The Finnish National Action Plan

on Sustainable Plant

Protection III 2023–2027

Reg. no 7762/00.03.02/2023

Contents

The Finnish National Action Plan on Sustainable Plant Protection IIII 2023–2027 1
1. Introduction 5
2. Use of plant protection products in Finland 6
3. Background and links to other legislation 8
4. Objectives and measures 11
4.1 General measures set out in the National Action Plan (Article 4) 12
4.2 Plant protection training (Article 5) 13
4.3 Requirements for the sales of PPPs (Article 6) 15
4.4 Provision of information and awareness-raising (Article 7) 16
4.5 Inspection of sprayers (Article 8) 18
4.6 Aerial spraying (Article 9) 19
4.7 Informing the public of PPP treatments (Article 10) 19
4.8 Specific measures to protect the aquatic environment and drinking water (Article 11) 19
4.9 Reducing the use of PPPs or risks arising from them in green areas (Article 12) 21
4.10 Handling and storage of PPPs and treatment of their packaging and remnants (Article 13) 22
4.11 Promoting IPM and organic plant protection (Article 14) 23
4.11.5 Plant protection in organic production 27
4.11.6 Integrated and organic plant protection – collective learning 28
4.12 Development of indicators (Article 15) 29
5. Proposed measures that concern the implementation of other legislation 32
5.1. Protecting pollinator insects from PPPs 32
5.2. Detailing the grounds for the emergency authorisation in PPP product labels 32
5.3 Adequacy of the range of PPPs 33
5.4 The need to conduct investigations within the scope of fertiliser legislation 34
6. Costs of implementation 34
7. Provision of information 34
8. Monitoring and reporting 35
Appendix 1 Measures taken under the National Action Plans 2011–2017 and 2018–2022 and continuing measures 36
Appendix 2 NAP III indicators and parties responsible for them 40

Abbreviations used

AVI	Regional State Administrative Agency
CAP	Common Agricultural Policy of the European Union
CLP	Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
ELY Centre	Centre for Economic Development, Transport and the Environment
EU	European Union
F2F	Farm to Fork strategy of the European Union
IPM	Integrated Pest Management
KASTE	Finnish Crop Protection Association
KSS	Finnish Plant Protection Society
Luke	Natural Resources Institute Finland
MMM	Ministry of Agriculture and Forestry
MRL	Maximum Residue Level
MTK	Central Union of Agricultural Producers and Forest Owners
NAP	National Action Plan
REACH	Regulation (EU) 1907/2006 of the European Parliament and of the Council on the registration, evaluation, authorisation and restriction of chemicals
SAIO	Regulation (EU) 2022/2379 of the European Parliament and of the Council on statistics on agricultural inputs and outputs
SLC	Central Union of Swedish-speaking Agricultural Producers in Finland
SML	Finnish Beekeepers' Association
SUR	'Sustainable use regulation'; proposal of the European Commission for a regulation on the sustainable use of plant protection products
Syke	Finnish Environment Institute
THL	National Institute for Health and Welfare
TTL	Finnish Institute of Occupational Health
Tukes	Finnish Safety and Chemicals Agency
VTT	Technical Research Centre of Finland
VYL	Finnish Association of Landscape Industries
YM	Ministry of the Environment

1. Introduction

The objective of the National Action Plan on Sustainable Plant Protection is to reduce the risks to human health and the environment arising from the use of plant protection products and to guide users to adopt methods of integrated pest management (IPM) in plant protection. The third Finnish National Action Plan (NAP III) covers the period 2023–2027. The first National Action Plan (NAP I 2011–2017)[1] was published as a working group memorandum of the Ministry of Agriculture and Forestry in March 2011. The second National Action Plan (NAP II)[2] covered the period 2018–2022.

The obligation to prepare the National Action Plan arises from the Framework Directive on the Sustainable Use of Pesticides [3](hereafter referred to as the 'Framework Directive'), which has been implemented in Finland by means of the Act on Plant Protection Products[4]. Tukes is responsible for the preparation and implementation of the National Action Plan in cooperation with operators and authorities in the sector.

The new National Action Plan on Sustainable Plant Protection lists the new measures planned for the period 2023–2027 and the updates of the previous measures. The measures set out in NAP I and an assessment of their implementation were published in an interim report on 28 February 2018[5]. An assessment of the implementation of NAP II was published in the journal Agricultural and Food Science in 2023[6].

For the preparation of NAP III, Tukes convened a workshop comprising steering group members and other stakeholder representatives on 27 March 2023. Stakeholders were asked to prepare proposals for measures and the proposals were discussed in the workshop. The proposals submitted by the stakeholders were processed at Tukes, and the participants were requested to submit comments on them. The draft NAP III, which was prepared on the basis of the proposals for measures, was finalised after a consultation round.

Some of the measures concern proposals for reports on the basis of which instructions or restrictions concerning the use of plant protection products can be prepared. As these instructions and restrictions are prepared, their health, social, economic, and environmental impacts will be assessed, and consideration

---

[1]Maa- ja metsätalousministeriö 2011: Kasvinsuojeluaineiden kestävän käytön kansallinen toimintaohjelma. Työryhmämuistio mmm 2011:4 (Ministry of Agriculture and Forestry 2011: Finnish National Action Plan on the Sustainable Use of Plant Protection Products. Memorandum, MMM 2011:4). Helsinki 2011. http://mmm.fi/documents/1410837/1724539/trm2011_4.pdf/30affcf0-bea1-4689-8a77-050a76a53347.
Finnish National Action Plan on the Sustainable Use of Plant Protection Products II 2018–2022 (tukes.fi)[2]

[3]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. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:309:0071:0086:en:PDF.

[4]Act on Plant Protection Products (1563/2011). http://www.finlex.fi/fi/laki/ajantasa/2011/20111563 (The contents are in Finnish.)

[5]Turvallisuus- ja kemikaalivirasto 2018: Kasvinsuojeluaineiden kestävän käytön kansallinen toimintaohjelma. Väliraportti 2011–2017 (Finnish Safety and Chemicals Agency 2018: National Action Plan on the Sustainable Use of Plant Protection Products. Interim report 2011–2017). http://www.tukes.fi/Tiedostot/Kestava_kasvinsuojelu/Valiraportti.pdf. 52 pages.

[6] Autio, S., Laitala, E. & Kallio-Mannila, K., 2023. Evaluation of the Finnish Action Plan for the Sustainable Use of Pesticides 2018–2022. Agricultural and Food Science (2023) 32: 9–21. https://doi.org/10.23986/afsci.122220

will be given to the specific regional and local conditions. Relevant stakeholders will take part in the preparation of any instructions and restrictions.

The implementation of the proposed research and study projects depends on the research funding available for them. The resources required for the implementation is discussed in Chapter 6.

The new National Action Plan was prepared by Sari Autio, Juho Ahlberg, Jaana Jukkala and Maria Kalliola from Tukes. In the period 2018–2022, the National Action Plan steering group (NAP steering group) comprised the following members: Tove Jern, Ministry of Agriculture and Forestry; Eeva Nurmi, Ministry of the Environment; Jari Poutanen, Finnish Food Authority (2018–2021); Sari Autio, Finnish Organic Research Institute (2018–2020); Marja Jalli, Pasi Mattila, Marja Poteri (2018–2020) and Eeva Terhonen (2021–2022), Natural Resources Institute Finland; Mira Liiri, Finnish Food Authority; Katri Siimes, Finnish Environment Institute; Milja Koponen, Finnish Institute of Occupational Health; Sari Peltonen, Association of ProAgria Centres; Mika Virtanen and Antti Lavonen, Central Union of Agricultural Producers and Forest Owners; Rikard Korkman, Central Union of Swedish-speaking Agricultural Producers in Finland; Mari Raininko (2018–2021) and Anni Kymäläinen (2022), Finnish Crop Protection Association; Anne Rahkonen, Finnish Plant Protection Society; Soile Prokkola (2018–2020) and Susann Rännäri (2021–2022), Finnish Organic Association; Hanna Skogster, Central Organization for Finnish Horticulture; Katri Haavikko and Terhi Kuljukka-Rabb, Finnish Commerce Federation; Anneli Salonen, Finnish Beekeepers' Association; Pirjo Mäkelä, University of Helsinki; Soile Knuuti (2018–2022) and Susanna Koivujärvi (2022), Finnish Transport Infrastructure Agency. The work of the steering group was facilitated at Tukes by Pauliina Laitinen (2018–2020) and Emilia Laitala (2020–2022) as well as by Eija-Leena Hynninen, Lotta Kaila, Kaija Kallio-Mannila, Satu Rantala, Sari Autio (2020–2022) and Juho Ahlberg (2022). In addition to the steering group members, several employees of the stakeholder organisations and persons providing plant protection training contributed to the National Action Plan.

The draft plan for which the steering group had already submitted comments was sent to the stakeholder consultation in summer 2023. Comments have been submitted by the following parties: Central Organization for Finnish Horticulture, Association of ProAgria Centres, Natural Resources Institute Finland, Finnish Food and Drink Industries' Federation, Central Union of Swedish-speaking Agricultural Producers in Finland, Finnish Transport Infrastructure Agency, Finnish Commerce Federation, Finnish Institute of Occupational Health, Finnish Food Authority, Central Union of Agricultural Producers and Forest Owners, Finnish Crop Protection Association, Finnish Environment Institute, Ministry of the Environment and the Ministry of Agriculture and Forestry. The changes proposed by the parties submitting the comments have been taken into account to the extent possible. We would like to extend warm thanks to all parties that submitted comments.

