



Miljøministeriet
Departementet

Plant Protection Products Strategy 2022-2026

**Action plan to
reduce the impacts
of plant protection
products
in Denmark**

September 2022

Edited by: Ministry of Environment

ISBN: 978-87-7179-003-0

Contents

Preface	4
Introduction	5
1. Record-low plant protection products load	6
1.1 Restructuring of the plant protection products tax and the objective of the strategy	6
1.2 Reduction of glyphosate use	7
1.3 Statistics and data	7
2. Strict practice for authorisation in order to protect the groundwater	9
2.1 EU approval efforts	9
2.2 National authorisation efforts	12
3. More targeted control	14
3.1 Control of plant protection product use	14
3.2 Control of imports and sales of plant protection products	15
3.3 Control of plant protection product residues in food	16
4. Research and promotion of alternatives to plant protection products	18
4.1 The Pesticide Research Programme	18
4.2 Subsidy scheme for alternative plant protection products	18
4.3 Initiatives to prevent the need for derogations	19
5. Promotion of good agricultural practices (Integrated Pest Management)	21
5.1 Initiatives to promote Integrated Pest Management	21
5.2 Initiatives to prevent resistance	22
5.3 Initiatives aimed at greenhouses	22
5.4 Initiatives targetting plant protection product use in public areas, private gardens and on golf courses	22
Annex 1: The text of the Political Agreement	24

Preface

Denmark must lead the way in sustainability. This applies not least to Danish agriculture. More than 60% of Denmark is farmland. This means we have one of the highest percentages of cultivated land in the world. Agriculture uses plant protection products to control weeds, pests and fungal diseases on farmland. Plant protection products use contributes to higher yields from healthier plants. However, there is a drawback to this. Plant protection products can harm the aquatic environment, groundwater, biodiversity and human health. We therefore have to make sure that our domestic food production is as gentle as possible and harms the climate, the environment and nature as little as possible.

The negative impacts of plant protection products on the environment and human health have to be reduced. Europe has already come a long way in this regard. In the last ten years, the negative impacts of plant protection products on the environment and human health from agriculture in Europe have been cut by around 50%. With this new national plant protection products strategy, Denmark is raising the bar even higher.

The goal of the strategy is to ensure the lowest possible use of plant protection products, and that the plant protection products used are those with the lowest environmental and human health loads. Furthermore, the level of pesticide residues in food must be as low as possible, and initiatives must be implemented to support the continued use of untreated groundwater for drinking water.

Therefore, the strategy will strengthen protection of nature and the environment in Denmark, including the aquatic environment, groundwater and biodiversity and human health.

Furthermore, the strategy will ensure stable production conditions for agriculture. Because we need to be able to continue to produce healthy crops and secure the supply of high-quality food products, so that we can maintain our role as global frontrunners in this area.

Denmark is in a unique position in that we can safely drink untreated water from the tap without concern. It's therefore completely unacceptable that we're now finding traces of illegal plant protection products in some groundwater samples, and that our groundwater is under pressure.

This strategy allocates more money for monitoring and control at farms and retailers, as well as for food inspection. We have to stop a few rotten apples from ruining everything for the rest of us.

The strategy will also help promote green technologies, such as precision technologies, to reduce the use of plant protection products. Such technologies will benefit not only the environment but also farmers' earnings.

As a frontrunner in sustainability, Denmark will show the world that cutting down on the use of plant protection products is possible while at the same time deploying more green and innovative technologies. And in this regard, Denmark's new plant protection products strategy is an important step towards the green agriculture of the future.

Yours sincerely

Minister for Environment

Lea Wermelin

Minister for Food, Agriculture and Fisheries

Rasmus Prehn

Introduction

The Danish Pesticides Strategy 2022-2026 is the realisation of the political agreement between the Danish Government and Denmark's Liberal Party, the Danish People's Party, the Socialist People's Party, the Danish Social-Liberal Party, the Danish Red-Green Alliance, the Conservative People's Party, New Right, Liberal Alliance, and the Christian Democrats.

The parties to the agreement will annually receive a briefing about the status of the initiatives implemented as part of the action plan under the strategy. When the agreed analyses have been completed, the parties will meet to discuss any initiatives. A cross-ministerial steering committee has been established to monitor developments and progress on the plant protection products strategy. The parties to the agreement will receive an annual status memorandum. Stakeholders will be consulted through monitoring group meetings and dialogue fora on plant protection products for each focus area. The steering committee will evaluate efforts and will provide input to the drafting of a new action plan towards the end of the strategy period.

The primary objective of the strategy is to achieve record-low negative impacts from pesticide use. The goal is to use plant protection products as little as possible, and to ensure that the plant protection products that are used have the lowest possible loads. Furthermore, the level of pesticide residues in food must be as low as possible, and initiatives must be implemented to support the continued use of untreated groundwater for drinking water.

The strategy covers all users of plant protection products, including agriculture, golf courses, public authorities and private garden owners, as well as consumers, food enterprises and plant protection products retailers.

The strategy will be implemented through a series of initiatives under the following focus areas:

1. Record-low plant protection products load
2. Rigorous practice for authorisation in order to protect the groundwater
3. More targeted control
4. Research and promotion of alternatives to plant protection products
5. Promotion of good farming practices (Integrated Pest Management (IPM))

The specific initiatives are described under each focus area.

In a supplementary agreement of 11 January 2019, the parties behind the Pesticides Strategy 2017-2021 (the Social Democratic Party, Denmark's Liberal Party, Liberal Alliance, Kristendemokraterne (the Christian Democrats), the Danish People's Party, the Danish Social-Liberal Party, the Socialist People's Party) agreed to reduce the risk of contamination of groundwater from professional use of plant protection products in well vicinity protection zones (BNBOs) and to screen for a considerably larger number of plant protection products in the groundwater monitoring programme. This supplementary agreement covers the period up to and including 2022 and the initiatives mentioned are therefore being implemented concurrently, on the basis the supplementary agreement.

1. Record-low plant protection products load

1.1 Restructuring of the plant protection products tax and the objective of the strategy

Developments in the negative impacts of plant protection products use are monitored using the Pesticide Load Indicator (PLI). The total environmental and human health load is calculated for each pesticide on the market. This is done by multiplying the pesticide load of the individual product (load (B) per kg or litre) by the quantities sold. The pesticide loads for all plant protection products on the market are then summed to find the total annual load from the quantities of plant protection products sold. PLI can then be calculated by dividing agriculture's total annual pesticide load from the plant protection products sold by the total area of conventionally farmed land in Denmark in 2007. PLI is calculated for sales figures as well as for consumption figures. The Pesticides Strategy 2017-2021 had an objective of a PLI of no more than 1.96 (based on sales figures), corresponding to a 40% reduction compared with the calculated level in 2011.

