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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

1. INTRODUCTION

The EU benefits from the most stringent system in the world for the authorisation and control of pesticides[1]. In spite of this, there is a strong desire throughout society to move towards sustainable food production, and a reduction or even ban on the use of pesticides. In this context, as part of modern production systems, sustainable agriculture is one of the UN Development Goals, and the promotion of the sustainable use of pesticides is one of the important actions being undertaken by the EU in support of the achievement of the UN 2030 Agenda for Sustainable Development[2].

The 2006 Thematic Strategy on the sustainable use of pesticides[3] led to a new legislative framework for the approval and use of pesticides[4]. This includes a strict framework for the approval of active substances by the European Commission and the authorisation of plant protection products by Member States, which, if used according to the authorised conditions of use, have no identified harmful effects on human and animal health, and no unacceptable effects on the environment[5]. This strict system for placing on the market has led to an approximate 50% reduction in the number of approved active substances[6]. Controls on the marketing and use of pesticides aim to ensure that authorised pesticides are marketed and used according to these conditions. Plants treated with authorised pesticides in line with the product label can be marketed and consumed as safe food, with pesticide residues within the EU maximum residue levels (MRLs)[7].

Directive 2009/128/EC of the European Parliament and of the Council on the sustainable use of pesticides[8], (the "Directive"), adopted on 21 October 2009 as part of this strategy, provides for a range of actions to achieve a sustainable use of pesticides in the EU by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of Integrated Pest Management (IPM) and of alternative approaches or techniques, such as non-chemical alternatives to pesticides.

Member States were required to adopt National Action Plans (NAPs) to implement the Directive for the first time by November 2012. These plans should contain quantitative objectives, targets, measurements and timetables to reduce the risks and impacts of pesticide use. The Regulation on the placing of plant protection products on the market also includes a

[1] In this report, the term 'pesticides' refers to plant protection products which include herbicides, fungicides and insecticides used for plant protection.

[2] http://ec.europa.eu/europeaid/file/50450/download_en?token=KLkUmH5y

[3] COM/2006/0372 Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - A thematic strategy on the sustainable use of pesticides.

[4] Pesticides are defined by Directive 2009/128/EC (Article 3) as including either plant protection products or biocidal products. Currently the Directive applies to plant protection products only (Article 2). The term pesticides is used widely in this report as it is more commonly used but the report does not deal with biocidal products.

[5] 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

[6] http://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=homepage&language=EN

[7] Regulation (EC) No 396/2005 of the European Parliament and 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, P1-16

[8] 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.

number of provisions linked to the Directive, including the facilitation of the rapid approval of low risk substances and the use of these products following the IPM principles.

The Directive identifies specific measures that Member States are required to include in their plans for proper implementation. The main actions relate to training of users, advisors and distributors, inspection of pesticide application equipment, the prohibition of aerial spraying, limitation of pesticide use in sensitive areas, and information and awareness raising about pesticide risks. A cornerstone of the Directive is the promotion of IPM, for which general principles are laid down in Annex III to the Directive. The deadlines established by the Directive for implementation of all above measures were phased over the period November 2011 to November 2016. Since November 2016, (when inspection of pesticide application equipment inspection became compulsory), Member States have been required to implement all the relevant measures of the Directive.

The Commission has established a working group with Member States, which regularly meets to discuss implementation of the Directive and exchange best practice.

This report addresses the reporting requirements under both Articles 4(3) and 16 of the Directive. Article 4(3) requires the Commission to submit to the European Parliament and to the Council a report on the national action plans communicated by the Member States, and Article 16 requires it to report on the progress in the implementation of the Directive.

This report is based on four sources of information;

- Commission assessment of the national action plans, concluded in 2015.
- Two audit series on pesticides performed between 2012-2014 and 2015-2016 respectively the first on controls on plant protection products[9] and the second on the marketing and use of pesticides[10], which included certain aspects of implementation of the Directive within their scope.
- A survey and a questionnaire[11] sent in 2016 to all Member States to get an update on progress with the implementation of Action Plans.
- Fact-finding visits to six Member States in 2017[12] specifically to investigate the overall progress made with implementation of the Directive. These Member States were chosen to give a cross section of different Member States covering varying geographical regions. In addition to the individual mission reports, the main findings of these six missions will be published in an overview report later this year, and will include a more detailed analysis of the results of the above questionnaire, including examples of good practice in implementation identified by Member States.

The NAPs, reports of the Commission, including audit reports as well as the overview reports are available on the Commission webpage for the sustainable use of pesticides at https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides_en

[9] http://ec.europa.eu/food/audits-analysis/overview_reports/details.cfm?rep_id=79
[10] http://ec.europa.eu/food/audits-analysis/overview_reports/details.cfm?rep_id=109
[11] The information and data provided in response to this survey were incomplete and results need further exploration with Member States. The UK did not provide a response to the questionnaire, but provided information on some of the topics later on. There were data gaps in the responses provided by Bulgaria, Romania, Greece and France.
[12] Germany, Netherlands, Italy, Denmark, Poland, Sweden

2. NATIONAL ACTION PLANS

Article 4 of the Directive required Member States to adopt the first round of national action plans and to communicate these to the Commission and other Member States by 26 November 2012. These plans should be reviewed at least every five years. They should establish quantitative objectives, targets, measures and timetables to reduce the risk and impact of pesticide use on human health and the environment. All Member States have adopted such plans[13], in many cases with significant delays. The plans were communicated to the Commission, and have been made available in English language on the Commission website[14].

The national action plans are the basis of Member State controls of the Directive, but there is huge diversity in their completeness and coverage. Member States should improve their plans significantly to address the shortcomings below, and to establish more precise and measurable targets.

