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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

On the experience gained by Member States on the implementation of national targets established in their National Action Plans and on progress in the implementation of Directive 2009/128/EC on the sustainable use of pesticides

1. INTRODUCTION

The European Union benefits from one of the most stringent system in the world for authorising and controlling the use of pesticides[1], if not the strictest. Directive 2009/128/EC[2] on the sustainable use of pesticides (the SUD), Regulation (EC) No 1107/2009[3], Regulation (EC) No 396/2005[4], Regulation (EU) 2017/625[5] and Regulation (EC) No 1185/2009[6] provide a legislative basis for the safe and sustainable use of pesticides in the European Union.

The objective of this framework for pesticides is to minimise the impact of pesticides on human health and the environment through reduced dependency, and through the increased use of low risk and non-chemical pesticides.

The SUD provides for a range of actions to achieve a sustainable use of pesticides by reducing the risks and impacts of their use on human health and the environment. One of its key elements is the implementation of Integrated Pest Management (IPM) and the promotion of alternative approaches or techniques, so as to reduce dependency on pesticides. The current and future Common Agricultural Policy (CAP) encompasses several instruments, which support implementation of IPM by users[7].

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1 The term 'pesticide', in the context of this report, refers to plant protection products (PPPs) as defined by Article 3 (10)(a) of Directive 2009/128/EC.

2 Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, OJ L 309, 24.11.2009, p. 71–86.

3 Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC, *OJ L 309, 24.11.2009, p. 1–50.*

4 Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC, *OJ L 70, 16.3.2005, p. 1–16.*

5 Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 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, amending Regulations (EC) No 999/2001, (EC) No 396/2005, (EC) No 1069/2009, (EC) No 1107/2009, (EU) No 1151/2012, (EU) No 652/2014, (EU) 2016/429 and (EU) 2016/2031 of the European Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/EC and Council Decision 92/438/EEC (Official Controls Regulation), *OJ L 95, 7.4.2017, p. 1–142*.

6 Regulation (EC) No 1185/2009 of the European Parliament and of the Council of 25 November 2009 concerning statistics on pesticides, *OJ L 324, 10.12.2009, p. 1–22.*

7 Regulation EU (No) 1303/2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund.
Regulation EU (No) 1305/2013 on support for rural development by the European Agricultural Fund for Rural Development.

The SUD is largely based on actions to be taken at Member State level, given the variation in agriculture across the EU. It requires Member States to produce National Action Plans (NAPs) setting out their quantitative objectives, targets, measures and timetables. The full implementation of the SUD would reduce the risks to human health and the environment, and reduce dependency on pesticides.

Under Article 4(3) of the SUD, the Commission is required to submit to the European Parliament and to the Council a report on the experience gained by Member States on the implementation of national targets established in their NAPs in order to achieve the objectives of the Directive. In addition, under Article 16 of the SUD the Commission has to report regularly to the European Parliament and to the Council on progress in the implementation of the Directive. This report addresses these reporting requirements.

There is a growing awareness in society around the sustainability of food production, of which the sustainable use of pesticides is an important component, as reflected in the United Nations 2030 Agenda for Sustainable Development[8] and the European Commission's Reflection Paper "Towards a Sustainable Europe by 2030"[9]. This awareness manifested itself in a European Citizens Initiative in 2017[10] calling on the Commission to *inter alia* set European Union-wide mandatory reduction targets for pesticide use. In its response to the European Citizens Initiative[11], the Commission committed to use this report as an opportunity to evaluate if sufficient progress had been made in reducing the risks associated with pesticides. If sufficient progress had not been made, the Commission committed to consider setting a European Union-wide mandatory target for the reduction of risk from pesticides.

In addition, the Court of Auditors recently published a report on the "Sustainable use of plant protection products"[12] which assessed whether the actions of the Commission and Member States had led to a reduction in the risks related to pesticide use, and whether the relevant legislation provided effective incentives to reduce dependency on pesticides. The report makes a number of recommendations to the Commission including that IPM principles be converted into practical criteria, and that both statistics on pesticides and harmonised indicators be improved.

Regulation EU (No) 1306/2013 on the financing, management and monitoring of the Common Agricultural Policy.
COM(2018) 392 Proposed Regulation establishing rules on support for strategic plans to be drawn up by Member States under the Common Agricultural Policy (CAP Strategic Plans)

8 Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

9 Available at: https://ec.europa.eu/commission/files/reflection-paper-towards-sustainable-europe_en

10 Available at: https://ec.europa.eu/citizens-initiative/public/initiatives/successful/details/2017/000002

11 Available at: https://ec.europa.eu/transparency/regdoc/rep/3/2017/EN/C-2017-8414-F1-EN-MAIN-PART-1.PDF

12 Available at: https://www.eca.europa.eu/Lists/ECADocuments/SR20_05/SR_Pesticides_EN.pdf

There is a substantial decline in biodiversity in agricultural ecosystems as reflected in a drop of farmland birds and losses of insect populations in parts of the EU. Among other factors, use of pesticides has been identified as an important driver for these developments.