2. Use of plant protection products in Finland

Plant protection products (hereafter also referred to as 'PPP' and 'PPPs') are preparations used to control weeds, pest insects and plant diseases. They are deliberately applied to crops to ensure the quantity and quality of the harvest, which means that despite safety precautions, PPPs are also inevitably carried to the environment in connection with their use.

The use of PPPs may pose a risk to human health and the environment, and to reduce this risk, a comprehensive assessment of health and environmental risks is carried out on PPPs in accordance with the EU's Plant Protection Products Regulation[7] before they are authorised and they can be sold and marketed in Finland. Only preparations with an acceptable level of risk to health and the environment can be authorised for use. When used in accordance with the instructions for use, the hazards and risks arising from PPPs are manageable. Controlling the trade and use of PPPs ensures that only authorised preparations are sold and that the authorised substances are used in accordance with the instructions.

Statistics on the sales of plant protection products have been compiled in Finland since 1953[8]. Tukes collects the data on sales volumes each year. The sales volumes of active substances intended for agricultural and horticultural use have totalled about 1,500 tonnes per year for the past decade. Urea, which is used in forestry to control root rot, and glyphosate, which is intended for weed control, are the best-selling active substances. They account for more than 80% of the sales of active substances. The sales volumes of urea have increased over the past two decades and in the 2020s, it has accounted for more than 70% of the sales volumes of all PPPs.

Luke compiles statistics on the use of plant protection products at five-year intervals[9], [10]. The first statistics were compiled in 2013 and the second set of statistics was published in 2018. In 2018, the greatest total amounts of PPPs per hectare were applied on sugar beet, strawberries, carrots and potatoes, which accounted for less than 2% of the total area under cultivation in Finland. For row crops, relatively large row spacing highlights the importance of weed control as the row spacing remains open for longer periods. The limited range of pesticides available for special plants, combined with resistant pest populations, increases the number of pesticide applications. For fodder grass, which accounts for about one third of the total area under cultivation, the amounts of PPPs used and the area treated were significantly smaller than for other crops. The aim in grass cultivation is dense growth to ensure that there is no room for weeds, and as a result, there may not be any need for plant protection during harvest years.

PPP residue levels are monitored in food, animal feed as well as surface waters and groundwater. The residue levels in food and feed produced in Finland are the lowest in Europe[11]. PPP residue levels exceeding the environmental quality standards (EQS) are rarely identified in surface waters or groundwater[12, 13].

---

[7]Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC.
[8]Finnish Safety and Chemicals Agency 2022: Sales volumes of plant protection products. Statistics on sales volumes | Finnish Safety and Chemicals Agency.
[9]Natural Resources Institute Finland 2014: Use of plant protection products in agriculture. https://www.luke.fi/en/statistics.
[10] Natural Resources Institute Finland 2019: Use of pesticides in agricultural and horticultural production 2018 | Natural Resources Institute Finland
[11]EFSA (European Food Safety Authority), Carrasco Cabrera L. and Medina Pastor P., 2022. The 2020 European Union report on pesticide residues in food. EFSA Journal 2022;20(3):7215, 57
[12]Karjalainen A.K., Siimes K., Leppänen M.T. ja Mannio J. 2014: Maa- ja metsätalouden kuormittamien pintavesien haitta-aineseuranta Suomessa. Seurannan tulokset 2007–2012. Suomen Ympäristökeskuksen raportteja 38/2014.(Monitoring of contaminants in Finnish surface waters affected by agriculture and forestry – Monitoring results from 2007–2012. Reports of the Finnish Environment Institute 38/2014). https://helda.helsinki.fi/handle/10138/153152.
[13]Juvonen J., Hentilä H. ja Aroviita J. 2017: Maa- ja metsätalouden kuormittamien pohjavesien MaaMet-seuranta –

Residue controls, the results of environmental monitoring and the minor irregularities identified in the control of use indicate that the use of plant protection products in Finland is at a safe level. Users of plant protection products have a great responsibility in this respect and they play a key role in the reduction of the risks arising from plant protection product use. Providing the users of plant protection products with training and by raising their awareness of the safe use of PPPs will remain key to achieving the objective of reducing the health and environmental risks arising from PPPs. Operators in the sector also consider the inspection of application equipment as an important and effective practical measure to reduce risks.

Implementation of the PPP legislation and changes in the PPP policy may reduce the number of active substances available in the market. Significant changes in the range of active substances and preparations available pose challenges to the Finnish cropping system. In sustainable plant protection, it is important to combine IPM methods in accordance with the principles of integrated plant protection. As part of IPM, it is important to keep available an extensive range of PPPs so that resistance problems can be reduced, ensure the effectiveness of the active substances against pests and keep the Finnish plant production industry competitive.

3. Background and links to other legislation

The aim of the Green Deal of the European Union[14] is to make the EU economically sustainable, taking into account agriculture, energy, housing, consumption, transport, finance, industry and the external relations of the Union. The purpose of the Farm to Fork[15] and Biodiversity Strategies[16] is to ensure that such objectives of the Green Deal as halving of the use of chemical PPPs in Europe and the risks arising from them by the year 2030 can be made a reality.

In accordance with the Framework Directive[3], plant protection should primarily rely on IPM and the use of methods and techniques providing alternatives to chemical methods whenever possible. For this reason, the IPM measures presented in Chapter 4.11 play a key role in ensuring that plant protection in Finland can be on a sustainable basis. The implementation of the Field to Fork and Biodiversity Strategies of the EU and the national pollinator strategy have underlined the role of IPM methods in plant protection. For this reason, more weight is attached to them as we are progressing from NAP I and NAP II to the new NAP III programme period. This is also highlighted in the name of the new National Action Plan as sustainable plant protection is now considered a total concept.

Torjunta-aineet ja ravinteet 2007–2015. Syken raportteja 15/2017.(Monitoring of groundwater bodies affected by agriculture and forestry (MaaMet) – Pesticides and nutrients 2007–2015. Reports of the Finnish Environment Institute 15/2017). http://hdl.handle.net/10138/192749.

[14]Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: European Green Deal COM/2019/640 final COM/2019/640

[15] Farm to Fork – Consilium (europa.eu)

[16] Biodiversity: how the EU protects nature – Consilium (europa.eu)

The Plant Protection Products Regulation[17] applies to approval and authorization procedures of PPPs. Statistics on the use and sales of PPPs are collected in accordance with the Statistics Regulation[18], and the amendment to the Machinery Directive[19] sets environmental requirements for new PPP application equipment. The Pesticides Statistics Regulation will be replaced in the coming years by a new regulation on statistics on agricultural input and output (SAIO) [20], which will also steer the compilation of PPP statistics more accurately.

The CLP Regulation on the classification and labelling of chemicals[21] with its new hazard classes[22] and the REACH Regulation[23] (for example, with regard to the safety data sheet) apply to PPPs. Provisions on the maximum pesticide residue levels in or on food and feed are laid down in the Pesticide Residue Regulation[24]. One purpose of the Water Framework Directive[25] and the Groundwater Directive[26] is to protect surface waters and groundwater against PPPs. For groundwater, all pesticides are considered but for surface waters, substances other than those specified in the Environmental Quality Standards Directive (2013/39/EU)[27] are rarely considered in water management. This shortcoming has been noted in such documents as the reports by the European Environment Agency[28].

The use of PPPs may not endanger the species and habitats protected under the Birds Directive[29] and the Natural Habitats Directive[30]. There are also provisions on PPPs in the legislation on such areas as

[17]Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning the placing of plant protection products on the market. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:309:0001:0050:en:PDF.
[18]Regulation (EC) No 1185/2009 of the European Parliament and of the Council concerning statistics on pesticides. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:324:0001:0022:EN:PDF.
[19]Directive 2009/127/EC of the European Parliament and of the Council amending Directive 2006/42/EC with regard to machinery for pesticide application. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:310:0029:0033:en:PDF.
[20] Council and Parliament reach provisional political agreement on the new Regulation on agricultural input and output statistics (SAIO) – Consilium (europa.eu)
[21]Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008R1272.
[22]Commission Delegated Regulation (EU) 2023/707 of 19 December 2022 amending Regulation (EC) No 1272/2008 as regards hazard classes and criteria for the classification, labelling and packaging of substances and mixtures. Commission Delegated Regulation (EU) 2023/707
[23]Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32006R1907.
[24]Regulation (EC) No 396/2005 of the European Parliament and of the Council on maximum residue levels of pesticides in or on food and feed of plant and animal origin. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32005R0396.
[25]Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32000L0060.
[26]Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32006L0118.
[27]Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.
[28] How pesticides impact human health and ecosystems in Europe — European Environment Agency (europa.eu)
[29]Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds. http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0147.
[30]Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31992L0043.

occupational safety and health[31]. Active substances of PPPs approved for use in organic production are listed in an Annex to the Implementing Regulation concerning organic production[32].

