, railways, permeable surfaces or infrastructure close to water where water can be polluted.

5.10.2. Regulations in the RS

The Waters Act (Official Gazette of the RS Nos 67/02, 110/02 - ZGO-1, 2/04 - ZZdrI-A, 41/04 - ZVO-1, 57/08, 57/12, 100/13, 40/14, 56/15, 60/17 - ZDMHS) governs management of water and water and coastal land. The management of water, and water and coastal land includes water protection, water management and decision-taking on water use. The protection of the water environment and indirectly the provision of drinking water is governed by many laws and their implementing regulations.

In accordance with Article 74 of the Waters Act, the water protection regime is a general legal measure for protecting bodies of surface and ground waters that are used or are intended for public supply of drinking water against pollution (e.g. agriculture) and other types of strain that could affect the suitability of water for health or its quantity.

In 2016, the Decree on the water management plans in the Danube and Adriatic river basins (Official Gazette of the RS No 67/16) was adopted. It lays down the Water Management Plan for the Danube river basin area for the period 2016-2021 and the Water Management Plan for the Adriatic river basin area for the period 2016-2021. To realise the goals of the Decree on the water management plans in the Danube and Adriatic river basins and both water management plans under the Decree, the Programme of water management measures was adopted (Government Decision No 35500-7/2016/5 of 27 October 2016), which includes the measure 'Supplementary measures on reducing airborne pollution of surface waters with PPP (Measure No DUDDS23).' This measure was prepared by the ministry responsible for water and by the ministry responsible for agriculture and is included in the AECIP measures. The measure includes the following activities:

Water protection areas in the RS consisted of 338 145 ha in 2016, amounting to 16.7 % of the country's territory. Agricultural land in use in these areas amounted to 92 089 ha, and farmers of these areas notified 72 244 ha of GERK agricultural land in use. In core water protection areas, there were 2 370 ha of agricultural land in use or 1 983 ha of GERK agricultural land in use.

Restrictions and measures for reducing risks: By laying out the water protection regime in water protection areas in the form of prohibitions (e.g. prohibition on using PPP in core water protection areas), restrictions (e.g. restricting the use of PPP on agricultural land in the wider water protection areas) and protection measures for environmental interventions within water protection areas, it is ensured that the area is protected. By the end of 2017, the Government had adopted 13 government decrees on water protection areas. In the period 2018-2020, for which the NAP is drawn up, it is expected that new government decrees will be adopted and the number or the size of water protection areas will increase.

Aside from water protection areas determined by government decrees, there are many water protection areas determined as such by municipal decrees adopted by municipal assemblies up to 2002 in accordance with the then valid Waters Act which are still in force in accordance with the transitional provisions of the current Act.

Information on protected areas, including water protection areas determined as such by government decrees and protected zones determined as such by municipal decrees, is kept by the Slovenian Water Agency³⁹ as part of the water cadastre.

Within a water protection area different levels of protection apply, depending on the natural properties and the level of threat to aquifers and surface waters. Decrees lay out three levels of protection and categorisation of water protection areas, namely: VVO I (core areas), VVO II (narrower areas) and VVO III (wider areas).

The strictest protection regime applies to VVO I: On agricultural land in use in VVO I, it is permitted to use only those PPP that do not contain active substances that are prohibited in the core water protection areas. The list of prohibited active substances is published on the website of the Ministry of the Environment and Spatial Planning⁴⁰. The decrees also lay down additional

³⁹ Ministry of the Environment and Spatial Planning, the Slovenian Water Agency, Hajdrihova 28c, 1000 Ljubljana; <http://www.dv.gov.si/>

⁴⁰ http://www.mop.gov.si/si/zakonodaja_in_dokumenti/veljavni_predpisi/okolje/zakon_o_vodah/#c17920

conditions that must be applied in pest control on agricultural land in the core VVOs. It is particularly important that the use of PPP must be only a supplementary measure to other non-chemical measures of plant protection which may be mechanical, biological or biotechnical. Priority is given to non-chemical measures and to the use of those PPP which can be used in accordance with regulations governing organic production. Combating harmful organisms by chemical measures and the use of PPP are prohibited in VVOs in forest and built land, including traffic infrastructure (roads, railways, etc.).

The Waters Act also includes a complete prohibition on the use of PPP on coastal land within 15 meters of the boundary of a body of water of class 1, and within 5 meters of the boundary of a body of water of class 2 in order to protect surface waters.

The ZFFS-1 includes conditions for registering PPP which refer to the protection of ground and surface waters and of water organisms that must be satisfied by a product to be placed on the Slovenian market; the exposure to drift, surface run-off and run-off through drainage systems are assessed. Taking into account the properties of a particular active substance, a decision on registering PPP may determine wider safety zones than those laid down by regulations governing waters.

The content level of PPP in ground water is being reduced but in lowland areas of the RS (the Drava and Mura basins), which are characterised by intensive agricultural activity, certain PPP exceed the environmental quality standard specified for ground waters⁴¹. The concentration and content of various PPP in surface waters changes over the years. The concentration of certain PPP is being reduced but new active substances are appearing that exceed environmental quality standards for surface waters⁴². The most problematic are the Mura, Drava and Savinja river basins. The Ministry encourages producers to protect water sources through the measure on agri-environmental-climate payments (the AECF measure) in the Rural Development Programme for the RS for the period 2014–2020⁴³. The AECF measure, which includes 19 actions with mandatory and optional requirements, is entered into voluntarily by farmers, who undertake to apply the accepted obligations for at least five years. By implementing the AECF measures producers contribute to maintaining or improving water sources.

The requirements under the water protection action are designed to maintain or improve the quality of water sources, and to maintain and improve the properties and fertility of soil. Beneficiaries whose areas are situated in areas of water bodies that contribute to surface waters and in areas of water bodies that contribute to ground waters in the WMP can participate in the water source protection action.

Aside from the AECF measure, the RDP 2014-2020 also contains the measure M 4.1 - Support for investment in agricultural holdings, under which the Ministry is encouraging producers to purchase new equipment for the application of PPP and to disinfect seeds with PPP that satisfy requirements on reducing the drift of PPP.