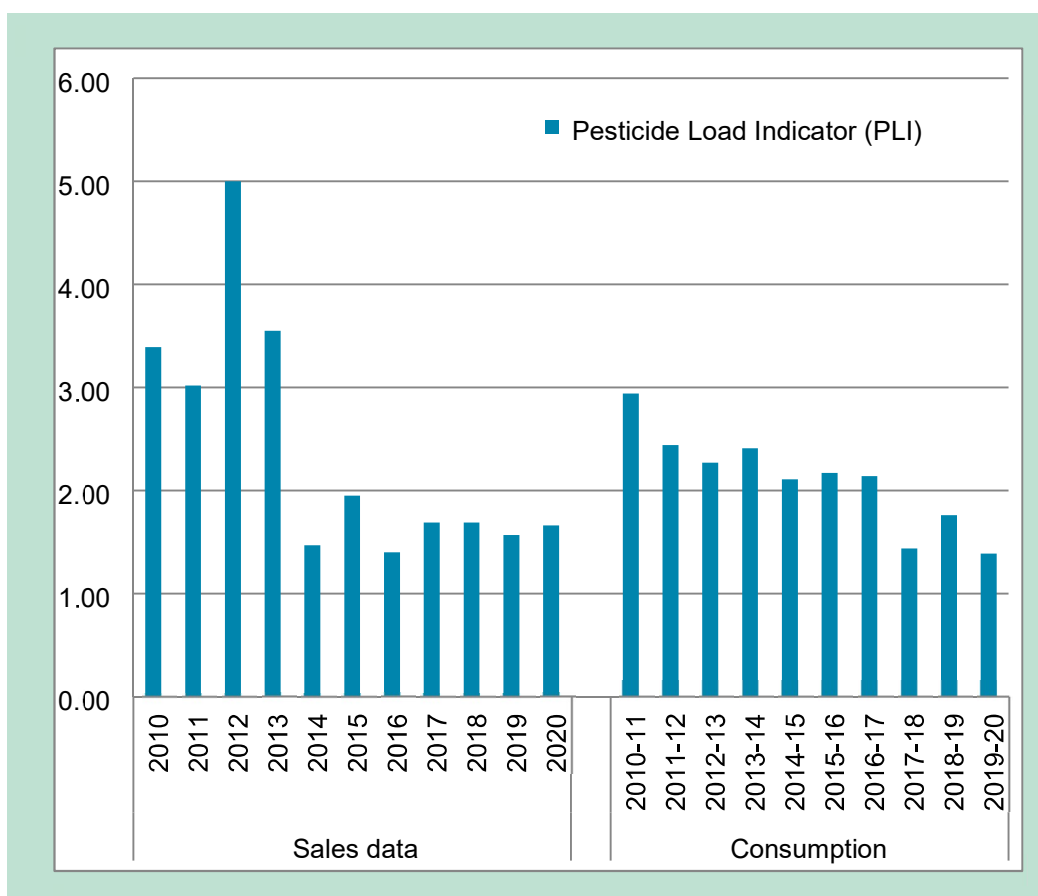


FIGURE 1.1 Development in PLI, 2010-2020

The intention is to set the direction for a cleaner environment with lower plant protection products loads. This direction is to provide agriculture with stable conditions for production, bolster healthy crop production, and strengthen environmental protection, including the aquatic environment, groundwater and biodiversity, as well as human health and food safety.

The following will be initiated to support the above:

- A target Pesticide Load Indicator (PLI) of 1.43 based on sales figures for 2025 will be set and will be evaluated in 2026.
- The plant protection products tax will be restructured to make it more attractive to use plant protection products with low loads on the environment and health. A revenue-neutral restructuring of the tax will be made, with a reduction in the basic tax to DKK 20 per kg of active substance and an increase in the load element to DKK 140.
- An evaluation will be made of developments in the relevant parameters by 2025, including agricultural land area, and organic area, the deployment of precision technology and panic buying/hoarding effects, good farming practices by applying integrated pest management (IPM) principles, reduction in the use of substances of very high concern, as well as additional potential tools that will be collated in a catalogue of tools with a view to identifying the potential for establishing a more ambitious target with specific initiatives up to 2030.
- The Ministry of Environment and the Ministry of Food, Agriculture and Fisheries will provide technical input to implementation by the European Commission of initiatives under the Farm to Fork Strategy, which is a part of the European Green Deal.

1.2 Reduction of glyphosate use

There is an ambition to reduce the use of glyphosate in Danish agriculture.

The following will be initiated to support the above:

- The use of glyphosate as a harvest aid in feed crops¹ will be banned in line with the recommendation in the sector's voluntary action plan to reduce glyphosate. Pre-harvest patch spraying against perennial weeds will still be possible in order to minimise use after harvest.
- Other agricultural use of glyphosate, including in particular for desiccation, will be monitored closely in light of agriculture's voluntary action plan to reduce glyphosate.
- An analysis will be conducted to illustrate the environmental and financial consequences of using herbicides containing glyphosate for desiccating crops in order to consider possible regulation to reduce unnecessary use of glyphosate for desiccating but taking into account of the need to use glyphosate for no-tillage farming.

1.3 Statistics and data

The Danish Environmental Protection Agency is responsible for calculating taxes in connection with authorisations and amendments to authorisations of plant protection products, and for maintaining the data basis for the Pesticides Database (BMD).

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will publish annual pesticides statistics and an annual EU Harmonised Risk Indicators (HRI) report. Plant protection products data will be reported to EUROSTAT. In connection with publication of the annual plant protection products statistics, the Ministry of Environment will provide an annual status report on progress towards meeting the objective of the strategy and will brief the parties to the agreement about this status report.

¹Harvest aid is defined as the use of glyphosate primarily to ensure easy harvest or optimal quality of crops harvested. This use is therefore not intended to control weeds. This is in line with the sector's action plan, which describes harvest aid as the use of glyphosate to achieve uniform crop ripening for earlier/easier harvest as well as to achieve greater harvesting capacity due to lower straw moisture, and not for weed control.