Member States had different starting points for the development of the NAPs. Seven had previously developed action plans, whereas for all others, this was their first plan. To date, only France and Lithuania have produced a revised NAP. The level of implementation of the action plans will be clearer once all Member States have completed these reviews and communicated them to the Commission.

NAPs reflect positively on the efforts made by Member States in their preparation. However, they vary greatly in terms of detailing how exactly they plan to implement measures pursuant to Articles 5-15 of the Directive. In most cases, not all aspects of these Articles were covered. The plans deal comprehensively with some areas, for example testing of pesticide application equipment and training of pesticide users, but many provide little detail in other areas, for example in relation to aerial spraying, information to the public and gathering information regarding poisoning cases.

NAPs are also inconsistent as regards establishing quantitative objectives, targets, measurements and timetables for the various action areas. In some areas, for example the testing of pesticide application equipment, the plans are excellent with almost all of them setting specific targets to achieve full compliance. On the other hand, most Member States did not establish targets and timetables for measures to protect the aquatic environment from pesticides.

In addition, in around 80% of cases, action plans do not specify how the achievement of targets or objectives will be measured. The absence of clear measurable targets makes it difficult to assess the progress with implementation and to identify areas where further actions are needed.

21 Member States[15] reported risk reduction targets, and 9[16] use reduction targets. Only five Member States set measurable targets, of which four[17] aim at risk reduction and one[18] at use

[13] The Directive does not prescribe a format for National Action Plans and for this reason, the plans communicated to the Commission are not fully comparable. In some cases, they do not contain all national measures being taken to implement the Directive. The scope of the Commission's assessment of the plans was limited to the plans themselves and any measures not included in these plans could not be taken into account.

[14] https://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides_en

[15] Spain, the Czech Republic, Cyprus, Estonia, Belgium, Sweden, Finland, Germany, Hungary, Poland, Latvia, Italy, Portugal, Croatia, Austria, Denmark, Lithuania, Romania, Slovakia, Ireland and France.

reduction. The main target of the French national action plan is to reduce the use of pesticides by 50% by 2025, with an initial 25 % milestone in 2020, and thus to lower the risks and impacts on human health and the environment. Good examples of risk reduction targets can be found in Germany, the Netherlands[19], Finland and Denmark who developed risk reduction indicators based on pesticide hazard classification, with higher risk pesticides having a higher weighting.

All the NAPs include some measures on the promotion of IPM, in particular to encourage availability of IPM guidelines, and the provision of training or demonstration farms. Nevertheless, the plans do not specify how the application of IPM by farmers can be measured, do not set targets or indicate how implementation will be ensured. IPM is a cornerstone of the Directive, and implementation of IPM is the intended means to reduce the dependency on pesticide use in sustainable agriculture, and thus the lack of clear steps that can be assessed, measured and enforced is a significant area for improvement in the ongoing review of national action plans by Member States.

3. IMPLEMENTATION OF THE DIRECTIVE

3.1. TRAINING AND CERTIFICATION

Article 5 of the Directive requires Member States to establish training and certification for professional users, distributors and advisors of pesticides. Article 6 requires that Member States ensure that distributors have sufficient staff in their employment holding a certificate referred to under Article 5. It also requires Member States to restrict sales of pesticides authorised for professional use to persons holding a certificate referred to in Article 5. Finally, Article 6 states that Member States shall require distributors selling pesticides to non-professional users to provide general information regarding the risks for human health and the environment of pesticide use.

Overall, there is a high level of compliance in the area of training and certification of professional users, distributors and advisors. There is no accurate data, however, on the total number of professional operators in this area and therefore it cannot be certain that all are trained.

Twenty six[20] national action plans address the provision of training, but eleven of these do not provide sufficient detail.[21]

The implementation of the training requirement was assessed in the course of Commission audits in 19 Member States in the period 2012 – 2014 and in the fact-finding visits to six Member States in 2017 (5 were visited in both cases). In 3 of the 20 Member States visited, training systems for farmers had been in place before adoption of the Directive, and after entry into force the training was extended to other groups, such as distributors.

[16] Luxemburg, Slovenia, Cyprus, Belgium, Finland, Hungary, Poland, Germany and France
[17] Belgium, Denmark, Greece and Germany
[18] France
[19] In the Netherlands, these were not included in the NAP.
[20] The plans of Belgium and Denmark have no reference or objectives for training and certification of operators.
[21] Austria, the Czech Republic, France, Germany, Greece, Latvia, Lithuania, the Netherlands, Romania, Slovakia and Slovenia.

All Member States (except Luxembourg) had established a training and certification system by the deadline of 26 November 2013, and Member States reported in response to the 2016 questionnaire that almost four million professional operators had been trained. There were delays in training and certification of operators in six Member States[22]. In addition, no data was provided by three Member States[23]. According to a farm structure survey[24], there are roughly 10 million agricultural holdings in Europe, of which only 0.3 million are large scale operators, farming 50 % of the total utilisable agricultural area. The training courses typically take 2-4 days, depending on the type of operator and previous knowledge, and trained operators receive a certificate, which is required for the purchase of pesticides for professional use.

In the case of the six Member States visited by the Commission in 2017, this requirement is included in the scope of official controls on farms by competent authorities, and compliance rates were more than 95 % in five of the six Member States[25]. However, based on the responses to the questionnaire, one issue identified was that certification systems do not cover advisors on pest management in five Member States[26]. In addition, the Netherlands does not require advisors, who are not directly involved in selling pesticides, to be certified, but they plan to revise the national legislation to bring it into line with the Directive.

All Member States have restrictions in place on the sale of pesticides to non-professional users, such as home gardeners. For example, in some Member States, pesticides intended for non-professional users cannot be purchased freely and must be stored behind the counter in retail premises.