The Commission is addressing societal concerns regarding sustainability under the European Green Deal[13], and in particular under its "Farm to Fork" and Biodiversity strategies. These initiatives will promote healthy ecosystems and biodiversity, more sustainable food production systems and healthier diets while ensuring sustainable livelihoods for farmers and access to high quality and nutritious food for consumers. It is recognised that innovative techniques will be required to achieve these ambitions.

This report is based on the following sources of information:

- The 15 revised NAPs reported to the Commission, and available in English, by 31 March 2019[14],
- Responses to a letter from the Commission to each Member State in October 2017 outlining specific weaknesses in their initial NAPs,
- Commission audits in four Member States in 2018[15] and in seven Member States in 2019[16] to investigate the overall progress in implementing the SUD,
- Responses to a letter from the Commission to four Member States[17] in October 2018 further clarifying specific weaknesses in their initial NAPs,
- The responses of 24 Member States[18] to a Commission survey in December 2018 on the reviews of their initial NAPs,
- Information provided by Member States at SUD Working Group meetings organised by the Commission,
- The results of a compliance-monitoring index developed by the Commission to quantify the progress made in the implementation of each Article of the SUD by Member States (Annex). The compliance-monitoring index allows measurement of the level of compliance for each Article of the SUD at European Union level, based on the above sources of information and direct communication with Member States.

The Commission's dedicated SUD web-portal hosts all NAPs, both initial and revised (https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/nap_en). All audit reports are available at http://ec.europa.eu/food/audits-analysis/audit_reports/.

[13] COM(2019) 640 final The European Green Deal

[14] Austria, Belgium, Czech Republic, Cyprus, Denmark, Finland, France, Ireland, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovenia and Spain

[15] Bulgaria, France, Hungary and Spain

[16] Austria, Cyprus, Greece, Ireland, Lithuania, Portugal and Romania

[17] Cyprus, Luxembourg, Malta and Romania

[18] Austria, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden and the United Kingdom

2. NATIONAL ACTION PLANS

Under Article 4 of the SUD, Member States were required to communicate to the Commission and to other Member States their NAPs by 26 November 2012. These NAPs should have established quantitative objectives, targets, measures and timetables to reduce the risks and impacts of pesticide use on human health and the environment. Member States were also required to review their NAPs at least every five years.

More than two thirds of Member States failed to complete the review of their initial NAP within the five-year legal deadline.

Eight Member States concluded the review of their initial NAP within the five-year deadline[19]. Seven Member States adopted new NAPs following this review, while Germany did not make any substantial changes, as it considered that there was sufficient flexibility in their initial NAP. At the time of publication of this report, a further thirteen Member States[20] had concluded the review of their initial NAP, but not within the five-year deadline. The remaining seven Member States had not completed the review of their initial NAP.

Only a small minority of Member States identified specific examples of useful targets and indicators based on the review of their initial NAP.

Three Member States[21] identified useful targets based on a review of their initial NAPs. Germany established a target of a 30% reduction in potential risk to the environment by 2023 compared to a baseline of the average for 1996-2005. Denmark established targets for a 40% reduction in the Pesticide Load Indicator (PLI)[22] and a 40% reduction in the load from substances of very high concern by the end of 2015, compared to 2011. Finally, France set a target for a 25% reduction in plant protection product (PPP) use by 2020, and a 50% reduction in use by 2025, compared to 2015.

Some Member States referred in their initial NAP to targets related to operator training and testing of pesticide application equipment (hereafter referred to as compliance-based targets) as being useful. Although these are legal requirements, their view is that establishing a target in the NAP helped to reinforce the importance of compliance with the SUD in these areas.

[19] Austria, Belgium, Denmark, France, Germany, Lithuania, Luxembourg and Spain

[20] Cyprus, Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Malta, Poland, Portugal, Romania, Slovenia and Sweden

[21] Denmark, France and Germany

[22] The Danish NAP defines the PLI as an indicator of the potential total load on health and the environment based on the environmental and health characteristics of pesticides based on sales data

Three Member States[23] highlighted useful indicators of risk reduction based on the review of their initial NAPs. These were the SYNOPS risk indicator[24] in Germany, the PLI in Denmark and the risk index for health and the environment in Sweden[25]. Other Member States highlighted measures, as distinct from indicators, that they considered useful. These included the Number of Dose Units (NODU)[26], residues of active substances in food, findings of active substances in water, the number of trained persons and the quantities of PPPs placed on the market.

Most Member States have not addressed the weaknesses identified by the Commission in their initial NAPs in their revised NAPs, so that the majority of revised NAPs lack ambition and fail to define high-level, outcome-based targets, so as to reduce the risks associated with, and dependency on, PPPs.

Of the 15 revised NAPs reported to the Commission by 31 March 2019, 13[27] focus on reducing risk, while France and Luxembourg focus on overall use reduction as a means of reducing risk.

Just three Member States[28] set clearly defined, high-level, outcome-based targets under Article 4(1) of the SUD. Denmark set a target of 1.96 for the PLI, thereby maintaining the target set in its initial NAP. France established a target of reducing PPP use by 25% by 2020 and by 50% by 2025, without having a negative impact on farm incomes. Finally, Luxembourg set a high-level target to reduce PPP use by 50% by 2030.