The implementation of the EU's Common Agricultural Policy (CAP27) for the funding period 2023–2027 has started in stages on 1 January 2023. The focus in the policy reform is on climate change mitigation and adaptation, animal welfare and attracting new farmers to the sector [33]. Member States have drawn up plans adopted by the European Commission to implement the policy measures. The CAP plan prepared by Finland supports Finnish agricultural production in a number of different ways. Plant protection measures contained in the plan cover such areas as environmental payments, organic production and advisory services. In its reports, Luke has assessed the effectiveness of the environmental measures set out in the Common Agricultural Policy[34] and the impact of the EU's Biodiversity Strategy in Finland[35]. The receipt of all farmer payments is also based on conditionality, which ensures the implementation of the statutory requirements and specific good agricultural practices on the farms receiving the payments. The statutory requirements include provisions on PPPs. Good farming practices include conditions aimed at ensuring crop rotation and reducing tillage. It is stated in the Programme of Prime Minister Petteri Orpo's Government that agricultural costs should not be unnecessarily increased[36]. The EU's Control Regulation provides the framework for controlling the entire food supply chain.[37]

The National Programme on Dangerous Chemicals[38] contains a number of measures that also apply to PPPs. The objective of the Chemicals Programme is to raise awareness of the exposure of the population to chemicals and to enhance the environmental monitoring of harmful substances and monitoring of discharges and emissions. The aim is also to reduce exposure of workers to chemicals that cause health hazards and exposure to sensitising substances among all population groups. The general objectives of the Chemicals Programme are also reflected in the National Action Plan.

[31]European Agency for Safety and Health at Work: European directives on safety and health at work. https://osha.europa.eu/en/safety-and-health-legislation/european-directives.

[32] Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007(europa.eu)

[33] Finland's+finalised+CAP plan+2023–2027.pdf (mmm.fi) (The contents are in Finnish)
Description of the measures set out in Finland's CAP plan 2023–2027 (mmm.fi) (The contents are in Finnish)

[34] Environmental impact assessment+31.8.2021.pdf (mmm.fi) (The contents are in Finnish)

[35]Kärkkäinen, L. & Koljonen, S. (toim.) 2023. Arvio EU:n biodiversiteettistrategian 2030 vaikutuksista Suomessa (2. painos). Luonnonvara- ja biotalouden tutkimus 33/2023. Luonnonvarakeskus. Helsinki (Kärkkäinen, L. & Koljonen, S. (ed.) 2023. Assessment of the impacts of the EU Biodiversity Strategy 2030 in Finland (2nd edition). Natural resources and bioeconomy studies 33/2023. Natural Resources Institute Finland. Helsinki). 359 pages.

[36] A strong and committed Finland: Programme of Prime Minister Petteri Orpo's Government 20 June 2023 (valtioneuvosto.fi)

[37]Regulation (EU) 2017/625 of the European Parliament and of the Council on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products.

[38]Ministry of the Environment 2021: National Chemicals Programme 2022–2035. National+Chemicals Programme+2022–2035.pdf (ym.fi) (The contents are in Finnish)

4. Objectives and measures

The objective of the Finnish National Action Plan on Sustainable Plant Protection is to reduce the risks to human and animal health and the environment arising from the use of PPPs. The aim is to reduce dependence on the use of chemical PPPs to the extent justified by the health and environmental risks associated with the use of the substances. The National Action Plan promotes IPM by opening up opportunities for the adoption of alternative pest control methods.

The Plan will help to implement the requirements set out in the Framework Directive[3] on an article-by-article basis. Most of the obligations have already been implemented in Finland during previous programme periods between 2011 and 2022 with the Act on Plant Protection Products[4] and the provisions issued under it, such as the Decree on the principles of integrated pest management[39]. There are only brief references in the new Action Plan to the legislative requirements already implemented and the measures introduced during the previous plan that are still continuing (see Appendix 1). They are detailed in the reports[5, 6]on the first and second National Action Plans.

Compared to the previous programme period, there are fewer measures set out in NAP III. Many of the measures contained in the previous action plans have become established as official government duties after the training and certification system for professional users or the sprayer inspector authorisation system has been built. For this reason, these tasks are now listed in NAP as continuing measures because ensuring their functioning is a basic prerequisite for sustainable plant protection in Finland. At the same time, major obligations concerning the construction of IT systems that will serve the users of PPPs, researchers and the authorities alike will have to be met in the coming years. In fact, the focus is now on project-type development and research tasks carried out on project basis, which will create better prerequisites for sustainable plant protection.

Opportunities and incentives for the use of alternative plant protection methods (mechanical, biological and cultivation technique-based control methods) are also needed for extensively cultivated arable crops. As herbicides constitute the largest group of PPPs used in agriculture by sales volume, research on measures to promote alternative herbicides was launched at the Natural Resources Institute Finland in the NAP II period and the work will continue during the new programme period.

In the chapters below, the objectives set in NAP III in accordance with each Article of the Framework Directive are described first. After that, there is a brief reference to the past and continuing measures set out in the Appendix. New measures are planned for implementation in accordance with identified needs. The indicators designed to facilitate the monitoring process are listed in Appendix 2.

[39]Decree of the Ministry of Agriculture and Forestry on the general principles of integrated pest management (7/2012).

4.1 General measures set out in the National Action Plan (Article 4)

Objectives

- Reducing the risks and impacts on human health and the environment arising from the use of PPPs by implementing measures set out in this Action Plan.
- Promoting market access of low-risk PPPs so that harmful PPPs can be replaced with less harmful ones.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
1. Improving market access of new biological ppps • An initiative and a well-grounded proposal for policy makers prepared by public and private operators in the sector. • Disseminating information on the data requirements and approval principles for microbiological ppps to operators in the sector. • Involving Tukes and/or Luke in the stakeholder cooperation carried out as part of the EU's RATION project[40]. • Systematic testing of the effectiveness of new microbiological ppps in Finnish conditions.	In the short term: Enhancing market access of new biological products replacing chemicals. In the long term: Replacing harmful PPPs with less harmful ones, reducing health risks and environmental problems, finding solutions to completely new plant health problems	Tukes, Luke, companies in the sector, advisory committee on plant protection 2023–2027 Three person-months Effectiveness testing as an activity funded by applicants.
2. Investigating the option of reducing the use of PPPs and the volumes used through economic steering instruments. For example: • Financial incentives to encourage the use of alternative plant protection methods; for example, preparing new incentives to boost the use of alternative plant protection methods for Finland's CAP plan in the period after 2027.	In the short term: Creating understanding of the range of economic steering instruments and their feasibility in Finland compared to legislative steering. The implementation timetable is specified on the basis of the report. In the long term: Economic steering instruments suitable for	MMM, YM, Ministry of Finance, Tukes, Finnish Food Authority 2025–2027 Report 4–6 person-months +

[40] The RATION team – Ration (ration-lrp.eu)

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
• The economic benefits to operators and the national economy (for example, to security of supply) generated by the use of PPPs are also taken into account. • A tax linked to the harmful effects of PPPs (Danish model). • An environmental charge imposed on particularly harmful PPPs. • Evaluation of the steering effects of economic steering implementation models (ecological tax/charge, financial incentives) compared to legislative steering instruments. For example, examining the administrative costs of economic steering instruments compared to the benefits generated by them.	Finland are introduced if their effectiveness is considered sufficient and political support can be secured.	implementation by government agencies

4.2 Plant protection training (Article 5)

Objectives:

- All persons using PPPs in their professional activities, including distributors and advisers, hold the plant protection certificate, which makes them familiar with the safe use of PPPs and the reduction of risks arising from them.
- All plant protection training and certification providers have participated in continuing training at least once every five years.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
3. **Regular continuing training for training providers. Obliging training providers, vendors and distributors to participate in continuing training at least once every five years.**	In the short term: A list of the events offered by operators is available and information on continuing training opportunities is provided.	Plant protection operators, NAP steering group, training providers, Tukes, 2023–2027

Arranging webinars and Moodle training on current topics for plant protection training providers, such as teachers in education institutions.	In the long term: Training providers keep their competence and know-how up to date.	1 person-month/year
4. Project to supervise the activities of plant protection training and certification providers. The controls are planned and implemented on a risk basis. The controls can take the form of both document control and control visits to deal with violations and cases requiring further investigations. Outputs: • Control plan for the period 2024–2027 • About 250 operators will be controlled each year.	In the short term: The work of operators becomes more transparent, and shortcomings are addressed in a timely manner. Number of irregularities is decreasing. In the long term: Trust in the sector and professional competence is strong, certification exams and inspections are harmonised, and irregularities in the sector are eliminated. Environmental and health risks are reduced when operators possess the required professional competence.	Tukes as a joint effort between groups 2023–2027 Minimum time allocated to document controls 1 h/operator = 34 working days = 1.5 person-months/year; for examining unclarities or obtaining further information: 0.5 person-months/year => totalling a minimum of 2 person-months/year
5. Strengthening expertise in sustainable plant protection in agricultural studies. • Training students studying plant production in the Bachelor's programme in agricultural sciences at the University of Helsinki as experts in research-based sustainable use of PPPs. Integrating research findings on the sustainable use of PPPs, its environmental aspects and the key themes and objectives of the NAP in the teaching. Using gradeable assignment to check study performance and to provide the students with motivation. • Introducing similar IPM learning contents in other agricultural and horticultural education institutions. Teachers of education institutions who have been approved as providers of plant protection training and certifications will participate in regular continuing training (see Measure 3 above).	In the short term: The Masters in agricultural sciences hired in different sectors of plant production bring to the branch latest research-based expertise on the sustainable use of PPPs. In the long term: Masters in agricultural sciences working in different sectors of plant production are familiar with the scientific basis of the sustainable use of PPPs and relevant legislation, know where and how to monitor practices, and act as experts in the process where changes are made to the use of the products and the instructions for their use. Decision-making is based on scientific work, which will strengthen trust in sector and the professional competence of the operators. Environmental and health risks are reduced when the operators possess the required professional competence.	University of Helsinki 2023–2027 Annual course on the basics of plant protection for Bachelor-level students, about 25 students each year. The teachers of the course are responsible for the implementation. Other agricultural schools 2024–2027 Teachers of education institutions.