The Commission organised twelve Better Training for Safer Food (BTSF)[27] courses in 2015 and 2016 for Member State experts, which covered several elements of the Directive, including the training of operators. The course aimed at providing a consistent and high level understanding on how to achieve implementation and provided an opportunity for exchange of good practice. All 28 Member States participated and some 338 staff were trained.

3.2. PESTICIDE POISONING

Article 7 (2) of the Directive requires Member States to put into place systems for gathering information on pesticide acute poisoning incidents, as well as chronic poisoning developments where available, among groups that may be exposed regularly to pesticides such as operators, agricultural workers or persons living close to pesticide application areas.

While Member States generally have systems to gather information on pesticide acute poisoning, the accuracy of this data and its use was questioned. Systems for gathering such information on chronic poisoning are not widely implemented.

[22] Italy, the Czech Republic, Estonia, Lithuania, Slovakia and Malta.
[23] Bulgaria, Hungary and Romania
[24] http://ec.europa.eu/eurostat/statistics-explained/index.php/Farm_structure_survey_2013_-_main_results#Agricultural_holdings
[25] Denmark, Germany, the Netherlands, Poland, Sweden
[26] Denmark, Finland, Hungary, Sweden and the UK
[27] https://ec.europa.eu/food/safety/btsf_en

Eighteen NAPs describe the systems for gathering information on pesticide acute poisoning incidents in their Member State, while just four address the issue of gathering data on chronic poisoning. The remaining plans do not give specific details in this area.

This topic was not addressed in the course of Commission audits in the 19 Member States in the period of 2012 – 2014, and the available information comes from the 2016 questionnaire to Member States and the fact-finding missions to six Member States in 2017.

Based on the responses to the 2016 questionnaire, specific information on pesticide acute poisoning incidents is gathered by all but five Member States. The number of reported cases of acute poisoning involving pesticides varies considerably between Member States, and authorities raised doubts as to the accuracy of the data. For example, in Sweden, the data recorded refers to the number of queries, rather than the number of poisoning cases. Ten Member States[28] have a dedicated system for gathering data on chronic poisoning. In the remaining 17 Member States, chronic poisoning is not monitored systematically. Member States emphasised that it is particularly challenging to gather information on chronic poisoning developments, as it is very difficult to link clinical symptoms to pesticide exposure, which may have taken place many years previously.

In order to improve the comparability of information, Article 7(3) of the Directive requires that the Commission, in co-operation with the Member States, shall develop a strategic guidance document on monitoring and surveying of impacts of pesticide use on human health and the environment. The Commission plans to finalise this guidance document by the end of 2017. Furthermore, consideration will be given to the establishment of systems for collecting information on suspected poisoning from pesticides under Art 24(4)(b) of Regulation (EU) No 2017/625.

3.3. PESTICIDE APPLICATION EQUIPMENT

Article 8 requires Members States to ensure that pesticide application equipment, i.e. field and orchard sprayers, is inspected at regular intervals, and that by 26 November 2016, all equipment in use has been tested at least once. They are also required to establish certificate systems to allow the verification of the inspections.

Member States had generally established systems as required, but there is an incomplete picture regarding the overall rate of compliance which varies widely between Member States. The Commission is currently assessing the evolution of the situation since November 2016.

Twenty six[29] NAPs had an objective of ensuring that pesticide application equipment would be tested as required by the Directive. Fifteen plans indicated that a sprayer testing scheme of some type was already in operation prior to the adoption of the Directive.

To assist Member States in this area, as envisaged under Article 20 of the Directive, a new harmonised standard for testing pesticide application equipment EN ISO 16122, was

[28] The Czech Republic, Estonia, Lithuania, the Netherlands, Slovakia, Hungary, Poland, Germany, France and Bulgaria

[29] Plans of Denmark and Sweden did not contain such an objective

published in 2015[30]. This standard covers horizontal boom sprayers, bush/tree crop sprayers and fixed and semi-mobile sprayers. It clarifies the essential health and safety and environmental requirements to be examined in the inspection. This harmonised standard should facilitate efforts by Member States to recognise the certificates granted in other Member States as required under Article 8(6) of the Directive.

The 2016 questionnaire shows that twenty six Member States had set up inspection systems, and approximately 900,000 sprayers had been inspected by the deadline of 26 November 2016. Only Malta and Cyprus had yet to start these inspections. Member States have no reliable data on the total number of sprayers in use, but based on their own estimates, up to 50% of sprayers in the EU were not tested by the deadline, with over 95% of the estimated number of sprayers not tested by the deadline in Latvia and Greece and 70 % in Italy. Belgium, the Netherlands and Finland reported close to 100% testing.

The Commission organised six Better Training for Safer Food (BTSF) courses in 2015 and 2016 on pesticide application equipment, with 102 Member State inspectors from 25 Member States, and a further 6 courses will be run in 2017 and 2018. This will help address the weaknesses outlined above and thus facilitate more uniform testing by Member States.

3.4. AERIAL SPRAYING

Article 9 of the Directive prohibits aerial spraying of pesticides, except under derogation.

Aerial spraying is banned and derogations are only granted under strict conditions. The area sprayed is low, is declining and is effectively controlled.

All Member States have prohibited aerial spraying under national legislation, even if not explicitly stated in their national action plan. While the granting of derogations in special cases is legally possible in twenty one Member States[31], in 2014 and 2015 only 14 Member States actually granted derogations[32]. Under these derogations, pesticides were applied on 1.1 million hectares, of which 70 % was agricultural land and 30 % forestry, covering approximately 0.2 % and 0.1 % of the total respective areas.

In 2015, almost 95 % of the reported aerial spraying was accounted for by only two Member States; Spain with 339,000 hectares, Hungary with 88,000 hectares, which represented 0.7 % and 0.9 %, respectively, of the surface area of these two Member States.