Other Member States have either action-based, or compliance-based, targets. Poland has established an indicator[29], based on compliance levels with specific aspects of Regulation (EC) No 1107/2009, e.g. use of authorised PPPs, and the SUD, e.g. compliance with the requirement for professional users to be trained, and sets a high-level target based on the output of this indicator. Spain and Belgium both set clear targets, but all are sector-specific and relate to actions, e.g. the number of information campaigns/year, or the number of demonstration farms to be established, rather than quantifiable impacts, e.g. the number of professional users implementing IPM. Slovenia and Finland both set targets that are existing legal requirements, e.g. all relevant operators to be trained and no expired PPPs to be found in the course of inspections.

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[23] Denmark, Germany and Sweden

[24] The SYNOPS risk indicator is a model to assess the potential risk of PPPs in the environment https://www.nap-pflanzenschutz.de/en/practice/assessment-of-pesticide-use/risk-analysis-synops/

[25] The indicator is described in the Swedish NAP available at: https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_nap_swe_en.pdf

[26] The NODU is calculated based on sales data and corresponds to a number of average treatments applied annually to all crops at a national level in France https://agriculture.gouv.fr/quest-ce-que-le-nodu

[27] Austria, Belgium, Czech Republic, Cyprus, Denmark, Finland, Ireland, Lithuania, Malta, Poland, Portugal, Slovenia and Spain

[28] Denmark, France and Luxembourg

[29] Available at: https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_nap_pol-rev-2018_en.pdf

The overall objective of the NAP should show a reasonable level of ambition, but the majority of revised NAPs lack ambition. This is illustrated in the cases of Cyprus, with a target of reducing the maximum residue level breaches to 3% for food produced in Cyprus, and Spain, a Member State with almost one million farms[30], setting a target of at least two pilot farms to promote IPM.

Just half of the revised NAPs identified priority items or good practices and just one identified active substances of particular concern.

Member States are obliged to identify either priority items or good practices in their NAPs under Article 15(2)(c) of the SUD. Examples of priority items include active substances, crops, regions or practices that require particular attention. Five Member States[31] identified priority active substances in their revised NAPs. A number of Member States, including France, Spain and Poland identified minor crops, and broadening the range of pest control techniques on these crops, as a priority item. Finally, no revised NAP explicitly identified priority regions or good practices.

NAPs must include indicators to monitor the use of PPPs containing active substances of particular concern under Article 4(1) of the SUD. France is the only Member State to provide in its NAP for monitoring of the use of active substances of particular concern. It monitors the quantities of active substances classified as carcinogenic, mutagenic and toxic for reproduction that are sold each year.

While no revised NAP formally identified good practices under Article 15(2)(c) of the SUD, all NAPs include some actions that could be considered as good practices. In the course of Commission audits, there were numerous examples of Member States going beyond the minimum requirements of the SUD. These included:

- Denmark, Luxembourg and Ireland all require a trained and certified person to be available to provide guidance at the time of sale of amateur-use PPPs, while France has banned the self-service purchase of amateur-use PPPs,
- Belgium plans to prohibit the sale of all chemical PPPs to amateur users, except for basic and low-risk substances, and to prohibit advertising of amateur-use PPPs,
- The Czech Republic plans mandatory web-based recording of all PPP applications by professional users by 2022 so as to help in more targeted water monitoring,
- Spain plans to develop an information technology (IT) application to allow all PPP transactions to be recorded electronically and sets a target of at least 50% of distributors using this system within the period of the NAP,
- Spain requires more frequent testing of pesticide application equipment belonging to

[30] Available at: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ef_m_farmleg&lang=en
[31] Belgium, Denmark, France, Luxembourg and Slovenia

contractors, as this equipment is likely to be used more frequently, and over a wider area,

- Slovenia requires mandatory registration of all new pesticide application equipment, at which point any deficiencies must be addressed, rather than being detected at the first mandatory inspection five years later,
- Belgium sets a target of 100% of pesticide application equipment having low-drift nozzles within the period of the NAP,
- Ireland has an integrated system of publicly-funded agricultural education, research and extension, which helps to ensure that growers have up-to-date, relevant IPM information,
- Denmark plans to establish a partnership for spraying and precision technology to promote uptake of tools such as global positioning systems (GPS) and drones, providing a good example of co-operation with a range of stakeholders to achieve the objectives of the SUD.