5.10.3. Goals, measures and risk indicators

Goals: Preventing deterioration of water condition due to pollution by PPP and improving the condition of water bodies where it is poor due to PPP. Gradual reduction of pollution with priority substances, i.e. PPP categorised as priority substances. Finding sources and removing causes of pollution with PPP at measuring points of ground and surface waters characterised by repeated pollution with PPP; reducing the content of PPP at measuring points of ground and surface waters.

Measures and time limits: The Ministry competent for the environment, in cooperation with the Ministry competent for agriculture, the Ministry competent for health and local stakeholders, carries out detailed analyses in the period 2018-2022 to find the actual reasons for the occurrence of PPP at individual, permanently polluted measuring points.

⁴¹The environmental quality standards for ground water are laid down by the Decree on groundwater status (Official Gazette of the RS No 25/09, 68/12, 66/16).

⁴²The environmental quality standards for surface water are laid down by the Decree on surface water status (Official Gazette of the RS No 14/09, 98/10, 96/13, 24/16).

⁴³Rural Development Programme 2014-2020: <https://www.program-podezelja.si/sl/ukrepi-in-podukrepi-prp-2014-2020>

On the basis of these findings, relevant measures are coordinated at interministerial level.

Risk indicators: The content of PPP in samples taken at measuring points of ground and surface waters. Reducing by 10 % the proportion of samples of ground and surface waters containing PPP; the proportion does not refer to substances that constitute old pollution.

5.11. Monitoring of drinking water

5.11.1. Obligations under EU legislation

In accordance with Article 11 of Directive 2009/128/EC, Member States must adopt appropriate measures on protecting the water environment and the supply of drinking water which comply with regulations on water and with regulations on placing PPP on the market. These measures must give priority to registering PPP not categorised as harmful to the water environment or not indicated as priority substances in Directive 2000/60/EC; priority must be given to low drift treatment techniques, the use of measures for reducing risks in drift, rinsing and run-off of PPP, reducing the use of PPP or ceasing to use PPP by roads, railways, permeable surfaces or infrastructure close to water where water can be polluted.

5.11.2. Regulations in the RS

Monitoring of drinking water is governed by the Rules on drinking water (Official Gazette of the RS No 19/04, 35/04, 26/06, 92/06, 25/09, 74/15 and 51/17). The purpose of monitoring is to check compliance of drinking water with the requirements for drinking water, for the purpose of protecting human health against harmful effects due to any drinking water pollution. The programme specifies sampling points, the frequency and the method of sampling, physicochemical and microbiological analyses, the providers of sampling and laboratory testing. The programme includes testing of drinking water at taps and points where water is used as drinking water within a supply area. The programme also includes testing of drinking water in facilities for packaging drinking water at the place where water is packaged. In accordance with the provisions of the Rules on drinking water, the provider of monitoring is the Maribor Institute for Health Protection, together with other institutes for health protection and the Institute for Health Protection of the RS. Programmes, reports and information on the monitoring of drinking water are accessible on the website: Monitoring of drinking water⁴⁴.

The monitoring programme is prepared for the current year and includes requirements on limit values for microbiological, chemical and indicator parameters. PPP (active substances and their metabolites) will be omitted if their presence has not been detected in those supply areas in the past, either in the monitoring programme of ground water or the monitoring programme of drinking water; the active substances and their metabolites that will be included are those that have been detected in significant concentrations in past monitoring periods, in the ground water and surface water quality programme and in the internal supervision programme, as well as those PPP required by the EU reporting tables.

5.11.3. Goals, measures and risk indicators

Goals: Preventing deterioration of state of drinking water due to pollution with PPP and achieving a good state of drinking water. Finding of sources and removing causes of pollution with PPP at measuring points, i.e. taps where repeated pollution with PPP has been observed; reducing the content of PPP at measuring points.

Measures and time limits: The sources of drinking water in the Republic of Slovenia are the ground water, supplying around two thirds of the population with drinking water, and surface water (Karst) supplying around one third of the population with drinking water. For this reason measures refer to measures connected to protecting the water environment (Point 3.10).

Risk indicators: The content of PPP in samples of drinking water. Reducing the proportion of samples of ground and surface water containing PPP by 10 %; the proportion does not refer to substances that constitute old pollution.

⁴⁴ <http://www.mpv.si/>

5.12. Reducing risks due to the use of PPP in special areas

5.12.1. Obligations under EU legislation

Article 4(3) [sic] of Directive 2009/128/EC provides that Member States are to establish — on the basis of risk indicators and taking into account where applicable the risk or use-reduction targets achieved already prior to the application of the Directive — timetables and targets for the reduction of the use of PPP, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2) of the Directive. These targets may be intermediate or final. Member States are to use all necessary means designed to achieve these targets.

In accordance with Article 12 of Directive 2009/128/EC, Member States must ensure that the use of pesticides is minimised or prohibited in certain specific areas in order to protect public health and biodiversity. The use of low-risk plant protection products as defined in Regulation (EC) No 1107/2009 and non-chemical control measures is encouraged. These specific areas are:

- public areas and areas frequented by vulnerable groups (as defined in Article 3 of Regulation (EC) 1107/2009):
- special conservation areas (as defined in Directives 2000/60/EC, 79/409/EEC and 92/43/EEC):
- similar treatment applies to areas recently treated with PPP on which workers must perform work.

5.12.2. Regulations in the RS

Under 5.12.2.(a): In Slovenia the method of using PPP in public areas and areas frequented by vulnerable groups of the population is governed by the ZFfS-1, which provides, in Article 34, that only non-chemical methods of managing harmful organisms may be used in public areas. Under certain conditions laid down by the minister, PPP may be used in public areas, but this derogation does not apply to children's and sports playgrounds. The minister has also prescribed the method of providing information about treatment and marking treated public areas, and laid down the safety zone to prevent drift, and time restrictions on accessing areas treated with PPP.