[30] Commission communication in the framework of the implementation of 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 C 196, 12.6.2015, p. 4–5

[31] Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, France, Germany, Hungary, Italy, Latvia, Lithuania, the Netherlands, Luxembourg, Poland, Portugal, Romania, Slovakia, Spain, Sweden, United Kingdom.

[32] Bulgaria, Czech Republic, Croatia, Cyprus, France, Germany, Hungary, Italy, Luxembourg, Poland, Portugal, Slovakia, Spain, United Kingdom. Greece provided no information on aerial spraying, Bulgaria, the Czech Republic and France provided no data on the area treated.

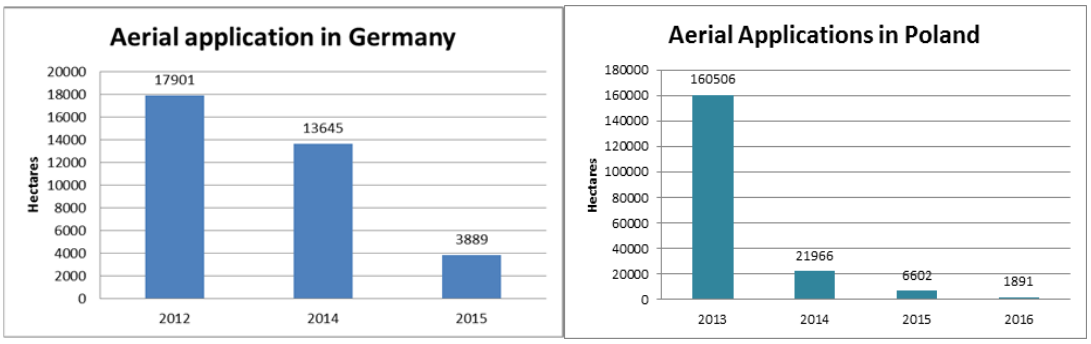


Figure 1: Reduction of aerial pesticide application in two Member States

The Commission has examined this topic in the course of audits in eleven Member States in 2015-2016 and in the fact-finding missions to six Member States in 2017. In all cases where derogations were granted, aerial spraying was performed under the strict conditions for derogations as specified by the Directive. Finally, the areas treated under derogation have decreased significantly in recent years as demonstrated in the graphs above.

The Commission will nonetheless continue assessing how Member States assess derogation requests, including through audits, to ensure that the strict conditions for these derogations are respected and properly controlled.

3.5. INFORMATION AND AWARENESS RAISING

Article 7(1) of the Directive requires Member States to take measures to inform the general public and to promote and facilitate information and awareness-raising programmes and to promote the availability of accurate and balanced information relating to pesticides for the general public. Article 10 states that Member States may include in their plans provisions on informing persons who could be exposed to spray drift.

This provision is used comprehensively in some Member States and in some areas but there remains the potential for disseminating good practice and for these practices to be used more widely, in order to inform the public and stakeholders.

All NAPs include planned measures to provide information to the public. Only Romania and Spain establish defined targets in this area.

The main tool used by Member State authorities for providing the general public with accurate and balanced information on the sustainable use of pesticides is by means of their websites. These national websites are complemented by a dedicated Commission website which is currently being upgraded to a web-portal with links to all Member State websites and other information sources. This will provide a means to share information within and between them on a range of topics, including guidance material on IPM and decision support systems.

In their response to the 2016 questionnaire, six Member States[33] informed the Commission of national provisions whereby farmers must inform their neighbours and local residents before pesticide applications, at least on request. As an example, in Sweden and the Netherlands operators who plan to use pesticides in areas where the general public has access must put up

[33] Spain, Croatia, Sweden, Netherlands, Hungary, Malta

a sign with detailed information at least one week before application. In the course of the Commission's fact-finding missions in 2017, Member States provided examples of targeted information campaigns, including awareness campaigns to inform home gardeners about pesticide risks in Denmark, Poland and Sweden, and competitions on pesticide risks for school children in Poland and Italy.

3.6. AQUATIC ENVIRONMENT AND DRINKING WATER

Article 11 of the Directive requires Member States to ensure that appropriate measures are taken to protect the aquatic environment and drinking water supplies from the impact of pesticides.

Member States have taken a range of measures to protect the aquatic environment from pesticide use, but in the absence of measurable targets in most national action plans it is difficult to assess the progress achieved.

Twenty seven national action plans include considerable detail in this area, with only France omitting this. The range of actions covers several areas. As regards pesticide application, measures include the use of drift reduction technology and a ban on sprayer filling from water courses. Financial incentives are available, including for buffer zones adjacent to water courses in agro-environmental schemes, capital grants for purchase of low drift nozzles, and construction of bio-beds to capture runoff from sprayer washing. However, the coverage of the territory by these measures is, in most Member States, very limited. Other measures relate to education and knowledge transfer. While Member States have in place a wide range of measures in this area as outlined above, the targets and timelines established either refer to the achievement of actions e.g. areas of buffer zones adjacent to water courses, or, in some Member States, achievement of existing water quality standards under other legislation.