3. HARMONISED RISK INDICATORS

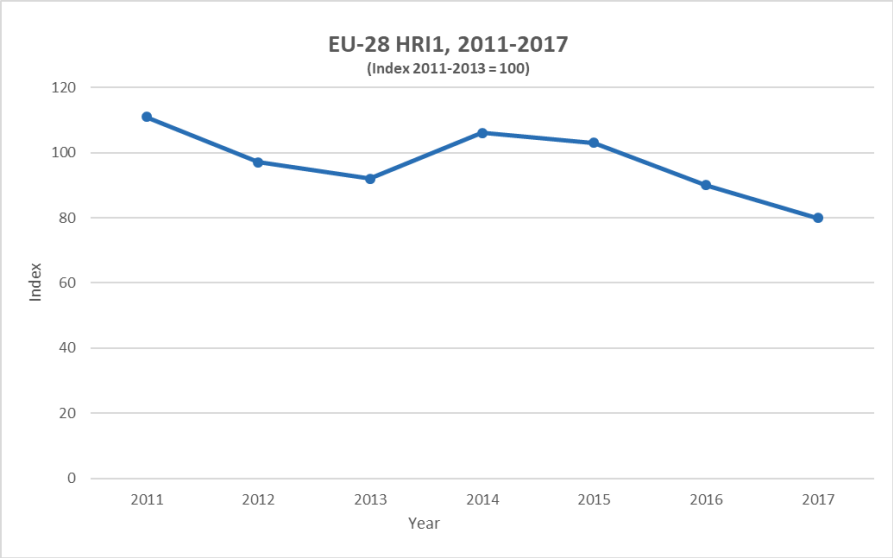
The Commission has developed two harmonised risk indicators, which show that, although there has been a reduction in the risk from the PPPs sold, there has also been a significant increase in the indicator related to emergency authorisations since the entry into force of the SUD.

Following the obligations set out in Article 15(1) of the SUD, harmonised risk indicators were established under Commission Directive 2019/782[32]. This was also in line with the commitment given in response to the European Citizens Initiative "Ban glyphosate and protect people and the environment from toxic pesticides". These indicators enable the Commission to quantify the overall progress in reducing the risks linked to PPPs under the SUD.

The first harmonised risk indicator is based on the quantities of PPPs placed on the market (sold) in each Member State, while the second is based on the number of emergency authorisations granted under Article 53 of Regulation (EC) No 1107/2009 by each Member State. Both indicators include a weighting to reflect the intrinsic hazardous properties of the active substances therein. It is appropriate to use a three-year baseline in calculating these indicators as the quantity and nature of the PPPs used fluctuates between years due to variations in the extent and severity of pest outbreaks between years.

[32] Commission Directive (EU) 2019/782 of 15 May 2019 amending Directive 2009/128/EC of the European Parliament and of the Council as regards the establishment of harmonised risk indicators C/2019/3580 *OJ L 127, 16.5.2019, p. 4–10*

Figure 1. Trend in harmonised risk indicator 1 (HRI 1), with a baseline of 100, based on the average of 2011, 2012 and 2013.

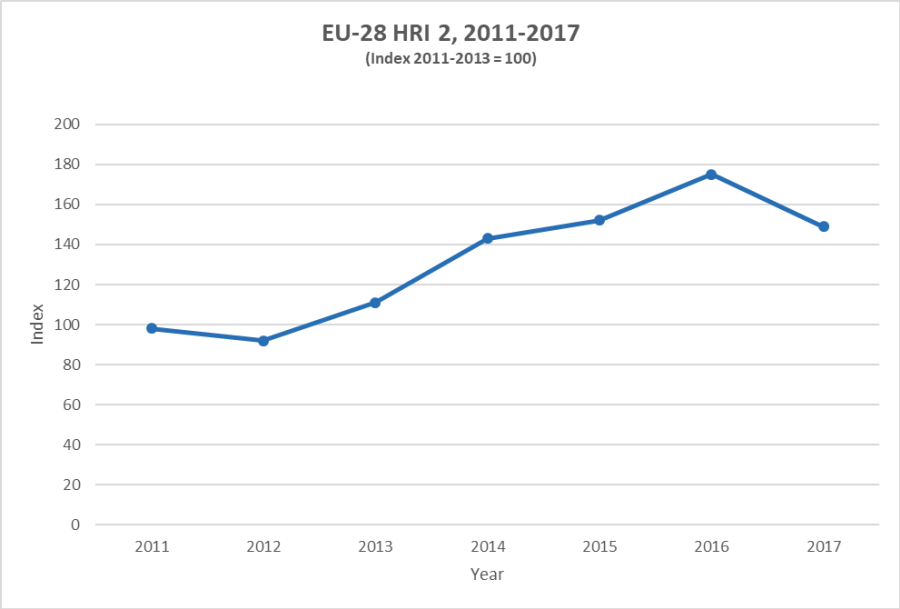


Source: European Commission

Harmonised risk indicator 1 shows a reduction in risk of 20% from the baseline period to 2017 even though the quantity of PPPs placed on the market remained relatively constant over that period[33]. This suggests a shift towards the more widespread use of less-hazardous substances. Nevertheless, there is potential for further reduction in risk and use through improved implementation of the SUD and greater adoption of IPM, including the more widespread adoption of non-chemical pest control techniques.