6. IPM conference and other training for farmers and all students in the sector. Arranging IPM conferences for operators in the sector on a regular basis. Sharing information on plant protection training events on an active basis. Persons taking a plant protection certification exam are required to attend at least every second training session or the IPM conference. Investigating the option of making CAP funding available for farmer training.	In the short term: Familiarity with the IPM principles provides farmers with resilience as they have access to decision-making support on sustainable plant protection based on new research findings. Close cooperation between operators in the sector. All education institutions in the sector provide more IPM training. In the long term: The IPM register provides a basis for long-term monitoring of the implementation of IPM measures.	KSS, education institutions, training and certification providers, advisory services, research, the authorities, users as participants 2023–2027 carried out by government agencies

4.3 Requirements for the sales of PPPs (Article 6)

Objective:

- All vendors of preparations approved for professional use have a sufficient number of qualified personnel.
- The vendors of preparations approved for professional use always check that the buyer is a holder of a valid plant protection certificate.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
7. Public information service on plant protection certificate holders. Based on a legislative amendment, preparing a public information service allowing the names and required identification data of the holders of plant protection certificates to be checked in connection with the purchase of PPPs.	In the short term: The vendor of PPPs can check from the information service whether the buyer is a holder of the plant protection certificate. In the long term: PPPs are only sold to customers that know the risks and how to manage them.	Tukes, MMM 2023–2024 6 person-months, EUR 50,000 allocated to the development of the information service

4.4 Provision of information and awareness-raising (Article 7)

Objectives:

- There is more awareness of good plant protection practices as well as of the benefits and risks arising from the use of PPPs and their impacts on human health and the environment. Information is available on topics serving the needs of both professional users and consumers.
- Consumers become more aware of the low residue levels of Finnish food and feed products.
- PPP product labels are easy-to-read and user-friendly.
- There are no acute or chronic cases of poisonings caused by PPPs.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
8. Providing forest sector operators with information about the obligation to take the plant protection certification exam. Targeted provision of information on the obligation every second year.	In the short term: Small forest sector operators become more aware of the obligation to take the plant protection certification exam. In the long term: All forest sector operators are competent plant protection professionals.	Tukes 2024, 2026 0.5 person-months
9. Preparing instructions for the safe use of PPPs and disseminating information on them. The instructions will be published on the Tukes website in PDF format in the same way as on the website of the Swedish Board of Agriculture. Tukes will notify all parties concerned when the instructions are available.	Instructions will be made available on a range of different topics, such as 1) Regular inspection and calibration of sprayers, including maintenance instructions for knapsack sprayers 2) Notifying bystanders of the application of PPPs 3) Recommendation on reducing the use in areas used by vulnerable population groups	Tukes 2024–2025 2026–2027 2026-2027 2026–2027

	4) Instructions for protecting organic cultivations against the release of PPPs	2025–2026
	5) Instructions for observing the re-entry period	2023–2024
	6) Basics of the safe use of chemicals, such as warning pictograms, interpretation of product labels and safety data sheets, and guidance in the use of personal protective equipment	
	7) Instructions for constructing and using biobeds	2023
	8) Instructions for filling plant protection sprayers in greenhouses	2024–2025
	9) Instructions for protecting pollinator insects.	2025–2026
		1–2 person-months/guidance document
10. Enhancing dissemination of information on PPP monitoring data in surface waters and groundwater. Updating the POWERBI search page for groundwater data on Syke's MAAMET project website. Creating a similar concentration data search platform for surface waters, which will also contain background information on substances. The changes will be made in connection with the updating of Syke's website. As part of the update, the website will be provided with links to Tukes website. Disseminating information on monitoring results on a regular basis.	In the short term: Monitoring data is published in a comprehensive manner. In the long term: Up-to-date information on pesticide concentrations in surface waters and groundwater can be easily found.	Syke, Tukes 2023–2025 Resources: 1–2 person-months/year

4.5 Inspection of sprayers (Article 8)

Objectives:

- Professional users check the spraying equipment on a regular basis so that the PPPs can be applied in a manner that does not endanger human health or the environment.
- All sprayers in professional use have been inspected.
- The activities of all sprayer inspectors will be controlled at least once by 2027.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
11. Controls of application equipment inspections. Planning and implementing the controls of application equipment inspections on a risk basis. The controls may be carried out as document checks, by attending an inspection, or by visiting the inspector's facilities.	In the short term: The sprayer inspectors are competent and possess the required expertise in compliance with the requirements set out in Annex II of Directive 2009/128. In the long term: There is strong trust in the quality of sprayer inspections and the condition of the plant protection sprayers is good. Environmental and health risks are reduced.	Jointly by supervisory and permit experts of Tukes and, if necessary, Luke 2024–2027 For example, 5 inspectors/year 0.5 person-months/year
12. Preparation for the registration of spraying equipment. The register will be linked to the electronic accounting system of professional users. It will have an automatic function reminding the parties concerned of the deadline for the renewal of the sprayer inspection.	In the short term: If the proposed EU regulation on the sustainable use of plant protection products (SUR) will contain a provision requiring the registration of application equipment, preparations will be taken to harmonise the register with the setting up of an accounting system for professional users. In the long term: All electronic systems have been coordinated. Deadlines are set for sprayer inspections so that the equipment can be kept in good condition and environmental loading is reduced.	Tukes, MMM, Finnish Food Authority, Luke, IT consultants 2025–2027

4.6 Aerial spraying (Article 9)

Objective:

- Aerial spraying of PPPs is only carried out in specific well-grounded cases for which exemptions have been granted under the Decree 8/2012 of the Ministry of Agriculture and Forestry.

Continuing measures: see Appendix 1.

4.7 Informing the public of PPP treatments (Article 10)

Objectives:

- The application of plant protection products is carried out in accordance with the good plant protection practice and neighbours and other bystanders are notified of the activity on a continuous basis.
- Instructions on informing bystanders are available and information on the instructions is provided on a continuous basis.

Continuing measures: see Appendix 1.

4.8 Specific measures to protect the aquatic environment and drinking water (Article 11)

Objectives:

- The chemical and ecological status of surface waters and groundwater is good with regard to PPPs, it is maintained and the deterioration of the status is prevented.
- Maximum residue levels (MRLs) and environmental quality standards (EQS) for plant protection products are not exceeded in surface waters or groundwater.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
13. PPPs in surface water and groundwater areas used for the abstraction of drinking water. Safeguard zones will be established to protect surface water and groundwater areas used for the abstraction of drinking water. No PPPs may be used or stored in these strips. The adequacy of existing measures and the need for new restrictions in the buffer strips of drinking water intake plants will be assessed. Examining the effects of any new restrictions on the use and storage. Assessing the methods of providing farmers with compensation for loss of income. In the impact assessment, consideration will be given to the measures set out in the SUR proposal as well as the operating prerequisites and competitiveness of professional PPP users.	In the short term: Producing a report and impact assessment of the adequacy of the measures and the need for additional restrictions. If necessary, changes to the legislation and to the approval decisions, instructions for use and restrictions concerning preparations are made on the basis of the report. In the long term: The quality of drinking water remains good and the use of PPPs does not pose any risk to water supply in urban areas. Instruments providing farmers with compensation for any loss of income are made available.	Tukes, YM, MMM, Luke, Finnish Food Authority 2024–2027 Report and assessment 3–4 person-months. Any restrictions will be drafted and introduced by government agencies.
14. Reducing the use of PPPs in specific areas where they may leak into surface waters or groundwater. Alternative control methods will be developed and the use of PPPs will be steered towards alternative methods on transport routes, in the rail network, in highly permeable areas and in other areas where PPPs may leak into surface waters, groundwater or sewage systems.	In the short term: Based on research data, alternative control methods reducing the risks arising from the use are introduced in these areas to the extent possible. Consideration is given to the time needed to develop alternative methods. The measure is promoted through cooperation, dissemination of information and training of professional users. In the long term: The risk of drift is reduced.	Tukes, KSS, Finnish Transport Infrastructure Agency, Central Organization for Finnish Horticulture, Finnish Association of Landscape Industries 2023–2027 Resource requirement: The work will be carried out at government agencies in connection with information and training events.
15. Harmonising the practices between the environmental risk assessment of active substances and determining the predicted no-effect	In the short term: Avoiding overlapping work by government agencies and Member States. PNECs could be fairly easily	Syke, Tukes, YM, MMM, Finnish Food Authority, THL