As emphasised in the Commission staff working document on agriculture and sustainable water management in Europe[34], the Directive on the sustainable use of pesticides is an important instrument to fulfil the objectives of good water status under the Water Framework Directive 2000/60/EC[35]. Nevertheless, Member State targets and timetables to protect the aquatic environment are not always explicitly linked to the environmental objectives of Directive 2000/60/EC. Member States implemented environmental monitoring programmes under Directive 2000/60/EC, Directive 2006/118/EC[36] for Groundwater, Directive 2008/105/EC[37] on Environmental Quality Standards in Surface Water and under Directive 1998/83/EC for drinking water[38]. The monitoring programmes, and linked indicators and targets, need to cover several compartments, including biota and/or sediment, to adequately

[34] SWD(2017) 153 final:, https://circabc.europa.eu/sd/a/abff972e-203a-4b4e-b42e-a0f291d3fdf9/SWD_2017_EN_V4_P1_885057.pdf

[35] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327 , 22.12.2000, p 1 - 73

[36] Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration, OJ L 372, 27.12.2006, p. 19–31

[37] Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and the Council, OJ L 348, 24.12.2008, p. 84-97

[38] Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption, OJ L 330, 05.12.1998, p. 32 - 54

cover the risk posed by compounds which can bio-accumulate. Results from water monitoring show that pesticides from different sources contribute to poor status of water bodies in 16 Member States, affecting 20 % of groundwater and 16 % of the rivers and transitional water bodies classified as being in poor chemical status according to the EEA Report No 8/2012 "European waters - assessment of status and pressures"[39,40].

In response to the 2016 questionnaire, Member States reported to the Commission that over one million water samples were tested for pesticide residues in 2014 and 2015 together. This compares to the 84,000 official food samples analysed for pesticide residues in 2015. Water samples were taken from surface, ground and drinking water. Most samples were taken from drinking water, where the results indicated a high compliance rate (99%) with the EU legal limit established by Directive 1998/83/EC. Nevertheless, samples are taken after any necessary treatment for the removal of pesticides.

The range of pesticides analysed in the environmental monitoring programmes varied within and between the Member States visited in 2017. Germany, the Netherlands and Denmark had established clear targets in relation to compliance with these provisions, which helps the authorities to assess and demonstrate the progress made. In many regions in Italy, substances additional to priority substances listed under the Water Framework Directive were also monitored. In Poland, however, the list of pesticides monitored included only the EU priority substances. In both Germany and Denmark, findings of pesticides in groundwater mainly related to persistent pesticides which are no longer authorised, marketed or used in the EU.

3.7. REDUCTION OF PESTICIDE USE IN SPECIFIC AREAS

Article 12 of the Directive requires Member States to ensure that the use of pesticides is minimised or prohibited in certain specific areas. These include areas used by the general public or by vulnerable groups, protected areas and recently treated areas used by agricultural workers. Appropriate risk management measures shall be taken and the use of low-risk pesticides and biological control measures shall be considered in the first place.

The Commission acknowledges the extensive measures put in place by Member States for the reduction of pesticide use in specific areas, and the positive effect this has achieved, but notes also the absence of measurable targets in the majority of Member States.

In their NAPs, 26 Member States[41] describe measures to minimise pesticide use in public areas, but most of them set no specific use reduction targets for public areas. Nevertheless, some good practices were noted, such as Denmark which has an overall use reduction target, and in addition, is setting pesticide quotas for each golf course. In other public areas, the aim is to phase out pesticide use. Only NAPs from Latvia, Malta, Spain and Italy contain specific measures dealing with recently treated areas in terms of protecting agricultural workers.

[39] https://www.eea.europa.eu/publications/european-waters-assessment-2012

[40] These figures probably underestimate the proportion of river and transitional waterbodies at risk because of pesticides, Because of the way the first reporting of the River Basin Management plans was done, it was not possible at the time to determine precisely the proportion of surface waterbodies in which pesticides identified as specific pollutants posed a risk. The Commission's assessment of the second River Basin Management Plans (2016-2021) is currently on-going, and updated figures will be available in the course of 2018.

[41] The plans of Romania and Portugal do not make any reference to such measures

In response to the 2016 questionnaire, 26 Member States[42] reported that they prohibited or restricted the use of pesticides in protected areas (as defined in Directive 2000/60/EC), and conservation areas (as defined in Directives 79/409/EEC[43] and 92/43/EEC[44]). In the course of the 2017 fact finding missions, the Commission saw examples of restrictions applied in the Member States: Poland prohibits the use of harmful, toxic or very toxic pesticides in public areas such as playgrounds, primary schools and kindergartens, without the possibility of derogations. Other Member States banned pesticides containing glyphosate in non-agricultural areas (for example Italy), or in national parks and nature reserves (for example Germany). In Germany, only 17 derogations in two years had been granted for pesticide use in public areas. Denmark reported that the use of pesticides in public areas has been reduced by 90 % since 1995.

3.8. HANDLING AND STORAGE OF PESTICIDES

Article 13 of the Directive requires Member States to ensure that the handling and storage of pesticides and treatment of their packaging and remnants do not endanger human health or the environment.

While systems for controlling the handling and storage of pesticides are in place in nearly all Member States, their effectiveness cannot always be assessed due to the lack of measureable targets.

NAPs generally address this issue but only the Italian plan specifically addresses all the requirements of the Directive, i.e. storage, handling, dilution and mixing of pesticides before application, handling of packaging, disposal of remnants and tank mixtures and cleaning of equipment. Initiatives relating to disposal of empty pesticide containers are referred to in 18 plans, making it the most common action proposed in this area. Nine plans refer to storage standards. Other actions described in the plans include revised storage standards, cleaning of application equipment, and safe disposal of old non-registered pesticides/remnants.

The implementation of these requirements had been assessed by the Commission audits in 19 Member States in the period of 2012 – 2014. At the time of the audits, 15 Member States had adopted measures regarding handling and storage of pesticides, including recovery and disposal of their packaging and remnants. Collection, transport and safe disposal of both packaging and remnants was being carried out by approved companies, in four Member States in co-operation between authorities and pesticide industry. Member States complemented the implementation of national legislation for the safe handling and storage of pesticides by inspections of storage facilities.