[33] Available at: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=aei_fm_salpest09&lang=en

Figure 2. Trend in harmonised risk indicator 2 (HRI 2), with a baseline of 100, based on the average of 2011, 2012 and 2013



Source: European Commission

Harmonised risk indicator 2 shows a 50% increase from the baseline period to 2017. This indicator is based on the number of emergency authorisations weighted by the intrinsic hazardous properties of the active substances in the PPPs. However, the scale of individual emergency authorisations (and hence the quantities of PPPs used) varies widely, for example from a few hectares in the case of very minor crops, to widespread use on large-scale field crops in other cases. As the quantities of PPPs used, or related information, was not recorded in the same way by all Member States granting these emergency authorisations in the 2011-2017 period, it was not possible to establish a more sophisticated indicator.

These authorisations are granted for a wide range of reasons, including emerging plant health issues and minor uses, as defined by Article 3(26) of Regulation (EC) No 1107/2009. In some cases, they can comprise an important part of the European Union's strategy to control the spread of new pests, as Member States can grant these authorisations relatively quickly following the detection of the pest. However, the significant increase in the number of these authorisations can be attributed to the failures on the part of Member States to fully implement both the SUD and Regulation (EC) No 1107/2009, for the reasons explained hereafter.

The trend in harmonised risk indicator 2 demonstrates that alternative techniques to prevent pest outbreaks, so as to reduce dependency on PPPs, are either not yet available or not sufficiently applied. It also highlights the need for Member States to meet their legal obligations under Regulation (EC) No 1107/2009 in terms of meeting deadlines for taking decisions on authorising PPPs and to make full use of the possibilities for minor uses foreseen in Article 51 of the Regulation (extension of authorisations for minor uses). This would help

to expand the range of regularly authorised PPPs available to growers, as noted in the REFIT Evaluation of the European Union legislation on plant protection products and pesticides residues (Regulation (EC) No 1107/2009 and Regulation (EC) No 396/2005)[34].

Member States are required to calculate both harmonised risk indicator 1 and 2, to identify trends in the use of certain active substances, and to identify priority items, such as active substances, crops, regions or practices that require particular attention, or good practices. They must also communicate the results of these evaluations to the Commission and to other Member States and make this information available to the public. To date, twenty Member States have calculated and published harmonised risk indicator 1 and 2, but only a small number of Member States have identified trends in the use of certain active substances, priority items or good practices.[35]

Both harmonised risk indicator 1 and 2 are high-level indicators, and in line with Article 15 of the SUD, Member States may continue to use existing national indicators or to adopt other appropriate indicators in addition to them, to better reflect the trends in the risks relevant to their territory.

Finally, the Commission has committed to work on the development of further harmonised risk indicators, in conjunction with Member States, taking into account new data sources to better measure the evolution in the risks associated with the use of, and dependency on, PPPs. The Commission has in particular identified the need to develop an alternative to harmonised risk indicator 2 to more accurately reflect the risks associated with emergency authorisations as the first priority in this area. This would involve developing a new indicator based on the number of these authorisations, the scale of use resulting from individual authorisations (e.g. number of hectares treated), and the properties of the PPPs used, which would then better reflect the risks arising from emergency authorisations.

A more detailed analysis of the harmonised risk indicators is available at https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/harmonised-risk-indicators_en.

4. OVERALL IMPLEMENTATION OF THE DIRECTIVE

Despite widespread delays in the revision of NAPs, and the absence of high-level, outcome-based targets in most of the revised NAPs, Member States have made progress in the implementation of the SUD in the last two years. In cases where progress has not been

[34] Available at: https://ec.europa.eu/food/plant/pesticides/refit_en

[35] The relevant information for each Member State is available at https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/harmonised-risk-indicators/trends-hri-ms_en

satisfactory, the Commission is currently considering a range of actions, including infringement procedures.

The Commission's 2017 report[36] acknowledged the substantial progress made, but concluded that Member States needed to do more to implement the SUD in order to achieve the intended environmental and health improvements. The report identified inspection of pesticide application equipment, information on pesticide poisonings and assessment of IPM implementation as specific areas requiring improvement.

It concluded that Member States needed to review and improve the quality of their NAPs, by establishing specific and measurable targets and indicators as part of a long-term strategy to reduce the risks and impacts from pesticide use. These targets would then allow Member States to monitor progress in the implementation of the SUD, and to adjust their strategy where necessary.

The Commission has taken a multi-faceted approach to address these weaknesses in implementation by Member States. The Commission sent individual letters to all Member States in October 2017, based on a detailed review of their initial NAPs and outlining their specific weaknesses. Member States were urged to reflect on these issues in view of a possible revision of their NAPs.

Based on the response to these letters, the Commission undertook a series of targeted audits to assess the implementation of the SUD in eleven Member States, and in addition, sent a letter to four Member States to clarify certain aspects of implementation of the SUD.

Finally, the Commission developed a compliance-monitoring index to summarise the progress made in the implementation by Member States of each Article of the SUD. This index shows a 10% improvement in the overall implementation of the SUD in the 2017 to 2019 period, as outlined in Annex.

Based on the responses to these two series of letters, the outcomes of the audits, and the progress demonstrated by the indicator, the Commission notes that since 2017 additional progress has been made in the implementation of the SUD. For example, the areas treated by aerial spraying continue to decline, the majority of Member States have established comprehensive systems for the training and certification of operators and the testing of pesticide application equipment, and have established measures to protect the aquatic environment and to ensure that pesticides are stored and handled safely.