- The Ministry of Taxation, in collaboration with the Ministry of Environment, will prepare a legislative amendment to the Plant Protection Product Tax Act with a view to enhancing financial incentives to use low-load plant protection products. The basic tax will be reduced to DKK 20 per kg of active substance, while the load tax will be increased correspondingly to achieve unchanged revenues after the adjustment.
- The use of substances of very high concern will be monitored closely, and figures will be calculated and published annually. In this context, an analysis will be completed to identify possible alternatives, and the results will be submitted to the parties to the agreement and the sector.
- Plant protection products loads will be calculated annually, broken down between animal feed and food for human consumption.
- Going forward, developments in the area farmed organically and the significance of these developments for the reduction in future plant protection products loads will be calculated and published in the annual pesticides statistics.
- There will be an examination of whether the load indicator (B) can be expanded in the future. Today, the following environmental indicators are included in the calculation of environmental effects 1) short-term effects on birds, 2) short-term effects on mammals, 3) short-term effects on fish, 4) short-term effects on earthworms, 5) short-term effects on bees, 6) short-term effects on daphnia, 7) short-term effects on aquatic plants, 8) short-term effects on algae, 9) long-term effects on earthworms, 10) long-term effects on fish and 11) long-term effects on daphnia. An analysis will be initiated to examine the possibility to include also long-term effects on birds and mammals and thereby make the assessment more robust.
- The Danish Environmental Protection Agency will ensure the development and maintenance of the Pesticides Database (BMD) and the spraying record reporting system (SJI). These IT systems are essential for preparation of the reports referred to above, and the Pesticides Database supports the authorisation scheme.
- The Ministry of the Environment will contribute to EU negotiations concerning the forthcoming revisions of the Sustainable Use of Pesticides Directive and the Regulation on Statistics on Agricultural Input and Outputs, (SAIO), and will participate in meetings of the two fora. Furthermore, the Danish Ministry of Environment will participate in negotiations on draft regulation on sustainable use of plant protection products.
- Efforts to reduce the risk of contamination of groundwater from professional use of plant protection products in drinking well vicinity protection zones (BNBOs) were decided with the supplementary agreement to the Pesticides Strategy 2017-2021. The plant protection products Strategy 2022-2026 will continue the designation of BNBOs and follow-up on current efforts.

2. Strict practice for authorisation in order to protect the groundwater

2.1 EU approval efforts

With this strategy, Denmark will continue to play a proactive role in EU work on approval of active substances and in preparation of common guidelines for risk assessments. There are focused efforts with regard to EU work on plant protection products residues in food and animal feed.

The basis for maintaining an effective approval scheme will be through taking part in EU work on approval of active substances, including through commenting on active substance assessments and through work to develop guidance documents in the EU and the North Zone, and through participating in experts' meetings, working groups and committee meetings in the European Food Safety Authority (EFSA) and the European Commission.

The use of basic low-risk substances and basic substances can help to reduce the load and provide new plant protection product management opportunities, for conventional as well as organic growers. Low-risk substances are micro-organisms and iron phosphate, for example. Basic substances are food ingredients that are not sold for the primary objective of plant protection, and that may not be marketed as plant protection products but have an effect on pests in plant production.

The following will be initiated to support the above:

- Denmark will work actively in the EU for a more restrictive and holistically oriented approval procedure in which consideration for the different routes of exposure, combination effects, as well as acute and sub-lethal risks are assessed. This applies to humans and non-target organisms in the environment.
- The Ministry for Environment will prepare, and comment on, assessments of selected active substances by the EU on the basis of a strict practice.
- Denmark will work actively in the EU for a ban against seed imported from countries outside the EU that has been treated with non-authorised products.
- Denmark will work actively in the EU to promote approvals of active substances for microbial plant protection products.
- Denmark will work actively in the EU to promote the development and use of new and innovative biological plant protection products with lower risks to human health and the environment than conventional chemical plant protection products.
- The Danish Ministry of Environment will work to ensure the EU approval of more low-risk and basic substances, and the Ministry of Food, Agriculture and Fisheries will work to ensure that these substances are included in the Organic Regulation, and that approved basic substances are used more broadly to benefit organic farmers, conventional farmers and other professional, as well as private users.
- The Danish Ministry of Environment will work in favour of implementing new data requirements and developing guidelines for microbial plant protection products that can be used in organic

production, for example, and thus promote the authorisation of more microbial plant protection products to benefit conventional as well as organic farmers.

- The Danish Ministry of Environment will work to ensure that basic substances that have been approved pursuant to the Plant Protection Products Regulation cannot be approved pursuant to the Regulation as active substances for the same application, because this would make use of these basic substances more expensive, and such use would require authorisation at national level.
- The Danish Ministry of Environment will contribute to creating the scientific basis for assessing the risk of plant protection products to human health and the environment, with a view to developing assessment methods and harmonising authorisation work in the North Zone and across the EU. This includes contributing to guidance on assessing risks for bees, guidance on seed treatment products and guidance on assessing relevant degradation products expected in the groundwater.
- The Ministry of Environment and the Ministry of Food, Agriculture and Fisheries will work to ensure quicker decisions by the EU regarding active substance renewals and rapid regulation of maximum residue levels for food with a view to preventing administrative extensions for active substances when assessments by the European Food Safety Authority (EFSA) indicate unacceptable risk or unsafe usage.
- The Danish Ministry of Environment will work to ensure that the European Commission submits proposals for adoption as soon as possible after identification by EFSA of a risk to human health or the environment.
- The Danish Ministry of Environment will contribute actively to work by the EU to establish protection targets with regard to groundwater and pollinators, including for the protection of wild bees.
- The Danish Ministry of Environment will work to ensure that active substances of very high concern (substances classified in the worst carcinogenic, mutagenic and reprotoxic categories or that fulfil the criteria for endocrine disrupting effects) are only approved if there are no alternatives, and if they comply with certain restrictive conditions allowing for their safe use.
- The Danish Ministry of Environment will work to ensure that problematic co-formulants are included in the EU's list of unacceptable co-formulants, i.e. co-formulants that may not be used in plant protection products, and the Ministry will also work to establish principles for the approval of safeners and synergists in the EU (there is currently no EU approval scheme for these types of plant protection products ingredients), including the principle that such ingredients may not pose a risk via food or groundwater. The coming years will see special focus in the EU on *substances of very high concern*, both with regard to active substances and co-formulants. Pursuant to the Plant Protection Products Regulation, the EU must submit a proposal for requirements for these substances. Denmark believes it is important that there are requirements for substances of very high health and environmental concern, and requirements that safeners and synergists do not constitute a risk to groundwater.
- The Danish Ministry of Environment will help bring clarity to the categorisation of biostimulants, which from 2022 belong under the EU Fertilising Products Regulation instead of the Plant Protection Products Regulation.