In response to the 2016 questionnaire, 25 Member States[45] replied that they had put in place systems for the collection and safe disposal of empty containers and packaging of PPP. In 21 Member States, these systems extend to the collection and safe disposal of obsolete and

[42] Ireland and the UK did not provide a response

[43] Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds, OJ L 103, 25.4.1979, p. 1–18

[44] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, OJ L 206, 22.7.1992, p. 7–50

[45] In Greece, there is no system in place for collection of empty packages and containers, and Bulgaria and the UK did not provide a response

expired pesticides and their remnants. Fifteen Member States put in place approval systems for pesticide storage facilities at manufacturers and distributors.

3.9. INTEGRATED PEST MANAGEMENT

Article 3 of the Directive provides a definition of IPM and Article 14(4) requires Member States to describe in their NAPs how they ensure that the general principles of IPM are implemented by all professional users by 1 January 2014. Also, Article 55 of Regulation 1107/2009 provides that the proper use of pesticides also requires compliance with the provisions of the Directive, and in particular the IPM requirements.

What is IPM?

- Along with the promotion of organic farming, IPM is one of the tools for low-pesticide-input pest management;
- IPM involves an integrated approach to the prevention and/or suppression of organisms harmful to plants through the use of all available information, tools and plant protection methods;
- IPM aims at keeping the use of pesticides and other forms of intervention to only levels that are economically and ecologically justified and that reduce or minimise risk to human health and the environment;
- Sustainable biological, physical and other non-chemical methods must be preferred to chemical methods if they provide satisfactory pest control.

Member States need to develop clearly defined criteria so that they can assess systematically whether the eight principles of IPM are implemented, and take appropriate enforcement measures if this is not the case. Such tools could confirm that the intended outcome of IPM as specified in the Directive, a reduction of the dependency on pesticide use, is being achieved.

The eight general principles of integrated pest management are specified in Annex III of the Directive. However, how these principles are to be applied in practice is not explicitly defined. Partly due to the diversity of EU agriculture in terms of climate, crops grown and production techniques and the principle of subsidiarity, the eight IPM principles are implemented in a variety of ways by professional users of pesticides across the EU. Member States continue supporting organic agriculture as a low pesticide input system, and the number of organic farms has continued to increase. The organic area in the EU covered 6.2 % of the total agricultural area in 2015.

In their national action plans, all Member States indicate they are taking a broad range of comprehensive measures to promote the implementation of IPM. In 24 Member States[46], there are publicly funded systems in place for forecasting, warning and early diagnosis for pest and disease control, and established economic thresholds for significant pests, to help farmers with decision making. IT tools are available for this purpose on official websites. Twelve

[46] The UK did not provide a reply, and there were no publicly funded systems in place in the Netherlands, Cyprus and Malta

Member States established networks of IPM demonstration farms to develop and disseminate IPM techniques for the local climatic conditions and crops grown. In addition, professional users have access to a wide range of IPM guidelines, drawn up by official services and organisations representing professional groups. Member States are required to include the IPM general principles in their farm advisory system under Article 12 (2) (e) of Regulation (EU) No 1306/2013[47]. Member States highlighted that official advisory services, which are independent of commercial interest, are very important for IPM implementation.

The Commission and Member States have co-financed the ENDURE network[48], which brings together agricultural research, teaching and knowledge transfer with a special interest in IPM. The Commission has supported, under the European Union's seventh framework programme, the project C-IPM[49], to create a forum for IPM research and development of priorities, to connect existing research initiatives, and to propose new research. A high number of further research projects were financed by the Commission[50]. Two EU IPM workshops were organised in 2014 and 2016 in Germany, in co-operation with the German authorities. The Commission through the "Better Training for Safer Food " programme will run a series of training courses from 2018 onwards for Member State experts on the implementation of IPM.

Member States have not converted the IPM principles into prescriptive and assessable criteria. They see IPM mainly as an education tool for farmers, and have no methods in place to assess compliance with IPM principles. While Member States take a range of measures to promote the use of IPM, this does not necessarily ensure that the relevant IPM techniques are actually implemented by users. Farmers are economic operators, and while IPM techniques are sustainable from a long-term perspective, IPM can mean a higher economic risk in the short-term. For example, it may be seen as preferable to grow maize or wheat in monoculture for economic reasons. However, this short term approach to land management comes at considerable risk of longer term cost, for example due to increasing populations of pests or weeds in monoculture. Ultimately, monoculture can cause loss of biodiversity, soil erosion and even desertification. As an example of a short-term approach, Romania granted emergency authorisations for using neonicotinoids as seed treatment in an undefined area of maize, without investigating the potential of crop rotation as an alternative.

During their fact finding missions to Member States in 2017, the Commission identified examples of how IPM implementation was being assessed. In many cases, this was based on self-evaluation by farmers which showed that IPM practices were more widely implemented in vegetable production, greenhouses and nurseries than in arable land. In addition, verification of IPM implementation takes place for voluntary schemes and for private certification to Good Agricultural Practice standards.

In all six Member States visited, the authorities stated that in their view, some IPM techniques could be adopted on a more widespread basis, such as crop rotation, proper selection of seed and planting material and use of adequate cultivation techniques. A survey in Denmark

[47] Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008, OJ L 347, 20.12.2013, p. 549–607.

[48] http://www.endure-network.eu/endure

[49] http://c-ipm.org/

[50] Seventh framework programme: CO-FREE, TEAMPEST, BIOCOMES, SharCo, DROPSA, Fruit Breedomics, EU-Berry, INNOVINE, MARS EUPHOROS, VALORAM, PRATIQUE, ISEFOR, QBOL, Q-Detect, TESTA; Horizon 2020: EUCLID, EMPHASIS, BLOSTER: http://cordis.europa.eu/projects/home_en.html

corroborated this view by showing that while awareness of IPM techniques had increased among farmers, the actual level of implementation of these techniques had only increased marginally. An analysis carried out by the Netherlands showed that IPM principles are implemented by farmers generally, but none of the IPM general principles is used to their full potential.