When PPP are used in public areas and for non-professional use, this does not affect secure and economic food production. These uses mostly involve the use of herbicides for managing weeds which can be replaced by non-chemical management methods (for example: manual removal, machines for mechanical removal of weeds or mowing, equipment and methods for using heat (steam, hot water or flames) and the like. Certain alternative non-chemical methods for plant protection do exist and there is no significant economic damage to the protection of ornamental plants and food production when weeds propagate too much. Except in urgent cases, when required to prevent the spread of harmful weeds or in other urgent cases of plant protection for which measures for preventing propagation are adopted in accordance with the law, the use of herbicides on public areas can be restricted. We propose restricting the use of herbicides in public areas and restricting the sale of PPP for professional use to non-professional users. This restriction would bring about a significant reduction in dangers and risks to health and the environment caused by the use of PPP; it would also contribute to a general reduction in the volume of use or sale of PPP.

Under 5.12.2.(b): Natura 2000⁴⁵ is a network of specially protected areas in the European Union, the object of which is to preserve biodiversity by protecting natural habitats of endangered plant and animal species that are important for the European Union. The RS designated 355 protected areas, 324 of which on the basis of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, and 31 on the basis of Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds.

The use of PPP in forests is prohibited by the Forests Act⁴⁶ (Article 31 of the Act on Forests). In exceptional cases concerning forest protection, the use of PPP is permitted. A permit for

⁴⁵ Natura 2000; <http://www.natura2000.si/index.php?id=18>

⁴⁶ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO270>

exceptional use of PPP, which also specifies the method of their use, is issued by the Forest Institute in an administrative procedure.

For Natura 2000 areas EU financial programmes are available for co-financing nature protection projects (LIFE +), nature-friendly types of agriculture (resources for rural development and from structural funds) and other activities for sustainable development (resources from structural funds).

The Ministry also encourages producers to take care of nature through activities that have been in place since 2015 under the AECPP measure in the Rural Development Programme of the RS for the period 2014-2020. As part of the AECPP measure, support is provided for agricultural practices of a higher standard for the protection of nature in important areas (areas which are important for maintaining biodiversity) through the following actions: Particular grassland habitats (HAB), Grassland habitats of butterflies (MET), Bird habitats in humid extensive meadows (VTR) and Sparse birch forest (STE). These actions are carried out on ecologically important areas containing species and habitat types whose preservation is directly dependent on appropriate agricultural use. A contribution to maintaining biodiversity is also made by the actions Maintaining habitats in steep meadows (KRA_S50), Hummocky meadows (KRA_GRB), Mountain Pasture (PP), Meadow orchards with tall standard trees (KRA_VTSA) and Preservation of hedges (KRA_MEJ) that started in 2017. All these actions contribute to maintaining biodiversity by restricting and prohibiting the use of fertilisers and PPP. Information from comparing actions and requirements under the AECPP measure in 2015 and 2016 is shown in the Analysis on implementing RDP which is available on the Ministry's website⁴⁷.

Under 5.12.2.(c): Access by workers to areas recently treated with PPP is determined in a decision on registering PPP on the basis of Regulation (EC) 1107/2009 and depending on the PPP properties. A decision on registering PPP also specifies the re-entry period which is a period that must pass from the time of treatment until workers can enter the area. If PPP does not have properties that require a re-entry period to apply, the time required before entering such areas is until PPP dries up on plants. The re-entry period is specified in instructions for use of PPP.

5.12.3. Goals, measures and risk indicators

Goals: *The Ministry continues to promote agricultural practices of a higher standard in the Rural Development Programme 2014-2020, with the objective of maintaining biodiversity and the environment.*

Measures and time limits: *The Rural Development Programme for the RS for the period 2014-2020 ensures the implementation of the measure M10 - Agri-environmental-climate payments (AECPP) for mandatory and optional actions for reducing the use of chemical PPP and for promoting the use of non-chemical methods of plant protection and of PPP with reduced risks. It also ensures the implementation of measure M11 - Organic farming (OF).*

The use of herbicides on public areas and the sale of PPP to non-professional users are restricted by applicable laws (implementing regulations are amended). In line with this restriction, decisions on registering PPP are also amended.

Supervision of the implementation of the prohibition or restriction of using PPP (herbicides) in specific areas is intensified.

Risk indicators: *The number and proportion of agricultural holdings participating in AECPP and OF, the proportion of agricultural land in use (proportion of fields and permanent crops) in AECPP and OF, the number of new pieces of equipment in use for non-chemical control of HO, the number of measures for reducing the use of PPP and the amount of resources paid for these measures; the sale volume of PPP in the period 2018-2022.*

5.13. Handling of PPP, waste packaging and waste PPP, and storage

5.13.1. Obligations under EU legislation

⁴⁷ Analysis of implementing Rural Development Plan of the Republic of Slovenia for the period 2014–2020, dated 30 April 2017.

In accordance with Article 13 of Directive 2009/128/EC, Member States must adopt measures for preventing threats to health and the environment that could arise when carrying out the following activities:

- storage, handling, dilution and mixing of PPP before application;
- handling of PPP waste packaging and waste PPP;
- disposal of tank mixtures remaining after application;
- cleaning of the spraying equipment used after spraying;
- collecting waste PPP and its packaging in accordance with Union laws.

Member States must take all necessary measures to ensure that users of PPP for non-professional purposes avoid dangerous handling operations. This can include the use of PPP with low risks, packages prepared for immediate use and small PPP packages.

Member States must ensure that PPP for professional use is stored in areas constructed in such a way as to prevent unwanted releases.

5.13.2. Regulations in the RS

Measures for reducing risks when handling PPP: Handling of PPP and its use is governed by the ZfS-1 and its implementing regulations: Rules on the conditions for placing plant protection products on the market⁴⁸ and Rules on the proper use of plant-protection products (Official Gazette of the RS No 71/14). These lay down conditions under which PPP is placed on the market, entry in the register of shops, conditions for storage and keeping of PPP (suitable premises preventing unwanted discharges), handling when preparing spraying mixture, handling of waste PPP and collecting waste PPP with reference to regulations governing waste.

A lot of effort was invested in informing the public and raising public awareness. Correct use and safe handling of PPP and its waste are a permanent feature of PPP user training courses which are mandatory for users of PPP for professional use. A lot of these training courses are also attended by users of PPP for non-professional use who wish to acquire a training card.