Special initiatives for the food area in the EU

- The Ministry of Food, Agriculture and Fisheries will ensure targeted Danish influence on work in the EU to prepare guidelines, establish principles for assessment and management of plant protection products residues in food products, as well as determine maximum residue levels for plant protection products in food products.

- The Ministry of Food, Agriculture and Fisheries will aim to have the lowest possible maximum residue levels for plant protection products in food products, provided the plant protection products remain effective.
- The Ministry of Food, Agriculture and Fisheries will aim to have combination effects included as a concern when assessing maximum residue levels of plant protection products in food products.

2.2 National authorisation efforts

National authorisation of plant protection products is tax-funded, and it is an important priority for the Danish Environmental Protection Agency to process applications for authorisation and ensure compliance with the associated environmental and health requirements. The high level of protection of groundwater in Denmark will be continued through a strict authorisation scheme and through the Pesticide Leaching Assessment Programme (PLAP).

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will process applications for authorisation of plant protection products and will ensure compliance with the associated environmental and health requirements. The Danish Environmental Protection Agency will consistently screen applications upon receipt to ensure faster case processing and thereby reduce the time from submission of an application to notification of decision.
- The Danish Environmental Protection Agency will prioritise fast processing of applications for authorisation of new low-risk plant protection products to address the lack of plant protection options and the development of plant protection products resistance. This will improve the competitive conditions and help prevent the development of plant protection products resistance.
- There will be more focus on accelerating authorisation of microbial plant protection products as an alternative to chemical plant protection products.
- The Danish Environmental Protection Agency aims to have resolved case-backlog challenges by 2023. The Danish Environmental Protection Agency is determined to reach this goal, including in particular with regard the microbial products.
- The Danish Environmental Protection Agency will contribute to administration of the Pesticide Leaching Assessment Programme (PLAP) with the aim to investigate the risk in practice of leaching of active substances, including their degradation products, from authorised plant protection products. This will include contributing to testing selected substances from authorised plant protection products under the PLAP and ensuring quick response to any exceeded threshold values in groundwater that call for a tightening of regulations.
- More funding will be earmarked for the PLAP than in the previous strategy in order to increase the number of tests of relevant substances and thereby ensure a more robust authorisation system.
- The Danish Environmental Protection Agency's principles for assessing the impact of plant protection products on human health and the environment have been collated in the so-called Framework for the Assessment of Plant Protection Products. The Danish Environmental Protection Agency will adjust the assessment principles for authorisation of plant protection products to reflect new knowledge, for example from guidelines from the North Zone and the EU (provided compliance with national requirements for groundwater, etc. can be maintained), so as to ensure that new knowledge is considered in efforts to protect human health and the environment, and to

ensure agriculture can use plant protection products that do not pose unacceptable risks. This includes implementing new rules on co-formulants, etc.

3. More targeted control

There is an ambition to support and enhance the existing targeted and risk-based control programme for infringements in the plant protection products area. There will be an increase in funding of 40% compared with the previous strategy to control plant protection products at users, sales outlets and the customs service. This will strengthen control and reduce the number of infringements of the regulations, including focus on unlawful use of plant protection products constituting a particular threat to drinking water.

3.1 Control of plant protection product use

In addition to the actual use of plant protection products, control of plant protection product use by professional users includes rules on flushing and filling spraying equipment, control of spraying records, inspection of spraying equipment, the Authorisation Order (*autorisationsbekendtgørelsen*), and the rules on storing and owning spraying equipment. These controls are carried out as dialogue-based controls with focus on providing guidance, but with enforcement of the rules where necessary. Inspectors from the Danish Agricultural Agency have relevant training, and continuing training ensures high professional standards.

The following will be initiated to support the above:

- The Danish Agricultural Agency will continue to carry out a high level of control.
- As part of a targeted and risk-based control programme, the Danish Agricultural Agency can also extract and analyse samples from spraying equipment if this is considered relevant for the specific inspection visit.
- On the basis of risk-based criteria determined by the Danish Environmental Protection Agency, the Danish Agricultural Agency and the Danish Environmental Protection Agency will together select enterprises for inspection. The risk-based criteria will be determined on the basis of previously observed infringements, and on the basis of an assessment of the type of infringements that constitute the greatest environmental and health risk. Control of plant protection products use by professionals will be by the Danish Agricultural Agency, while the Danish Environmental Protection Agency's Chemical Inspection Service will carry out enforcement in the event of infringements.
- The Danish Environmental Protection Agency will develop an app based on the pesticides database (BMD) for future use by the Chemical Inspection Service and by inspectors from the Danish Agricultural Agency. The app will ensure easy access to knowledge about the status of authorisations.
- The Danish Environmental Protection Agency will run and continuously improve the Agency's authorisation system for plant protection product use.
- The Danish Ministry of Environment will regularly update rules and requirements concerning inspection of spraying equipment and continued training for inspection employees.
- The Danish Environmental Protection Agency will regularly update and improve training for operators of spraying equipment to ensure that users of plant protection products, including products to fumigate pests, authorised for professional use, focus on safe and correct use of plant protection products and on minimising use, where possible.

3.2 Control of imports and sales of plant protection products

The control of plant protection products distribution (retailers, etc.) must ensure that only authorised and legal plant protection products are sold in Denmark. This includes ensuring that plant protection products are stored in an environmentally responsible manner. The Danish Environmental Protection Agency's Chemical Inspection Service is responsible for inspections, and targets for inspection are selected on the basis of a risk-based approach. This means that the frequency of inspections of retailers etc. in the distribution chain is adjusted relative to the toxicity of the plant protection products sold, the complexity of stocks/the company, and whether the retailer has previously infringed the rules.

A registration system for enterprises manufacturing, importing and selling plant protection products for professional use entered into force from 2021. The system allows for more systematic and more targeted control. The new requirements for registration of all stages of distribution of plant protection products authorised for professional use allow the Danish Environmental Protection Agency to select targets for inspection on a more informed basis. They also open up for more targeted communication about plant protection products rules and about the results of inspections.