Member States highlighted the insufficient availability of low risk and non-chemical pesticides as a barrier for further IPM development. Incentives for the registration of low risk and non-chemical products are mentioned however in only a few national action plans. Therefore, the authorisation and promotion of low-risk and non-chemical pesticides is another important measure to support low pesticide-input pest management. In three Member States[51], the proportion of non-chemical active substances contained in pesticides, compared to all active substances in authorised pesticides was high, at over 10% in 2015.

3.10. RISK INDICATORS

To measure the progress achieved in the reduction of risks and adverse impacts from pesticide use for human health and the environment, Article 15 of the Directive requires that harmonised risk indicators be established. It also provides for Member States to continue to use existing national indicators or adopt additional ones as appropriate.

The Commission has informed Member States that it will commence discussions to see whether a consensus can be reached on the development of harmonised risk indicators, without replacing complementary national indicators.

To date, no EU wide harmonised risk indicators have been established by the Commission. While the Commission has recently identified certain shortcomings concerning the availability and quality of statistics on pesticides[52], many of which cannot be currently used for confidentiality reasons and limitations imposed by legislation, the experience gained shows that the measurement of risk is complex, and given the data available at EU level, it cannot be achieved simply by reference to overall sales of plant protection products. This is because the risks posed by pesticides vary according to a range of factors, particularly the constituent active substances, but also how pesticides are used.

In the absence of harmonised risk indicators, Member States continue using their existing risk indicators, as described in some of the national action plans. Denmark for example has developed a "Pesticide Load Indicator", which calculates the potential environmental and human health load of individual pesticides on the market on the basis of their toxicological classification.

3.11. LOW RISK PRODUCTS

Article 14 of the Directive provides for Member States to take all necessary measures to promote low pesticide-input pest management, giving wherever possible priority to non-chemical methods so that professional users of pesticides switch to practices and products with the lowest risk to human health and the environment.

[51] Austria, Italy and Sweden

[52] Report from the Commission to the European Parliament and the Council on the implementation of Regulation (EC) No 1185/2009 of the European Parliament and of the Council of 25 November 2009 concerning statistics on pesticides, COM(2017) 109 final

The Commission is taking measures to accelerate the availability of low-risk pesticides.

When substances are identified as low-risk, the relevant incentives provided for in Regulation (EC) No 1107/2009 can be applied. These include a longer period of approval of 15 years, (instead of the standard 10 year period), longer data protection period and accelerated authorisation procedure of low-risk PPP (120 days instead of one year).

In order to increase the availability of low-risk substances, the Commission prioritised the assessment of potential low-risk active substances in the ongoing review programme[53]. With the adoption of Regulation (EU) 2017/1432, the Commission clarified existing criteria for the identification and approval of low-risk substances[54]. Currently only ten substances are approved as low-risk out of a total of almost 500. However, it is estimated that among the substances already approved under Directive 91/414/EEC, more than 70 are likely to comply with the newly adopted low risk criteria. In the next three years, these substances will be reassessed for the renewal of their approval and this will potentially increase the total number of low risk active substances.

In addition to low-risk products, Regulation (EC) No 1107/2009 also includes specific provisions for basic substances. These are substances such as food compounds typically used for purposes other than plant protection e.g. vinegar. These are mainly of biological/natural origin, and often traditionally used in organic farming. There are currently 15 basic substances approved and the Commission and Member States are actively involved in extending the approved range of these substances. Other so called "bio-control agents", such as beneficial insects or nematodes, can be used as alternative pest management techniques and are out of the scope of Regulation (EC) No 1107/2009.

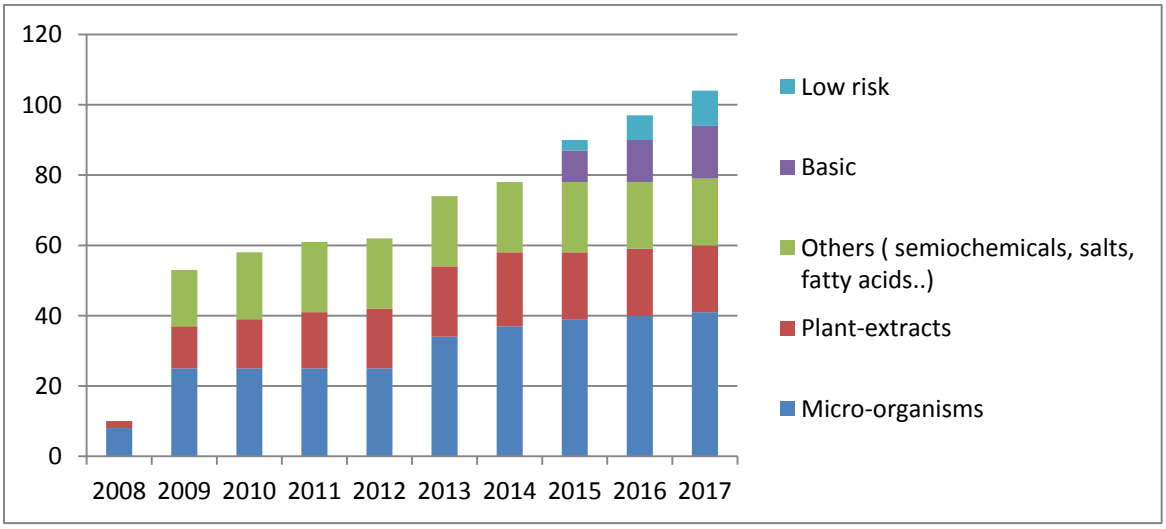


Figure 2: Increase in numbers of alternative substances approved by the EU

[53] Commission Implementing Decision of 28 September 2016 on the establishment of a work programme for the assessment of applications for the renewal of approvals of active substances expiring in 2019, 2020 and 2021 in accordance with Regulation (EC) No 1107/2009 of the European Parliament and of the Council, OJ C 357 of 29.09.2016 p 9-11

[54] Commission Regulation (EU) 2017/1432 of 7 August 2017 amending Regulation (EC) No 1107/2009 of the European Parliament and the Council concerning the placing of plant protection products on the market as regards the criteria for the approval of low-risk active substances, OJ L 205 of 8.8.2017, p. 59–62.