Handling, storage, dilution and mixing of PPP before application: At the time of registering PPP, personal protective equipment is specified which users must wear when preparing a spraying mixture and while spraying the product. It is not permitted to prepare a spraying mixture in the immediate vicinity of surface waters or on areas with high risks of PPP draining into surface water or an external sewer, or in the immediate vicinity of facilities used for the supply of drinking water where spillage would pollute ground and drinking water. It is necessary to produce preparations in areas where there is no danger of polluting water. Any spillage must be covered with inert material and removed as hazardous waste in accordance with regulations governing waste. In case of extensive spillage the Information Centre (112) must be notified. Storage: A user must store PPP in its original packaging, separately from food and other items of general use, out of the reach of children, at the temperature, humidity and light conditions stated by the manufacture on the PPP's label. Short recommendations are prepared for farmers on warehousing PPP at holdings.

Handling of waste packaging and waste PPP and collecting waste PPP: Uncleaned packaging, PPP residues and outdated PPP must be disposed of as hazardous waste in accordance with the regulations governing waste. Thoroughly emptied and cleaned packaging is given to collection centres. The PPP GIZ, in cooperation with the Ministry of the Environment, has invested a lot of effort in past years in organising the collection of waste PPP packaging, correct procedures for cleaning such packaging and establishment of a network for collecting such packaging and the provision of information to users of PPP. This collection network now works well.

Disposal of spraying mixture and cleaning of spraying equipment: the residue of a spraying mixture may not be rinsed into surface waters, wells, soak-aways, drainage apertures, septic tanks and external sewers. Point source discharge of water is prohibited during the cleaning of a spraying tank. Residue of spraying mixture and water used for cleaning equipment must be sprayed on already treated areas or other biologically active surface, or onto a system of biological, physical or physicochemical decomposition at an agricultural holding. Upon an

⁴⁸ <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/115549>

initiative of undertakings selling PPP, two such devices for biological and physical decomposition of waste water containing PPP residue were constructed by 2017. The method of removing old material from such devices must be specified.

Measures for reducing risks to users upon handling of PPP for non-professional use: When registering PPP on the basis of criteria such as danger to health, effects on the environment and the size of packaging (criteria are set out in implementing regulations), PPP with lower risks for use by non-professional users are identified. Buyers do not need to show a PPP training card when purchasing such PPP. The list of PPP with lower risks is available to the public on the website of the Administration.⁴⁹

Warehousing conditions of PPP on the market are prescribed in the RS as follows: premises for warehousing PPP must be in buildings built with chemically and physically resilient and non-inert materials; the interior must be finished in a manner to allow safe work and fast cleaning; the floor must be built in a manner to prevent unwanted releases into the environment; all areas in a warehouse must have ventilation; a wall-mounted first-aid kit must be installed; temperature, humidity and light must comply with PPP warehousing conditions stated by the manufacturer of PPP; artificial light must be installed; a warehouse must have a special area for temporary storage of hazardous waste, containing two containers, one empty and the other with absorbent material for spilled liquids, it must have a changing area, toilets and other areas for washing with cold and hot water, liquid soap and a hand drier or disposable towels. Workers must have personal protective equipment at their disposal. Areas for warehousing and selling PPP must be protected to prevent access by unauthorised individuals.

5.13.3. Goals, measures and risk indicators

***Goals:* Stakeholders act responsibly and in accordance with regulations when warehousing PPP and handling waste packaging and PPP waste, in order to prevent risks associated with handling PPP.**

***Measures and time limits:* the Administration's inspection services supervise compliance with the conditions by warehousing premises for PPP on the market and by users of PPP. The collection of waste PPP and waste packaging continues. Written recommendations are prepared for farmers on the correct warehousing of PPP at holdings.**

***Risk indicators:* Quantity of collected waste PPP and its packaging. The number of inspections of PPP distributors' and users' warehouses carried out and the number of infringements detected (reducing the proportion of infringements by 10 % in relation to the period 2012-2017).**

5.14. Integrated pest management

5.14.1. Obligations under EU legislation

In accordance with Article 14 of Directive 2009/128/EC, Member States must adopt all necessary measures for promoting practices that involve lower use of chemical PPP and the use of non-chemical methods. These practices include integrated pest management and organic production. Member States must create the conditions for carrying out integrated pest management, in particular they must ensure that professional food producers have at their disposal information and suitable tools for pest monitoring and decision making, as well as advisory services on applying pest protection measures. They must ensure that all professional food producers implement general principles and guidelines on integrated pest management set out in Annex 3 to Directive 2009/128/EC and report thereon to the European Commission. In addition they must promote implementation of specific principles and guidelines for cultivated plants and groups of cultivated plants.

5.14.2. Regulations in the RS

Integrated production in the RS has been carried out since 2003. Until the end of 2014, it was carried out under agricultural-environmental measures in the Rural Development Programme 2007-2013. Since 2015, integrated production has no longer been a part of agricultural-

⁴⁹ Lists of PPP: <http://spletni2.furs.gov.si/FFS/REGSR/index.htm>

environmental measures but remains a voluntary, national, Slovenian quality scheme. Farmers wishing to obtain a certificate on integrated production register for control with respect to integrated production with organisations for control and certification of integrated production.

Integrated production applies to arable crops, fruit, grapes and vegetables included in national quality schemes. The technology of production, control procedures and labelling methods are laid down by sets of rules on integrated production and in technological instructions on integrated production that are issued by the Ministry each year.

Measures on promoting practices with lower use of PPP: The Ministry promotes the use of agricultural practices with lower use of PPP within its Rural Development Programme of the RS for the period 2014–2020; Measure M10 - Agri-environmental-climate payments (AECPP measure) (EUR 203 607 387) is intended for maintaining and promoting agricultural practices of a higher standard that impose higher demands than usual agricultural practices. The support is intended for agricultural holdings which, through the management of agricultural land, contribute to maintaining biodiversity and landscape, and protecting water sources and, by adapting farming, contribute to mitigating and adapting to climate change. The AECPP measure involves 19 actions, containing mandatory and, where available, voluntary requirements. Eligible entities may concurrently carry out several actions/apply several requirements on the same area. These actions for reducing the use of PPP (technological measures, for example crop rotation, sowing, land treatment), non-chemical methods for pest management (for example mechanical weed control, anti-insect nets, use of PPP with lower risks, phasing-out of the use of insecticides). The obligations accepted under the AECPP (mandatory and voluntary requirements) must be met by the beneficiary for five years.