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will continue to carry out a high level of control.
- The Danish Environmental Protection Agency will ensure faster enforcement of sanctions to shorten the time from infringement of rules to enforcement of sanctions.
- With risk-based control of plant protection products distribution, the Danish Environmental Protection Agency will help ensure that enterprises continuously check and sort their stocks to ensure that only authorised and legal plant protection products are sold in Denmark, whether to professional or private users.
- Through chemical analyses, the Danish Environmental Protection Agency will check the contents of plant protection products in order to ensure that the contents are consistent with the declaration on the label and the conditions for authorisation.
- The Danish Environmental Protection Agency will continue collaboration with other national and international authorities to combat illegal imports of plant protection products.
- The Tax Agency will regularly monitor imports of plant protection products in order to ensure that only authorised plant protection products are imported, and to check that only registered enterprises import and subsequently sell the plant protection products in Denmark. The Tax Agency will also check that the appropriate taxes have been paid and make adjustments where relevant. Any findings of non-authorised plant protection products will be submitted to the Danish Environmental Protection Agency for further action.
- The Tax Agency will work to tighten data-driven control, and will examine possibilities for comparing data from different data sources to identify enterprises particularly relevant for inspection.
- The Danish Customs Agency will inspect plant protection products as part of its ongoing border checks prioritised according to risk and importance. Any findings of non-authorised plant protection products will be submitted to the Danish Environmental Protection Agency for further action, and the strategy has set aside funding for high-quality case processing by the Danish Environmental Protection. Due to observed increases in imports of non-authorised plant protection products

concentrate via online purchases by private individuals, collaboration with the Danish Customs Agency will continue to have high priority.

3.3 Control of plant protection product residues in food

Even when plant protection products are used according to current regulations, there will still be legal plant protection products residues in edible crops, for example. The Plant Protection Products Strategy 2022-2026 will ensure that any plant protection product residues are within the limits of what is acceptable in terms of human health and that the residue content is as low as possible. Efficient control and guidance of enterprises are important elements in preventing food with unsafe residue levels from being sold on the Danish market and, thus, in protecting consumers against unsafe food products.

The following will be initiated to support the above:

- The Danish Veterinary and Food Administration check for plant protection product residues in animal feed and food, partly through targeted analytical control, and partly through controls of the own-check programmes of animal feed and food enterprises. The Danish Veterinary and Food Administration will focus on food safety through targeted and efficient control, e.g. by focussing on high-risk products, including import samples from third countries that are more likely to have plant protection product residues levels exceeding the limit values.
- Therefore, the Danish Veterinary and Food Administration will develop more and better analytical methods for determining plant protection product residues in feed and food. Control of plant protection product residues in food relies on efficient analysis methods to monitor resources, response times, health and safety, etc. Control efforts must be strengthened, both with regard to analysing for relevant substances and to analyse new food products entering the market.
- The Danish Veterinary and Food Administration will initiate work to assess consumer safety in relation to residues of co-formulants in food products. Knowledge is lacking about the contents of plant protection product co-formulants in food.
- The Danish Veterinary and Food Administration will calculate the Danish population's intake of plant protection product residues by combining knowledge about residue contents in food with knowledge about the dietary intake of Danes. It is essential to monitor the plant protection product-residue intake of Danes through food to establish a basis for risk management.
- The Danish Veterinary and Food Administration will address cases concerning residues in organic food. Such cases are often associated with extensive tracking and tracing. As the area of organically farmed land expands and demand for organic products increases, more samples will be taken for control purposes, and there will be more cases of observed plant protection product residues in organic samples.
- Food enterprises' knowledge of plant protection product residues in food will be enhanced and their own-check practices supported through targetted guidance on plant protection product residues in food. Guidance for enterprises on plant protection product residues in food and animal feed will make it easier for them to comply with the regulations.
- The Danish Veterinary and Food Administration will publish the results of analyses and draw up reports presenting these results, including comparative figures for Danish and foreign food. Consumers, enterprises and farmers demand knowledge about plant protection product contents. It is important that easily accessible and up-to-date information on plant protection product residues in food is available

on the Danish Veterinary and Food Administration website. This will enhance the level of knowledge and awareness about plant protection product contents in food among consumers, enterprises and farmers. The strategy will thereby also help consumers make decisions on an informed basis.

4. Research and promotion of alternatives to plant protection products

4.1 The Pesticide Research Programme

The Danish Environmental Protection Agency's Pesticide Research Programme provides funding for research in the area of pesticides, including biocidal products. The programme provides financial support for projects with potential to contribute to one of the following objectives:

1. Ensuring continued building and improvement of the knowledge base for assessing the impacts of pesticides on human health, nature and the environment
2. Contributing new knowledge that, in the long term, will improve the opportunities for reducing the total impact of pesticides on human health, nature and the environment.

The programme continues initiatives in the previous biocides and plant protection products strategies, and in early 2022 the programme was funding 22 projects.

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will annually publish a call for applications for funding for projects that contribute to one of the two objectives mentioned above. The research reports will be published on a continuous basis on the Danish Environmental Protection Agency website.
- The Danish Environmental Protection Agency will ensure that biodiversity has higher priority in the call for applications under the Pesticides Research Programme, including in particular higher priority for research to identify whether there is data to develop a field nature index to clarify the contribution of fields to nature and biodiversity in light of plant protection product consumption, crop rotation, etc. This could be in the form of a research project to investigate possible indicators for biodiversity on fields.
- The Danish Environmental Protection Agency will ensure that no-spray buffer zones for spraying, consequences for neighbours and prevention of the risk of drift into their houses have higher priority in applications under the Pesticides Research Programme.
- The Danish Environmental Protection Agency will ensure that the call for applications under the Pesticides Research Programme will give higher priority to applications for research on how the costs of negative impacts of plant protection product use on the environment, human health and nature can be estimated and included to improve the proportionality in assessments of the societal costs of using plant protection products as opposed to farming organically.
- Every other year, the Danish Environmental Protection Agency will host a conference where newly started and completed projects in the strategy period will be presented to researchers and affected stakeholders.

4.2 Subsidy scheme for alternative plant protection products

The Plant Protection Products Strategy 2022-2026 will continue efforts to provide guidance and subsidies to potential applicants for authorisation of alternative plant protection products, subsidies

for preparing basic substances applications, as well as subsidies for the application fee in connection with authorisation of low-risk substances. When processing applications, emphasis will be on whether an application for subsidies to submit applications for authorisation of alternative plant protection products can potentially lead to health or environmental benefits compared with existing plant protection practice in Denmark; whether there is technological innovation involved; and whether the new alternative plant protection product is likely to increase the area of organically farmed land in Denmark.