[36] Report from the Commission to the European Parliament and the Council on Member State National Action Plans and on progress in the implementation of Directive 2009/128/EC on the sustainable use of pesticides, COM(2017) 587, available at: https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_report-overview_en.pdf

However, specific weaknesses remain in the implementation of some aspects of the SUD in some Member States. The most widespread areas of weakness relate to delays in reviewing NAPs, delays in testing pesticide application equipment, and deficiencies in Member State controls in assessing implementation of the SUD e.g. relating to IPM. In cases where progress has not been satisfactory, the Commission is currently considering a range of actions, including infringement procedures.

4.1 INTEGRATED PEST MANAGEMENT

The assessment of the implementation of IPM by Member States continues to be the most widespread weakness in the application of the SUD.

Article 3(6) of the SUD defines IPM as the "careful consideration of all available plant protection methods and subsequent integration of appropriate measures that discourage the development of populations of harmful organisms and keep the use of PPPs and other forms of intervention to levels that are economically and ecologically justified and reduce or minimise risks to human health and the environment". The Commission considers IPM as one of the cornerstones of the SUD, and that its full implementation is necessary in order to reduce dependency on pesticide use.

The eight general principles of integrated pest management are listed in Annex III of the SUD, however, the Directive does not define how these principles are to be applied in practice, leaving their definition to Member States. Following the principle of subsidiarity, these criteria need to be determined at national, or even sub-national level, given the diversity of agriculture between, and within Member States, in terms of climate, crops grown and production techniques. However, Member States have not converted the IPM general principles into prescriptive and assessable criteria to be applied by users. Therefore, Competent Authorities do not have prescriptive and assessable criteria in order to determine compliance with IPM, and therefore there is limited evidence that IPM is systematically applied.

Current and future proposed CAP legislation requires Member States to establish a system for advising beneficiaries on land management and farm management, and in particular the requirement referred to in Article 14 of SUD on IPM. Under the system beneficiaries and farmers can access advice on good farming practices on a voluntary basis, including IPM.

All Member States are taking some actions to promote IPM, but the scale of publicly funded research on applied agriculture varies considerably between Member States. There are also poor structures connecting researchers and farmers in many Member States to facilitate the practical advice needed by farmers being made available to them.

To address the weakness in the assessment of IPM implementation as highlighted in the Commission's 2017 report, the Commission organised a series of BTSF courses, and a one day IPM Workshop, to provide Member States with a framework under which they could establish prescriptive and assessable criteria, which could be used to assess the implementation of IPM.

Nevertheless, despite many good examples of research on, and promotion of, IPM by Member States, the assessment of the implementation of IPM continues to be the most widespread weakness in the application of the SUD. Consequently, Member States have failed to exploit the significant potential for greater adoption of IPM, including the more widespread adoption of non-chemical pest control techniques.

5. COMMISSION ACTIONS TO SUPPORT IMPLEMENTATION OF THE DIRECTIVE

This section describes a number of actions taken by the Commission to support implementation of the Directive, including in response to the requests made by the Parliament.

Ministers acknowledged the importance of achieving the objectives of the SUD, and of speeding up the implementation of the IPM principles, following the presentation of the Commission's 2017 report at the AGRIFISH Council meeting of 6 November 2017[37]. They identified low-risk PPPs, pest monitoring systems, financial support, non-chemical control methods, and harmonised risk indicators as important areas in terms of improving implementation of the IPM principles.

More recently, in February 2019, the European Parliament adopted a non-legislative resolution on the implementation of the SUD[38]. It expressed regret that the overall level of implementation by Member States is insufficient to reduce the risks deriving from, and dependency on, the use of pesticides. It encouraged more focus on risk reduction and underlined that the implementation of IPM practices, such as non-chemical alternatives and low-risk PPPs, plays a particularly important role in efforts to achieve full implementation of the SUD. It concluded by calling on the Commission and Member States to undertake a range of actions to improve implementation of the SUD. These included establishing guidelines for assessing the implementation of IPM, protecting vulnerable groups and the general public,

[37] Available at: https://www.consilium.europa.eu/en/meetings/agrifish/2017/11/06/

[38] European Parliament resolution of 12 February 2019 on the implementation of Directive 2009/128/EC on the sustainable use of pesticides (2017/2284(INI)), available at: https://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2019-0082+0+DOC+XML+V0//EN

placing greater emphasis on developing low-risk alternatives to pesticides, and promoting precision and digital farming as a means to reduce the risk from pesticides.

5.1 BETTER TRAINING FOR SAFER FOOD (BTSF)[39]

The Commission has supported Member States to implement the SUD through BTSF courses.

The Commission organised a series of 12 BTSF courses on pesticide application equipment from 2015 to 2018, which were attended by over 200 officials from all 28 Member States. These courses provided Member States with the knowledge to implement their obligations relating to testing of pesticide application equipment.

The Commission also organised a second series of BTSF courses on pesticide application equipment, which started in the third quarter of 2019. These six courses focus on inspection and calibration techniques and it is anticipated that about 120 participants will attend these courses.