Public service for plant health protection: On the basis of a concession granted by the Administration, a public service for plant health protection monitors the development and occurrence of more important HO in agriculture and determines the level of threat to plantations and crops with reference to weather conditions and the development of agricultural plants, reports to producers thereon and provides advice on appropriate measures for pest management. The public service prepares forecasts for protection against the main economically important HO in viticulture, fruit, hop and olive production, crop farming and since 2015 also in horticulture. Producers are informed through forecast notices which have been available since 2014 in an updated format on the web portal Agromet⁵⁰. Since 2002, the electronic portal FITO-INFO⁵¹ has been available for publishing forecasting information and electronically informing users by email and SMS when HO occur and on measures required for pest management, including warnings on possible disasters. The two systems are interconnected.

In order to provide forecasts of HO, the public service on plant health protection uses various tools for monitoring HO, from spore catchers, light baits, pheromone baits, sticky boards to recent techniques for distant monitoring such as 'trapview'. It also uses forecasting models, various hardware, software and other equipment which make it possible to take measurements of different parameters and to collect, analyse and access data and measurements. These measurements are made at numerous agro-meteorological stations appropriately situated in areas in the RS with more intensive agricultural production. A list of their locations, together with measurement and observation data from a particular area, is publicly available on the agrometeorological portal of Slovenia.⁵²

Forecasting modules for monitoring the occurrence of apple borer and apple and pear scab have been developed for wide use. These modules are publically available at the agrometeorological portal of Slovenia and can be used by producers.

Experts at the public service for plant health protection give producers answers to various questions on HO, provide advice on appropriate pest management measures and on correct and safe use of PPP. These services are provided through various forms of education, personal and field advice, instructions given by phone and in written form.

⁵⁰ <http://agromet.mkgp.gov.si/pp/>

⁵¹ www.fito-info.si

⁵² <http://agromet.mko.gov.si/APP/Home/METEO/-1>

Public agricultural advisory service: In accordance with the work programme under the Decree on the method of provision and the obligations of the agricultural public advisory service (Official Gazette of the RS No 60), agricultural advisers offer expert support for observation work relating to plant HO and give advice on correct use of PPP based on principles of good practice of plant protection and in accordance with the general principles of integrated pest management.

The general principles of and guidelines on integrated pest management in Annex III to Directive 2009/128/EC were transposed by Article 35 of the ZFfS-1 and by the Rules on integrated pest management⁵³ which lay down obligations of professional food producers including keeping of records on the use of PPP and other methods of pest management, and reporting of their success. On the basis of Article 50 of the ZFfS-1, an inspector orders appropriate measures when it is established that a user of PPP for professional use does not manage and keep information on the use of PPP or does not send it to the Administration upon request in accordance with this Act. An inspection at an agricultural holding involves inspecting records on PPP use, the user's training certificate, the certificate and label on the testing of equipment for application of PPP, PPP storage premises and the handling of waste PPP, labels on seed material packaging and the sampling of plant foliage. The correct use of PPP is checked through green sampling of plants before their technological maturity.

In all, 4 661 inspections were conducted in 2016, 451 irregularities were found, representing 9.67 % of all inspections, and 70 infringement procedures were initiated. The irregularities identified related mainly to the use of PPP on a crop for which the PPP in question was not registered, and to record-keeping. In the area of IPM there were 190 inspections; the inspectors did not detect any cases of non-compliance. IPM inspections check whether a user of PPP carries out preventive measures on all arable land and uses appropriate crop rotation and appropriate methods of pest management with low risks. In 2018, the inspectorate will expand its supervision to other general principles of IPM.

For greater transparency regarding the implementation of the eight general principles of integrated pest management, for the purpose of raising the awareness of users of PPP, the Ministry will prepare a questionnaire for users of PPP for professional use that will help in assessing agricultural practice and the implementation of IPM. The questionnaire will be sent to users through providers of training who will allocate one hour for group work with course participants to complete the questionnaire.

Incentives for development of various IPM guidelines: The Resolution on strategic guidelines for the development of Slovenian agriculture and food sector by 2020 - 'Guaranteeing the food for tomorrow' (Official Gazette of the RS No 25/11), adopted by the National Assembly in March 2011, defines agricultural development through goals of sustainable development and presents a joint document of all players in agri-food development, where all stakeholders and the Slovenian Government take on responsibility for development. Agriculture is seen in a wider context, together with associated industries and its effect on the environment, space and rural resources. The primary task of Slovenian agriculture is the production of safe food of as high a quality as possible. In production it is therefore necessary to further develop the high technological, plant protection and veterinary standards, environmental protection standards and animal welfare standards.

General standards on integrated pest management are being established in the RS through ZFfS-1 as a method of sustainable development of agriculture and as a mandatory practice.

For successful implementation of general rules in practice, the system must be updated with more detailed instructions for all sectors of agriculture production. It is important to emphasise that the general rules on integrated pest management include all levels of technology, from the selection of healthy (certified/standardised) seed and planting material from hardy and tolerant varieties of individual crops, to warehousing of produce, which means that it is an environmentally friendly, holistic technology for producing a particular crop.

It is necessary to ensure that the information on recognising HO and implementing appropriate measures becomes more accessible for producers and to transfer knowledge into practice in the form of information available on websites, in printed brochures, guidelines and instructions, and through personal advice from the advisory service.

⁵³ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV11530>

Sustainable development of agriculture, as defined by the European Commission with six strategic goals, includes promoting transfer of knowledge and innovation in agriculture, care for the environment, managing risks in agriculture and the development of advisory services. Protecting the environment and environmentally friendly agriculture are becoming a requirement and a goal in the European Union. To realise these goals, financial resources are available for the development of specific guidelines on integrated pest management, for transfer of knowledge and information and the development of non-chemical methods for pest management that could replace the use of chemical PPP.