The following will be initiated to support the above:

- Funds will be set aside to continue the subsidy scheme for alternatives, in particular to develop and authorise alternatives to chemical plant protection products and prevent the need for derogations.
- The Danish Environmental Protection Agency will continuously announce invitations for applications with a view to promoting authorisation and promotion of alternative plant protection products with lower risks to human health and the environment.
- The Danish Environmental Protection Agency will notify a number of commitments for subsidies on the basis of applications received and the size of the subsidy pool.
- The Danish Environmental Protection Agency will provide guidance to [potential] applicants for alternative plant protection products on an ongoing basis.

4.3 Initiatives to prevent the need for derogations

A number of initiatives will be launched to reduce the need for derogations in the long term. A main element will be to provide guidance on the rules and to encourage the relevant sectors and manufacturers to promote the use of alternatives.

The following will be initiated to support the above:

- That Danish Environmental Protection Agency will in future apply the stricter practice for derogations on the basis of EU guidelines issued in March 2021.
- The parties to the agreement will annually receive a status for derogations granted by the Danish Environmental Protection Agency pursuant to Article 53 of the Plant Protection Products Regulation.
- The Danish Ministry of Environment will enable the sector to prevent the need for derogations by providing the sector with information about upcoming EU bans on active substances.
- The Danish Environmental Protection Agency will maintain a dialogue with agriculture and horticulture to work to reduce the need for derogations, for example through IPM initiatives (choice of variety, crop rotation, etc.), development of alternative methods, testing of alternative products, etc.
- The Danish Environmental Protection Agency will remain in dialogue with the sector to encourage plant protection product manufacturers to apply for actual authorisation of plant protection products or find alternatives, rather than applying for derogations.
- The Danish Environmental Protection Agency will prioritise case processing of applications for authorisation of plant protection products that can replace plant protection products for which derogations are being applied for.

5. Promotion of good agricultural practices (Integrated Pest Management)

5.1 Initiatives to promote Integrated Pest Management

Plant protection products use can be minimised on the basis of continued deployment and use of the principles of integrated pest management (IPM principles). Integrated Pest Management entails all professional users of plant protection products in agriculture and other industries doing everything they can to prevent and limit the need for plant protection products to control weeds, fungal diseases and pests, and the need for plant growth regulators. Actions to avoid or reduce the use of plant protection products include adjusting the time of sowing and the seed quantity, and by ensuring that the use of resilient and competitive crop varieties. Integrated Pest Management will also help prevent the development of plant protection products resistance, which is currently a challenge in agriculture.

Furthermore, the deployment of precision technology could potentially reduce the use of plant protection products further and constitute a paradigm shift in plant protection products regulation in Denmark. Precision technology can also promote good agricultural practices via a change to spraying according to need and precision spraying to avoid double spraying.

The following will be initiated to support the above:

- Before the end of 2022, an analysis will be completed of the opportunities and limitations in promoting the deployment of precision spraying, including possibilities to set mandatory requirements. Furthermore, there will be an assessment of the use of closed transfer systems and how these can reduce plant protection product loads. The parties to the agreement will discuss the results of the assessment when it has been completed.
- Funds will be allocated to continue the scheme for innovation farms after 2022 to test new solutions to promote good farming practices by applying the principles of integrated pest management (IPM). The supplementary agreement to the Danish National Actionplan on Pesticides 2017-2021 involved work to validate IPM strategies under realistic conditions, both with regard to the effect on reliance on plant protection products and the financial implications. More specifically, three innovation farms were established in the period 2019-2022, aiming to assess the long-term effect of good farming practices.
- The Danish Environmental Protection Agency will carry out projects for further testing, development, consultancy and information about the principles of integrated pest management (IPM).
- The Danish Environmental Protection Agency will promote the implementation of IPM by training users, teachers and consultants.
- The Danish Environmental Protection Agency will help promote the development, testing and use of precision technologies that contribute to implementing IPM and reducing the impact of plant protection products.
- The Danish Environmental Protection Agency will maintain, develop and continuously evaluate IPM forms to be completed annually by farmers. Since 1 January 2021, farmers have been required to

complete an IPM form annually to spotlight the IPM principles and the IPM toolbox. The Danish Environmental Protection Agency will adjust the IT system behind the IPM form, so that responses from farmers can be stored in the system. This will allow farmers to monitor their development in IPM points over the years.

- The Danish Veterinary and Food Administration will support farmers to cultivate crops in a way that results in fewer plant protection product residues in food through contributing to farmers' knowledge about plant protection product residues in food.

5.2 Initiatives to prevent resistance

A project was completed under the Pesticides strategy 2013-2015 on the resistance of weeds to common plant protection products (herbicide resistance) and, in 2016, an associated status report was published on the status of herbicide resistance in Denmark (2013-2015). A follow-up study on developments in herbicide resistance was commenced in 2021. The preliminary report from this follow-up will be made available during spring 2022, and a final report is expected in spring 2023. On the basis of the results, it will be decided whether to carry out a similar study at a later stage. Any such study will be afforded priority over other initiatives as an IPM initiative in the relevant year.

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will ensure completion of the study of developments in herbicide resistance in 2023. The report will be published by Aarhus University. The Danish Environmental Protection Agency will follow up on the results, for example by implementing specific IPM initiatives to counter further herbicide resistance. This includes initiatives such as an information campaign about crop rotation, the mechanisms of plant protection products and how to prevent the spread of resistant weed seeds.
- The Ministry of Environment will ensure the preparation of a status report on resistance to fungicides and insecticides in 2023.

5.3 Initiatives aimed at greenhouses

The Pesticides Strategy 2017-2021 included special efforts aimed at Danish greenhouses to reduce discharges to the environment and the use of illegal products. The sector has drawn up a voluntary action plan to promote broad follow-up on the initiatives in the action plan. The plan contains initiatives within waste and wastewater, as well as initiatives to help significantly reduce the number of observations of illegal products in connection with inspections at greenhouses. The sector has evaluated its voluntary action plan and will update the plan in 2022. The special efforts aimed at greenhouses will be continued under the current strategy.

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will contribute with guidance on preparation of voluntary action plans by the sector to ensure compliance in the sector.
- The Danish Agricultural Agency will continue its risk-based inspection of greenhouses.

5.4 Initiatives targetting plant protection product use in public areas, private gardens and on golf courses

Golf courses

The negative impacts of plant protection products on Danish golf courses must remain low, for example through increased use of IPM, without impairing the quality of the golf course for players. Thus, efforts will continue to protect the health of greenkeepers and players, as well as to protect the environment.