The Commission has also organised a series of BTSF courses focusing on the implementation of IPM. These 14 courses started in 2018 and will run until 2020. The courses are tailored to reflect the different crops grown and the different agronomic practices throughout the European Union. The knowledge gained through these courses should provide Member States with the necessary tools to assess the implementation of IPM at farm level.

5.2 APPROVAL OF ACTIVE SUBSTANCES

There is a consistent upward trend in the number of approved non-chemical, low-risk and basic active substances.

The Commission has taken a range of actions to accelerate the procedures to place low-risk PPPs on the market. These include prioritising the updating, by the end of 2020, of the data requirements and assessment methodologies for micro-organisms, and initiating BTSF training in 2020 to strengthen the expertise in Member States for the assessment of applications for micro-organisms and other bio-pesticides.

There is a consistent upward trend in the number of approved non-chemical, low-risk and basic active substances, from less than 60 in 2009 to almost 120 in 2019. These active

[39] Better Training for Safer Food (BTSF) is a Commission training initiative covering food and feed law, animal health and welfare and plant health rules. For more information, please consult https://ec.europa.eu/food/safety/btsf_en

substances give farmers the tools to control pests while simultaneously reducing the risks linked to PPPs.

In addition, the most hazardous active substances are being removed from the plant protection toolbox as described in the REFIT Evaluation of the European Union legislation on plant protection products and pesticides residues (Regulation (EC) No 1107/2009 and Regulation (EC) No 396/2005).

However, it is recognised that it is necessary to broaden the range of approved non-chemical, low-risk and basic active substances to increase the pest control options available to farmers so as to reduce their dependency on the most hazardous active substances.

5.3 RESEARCH AND INNOVATION

The Commission is supporting a range of research projects to broaden the range of alternative pest control strategies, tools and technologies and to determine the impacts of pesticide use on the environment and human health.

The Commission, through the Framework Programme for Research and Innovation Horizon 2020, supports research and innovation to develop more sustainable pest control strategies, tools and technologies to support IPM, such as new low-risk products, biological controls, decision support tools and to determine the impacts of pesticide use on the environment and human health[40].

Under Societal Challenge 2, the Commission has provided EUR 159 million[41] to support research on IPM, emerging risks to plant health, alternatives to chemical pesticides and decision support systems. Moreover, under this work programme, in 2020, it is envisaged to fund a coordination and support action of a European-wide network of IPM demonstration farms, with EUR 6 million earmarked[42]. Beyond IPM and plant health, the Commission also supports research on ecological approaches and organic farming to foster the resilience of agriculture[43].

Furthermore, the European Innovation Partnership 'Agricultural Productivity and

[40] Available at: Societal Challenge 2 Work programme 2016-2017 https://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-food_en.pdf and societal challenge 2 work programme 2018-2020 (SFS-04, SFS-05 and SFS-6) https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-food_en.pdf

[41] Available at: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/factsheet-agri-plant-health_en.pdf

[42] Available at: SFS-6-2018-2020 in https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-food_en.pdf

[43] Available at: https://ec.europa.eu/information_society/newsroom/image/document/2018-18/agri_factsheets_07_ecological-approaches_ok_1545C778-C5D7-AA24-163D1DD06A4CDF2F_51894.pdf `

Sustainability'[44] (EIP-AGRI) connects European research and innovation projects financed under Horizon 2020 with smaller operational groups[45] working at national and regional level under the rural development policy. The interactive innovation approach promoted by the EIP-AGRI, based on the so-called multi-actor approach, encourages cooperation between actors with different but complementary types of knowledge (researchers, farmers, advisers, businesses, NGOs and others), thus helping bridge the gap between research and practice and foster the uptake of innovations in practice, notably in plant protection and integrated pest management.

5.4 SUD WORKING GROUP

Commission-organised SUD Working Group meetings provide Member States with an opportunity to discuss implementation of the SUD and to exchange best practices.

The Commission organises bi-annual meetings of the SUD Working Group of Member States, to discuss implementation of the SUD, and to exchange best practices. In addition, relevant stakeholders such as Pesticide Action Network (PAN) Europe, the European Crop Protection Association (ECPA) and SPISE (Standardised Procedure for the Inspection of Sprayers in Europe) have presented their work at recent meetings of the Working Group.

The Commission organised a joint meeting of the SUD and the PPP Enforcement Working Groups in May 2019 to address issues of mutual concern in conjunction with a Workshop on IPM. The objective of the Workshop was to assist Member States to assess the implementation of IPM at farm level, building on the experiences gained in the BTSF courses on IPM.

The most recent meeting of the SUD Working Group was a joint meeting with the Working Group on Agro-Environmental Statistics, in November 2019, which addressed issues of mutual concern, in particular relating to the development of more useful harmonised risk indicators.

5.5 SUD WEB-PORTAL

The SUD web-portal facilitates the exchange of relevant information between Member

[44] Available at: https://ec.europa.eu/eip/agriculture/en
[45] Available at: https://ec.europa.eu/eip/agriculture/en/about/operational-groups

States, and other stakeholders, on SUD and IPM.