concentrations required for the setting of environmental quality standards. Preparing a proposal for a harmonised procedure for determining predicted no-effect concentrations (PNEC) in surface waters and other relevant environmental matrices in the pre-approval processes for all (active) substances where the assessment includes an environmental assessment of such substances as PPPs and biocides and their degradation products. In the first stage, the focus will be on direct impacts. The inclusion of secondary effects may be considered once the practices have become well-established.	determined as part of risk assessments in accordance with the 'one substance – one assessment' principle. Harmonised PNECs for all plant protection products would help in the setting of environmental quality standards for nationally selected substances in water management. In the long term: PNECs would be available in such data resources as the open register maintained by the European Chemicals Agency ECHA when higher environmental quality standards for surface waters are incorporated in the proposals for changes to water directives. In Finland, PNEC data could be linked to such resources as KemiDigi. The information obtained in this manner could be used to interpret the monitoring data describing aquatic loading.	2024-2027 Preparation of the initiative 2 person-months, recording work will be carried out at government agencies in connection with risk assessments.
16. **Biotreatment systems based on installation of submerged wood material and/or restoration of ditches to natural state as means of reducing the harmful effects caused by PPPs in water bodies.** Preliminary study on the potential of biotreatment based on submerged wood and the restoration of ditches as means of reducing harmful effects caused by PPPs in water bodies.	In the short term: Report is available. Informing operators in the sector of the report results and, if necessary, specifying the instructions for use. In the long term: New ways to reduce aquatic pollution.	Syke 2024–2027 EUR 35,000

4.9 Reducing the use of PPPs or risks arising from them in green areas (Article 12)

Objective:

Professional use of PPPs in green areas is in compliance with statutory requirements for reducing health and environmental risks.

Continuing measures: see Appendix 1.

4.10 Handling and storage of PPPs and treatment of their packaging and remnants (Article 13)

Objectives:

- The personal protective equipment instructions indicated in the instructions for use of PPPs are easy to understand and provide the users with adequate protection.
- Stocks of PPPs do not pose any threat to humans or the environment.
- Expired PPPs and PPPs that are no longer used are taken to hazardous waste collection facilities within the indicated time limits and a recycling system for empty packaging is in place.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
17. Promoting the recovery of PPP packaging. A report will be prepared on the feasibility and profitability of collecting and recycling PPP packaging.	• In the short term: Report. • In the long term: Launching a packaging collection scheme. More extensive recovery of plastic packaging and less plastic waste.	Suomen Maatalous-muovien Kierrätys Oy, Finnish Commerce Federation, Kaste, operators, ministries, waste management authorities 2024–2027 3–4 person-months

4.11 Promoting IPM and organic plant protection (Article 14)

Objectives:

- An electronic record keeping system is available to all groups of professional PPP users. The system is linked to cultivation planning software and to the planned IPM portal and application equipment register.
- Operators in the sector can share IPM information on an IPM portal and a forum.
- Dependence on PPPs will decrease as IPM practices (such as alternative methods and techniques) are extensively adopted.
- IPM instructions for individual plant species and/or plant groups are actively used by all professional farmers.
- Professional users will change over to plant protection methods and preparations that reduce the risk to health and the environment.
- In IPM, the target level is raised from meeting the minimum statutory requirements to a higher cropping system level.
- Broad-based crop rotation serves as the basis for sustainable plant protection.

Continuing measures: see Appendix 1.

4.11.1 Basic IPM measures

IPM contains all the necessary measures to promote pest control making only limited use of PPPs. Wherever possible, IPM gives priority to non-chemical methods and PPPs that pose minimum risk to human health and the environment.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
18. THE electronic record keeping system for professional PPP users and the accompanying register of IPM measures and application equipment.	In the short term: An electronic system for all user groups is in place by 2027. The collection of data on the use of PPPs is automated and harmonised in the EU area. Reporting and compilation of statistics becomes easier. Regional and plant-specific breakdown of use-related data becomes easier to determine. Control and monitoring of use becomes easier.	Tukes, MMM, Finnish Food Authority, Luke, consultants, IT coders 2023–2027 EUR 3–4 million (incl. EUR 50,000 allocated to the preliminary study).

Outputs: Preliminary study on the information needs of the electronic system (2024), Prototype (2025), System launch (2026–2027) This measure is a non-NAP responsibility of government agencies. However, as it is linked to the proposed SUR, it is thus reasonable to construct it as a NAP III measure.	When the system is constructed, provision must be made for integrating IPM and application equipment registers, and commercial cultivation planning software in the system so that the users only need to do minimum amount of overlapping work (2027–2028?). In the long term: System integration is complete, the electronic record keeping system is operational, and professional users know how to correctly record uses. With the register, reporting is easy, and the aggregated data is also available to researchers.	Two person-months/year for dissemination of information, communication and system training each year. The work would be carried out by government agencies.
19. IPM forum and creation of IPM portal. IPM instructions for individual plant species will be prepared. Examining the need to amend the IPM decree of the Ministry of Agriculture and Forestry. Making the methods available through farmer cooperation, demo farms and the IPM forum. The options available to farmers can be found on the IPM portal and they include presentations of non-chemical and low-risk methods, IPM instructions for individual plant species, precision farming and measures promoting crop rotation. Developing the IPM portal as part of the electronic record keeping system (stage 2), see previous measure.	In the short term: IPM instructions for individual plant species are ready and will be made available to farmers. Science-based support for farmers is easy to find, and uncertainty about the feasibility of the methods will disappear. Achieving integration between commercial cultivation planning software, the electronic accounting system for professional users, and the application equipment register so that the users only need to do a minimum amount of overlapping work. In the long term: Obtaining information on alternative methods and recording of IPM measures is easy. Easy data exchange through the IPM forum. Professional competence is improving.	Luke, Tukes, advisory services, companies, farmers, MMM 2025–2027 4–6 person-months/year for forum coordination + EUR 200,000 for developing the portal
20. Active substances that are candidates for substitution and comparative assessment, report on the implementation	In the short term: Report is available. Work carried out in the EU on the development of comparative assessment methods is followed. In the long term: Prioritising research, evaluation procedures and timetables for preparations containing active substances that are candidates for	Tukes, Luke 2024–2025 Report 2–3 person-months, preparation-specific decision-making will be carried out at Tukes.

and practical impacts of the comparative assessment. Economic and practical aspects of plant protection, such as resistance risk management, are considered in the assessment.	replacement. Users are informed of the potential for replacement.	Studies will be funded by permit applicants/holders.

4.11.2 IPM level I – specifying the use of PPPs

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
21. Promotion of pest monitoring methods and development and use of prediction models and threshold values. Making the instructions and threshold values for the key monitoring methods available in a mobile-readable format (for example, through the LukeKaskas application). Updating research data on crop impacts and costs of different pests. Continuing the development and validation of pest prediction models and mobile applications supporting decision-making as a joint effort between research and advisory services so that new groups of pests can be added to mobile applications. Providing farmers with information on the use of the applications, testing them in cooperation with farmers, and acquiring more users for them.	In the short term: Prediction models and mobile applications for an increasing number of pests are available. The application user base is growing. In the long term: The use of prediction models is a key part of IPM measures in most plant groups, and the application users are familiar with the models.	Luke, advisory services, Finnish Food Authority, farmers 2023–2027 Resources: EUR 200,000/year

4.11.3 IPM level II – replacing chemical control with alternative methods

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
22. Development and introduction of methods to replace chemical weed control. Continuing the development of non-chemical and other alternatives to glyphosate applications and to other plant protection problem sectors. Ensuring the effectiveness of the alternative methods, taking into account the reduction of tillage required under the EU agricultural policy and the impacts on human and animal health and the environment. The Finnish Transport Infrastructure Agency will monitor the development of weed control methods suited for the railway network with the help of an international cooperation network. Promoting the adoption of alternative methods through advice and training.	In the short term: Luke's JUOTVAI project is completed and its results are made available to users. New projects are launched within the framework of the available project funding. Preliminary study commissioned by the Finnish Transport Infrastructure Agency on the potential of alternative vegetation control methods will be completed by the end of 2023. The experiences gained from European experiments will be reviewed in the document and it will also contain interviews with key railway maintenance actors. The results will be made available to the users. In the long term: Research results will become available on the applications of alternative weed control methods, such as the suitability of hot water treatment for vegetation control at railway stations and similar transport locations. The methods have been made available to users through advice and training. The use of glyphosate and other herbicides will decrease in applications for which alternative methods are available.	Luke, universities, universities of applied sciences, VTT, Finnish Food Authority, Finnish Transport Infrastructure Agency, advice and training 2023–2027 EUR 100,000 for the project each year; information, advice and training will be provided on a continuous basis by government agencies.