The following will be initiated to support the above:

- The Danish Environmental Protection Agency will carry out projects to develop, test and promote the use of IPM methods on golf courses to minimise the negative impacts of plant protection products from operating golf courses.
- The Danish Environmental Protection Agency will carry out information campaigns about IPM aimed at the greenkeepers and other players in the sector, such as executive managers, boards and players.
- The Danish Agricultural Agency will continue its risk-based inspection of golf courses.
- The Danish Environmental Protection Agency will monitor developments in plant protection product use on golf courses through annual estimates of plant protection product loads in accordance with the revised load ceilings in the Golf Courses Statutory Order (*golfbekendtgørelsen*), where relevant.

Public areas

Initiatives will be launched to help maintain the objective of the political agreement to phase out of the use of plant protection products in public areas, as well as initiatives to support continued efforts to combat invasive plant species.

The following will be initiated to support the above:

- There will be continued focus on reducing the use of plant protection products in public areas.
- The Danish Environmental Protection Agency will monitor developments in plant protection product use in public areas. The next status report will concern 2024 and will be drawn up in 2025.
- The Danish Environmental Protection Agency will implement an initiative concerning management of sports grounds without the use of plant protection products.
- The Danish Environmental Protection Agency will carry out initiatives to assist municipalities in their continued efforts to combat invasive species with reduced use of plant protection products.
- The Danish Agricultural Agency will launch a risk-based control programme reflecting the upcoming restrictions on the use of certain plant protection products on very permeable surfaces or sealed surfaces and certain types of recreational grass areas.

Private gardens

The Danish Environmental Protection Agency provides information via its website on how private garden owners can choose other methods than plant protection products to combat weeds, moss in lawns and pests, and also provide information about authorised plant protection products for use in private gardens.

The following will be initiated to support the above:

- There will be continued focus on reducing the use of plant protection products on private land.
- The Danish Environmental Protection Agency will continue to provide guidance via its website on authorised plant protection products for use in private gardens. The Agency will also continue its provision of guidance on weed control and the use of alternative methods for weed control.
- The Danish Environmental Protection Agency will make annual calculations of sales of plant protection products to non-professionals and will publish this data in the annual pesticides statistics.

Annex 1: The text of the Political Agreement

Political agreement on plant protection products strategy 2022-2026

The Danish Government and Denmark's Liberal Party, the Danish People's Party, the Socialist People's Party, the Danish Social-Liberal Party, the Danish Red-Green Alliance, the Conservative People's Party, New Right, Liberal Alliance, and the Christian Democrats have agreed on a plant protection products strategy 2022-2026 and an associated action plan.

The parties to the agreement (the Parties) recognise that Denmark has worked hard to reduce the use of plant protection products and that, in an EU context, Denmark is among the leaders in the plant protection products area.

The Parties have agreed that Denmark should continue as an international front-runner in the production of safe food and the Parties aim to build on this basis. The Parties have agreed to set the direction for a cleaner environment with less impact from plant protection products. This direction is to provide agriculture with stable conditions for production, bolster healthy crop production, and strengthen the protection of the environment, including the aquatic environment, groundwater, biodiversity, human health and food safety.

The deployment of new technology could potentially in the future reduce the use of plant protection products further and constitute a paradigm shift in plant protection products regulation in Denmark. The Parties have agreed that the primary objective of the strategy is to achieve record-low negative impacts from plant protection products use. The goal is to use plant protection products as little as possible, and to ensure that the plant protection products that are used have the lowest possible loads. Furthermore, the level of plant protection product residues in food must be as low as possible, and initiatives must be implemented to support the continued use of untreated groundwater for drinking water.

The strategy covers all users of plant protection products, including the agricultural sector, golf courses, public authorities and private garden owners, as well as consumers, food enterprises and plant protection products retailers.

Five focus areas and selected major initiatives

The initiatives in the new plant protection products strategy (action plan) will be implemented in five focus areas.

1. Record-low plant protection product load
2. Strict practice for authorisation in order to protect groundwater
3. More targeted control
4. Research in and promotion of alternatives to plant protection products
5. Promotion of good farming practices (Integrated Pest Management)

A presentation of each focus area, as well as a list of all the initiatives under each focus area are conveyed in the action plan.

The Parties have agreed to highlight the following major political initiatives in the action plan.

Adaptation of taxes and stricter target:

The previous agreement had a target to reduce sales by 40% of the figure for 2011 sales. In order to achieve record-low plant protection products load, the Parties have agreed to set a Pesticide Load Indicator (PLI) target of 1.43 based on sales figures for 2025. This will be evaluated in 2026. This gives a further reduction of 27%.

As a means of achieving the target, the plant protection products tax will be restructured to make it more attractive to use plant protection products with low impact on environment and human health. A revenue-neutral restructuring of the tax will be made, with a reduction in the basic tax to DKK 20 per kg of active substance and an increase in the load element to DKK 140. The Parties note that this restructuring of the tax is likely to have significant influence on plant protection product loads and they understand that they will have to vote for the required amendment in the Plant Protection Product Tax Act (*Bekæmpelsesmiddelafgiftsloven*) to implement the agreed tax restructuring.

The Parties also note that it is expected that a ban on using glyphosate as harvest aid will also help achieve the target. Furthermore, the Parties note that also setting aside land under the *Agreement on the green transition of Danish agriculture*, will provide an additional contribution to achieving a goal of a PLI of 1.43, and that this initiative is outside the agreement on a plant protection products strategy 2022-2026.

The Parties agree that the green transition of agriculture in the years to come will be in parallel with significant technological and structural developments that will reduce plant protection product loads even further. Therefore, an evaluation will be made of developments in the relevant parameters by 2025, including agricultural area, and organic area, the deployment of precision technology and stockpiling effects, good farming practices by applying integrated pest management (IPM) principles, reduction in the use of substances of very high concern, as well as additional potential tools that will be collated in a catalogue of tools with a view to identifying the potential for establishing a more ambitious target with specific initiatives up to 2030.

Promotion of organic farming:

The Parties have also agreed that organic farming is an important tool to reduce plant protection product loads, and in this regard, they point to the objective about supporting the goal to contribute to doubling the area under organic production in the *Agreement on the green transition of Danish agriculture*. The Parties have agreed that developments in the area farmed organically and the significance of these for the reduction in plant protection product loads is to be calculated and published in the annual pesticides statistics. An increase in conversion to organic farming as a consequence of the *Agreement on the green transition of Danish agriculture* will contribute to a lower PLI and restructuring the plant protection products tax is expected to contribute to this conversion to organic farming, as a reduction of the basic tax will favour organic farmers.