In 2017, the Commission established a dedicated SUD web-portal https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides_en, as proposed by the expert group on sustainable plant protection set up under the Dutch Presidency in 2016, to facilitate the exchange of relevant information on SUD and IPM.

Twenty seven Member States[46] have provided a total of 240 links to websites, searchable by both topic and Member State, in order to facilitate sharing relevant information among interested parties.

5.6 SUSTAINABLE USE OF PESTICIDES UNDER THE CURRENT AND FUTURE COMMON AGRICULTURAL POLICY

The CAP supports, and the future CAP strategic plans will continue to support, many aspects of the sustainable use of pesticides.

The current CAP contains several instruments, which are and will be even more in the future relevant and effective for the sustainable use of pesticides and IPM. A key example is demonstrated by how the CAP has contributed to significant growth in organic agriculture, so that in 2018 7.5% of Utilisable Agricultural Area was now farmed under organic production systems, compared to 2% in 2000[47].

Future proposed conditionality[48] will include the most relevant parts of IPM principles, in particular crop rotation and requirements for minimum share of agricultural area under non-productive features, as well as the other relevant provisions of the SUD. Importantly, the Commission also proposes a better integration of the system for advising farmers and better integration with research and knowledge transfer from the CAP networks. Furthermore, the proposal maintains the current agri-environmental-climate payments encouraging farmers to implement alternative (e.g. biological) pest control methods. The current CAP includes greening practices supported by direct payments to farmers and in the future Member States will have more leeway to define so-called eco-schemes, including for promoting alternatives to pesticides. The clarity in defining the mandatory principles of IPM is key for these incentive payments, which go beyond the mandatory requirements.

Importantly, Member States will now have to demonstrate in their CAP strategic plans how these Plans will contribute to long-term national targets set in the context of environmental

[46] Bulgaria has not yet provided any links to be shared on the SUD web-portal

[47] Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics

[48] There is a link through current cross compliance and future proposed conditionality systems between the receipt of full CAP support for farmers and the respect of basic rules on the environment and public health.

and climate legislation, including the SUD. This embraces the SUD's National Action Plans with their quantitative objectives, targets, measures, timetables and indicators aimed at reducing risks and impacts of pesticide use on human health and the environment. The implementation results of Member State CAP Plans will be monitored, and the impact will be measured using the established indicators. This will ensure, under Commission supervision, that the CAP will support agricultural practices for the sustainable use of pesticides in accordance with needs and in line with the Green Deal orientations.

5.7 REVIEW OF THE DIRECTIVE

In light of various weaknesses which have been identified in implementing the Directive and significant stakeholder concerns regarding the use of pesticides, the Commission will evaluate the extent to which the Directive achieved its intended objectives. The results of the evaluation will inform future action on reducing the use and risk of chemical pesticides under the "Farm to Fork" and the Biodiversity strategies and will be used as an evidence base to define and support future policy options, which will include the revision of the SUD.

6. CONCLUSIONS

Less than one third of Member States have completed the review of their NAPs within the five-year legal deadline. Of those that have reviewed their NAPs, most have failed to address the weaknesses identified by the Commission in their initial NAPs, with just 20% of revised NAPs setting high-level, outcome-based targets, as part of a longer-term strategy to reduce the risks and impacts of pesticide use. Despite these weaknesses in NAPs, Member States have made progress in implementing the SUD. The majority of Member States have established comprehensive systems for the training and certification of operators, and a range of measures for water protection and the safe handling and storage of pesticides. On the other hand, enforcement of IPM is low, and there is limited evidence that IPM principles are systematically applied.

Harmonised risk indicator 1 shows that there has been a reduction in the risk to human health and the environment from the PPPs sold in the European Union since the entry into force of the SUD. Furthermore, this reduction in risk has occurred while the quantities of PPPs sold and used have remained relatively constant, reflecting the changing profile of pesticides sold and used in the European Union. Nonetheless, at the same time, harmonised risk indicator 2 shows an increase related to emergency authorisations. However, there is significant potential for further risk reduction through more complete implementation of the SUD and, in particular, greater adoption of IPM, including the more widespread adoption of non-chemical pest control techniques. In line with the recent recommendations by the Court of Auditors, the Commission is also committed to develop further indicators to better reflect the evolution of pesticide use, and associated risks, in particular, in relation to emergency authorisations.

The ongoing work of the Commission, through actions described above, and through audit, monitoring and training, has succeeded in ensuring that the implementation of the SUD, if not the quality of NAPs, is improving. In cases where Member States fail to meet their obligations under the SUD, the Commission is currently considering taking further steps, including possible infringement procedures. In conjunction with the evaluation, the Commission will prepare a legislative proposal to revise the SUD.

Finally, under the Farm to Fork and Biodiversity strategies, the Commission will take actions to reduce by 50% the use and risk of chemical pesticides by 2030 and reduce by 50% the use of the more hazardous pesticides by 2030. To this end, the Commission will revise the SUD, enhance provisions on IPM, and promote greater use of alternative ways to protect harvests from pests and diseases.