The goals and tasks of integrated pest protection which are based, inter alia, on encouraging agricultural production by the use of principles of integrated pest management, in such a way that chemical PPP are used only when urgently needed or economically justified, will be transposed into the work programme of the Public agricultural advisory service. When advising final users, specific IPM guidelines will be used as well as the results obtained from work carried out by public services in the production of agricultural plants.

On the basis of the Agriculture Act, programmes of public services were laid down in 2017 by the Decree on public services in the production of agricultural plants (Official Gazette of the RS No 60), which defines in more detail the forms and manner of provision of public services in the field of crop-farming, horticulture, fruit production, viticulture, and oil production. The implementation of these programmes is designed to promote, among other things, plant breeding, selection and introduction of hardy varieties and testing of production technologies that ensure sustainable use of natural resources and follow environmental goals in agriculture.

Public service programmes in production of agricultural plants are linked to programmes of other public services for which the Ministry is responsible, in particular to this Programme and the Rural Development Programme, targeted research projects and other projects financed by the Ministry. The results of work carried out in accordance with public service programmes on production of agricultural plants will be published on the websites of public service providers and the Ministry. The results will be used for the development of non-chemical methods and practices of pest management, and will also be included in IPM guidelines, as appropriate.

5.14.3. Goals, measures and risk indicators

Goal: Promoting the use of general and specific guidelines on integrated pest management in agricultural production and promoting alternative approaches and techniques for controlling HO.

Measures and time limits: The Ministry and the Administration promote the development of specific IPM guidelines, non-chemical methods of pest management, the development of IPM webpages and other methods of sending information and providing advice to producers (demonstration holdings and tests), and the coordinated and harmonised action of the public services for providing agricultural advice, the plant health protection public service and other expert services for the introduction of specific IPM principles into agricultural production. In 2018 the Ministry is preparing a questionnaire for users of PPP for professional use, to assess their own IPM practices, which it will send to users of PPP at training courses on PPP.

Risk indicators: Number of visits to the website with information on integrated pest management⁵⁴, the number of specific guidelines issued on integrated pest management, the number of described non-chemical methods of pest management, including the number of hardy and tolerant varieties, the number of demonstration holdings and demonstration tests for integrated pest management. By 2022, specific guidelines will be issued for all main crops.

5.15. PPP registration

5.15.1. Obligations under EU legislation

Article 2(1) of Directive 2009/128/EC provides that the provisions of this Directive apply to PPP defined as such by Regulation (EC) No 1107/2009. Regulation (EC) 1107/2009 governs the

⁵⁴ <https://www.ivr.si/>

placing of plant protection products on the market and their use. The Regulation lays down procedures, the documentation required, the method of assessing and deciding on the approval of active substances at EU level, PPP registration in zones and at Member State level. In accordance with Article 75 of Regulation (EC) No 1107/2009 Member States must appoint competent authorities for fulfilling obligations under that Regulation. They must ensure that competent authorities have adequately trained staff with experience to successfully and effectively perform obligations under the Regulation. Contact information must be notified to the European Commission.

5.15.2. Regulations in the RS

Under the ZFfS-1 the Administration is appointed as the competent authority in the RS for implementing Regulation (EC) 1107/2009⁵⁵. The Administration does not have enough staff to fulfil the obligations under Regulation (EC) 1107/2009: assessing active substances, assessing PPP, assessing risks when issuing exceptional permits, assessing risks when irregular use of PPP under supervision is established. Lack of staff for performing the tasks required under the Regulation has forced the Administration to conclude contracts for the performance of expert tasks with four external institutions which employ experts that were educated by the Administration for performing these tasks. The tasks include assessing risks in toxicology, worker exposure, pesticide residue exposure in food and feed, ecotoxicology, assessment of effects on the environment, physical and chemical properties with analytical methods and use (effectiveness). Such organisation is not suitable because the financing is provided in annual budgets, which does not give full security to employees. Financing costs of such staff is higher due to overhead costs of all four institutions. Work coordination is exceptionally difficult to achieve since experts at the various institutions perform the assessment on a single file concurrently, which is very important since assessments need to be made within deadlines specified in the Regulation. Many of these experts also perform other tasks for the institution where they work and are not always available for these assessments when they should be. When issuing a permit for exceptional circumstances requiring a fast response (review of documentation and suitability of exceptional use), the Administration cannot provide a fast response because of the shortage of staff. There is also insufficient staff for promoting the use of PPP with lower risks and PPP suitable for organic production.

In the case where assessment staff are employed at the Administration, resources from transfers into public institutions are redistributed to the appropriate accounting item of the Administration, without causing additional costs for the budget. If Slovenia had a more suitable staff structure and better staffing levels in the PPP Sector at the Administration, it could carry out more assessments in the procedure for assessing active substances for the EU, which would result in an increased flow of funds into the budget, since applicants pay assessment costs in accordance with the Decree on the implementation of Regulations (EC) and (EU) on placing plant protection products on the market.

5.15.3. Goals, measures and risk indicators

Goal: Inclusion of experts in the Administration and strengthening staffing, in order to ensure a professionally strong competent authority for assessing and managing risks from PPP; fast registration, and use of PPP with lower risks and PPP suitable for organic production.

Measures and time limits: In accordance with the Act on the Implementation of the Republic of Slovenia's Budget and by taking into account the staff plan, the Ministry proposes an organisational change to the PPP Sector and higher staffing at the Administration by employing assessment experts at the Administration. The resources are to be provided by redistribution in appropriate budget items and do not represent additional costs to the budget. For faster registration, taxes for PPP with lower risks are reduced.

Risk indicators: The number of registration decisions and permits issued by type, the number of registrations of PPP with lower risks, the number of assessments of active

⁵⁵ZFfS-1 and the Decree on Implementation of the Regulations (EC) and (EU) Concerning the Placing of Plant Protection Products on the Market (Official Gazette of the RS No 5/15).

substances and zone assessments of PPP issued for the EU, response times in urgent cases.

5.16. Research and development

5.16.1. Obligations under EU legislation

In accordance with Article 4(1) of Directive 2009/128/EC, Member States are to promote the development and introduction of integrated pest management and alternative approaches and techniques with the objective of reducing dependence on the use of chemical PPP.