Finally, the Commission through its research and innovation programmes continues to support a wide body of research in plant protection to identify new low-risk products and biological control techniques[55].

4. CONCLUSIONS

Substantial legislation and support measures have been in place in the European Union for more than 20 years, designed to deliver safe, reduced and more precise use of pesticides in agriculture. The Directive offers the potential to greatly reduce the risks derived from pesticide use. However, until it is more rigorously implemented by Member States, these improvements are limited, and certainly insufficient to achieve the environmental and health improvements the Directive was designed to achieve. National Action Plans with clear measurable targets can enable Member States to demonstrate to citizens that they are duly implementing the Directive, and even going beyond it to propose innovative ways to reduce risks from pesticides.

4.1 National Action Plans and Implementation of the Directive

The NAPs are the means by which Member States establish targets and actions to achieve the objective of the Directive, and they can be seen to represent a significant step towards the sustainable use of pesticides. Member States are currently working on reviewing their first plans and the full picture of the state of implementation will only be clear when the plans have been reviewed.

Despite this substantial progress, this report identifies that there are significant gaps in many areas of the plans, for example in relation to aerial spraying, information to the public, the gathering of information regarding poisoning cases and measures to protect the aquatic environment. Integrated Pest Management is a cornerstone of the Directive, and it is therefore of particular concern that Member States have not yet set clear targets and ensured their implementation, including for the more widespread use of land management techniques such as crop rotation. Member States need to improve the quality of their plans, primarily by establishing specific and measurable targets and indicators for a long term strategy for the reduction of risks and impacts from pesticide use. These improvements should be included in the revised action plans, which would allow Member States to continuously monitor progress with implementation and adjust strategy as necessary.

The Commission has written to those Member States where there are noted omissions in either the plans or their implementation, to remind them of their obligations and the importance of the implementation of this Directive. Building on the series of six fact-finding visits to Member States in 2017, the Commission will continue evaluating the NAPs and to monitor implementation of the Directive by Member States through its audits, other actions and follow-up activities to ensure that the objectives of the Directive are being achieved. If necessary, the Commission will give consideration to infringement action.

[55] For example, the following Seventh Framework Programme projects:
AGROCOS (http://cordis.europa.eu/project/rcn/94701_en.html),
PURE (http://cordis.europa.eu/project/rcn/98869_en.html),
CO-FREE (http://cordis.europa.eu/project/rcn/101750_en.html),
BIOCOMES (http://cordis.europa.eu/project/rcn/111189_en.html),
Prolarix (http://cordis.europa.eu/project/rcn/110948_en.html).

4.2 Commission Activities Supporting Member States

In its report to the Council, the Expert Group on sustainable plant protection, set up under the Dutch Presidency, presented an implementation plan on increasing low-risk plant protection product availability and accelerating integrated pest management implementation in Member States[56]. This plan was endorsed by the Council in June 2016. One of the complementary actions proposed was that the Commission should develop the existing website on the Directive into a web portal linking to the currently available relevant information on IPM at EU and Member State level. Work on this development is well advanced. The Commission's forthcoming overview report on the series of six fact-finding missions on the implementation of the Directive will also be published on this site.

While Member States generally have systems to gather information on pesticide acute poisoning incidents they need to improve the accuracy of the data received. Systems for gathering such information on chronic poisoning cases are not widely developed. It is essential that Member States develop and maintain a functioning surveillance system on occupational pesticide poisoning as a basis for appropriate preventive interventions. The Commission will finalise guidance on monitoring and surveying of impacts of pesticide use on human health and the environment by the end of 2017 and will explore with Member States how such systems can be further developed. The Commission will also consider establishing systems for collecting information on suspected poisoning from pesticides under Article 24 (4) b of Regulation (EU) No 2017/625.

Once this Directive has been implemented in all Member States and the obligations directly applicable to farmers have been identified, the Commission will be addressing the Joint Statement by the European Parliament and the Council in Regulation (EU) No 1306/2013[57], which invites the Commission to include the relevant parts of the Directive in the system of cross-compliance. Moreover, in the meantime, the Commission will support the Member States in the development of methodologies to assess compliance with the eight IPM principles, taking into account the diversity of EU agriculture and the principle of subsidiarity.

In order to measure the progress achieved in the reduction of risks and adverse impacts from pesticide use for human health and the environment, the Commission will commence work with Member States in the second half of 2017 towards reaching a consensus on the development of harmonised risk indicators.

The Commission will also continue to work with Member States in disseminating examples of good practice in implementation through Working Groups and training, with priority being given under the Better Training for Safer Food programme to strengthen Member States capacity in their understanding and implementation of sustainable use principles.

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[56] http://www.consilium.europa.eu/register/en/content/out/?&typ=ENTRY&i=ADV&DOC_ID=ST-10041-2016-ADD-1

[57] Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008, OJ L 347/549; 20.12.2010, p.59

Following the adoption of revised national action plans, and with the updated information available to it, the Commission will produce a further report which will enable a more comprehensive assessment of the state of implementation of the Directive.