4.11.4 IPM level III – redesign of the cropping system

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
23. Research at cropping-system level and promotion of precision farming. Continuing research at cropping-system level (such as crop rotation research and functional biodiversity) in IPM and organic production. In addition to field	In the short term: Research at cropping-system level is promoted. Crop rotation models for different crops in different situations becomes available. Research-based information on crop rotation models suitable for different crops in	Luke, Finnish Organic Research Institute, Finnish Organic Association, Syke,

trials, research based on extensive data will be carried out on the long-term recording of plant protection measures by farmers. Transition to precision farming will be promoted, and the work will include the use of satellite data and adjustment of the use of PPPs in accordance with vegetation and the introduction of camera-controlled sprayers, taking into account the existing machinery on the farm. Providing information about the methods on such platforms as the IPM forum.	different situations will be made available. In the long term: Plant protection at cropping system level constitutes the sustainable plant protection infrastructure and serves as the basis for sustainable production. Guided by CAP, broad-based crop rotation is in use, taking into account the special characteristics of individual farms. Precision farming methods are available to farmers.	universities, advisory services, farmers, companies in the sector 2023–2027 project funding EUR 300,000/year, Dissemination of information by government agencies and coordinated by the IPM forum
24. Promoting research on disease resistance of forest trees and precision forestry. Breeding of disease-resistant forest trees. Pesticide treatments will only target the disease colonies. The resistance breeding method is only suited for certain pathogens (such as root rot) because trees are long-lived plants and resistance is easily generated.	In the short term: Pesticide treatments can only be applied to disease colonies. Decrease in forest damage, and (in the case of root rot) decrease in the use of pesticides. In the long term: Forests will become healthier. Breeding populations of the main tree species will have better resistance against diseases.	Research institutes, universities, forest centres Resource requirement: long-term resourcing, project funding EUR 300,000/year

4.11.5 Plant protection in organic production

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
25. Promoting research in organic production. In basic and applied research in organic production, work is carried out to identify comprehensive IPM-compliant management methods and preventive cultivation practices that can also effectively tackle difficult plant protection problems. The work includes research into the biological	In the short term: Research data on the effectiveness of plant protection methods approved for organic production is available. In the long term: Funding for research into the effectiveness of preparations suited for organic production is available. The range of plant protection methods approved for organic production in Finland is growing grow.	Finnish Organic Research Institute, Luke, the University of Helsinki 2023–2027

effectiveness of PPPs approved for organic production in Finnish conditions.		Project funding EUR 300,000/year

4.11.6 Integrated and organic plant protection – collective learning

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
26. Conference for sharing information on IPM and organic production. Conferences on sharing information are held on a regular basis and in them, farmers, advisory services, research bodies and the authorities review best practices on farms as well as the results and impacts of research results and outline research guidelines for the coming years of the programme period.	In the short term: A forum and events for the exchange of IPM information is available for operators in the sector. In the long term: Best plant protection practices are widely adopted in different types of production and they are made available to farmers. Interaction is effective and research needs are prioritised.	ProAgria, KSS, Luke, Finnish Organic Research Institute, Finnish Organic Association, universities, other educational institutions, farmers, Tukes 2024–2027 Resources: As part of the IPM forum coordination.
27. Making innovations available to farms and in cooperation with farms. As part of the research projects, advisory and training events will be arranged to make innovations available and to support co-innovation. New research data will be made available, farmers will share their experience-based knowledge and good practices will be adopted. For example, the demo farms set up as part of the IPMWORKS and Sprout and Match projects will continue to operate after the project period and	In the short term: The forum for joint learning is available to farmer groups, good practices are scaled up, and learning and exchange of information is on a continuous basis. Maximum use is made of existing projects, structures and resources. In the long term: More farmers become aware of alternative plant protection methods as IPM instruments, and the readiness to carry out experiments on the basis of the examples set by demo farms will grow. Information produced on pilot farms is shared and monitored on a long-term basis, taking into account economic, social and ecological sustainability when the methods are evaluated.	Coordination is the responsibility of the IPM forum. Luke, ProAgria and other advisory organisations, participating pilot farms, Tukes, Finnish Food Authority, MMM, farmers 2023–2027

become an established part of the agricultural aid system.	EUR 100,000

4.12 Development of indicators (Article 15)

Objectives:

- The indicators describing the risks arising from the use of PPPs are pointing downwards.
- Trends describing the use of certain identified active substances are downwards.
- Indicator data is easily available for research purposes.
- Creating a programme for monitoring environmental residues of PPPs.
- The indicators in use are based on research-based data, give a more realistic picture and facilitate the dissemination of information on trends describing the environmental and health risks of PPPs.

Continuing measures: see Appendix 1.

MEASURE	EFFECTIVENESS	RESPONSIBLE PARTIES, TIMETABLE AND RESOURCES
28. Risk indicators. In addition to the mandatory EU indicator, there is also a need for a national indicator that would take into account the sales volumes and at least the harmful properties of the substances. The HRI indicator based on the EU Directive (EU) 2019/782 does not take sufficient account of harmful properties and gives misleading results. The risk indicator is based on detailed information on the statistics and studies on the sales volumes and use of PPPs as well as on the risk profiles of active substances.	In the short term: Measures are taken to set up a framework for monitoring the progress of the risk reduction targets set out in the Field to Fork and Biodiversity Strategies. More detailed information becomes available on trends in the use of PPPs in relation to their environmental and health risks. In the long term: Research-based information on the environmental sustainability of Finnish production is available to demonstrate the strengths of the production. By setting an example, Finland will promote EU-level transition from a political risk indicator to a research-based risk indicator.	Tukes 2024–2025 report 6 person-months + indicator update 1 person-month/year + licenses and other purchases EUR 2,000/year
29. Catchment area-specific risk indicator measuring the environmental load of PPPs. Continuing the development of the risk indicator describing the loading generated by PPPs in individual catchment areas. The statistics on the use of PPPs and	In the short term: More detailed information will be obtained on the loading generated by PPPs in different areas. In the long term: With the help of the indicator, risk management measures can be specified on a regional basis as necessary.	Syke, Luke, Tukes, Finnish Food Authority 2024 (identification of funding sources)

the electronic system of use data will be utilised when they become available. The location and maintenance of the indicator will be jointly agreed by the parties concerned. Information on the introduction and results of the indicator will be provided and scientific publications on them will be produced.		2025–2026 (implement-tation) Resource requirement: 12 person-months
30. Statistics on the use of PPPs. Statistics on the use of PPPs will be collected and a summary of the results will be published. Preparations will be made for SAIO-compliant statistics. Measures will be taken to promote the aggregation of parcel-specific data on the use of PPPs on farms for research purposes, taking into account the data protection of individual farmers. Ongoing data collection projects will be linked to avoid overlapping work. The results will be reported in accordance with the requirements set by the European Commission.	In the short term: In 2024, statistics will be compiled in connection with the crop production statistics and horticultural statistics produced by Luke. The statistics on the use of PPPs are freely available on Luke's website. In the long term: From 2026 onwards, the data will be collected in accordance with SAIO requirements. When the electronic record keeping system for professional users becomes operational, the information is obtained directly from the system in real time. Statistics for individual regions and plant species become more easily available to researchers and other parties that need the information.	Luke 2024 2026–2027 12 person-months/year
31. Preparing a programme for monitoring environmental residues of PPPs in compliance with the EU monitoring guidance[41] and the national environment monitoring strategy[42]. A national programme for monitoring environmental residues of PPPs will be prepared. The NAP III period will serve as a pilot phase, during which best practices are identified and measures are taken to determine where funding for more extensive monitoring carried out on a continuous basis can be obtained.	In the short term, we will be able to set up a programme for monitoring environmental residues of PPPs in Finland, which will allow us to produce concentration data to support decision-making. Biota and soil concentration data can be stored in such resources as the KERTY information system maintained by Syke. In the long term, we can determine which PPPs burden our biota, soil and aquatic environment the most. The data allows us to make knowledge-based decisions on such matters as supplementary risk management measures	Syke, Luke, Finnish Food Authority, Tukes, MMM, YM, ELY Centres 2024–2027 Six person-months/year for coordination + EUR 200,000–300,000/year

[41]European Commission 2017: Guidance on monitoring and compression of Impacts of pesticide use on human health and the environment under Article 7(3) of Directive 2009/128/EC establishing a framework for Community action to achieve the sustainable use of pesticides (referred to as the Sustainable Use Directive). SANTE11326/2017-EN CIS (europa.eu)

[42] Monitoring Strategy of the State of the Environment 2030 (valtioneuvosto.fi) (The contents are in Finnish.)

• Adequate funding for surface water and groundwater monitoring must be ensured. • Information will be exchanged with regional ELY Centres and municipalities so that all monitoring data can be collected. • Monitoring of pesticide residues in soil, pollen and pollinators should be started/made a permanent activity. • The storage location of the monitoring results should be determined in advance. • The collection of samples will be partially based on other monitoring schemes, such as the collection of soil fertility samples by farmers or the samples taken by research institutes and the SML as part of their pollinator monitoring projects. • The need for pesticide surveys of high trophic level organisms (such as birds) should also be considered. In such cases, it would also make sense to determine other harmful substances in the same organisms (such as PFAS and mercury).	for the use of certain substances or to justify the safe use of certain substances due to the specific characteristics of the Finnish agriculture. By combining monitoring data with other background information, such as estimates of use volumes and leaching, the overall understanding can also be used in guidance and advice at regional level. Monitoring data will be used as a basis for the effectiveness indicator. Monitoring would make the impacts of the use of PPPs more transparent and measures could be focused on the substances with the greatest impact on the Finnish environment. The use of monitoring data in decision-making would increase trust in the users of PPPs and the authorities making the decisions.	for analysis of samples
32. Indicator data should be made available to NAP operators and, where possible, made public. The indicators describing the implementation of the NAP measures will be compiled into a single package, which will be published on the Tukes website on a regular basis.	In the short term: Provision of information and awareness of the implementation of the NAP measures will become easier. In the long term: The measures can be focused on the areas that are found to have the greatest effect in the light of the indicators.	Tukes and other NAP operators 2023–2027 1–2 person-months/year

5. Proposed measures that concern the implementation of other legislation

In connection with NAP III preparation, a number of measures were proposed, the implementation of which is already mandatory under the Plant Protection Products Regulation (EU 1107/2009) and thus it is not necessary to include them in NAP III as separate measures. Arguments in favour of excluding these proposals from NAP III are set out below.