5.16.2. Regulations in the RS

The ministries cooperate with the public research agency of the RS in supporting the projects of the Targeted Research Programme (TRP). To support the strategic development of Slovenian agriculture, forestry, safe food and fisheries and the effects of PPP on human health, the ministries prepare foundations for developing guidelines and priority research areas for public calls for implementing and financing the sectoral Targeted research programme (TRP) 'Guaranteeing food for tomorrow 2011-2020' and the horizontal TRP programme. Through research support the ministries contribute to resolving strategic questions in priority areas of agriculture and specific problems of importance for further development and measures in individual sectoral areas. Research topics include topics related to reducing risks caused by the use of chemical PPP and their replacement by safer methods of pest management, reducing the drift of PPP, examining new methods of integrated pest management, the development of new technologies and alternative methods for combating HO, new technologies in organic production and other sustainable agricultural practices and effects of PPP on human health.

Aside from national research, the participation of the RS in EU project 'ERA NET Core Organic' as part of research under the theme 'Plant production' is important for this area.

Support is also provided for transfer of knowledge and expert work on research and development of new technologies, solutions and alternative methods to the use of chemical PPP within the Rural Development Programme.

5.16.3. Goals, measures and risk indicators

Goal: *By supporting research, new techniques of integrated pest management and new alternative methods of pest management are developed.*

Measures and time limits: *The ministries support research and development for the reduction of risks caused by the use of PPP, for integrated pest management and for the development of alternative methods of pest management for each year within the programming period.*

Risk indicators: *The number of supported projects, project results and amount of resources for these projects.*

5.17. Introducing innovations in agriculture

5.17.1. Obligations under EU legislation

In accordance with Article 4(1) of Directive 2009/128/EC, Member States are to promote the development and introduction of integrated pest management and alternative approaches and techniques, with the objective of reducing dependence on the use of chemical PPP.

5.17.2. Regulations in the RS

At the end of November 2017 the Slovenian Government adopted the Decree on the implementation of the "Cooperation Measure" under the Rural Development Programme of the Republic of Slovenia 2014–2020 (hereinafter: RDP 2014–2020) which comprehensively governs the implementation of the Cooperation measure, containing four sub-measures. This Decree introduced two new sub-measures, namely the sub-measure M16.2 - Support for pilot projects and for the development of new products, practices, processes and technologies (shortened name: sub-measure for Development of new products, practices, processes and technologies) and the sub-measure M16.5 - Support for joint action for mitigating and adjusting to climate change, and for joint approaches to environmental projects and permanent environmental practices (shortened name: sub-measure Environment and climate change).

Both sub-measures may be implemented either on a small scale as a pilot project or on a large scale, as a more extensive, time-consuming project requiring more funding under the European Innovation Partnership (EIP project). Both public calls will be published at the start of 2018.

A partnership involving at least three members will have to be established for implementing the measures, namely:

1. agricultural holding and
2. legal entity registered for carrying out advisory activities on agriculture, food or forestry but not registered for carrying out trading activity, and
3. a legal entity which:
 - a. is registered for carrying out research and development activities and is registered in the record of providers of research and development activities; or
 - b. carries out educational activities (university degree course lasting at least three years, non-university higher education course or upper secondary vocational and technical education course) on agriculture, food or forestry.

Other entities can also form part of the partnership alongside the identified members if they can contribute to the realisation of the project's goals.

Support under the sub-measure Development of new products, practices, processes and technologies is intended for carrying out pilot projects and EIP projects on technological development in agriculture, forestry and food. In all, EUR 8.8 million is earmarked for this sub-measure in the RDP.

Support under the sub-measure Environment and climate change is designed to promote pilot projects and EIP projects for the development of solutions for protecting the environment, mitigating or adjusting to climate change in agriculture and forestry. In all, EUR 5.6 million is earmarked for this sub-measure in the RDP.

5. 17.3. Goals, measures and risk indicators

Objectives *The development of new or improved products, practices, processes or technologies in agriculture, food or forestry, and the search for solutions designed to reduce the negative effects of agriculture or forestry on the environment, implement joint approaches in agriculture or forestry for the protection of biodiversity, carry out environmentally effective agricultural production in water protection areas and other protected areas, or reduce, alleviate or adjust to climate change in agriculture or forestry.*

Measures and time limits: *Public call for awarding support under the sub-measure Development of new products, practices, processes and technologies and the sub-measure Environment and climate change in 2018.*

Risk indicators: *The number of pilot projects and the volume of resources, the total number of projects supported, the number of supported projects for sustainable pest management, the number of supported projects for environmentally effective agriculture in water protection areas.*

6. RISK INDICATORS

6.1. Obligations under EU legislation

In accordance with Article 15 of Directive 2009/128/EC, Member States must calculate risk indicators with the aid of statistical information on the sale and use of PPP, determine trends in the use of certain active substances and identify priorities for reducing risks caused by the use of PPP. The results must be reported to the other Member States, the Commission and the public.

6.2. Regulations in the RS

In the RS, risk indicators were laid down in the NAP 2012-2022 and presented in the NAP Progress Report on achieving sustainable use of PPP for the years 2013-2015.

6.3. Risk indicators for the period 2018–2022

On the basis of experience gained in determining risks using the indicators specified in the first five-year period of implementation of the NAP 2012-2022, as set out in the NAP Progress Report 2013-2015 and the European Commission report for the European Parliament, the risk indicators in the first NAP 2012-2022 are to be slightly changed.

The following risk indicators for the period 2018–2022 have been established:

6.3.1. Monitoring the sale and use of all PPP and PPP containing substances of concern

- a. monitoring data on the sale of PPP by year and analysis of sales by individual category of PPP (herbicides, fungicides, insecticides, miscellaneous, chemical PPP, PPP allowed in organic production and so on);
- b. the volume of sales of PPP containing substances of concern by year;
- c. the assessment of use of PPP based on substances of concern from information on sales and registered use;
- d. the use of PPP in agriculture (use of active substances in kg/ha) (statistical information);
- e. the frequency of use index for PPP from SORS information on the use of PPP for the year in which research is conducted, and comparison with registered use;
- f. the strain index for PPP from SORS information on the use of PPP for the year in which research is conducted, and comparison with registered use;

6.3.2. PPP residues

- a. the number of samples for analysis and the proportion of food and feed samples containing PPP residues above the permitted level, and
- b. the number and proportion of food and feed samples containing residues (under and over the limit values) for products from EU Member States, third countries, domestic production and organic production;
- c. the number of green sampling samples for analysing the use of PPP, the proportion of infringements.