Deployment of precision spraying:

The deployment of precision technology could potentially reduce the use of plant protection products further and constitute a paradigm shift in plant protection products regulation in Denmark, including promote good farming practices via a change to need and precision spraying in order to avoid double spraying, for example. Therefore, the Parties have agreed that, before the end of 2022, an analysis will be completed of the opportunities and limitations in promoting the deployment of precision spraying, including possibilities to set mandatory requirements. Furthermore, there will be an assessment of the use of closed transfer systems and how these can reduce plant protection product loads. The Parties will discuss the results of the analysis when it has been completed.

Ban on using glyphosate as harvest aid:

The Parties has an ambition to reduce the use of glyphosate in Danish agriculture. Therefore, the Parties have agreed to prohibit using glyphosate as harvest aid in animal feed crops in line with the recommendation in the agriculture sector's voluntary action plan to reduce glyphosate. This ban is expected to contribute to lower plant protection product loads and it follows up on a ban already introduced against using glyphosate as pre-harvest aid in crops intended for human consumption. The Parties have agreed that pre-harvest patch spraying against perennial weeds is still possible in order to minimise use after harvest. The Parties have also agreed that developments in other agricultural uses of glyphosate, including in particular for desiccation, will be monitored closely in light of the agriculture sector's voluntary action plan to reduce glyphosate.

Furthermore, the Parties have agreed to conduct an analysis to illustrate the environmental and financial consequences of using herbicides containing glyphosate for desiccating crops in order to consider possible regulation to reduce unnecessary use of glyphosate for desiccation but taking into account the need to use glyphosate for no-tillage farming.

Authorisation of microbial plant protection products:

The Parties have agreed that there is a need for more focus on accelerating authorisation of microbial plant protection products as an alternative to chemical plant protection products. The Danish Environmental Protection Agency aims to have resolved case-backlog challenges by 2023. The Danish Environmental Protection Agency is determined to reach this goal, in particular with regard to the microbial products. The Parties will be kept informed of progress.

The Parties have also agreed that Denmark must work actively in the EU to promote approvals of active substances for microbial plant protection products.

Better groundwater protection: Strengthening the PLAP:

The Danish Pesticide Leaching Assessment Programme (PLAP) makes it possible to test the model calculations of leaching to groundwater that constitute the primary basis for authorisation of plant protection products in Denmark. The Parties want to strengthen Danish groundwater protection and have agreed to allocate an additional DKK 11.6 mill to the PLAP compared with the previous strategy in order to increase the number of tests of relevant substances and thereby ensure a more robust authorisation system. Monitoring results from the PLAP supports the restrictive approach to authorisations of plant protection products in Denmark and contributes to enhancing protection of the groundwater.

Enhanced control:

The Parties want to support and enhance the existing targeted and risk-based control of infringements in the plant protection products area. Therefore, the Parties have agreed to an increase in funding of 40% compared with the previous strategy to control plant protection products at users, sales outlets and the customs service. This will strengthen control and reduce the number of infringements of the regulations, including focus on unlawful use of plant protection products constituting a particular threat to drinking water.

As part of the targeted risk-based control programme, the Parties also want to extract and analyse samples from spraying equipment, if this is considered relevant for the specific inspection visit.

Other selected initiatives:

Furthermore, the Parties highlight that they have agreed:

- To allocate funds to continue the scheme for innovation farms to test new solutions to promote good farming practices by applying the principles of integrated pest management (IPM).

- To monitor closely use of substances of very high concern, and calculate and publish this annually. In this context, an analysis will be completed to identify possible alternatives, and the results will be submitted to the Parties and the sector.
- To calculate annually pesticide loads, broken down between animal feed and food for human consumption.
- To allocate funds to continue the subsidy scheme for alternatives, in particular to develop and authorise alternatives to chemical plant protection products and prevent the need for derogations.
- That the Ministry of Environment is to enable the sector to prevent the need for derogations by providing the sector with information about upcoming EU bans on active substances.
- That Danish Environmental Protection Agency will apply the stricter practice for derogations on the basis of EU guidelines issued in March 2021.
- That the Parties will annually receive a status for derogations granted by the Danish EPA pursuant to Article 53 of the Plant Protection Products Regulation.
- That Denmark will work actively in the EU for a more restrictive and holistically oriented authorisation procedure in which consideration for the different routes of exposure, combination effects, as well as acute and sub-lethal risks are assessed.
- That Denmark will work actively in the EU for a ban against seed imported from countries outside the EU that has been treated with non-authorised products.
- That calls for applications under the Pesticides Research Programme will give higher priority to applications for research on how the costs of negative impacts of plant protection products use on the environment, human health and nature can be estimated and included to improve the proportionality in assessments of the societal costs of using plant protection products as opposed to farming organically.
- That focus on biodiversity has higher priority in calls for applications under the Pesticides Research Programme, including in particular higher priority for research to identify whether there is data to develop a field nature index to clarify the contribution of fields to nature and biodiversity in light of plant protection products use, crop rotation, etc. This could be in the form of a research project to investigate possible indicators for biodiversity in fields.
- That focus on no-spray buffer zones, consequences for neighbours and prevention of the risk of spray drift into houses have higher priority in applications under the Pesticides Research Programme.
- That the possibilities to expand the load indicator (PLI) in the future should be explored. Today, the following environmental indicators are included in the calculation of environmental impact load: 1) short-term effects on birds, 2) short-term effects on mammals, 3) short-term effects on fish, 4) short-term effects on earthworms, 5) short-term effects on bees, 6) short-term effects on daphnia, 7) short-term effects on aquatic plants, 8) short-term effects on algae, 9) long-term effects on earthworms, 10) long-term effects on fish and 11) long-term effects on daphnia. An analysis will be initiated to examine the possibility to include also long-term effects on birds and mammals and thereby make the assessment more robust.

In addition to this, the Parties note that there is continued focus on reducing the use of plant protection products on public and private areas.

Annually, the Parties will receive a briefing about the status of the initiatives implemented under the action plan. When the agreed analyses have been completed, the Parties will meet to discuss any initiatives.



Ministry of Environment - The Department
Slotsholmsgade 12
1216 Copenhagen K

www.mim.dk