5.1. Protecting pollinator insects from PPPs

To protect pollinator insects from PPPs, it is required under Articles 4 and 29 of the Plant Protection Products Regulation that when PPPs are approved, they should be subject to the necessary restrictions on use and other risk mitigation measures aimed at reducing risks to pollinators. The updating of the preparation-specific restriction clauses for the protection of pollinators is already under way at Tukes as a NAP II measure. The restrictions and instructions will be specified at Tukes as necessary in accordance with the EU Pollinators Initiative and Strategy, the national pollinator strategy, the requirements set out in the pollinator risk assessment guidelines and the practices applying to the EU northern zone. As this is a continuing activity, a separate NAP III measure is not required.

Material for plant protection training will be updated to highlight the practices concerning the protection of honeybees and natural pollinators. Providers of training and certifications are urged to make the protection of pollinators a key training topic. This is a continuing activity carried out as part of the organisation of plant protection training and certifications in accordance with Article 5 of the Framework Directive. All operators providing training and certifications are responsible for including pollinator protection in plant protection training. The NAP III measure described in Chapter 4.4 concerns the preparation of guidance documents on the sustainable use of PPPs, in which the protection of pollinators is one of the topics. The programme for monitoring PPP residues proposed in Chapter 4.12 is also intended to include honeybees, apiculture products as well as natural pollinators and their nutritional targets. The monitoring system will provide indicator information on the implementation and effectiveness of the measures designed to protect pollinators.

Cooperation between the authorities will be ensured in connection with the controls carried out under the EU Control Regulation, Organic Regulation and the Pesticide Residue Regulation so that the presence of unintentional residues in, for example, apiculture products and organic crops can be determined, and any resulting sanctions will affect the users of PPPs.

5.2. Detailing the grounds for the emergency authorisation in PPP product labels

Under Article 53 of the Plant Protection Products Regulation, emergency authorisations can be granted for plant protection emergencies for a maximum period of 120 days. Until now, it has not been clear from the

product labels or instructions for use of the preparations granted an emergency authorisation whether the preparation meets the normal requirements for approval on the basis of a risk assessment or whether a risk assessment has been carried out for that purpose. Under the proposal, it would be stated on the product label whether a risk assessment has been carried out for the intended purpose of use and whether the conditions for approval would be met on the basis of the risk assessment. Adding a few sentences to the product label would not involve a large amount of work (<2 h/authorisation) and it could be jointly done by Tukes risk assessors, authorisation rapporteurs and the authorisation holder. As a result of the measure, users would be aware of excessive and/or uncontrollable risks and could be able to avoid them if they so wish. This would boost transparency and trust in the authorities.

Processing of applications and granting of emergency authorisations is a continuous activity at Tukes, and this proposal can be implemented without a separate entry in NAP III. The proposal would make the processing of authorisation applications more transparent and highlight the responsibility of the user in a situation where there are no preparations subjected to detailed risk assessment available for the plant protection emergency referred to in the application, and the risk management measures are based on a risk assessment. As the European Commission takes a critical view on the emergency authorisations granted by Member States, it is increasingly important that the grounds for them are transparently described in the decisions and in the EU register of emergency authorisations, and that the missing information is also included if the risks have not been assessed for the purposes of use in question. Tukes has already adopted this practice.

5.3 Adequacy of the range of PPPs

Global warming and an increase in extreme weather phenomena may increase the need for chemical plant protection in northern latitudes. Operators in the sector have highlighted situations where restrictions on repeated use prevent such actions as controlling the same plant disease in successive years. In such cases, the crop is at risk every two years if the users have to resort to the same preparation. Ensuring the adequacy of the range of PPPs and the imposing of restrictions on use in connection with the approval of the preparations are responsibilities of government agencies under the Plant Protection Products Regulation and thus there is no need to include these tasks in the NAP. The limited range of products is a well-known problem, and the authorisation applicants are free to decide for which preparations authorisations are sought in Finland. The aim of the authorisations for minor uses is to solve the problem of uses of minor nature (Article 51 of the Plant Protection Products Regulation). However, in authorisations for minor uses, too, the necessary restrictions on use are imposed on the preparations on the basis of a risk assessment.

5.4 The need to conduct investigations within the scope of fertiliser legislation

A number of proposals for the need to conduct investigations falling within the scope of fertiliser legislation were received. For example, it was proposed that the leaching of slurry into waterways or the risks to arable land arising from chemical residues contained in urban wastewater should be investigated. These proposals were not included as measures in NAP III as they are outside the scope of sustainable use of PPPs. However, the proposals are mentioned here because research institutions may be able to use them in their own research plans.

6. Costs of implementation

The purpose of the plan is to implement measures required under the EU legislation that are envisaged for national implementation in this NAP. Until now, no separate appropriation has been earmarked in the state budget for the implementation of the plans for the sustainable use of PPPs. As the previous programme periods have shown, the effectiveness of the plan will depend on which of the projects envisaged to ensure its implementation are granted funding and how much funding they receive. For this reason, the aim is to make clear during the upcoming NAP III period that the objectives set can only become a reality if resources are allocated for their implementation.

A rough estimate of the resources required for implementing the new measures listed in NAP III has been produced by adding up the workload estimates provided by each responsible party. The final cost will depend on how extensively the measures can be implemented. Many of these tasks, such as research and study projects and one-off projects to construct IT platforms, will require both external funding and work by government agencies. The parties implementing the measures will seek and obtain external funding from a variety of different sources independently. Most of the continuing tasks are carried out by government agencies and with the resources of the operators in the plant protection sector. Based on a conservative estimate, the joint resource needs of the NAP actors for the full implementation of all new measures would amount to about 27 person-months per year and about EUR 10 million in external funding would be required for the entire programme period for 2023–2027.

7. Provision of information

NAP actors will disseminate information on the plan extensively to stakeholders, PPP users and consumers. In cooperation with the steering group, Tukes will prepare a communication plan each year, which includes a sufficient number of objectives and communication activities for the operators in the sector. The communication topics of the rolling NAP will change in accordance with the implementation timetables. Information on the measures, reports and instructions envisaged for the plan will be provided during their preparation and when they are completed. Indicators designed for the plan will also be used in the

dissemination of information. They are compiled, regularly updated and published on the Tukes website during the programme period.

Members of the steering group will report and share information on the communication activities that they have carried out during the programme period in the steering group meetings. If necessary, stakeholder events and workshops will be held to discuss the implementation and evaluation of the plan. In them, stakeholders and consumers will have an opportunity to provide information and give their views on the implementation of the programme.

8. Monitoring and reporting

NAP progress and results will be monitored by the steering group on an annual basis. Each year, the results will be reported to and discussed by the advisory committee on plant protection appointed by the Ministry of Agriculture and Forestry. The implementation of NAP III will be monitored on the basis of the indicators listed in Appendix 2. No quantified target values have been set for the indicators.

Operators will also share information on the monitoring process and the process will also be discussed at steering group meetings. Tukes will report on NAP progress to the European Commission and other Member States at the meetings of the Framework Directive working group and, if necessary, by other means. Tukes will notify the European Commission of any substantive changes in the plan without delay.

Progress towards the NAP objectives and their achievement will be reviewed during the programme period and at the latest in the final report in 2027. If necessary, the plan can be updated and the objectives specified during the programme period, for example, in accordance with the new obligations imposed on the Member States with the entry into force of the EU regulation on the sustainable use of PPPs. Information on the changes will also be disseminated at national level. Tukes will be responsible for the necessary updates and for the preparation of the final report and (if necessary) a new NAP.