6.3.3. Use of PPP in public areas

- a. implementation of restrictions on the use of herbicides in public areas;
- b. the number of inspections of the use of PPP in public areas and the proportion of cases of non-compliance detected regarding restrictions on the use of herbicides;
- c. the volume of PPP sold is used to monitor the proportion of herbicides sold after the introduction of the measure restricting the use of herbicides in public areas.

6.3.4. Training on PPP

- a. the number of users of PPP completing training by year (the number of participants, the number of new cards issued, the number of cards extended, the proportion of extended cards in relation to all cards);
- b. the number of advisers on PPP and
- c. sellers of PPP completing training by year (the number of participants, the number of new cards issued, the number of cards extended, the proportion of cards extended in relation to all cards);
- d. the number of training providers;
- e. the number of courses available, the number of courses provided (beginners' and advanced training courses).

6.3.5. Requirements for selling PPP

- a. the number of registered distributors of PPP, the number of advisers and the number of sellers in shops;
- b. the number of supervisory inspections of shops and the number and proportion of infringements;
- c. the number of inspections regarding the illegal sale of PPP and the number or proportion of infringements.

6.3.6. Information on and awareness of PPP

- a. the number of information campaigns on PPP in the media and online;
- b. the number of leaflets, brochures and prospectuses issued on correct and safe use of PPP;
- c. the number of cases of unintentional (accidental) poisoning with PPP (in-patient and emergency treatment);
- d. establishment of a system for monitoring signs of chronic exposure of professional users of PPP.

6.3.7. Inspection of equipment for the application of PPP in use

- a. the number of authorised inspectors of equipment and the number of inspections organised;
- b. the number of pieces of equipment inspected (the number of pieces of equipment tested, the number of logos issued on conformity of equipment with the standard);
- c. the number of pieces of new equipment put into service;
- d. the average age of equipment in use;
- e. the number of instances of supervision of inspections and inspectors of equipment and the number (or proportion) of infringements;
- f. the number of recognitions of inspections of equipment (number of applications and number of certificates or logos issued);

6.3.8. Treatment with PPP from the air by aircraft

- a. treatment with PPP from the air is prohibited by the ZFfS-1; there is no provision for any derogation, risks need not be monitored.

6.3.9. Informing the public

- a. the number of notices to local communities;
- b. the number of events for which complaints regarding drift of PPP were lodged with inspection services;
- c. the proportion of justified complaints;
- d. regional breakdown of complaints;
- e. the reduction in the number of bee colonies proved to have resulted from poisoning with PPP.

6.3.10. Special measures on protecting the water environment

- a. the number of measuring points and the proportion of samples of ground water that do not comply with the requirements in the legislation on the status of ground water.
- b. the number of measuring points and the proportion of samples of surface water that do not comply with the requirements in the legislation on the status of surface water.

6.3.11. Monitoring of drinking water

- a. the number of measuring points and the proportion of samples of drinking water that do not comply with the requirements in the legislation on drinking water due to PPP residues.

6.3.12. Reducing risks due to the use of PPP in specific areas

- a. the number and proportion of agricultural holdings participating in organic production, and
- b. the proportion of agricultural arable land (fields and permanent crops) in organic production;
- c. the number of pieces of new equipment in use, intended for non-chemical control of HO;
- d. the number of measures implemented to reduce the use of PPP and the total amount of funds paid per year;
- e. implementation of the restriction on the use of herbicides in public areas (issuing of legislation, volume of sales, information on supervision - the number of inspections and the proportion of infringements).

6.3.13. Warehousing, handling of PPP, waste packaging of PPP and waste PPP

- a. the number of inspections of warehouses performed and the number (or proportion) of infringements;
- b. the quantity of waste PPP and its packaging collected.

6.3.14. Integrated pest management

- a. the number of visits to the website containing information on integrated pest management;
- b. the number of specific guidelines issued on integrated pest management,
- c. the number of non-chemical methods of pest management described;
- d. the number of demonstration holdings and the number of events and participants;
- e. the number of demonstration tests on integrated pest management.

6.3.15. PPP registration

- a. the number of registration decisions and permits issued by type;
- b. the number of cases of registration of PPP with reduced risk;
- c. the number of assessments of active ingredients;
- d. the number of zone assessments of PPP for the EU;
- e. the response time in urgent cases;
- f. the number of inspections of the sale and use of PPP and the number (or proportion) of infringements.
- g. the number of inspections of the sale and use of PPP under the system of parallel trade permits and the number (or proportion) of infringements.

6.3.16. Research and development

- a. the number of projects supported in the area of integrated pest management by year;
- b. monitoring of results of projects;
- c. the amount of resources granted for these projects.

6.3.17. Introducing innovations in agriculture

- a. the total number of projects supported and resources granted for these projects;
- b. the number of projects supported in the area of sustainable pest management;

- c. the number of supported projects in the area of environmentally effective agriculture in water protection areas.

7. Progress reporting, review of the NAP and access to information

In accordance with Article 4(2) of Directive 2009/128/EC, the NAP must be reviewed every five years. The next review of the NAP is planned in 2022, for the period 2023-2027.

The Ministry has an expert committee which is involved in the drafting of the NAP, the review of the NAP and the preparation of the NAP Progress Report. The Expert Committee helped to draft the NAP Progress Report 2013-2015, took part in the review of the NAP 2018–2022 and will participate in the preparation of the final report on progress of the NAP over the period 2013-2017.

In cooperation with the Expert Committee, the Ministry will prepare the Interim Report 2018–2020 (in 2021) and the Final Report on progress in implementing the NAP for the period 2018–2022 (in 2023).

The reports are sent to the European Commission and the other Member States and are published on the Ministry's website.

The European Commission set up a website for exchange of information on the work governed by Directive 2009/128/EC on sustainable use of pesticides containing information from all Member States. The website can be consulted at the following link:

https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides_en.