Appendix 1 Measures taken under the National Action Plans 2011–2017 and 2018–2022 and continuing measures

Measure based on Directive 2009/128/EC	Responsible party
Article 4	
• The National Action Plan is implemented, and the activities are reported. • The implementation of NAP is monitored by a steering group, which meets on a regular basis. • Risk assessments on PPPs are carried out and decisions on them made, developments in the sector are monitored and Finland takes part in the development of risk assessment of PPPs at EU level. • Active substances of particular concern are only used for essential applications, their use is supervised and the option of analysing them in commercial laboratories is investigated.	Tukes Tukes Tukes Tukes Syke
Article 5	
• Basic and continuing training is regularly available for professional users and distributors of PPPs and advisers. • All professional users take the certification exam every five years. • The certification requirement applies to professional users and distributors of PPPs. • The plant protection certificates issued in other EU countries are recognised in Finland. • Regular conferences where providers of training and certifications can share information and discuss topical issues are jointly organised by operators in the sector as remote and attendance events. • The training material available in Finnish and Swedish is updated on a regular basis.	Tukes, providers of training and certifications Users Tukes Tukes, providers of training and certifications Tukes
Article 6	
• Each vendor selling preparations approved for professional use must have at least one certificate holder on its payroll. • Vendors and distributors of PPPs provide buyers with information on preparations approved for consumer use on a regular basis. Tukes and Kaste produce instructions on the content of such information.	Vendors and distributors Tukes Kaste
Article 7	
• The steering group draws up and implements a range of different communication themes. A variety of different communication channels are used in the dissemination of information. • Information on the safe use of PPPs, their health and environmental risks, and alternative plant protection methods is	NAP steering group all NAP actors

actively disseminated to the general public as well as to professional and non-professional users. • Information on the growth of organic production and its coexistence with conventional production is provided. • Information on acute and chronic cases of poisoning is collected. • The programme for monitoring PPP residues and dissemination of information on residues in food and feed products will continue. • Professional users are provided with information on the risks of counterfeit PPPs and counterfeit products are controlled. • Product labels and restrictions on the use of PPPs are jointly developed by the EU and parties in the northern zone.	Finnish Organic Association, Finnish Organic Research Institute TTL Finnish Food Authority, Central Organization for Finnish Horticulture (GLOBALG.A.P. programme) Kaste Tukes, Finnish Customs Tukes
Article 8	
• All sprayers in professional use are regularly inspected. • Tukes-approved inspectors for different types of equipment operate in different parts of Finland. • Training is available for sprayer inspectors. The activities of the sprayer inspectors are supervised. Virtual training for sprayer inspectors is in place and will be updated as necessary, for example, with regard to new application technologies. • Sprayer inspections carried out in other EU countries are recognised in Finland. • Exceptional inspection timetables or exemptions from inspection have been specified for certain types of sprayers (Appendix 2).	Tukes, sprayer inspectors Tukes Tukes Tukes Tukes
Article 9	
• Aerial spraying of PPPs is prohibited. • Permits for drone spraying pilots can be granted after the required changes to the Act on Plant Protection Products have been made. Information and experiences on drone spraying pilots are collected for better environmental risk assessment. • If necessary, special permits for aerial spraying can be granted if no other control methods are available. Instructions on disseminating information and requirements set out in the Framework Directive have been issued for aerial spraying.	MMM MMM, Tukes Tukes, Finnish Food Authority
Article 10	
• Professional users are provided with information and advice on how to prevent exposure of bystanders to PPPs during treatment. • Drifting of PPPs to adjacent areas/organic parcels/apiaries etc. can be prevented by adhering to good plant protection practices. • Green areas treated with PPPs should be marked.	Tukes TTL Tukes Users Green area workers

• PPP product labels contain specific instructions on buffer strips required to protect yards, adjacent areas and other crops.	Tukes
Article 11	
• The protection of groundwater areas and surface waters is included in the preparation risk assessment. Finland will monitor the development and application of risk assessment and risk management methods used in the EU and the northern zone to reduce risks to the aquatic environment and participate in the process by, for example, taking the following action: Water bodies are protected by means of risk-based buffer strips and spray drift reduction technology. • Buffer strips are used to prevent surface runoff into wells, springs and water bodies. • Surface runoff into water bodies is prevented by means of untreated plant-covered buffer strips with a width of 10 metres. • Adequate environmental monitoring of PPPs will be ensured.	Tukes Syke, ELY Centres, Luke, Finnish Food Authority, Tukes
Article 12	
• Consideration in the risk assessment is given to potential exposure of bystanders in recreational areas and the approval decisions, instructions for use and restrictions concerning PPPs are changed, if necessary. • A post-treatment re-entry period is specified for workers in the risk assessment and information on its importance is disseminated to protect workers. • Alternative methods, basic substances and low-risk preparations are preferred in green areas. • Green area workers are provided with information on alternative plant protection methods and recommendations on reducing the use of PPPs in areas used by vulnerable population groups.	Tukes Tukes, VYL VYL VYL
Article 13	
• In plant protection training and certificates, instructions are provided on the safe handling and storage of PPPs and on the handling of residues and packaging. • The instructions include instructions for storage to prevent environmental pollution. • The preparations are classified for professional and consumer use. • Only preparations with a low risk to consumers are approved for consumer use. • Only holders of plant protection certificates may purchase preparations approved for professional use. • The instructions for personal protective equipment are updated on PPP product labels so that the use of protective equipment can ensure the safety of the user.	Tukes, providers of training and certifications Tukes Tukes Tukes Professional users Tukes, TTL
Article 14	

• In plant protection training, farmers are provided with information on IPM. • Advisory services provide advice on IPM and organic production. • Research on IPM and organic production is carried out in research institutes. • IPM guidelines have been prepared for all plant species and plant groups cultivated in large scale in Finland. • Alternative control methods for invasive alien species and weeds in green areas are studied and put into practice with the help of advice. • The use of low-risk and alternative control methods is promoted through training and advice. • Comparative assessments are carried out in connection with the approval decisions of the most harmful PPPs and these products are replaced with less harmful preparations in applications where this is possible, taking into account resistance management. • Planting material is inspected and the quality of propagating material is controlled for pests. • The breeding of resistant plant varieties and the use of certified seed are promoted. • The protection of pollinators is promoted through instructions for use and restrictions on the use of PPPs, guidance for farmers, and advice and training.	Training providers Advisory services Luke, universities Luke, KSS Luke, advisory services Training providers, advisory services Tukes Finnish Food Authority Luke, Finnish Food Authority, plant breeders, seed vendors Tukes, advisory services, training providers
Article 15	
• Changes in harmonised risk indicators are monitored. • The European Commission and other Member States are provided with reports on changes in risk indicators, trends in the use of active substances of particular concern as well as other active substances, plants, areas and uses requiring special attention. • If necessary, new active substances of particular concern are identified as existing ones are withdrawn from the market. • Information on indicator trends are also disseminated to the public and experts in the sector in Finland.	

Appendix 2 NAP III indicators and parties responsible for them

1) Preparation approval

- Percentage of approved low-risk PPPs and basic substances of all PPPs. Tukes
- The number of comparative assessments and the number and applications of substituted preparations, and where available, the sales and use volumes of substituted preparations. Tukes
- The number of preparations requiring buffer strips to protect adjacent areas and bystanders in the register of plant protection products. Tukes
- Changes in approval decisions and product labels of preparations containing active substances of particular concern. Tukes
- Trends in sales of plant protection products harmful to pollinator insects. Tukes
- The impacts of changes in the range of active substances on the quantity and quality of crops as well as on the cultivated areas of different crops. Luke (depending on project funding)

2) Provision of training and certifications

- The number of people who have taken the certification exam required of professional users. Tukes
- Number of licenses of training and certifications providers, complaints and control cases, and the percentage of observed violations of the total, trend. Tukes
- The number of training and certification providers who have participated in continuing training arranged by Tukes. Tukes
- Public information service provided as part of the operations and the inquiries on certificate holders that it has received. Tukes

3) Application equipment

- Number and geographic distribution of licenses of authorised sprayer inspectors, results of sprayer inspector controls, trend. Tukes
- Number of sprayer inspectors participating in virtual training each year. Tukes
- Number of sprayer inspection certificates issued each year. Tukes

4) Implementation of IPM

- The number of agriculture and forestry students at the University of Helsinki who have participated in IPM studies. University of Helsinki
- Number of visitors to the IPM portal. Contacts and meetings on the IPM forum. Number of plant protection co-creation projects involving farmer/farm cooperation. Summaries of the feedback received from farmers participating in co-creation. Luke
- Number of IPM guidelines for individual plant species and/or plant groups. Luke
- Number and users of developed and adopted pest prediction models. Luke

- Number of IPM and organic production research projects and total project funding. Luke, Finnish Organic Research Institute, ProAgria

5) Control of use

- Percentage of non-compliance observed in labelling and storage of PPPs, application equipment and certification of plant protection professionals of all farms subject to PPP controls and controls of agricultural subsidies. Finnish Food Authority
- Percentage of farms receiving agricultural subsidies that have received support for voluntary plant protection measures under the Environmental Compensation Scheme. Finnish Food Authority
- The percentage of agricultural land included in the control of organic production and the number of organic compensation participants. Finnish Food Authority
- Use of PPPs in agriculture per hectare of arable land as hectare portions (the information will only become available when the electronic record keeping system for professional users is operational) Tukes, Finnish Food Authority

6) Monitoring data and residues in food and the environment

- Pesticide residue concentrations in domestic plant products and drinking water Finnish Food Authority, Syke, Finnish Water Utilities Association
- Percentage of samples below and above the MRLs in conventionally and organically produced domestic food and feed, including apiculture products. Finnish Food Authority
- Percentage of samples below and above the MRLs specified in the Drinking Water Directive in the monitoring of surface waters and groundwater quality. Syke
- Any exceedances of environmental quality standards or concentrations close to them identified in environmental monitoring, if possible, on a regional and application-specific basis. Syke
- Sample volumes and observed concentrations of the active substances of particular concern in the environment and in humans. Syke, Tukes, THL
- Results of long-term monitoring. Syke, Luke, Tukes

7) Reporting

- Environmental and health risk index Tukes
- Time and resources allocated to EU reporting Tukes
- Total amount of PPP packaging destined for the market as base data for the collection system Kaste