

Application techniques for plant protection products for professional use



Evolutions and mentions on plant protection product authorisations

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This guide is for information purposes only and cannot be considered separately from the legislation in force. Despite the great care taken in drafting this guide, inaccuracies may still occur. The FPS Public Health, Food Chain Safety and Environment cannot be held responsible for any damages resulting from the use of this guide.

Other federal or regional regulations in force relating to plant protection products remain unaffected.

Plant protection products can only be placed on the market and therefore used if they are authorised. The reference site in Belgium for consulting authorised products and their conditions of use is phytowebe.be.

When using plant protection products, the instructions for use and all other information relating to precautionary measures must be followed. These can be found on the label and the optional leaflet and are based on the authorisation certificate.

Authorisations are granted after careful examination of each application. Applications for new authorisations are submitted by plant protection companies. Applications for extensions to crops other than those already authorised or for new pests, may be submitted by plant protection companies or by representatives of sectors or producer associations.

Various legislations (European, federal, regional) or future initiatives emphasise the reduced and rational use of plant protection products and the promotion of integrated pest management. Some examples are listed below:

Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market:

Article 3 18) «Good plant protection practice» means a practice whereby the treatments with plant protection products applied to given plants or plant products, in conformity with the conditions of their authorised uses, are selected, dosed and timed to ensure acceptable efficacy with the minimum quantity necessary, taking due account of local conditions and of the possibilities for cultural and biological control.

Directive 2009/128/EC establishing a framework for Community action to achieve the sustainable use of pesticides:

Article 14: Member States shall 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 among those available for the same pest problem.

Decree of the Walloon Government of 10 November 2016 on integrated pest management and the ministerial decree of 26

January 2017 implementing the decree of the Walloon Government of 10 November 2016:

- Specifications for “major crops.” For example, calculate the precise quantity of product and spraying solution needed to avoid any incorrect dosages and leftovers.
- Specification for “ornamental crops.” For example, where possible, preference should be given to directed or localised applications, such as foliar herbicides, seed coating, ... Implement crop-growing practices that contribute to the responsible and limited use of pesticides.

Decree of the Flemish Government of 5 December 2014 on the application of integrated plant protection by professional users of plant protection products determines how Flemish farmers and horticulturists must apply integrated pest management.

The eight general principles to be applied in the context of integrated pest management are set out in Annex III to Directive 2009/128/EC.

In particular, Principle 6: *« The professional user should keep the use of pesticides and other forms of intervention to levels that are necessary, e.g. by reduced doses, reduced application frequency or partial applications, considering that the level of risk in vegetation is acceptable and they do not increase the risk for development of resistance in populations of harmful organisms».*

In order to specify these eight principles, sector-specific guidelines have been developed in collaboration with the different sectors. These eight general principles have served as the basis for drafting guidelines for the various plant sectors. These directives represent the minimum to be achieved to satisfy the integrated management. To ensure that the professional user of plant protection products is in compliance with these directives, a checklist has been developed to verify whether sufficient effort has been made. To ensure optimal uniformity across the different crop sectors, checklists have been developed for six crop sectors: field crops, forage crops, outdoor and under protection vegetable crops, fruit crops and ornamental crops.

For non-agricultural uses of plant protection products, the implementation of integrated pest management is regulated by the decree on sustainable use of pesticides and the related decrees.

Decree of the Government of the Brussels-Capital Region of 30 May 2024 regarding the application of the general principles of integrated pest management, amending the Decree of 16 July 2015 on the storage and handling of plant protection products and the management of their waste by professional users and repealing the Decree of 10 November 2016 on the pesticide application plan in public areas.

The aim of this decree is to provide a more robust framework for the practices of professionals involved in agriculture and the management of parks and gardens, in line with the principles of ecological management which favour good cultivation practices, the reinforcement of agro-ecological infrastructures favourable to beneficial insects, alternative methods to pesticides, and limit the use of chemical products as a last resort.

Decree of the Government of the Brussels-Capital Region of 6 June 2024 regulating the sale of plant protection products and laying down the conditions for the operation of dedicated stocks, amending the Decree of the Government of the Brussels-Capital Region of 4 March 1999 laying down the list of class IB, IC, ID, II, and III pursuant to Article 4 of the Decree of 5 June 1997 on environmental permits, and amending the Decree of 16 July 2015 on the storage and handling of plant protection products and the management of their waste by professional users.

From June 2025, only the use of products officially recognised as “low risk” will still be authorised in the Brussels-Capital Region. Specific measures are foreseen for farmers, who will benefit from a transitional period until 2030, and will still be able to use products authorised for organic farming after this date. Derogations will still be possible.

With regard to standards for the efficacy of plant protection products, the following documents from the European and Mediterranean Plant Protection Organization (EPPO) can be cited:

- **Standard under development:** Efficacy evaluation of herbicides used with mechanical weeding. Mechanical weed control by burying, mowing, or hoeing/harrowing. The mechanical approaches can be integrated with pre- or post-emergence herbicide use conducted as a generalised treatment, within crop rows or between crop rows.
- **Definition of codes for Good Agricultural Practice.** Treatment between rows (3BROWM), ...
- **Dose expression PP 1/239** (standard already in force). Applications between rows, in the row or in band: ... ha of treated band, row/inter-row area.

The service Plant Protection and Fertilising Products and the Authorisation Committee for Pesticides for Agricultural Use support initiatives to promote the development of new application techniques for plant protection products and their adoption by users. Applications for authorisation or extension for optional or mandatory uses of such new techniques (or for reductions not involving new techniques) may be submitted, as well as data to validate exposure reductions where claimed (if necessary).

In the meantime, the service Plant Protection and Fertilising Products and the Authorisation Committee would like to take this opportunity to recall some notions relating to the correct use of plant protection products and to explain the possibilities already allowed under current authorisations in the context of techniques that reduce the area treated.

1. Uses authorised for treatment of the entire parcel (generalised treatment)

In the case of a generalised treatment, the products may be applied to the entire surface of the parcel unless otherwise specified.

Optionally, these products can also be applied to a smaller area than the whole parcel. This is the case, for example, with all band spray application systems (application directed towards the row of the crop or between the rows of the crop) provided that the conditions set out on the authorisation certificate are met and that the dose applied corresponds to the dose per hectare reduced to the surface area actually treated.

As an example, if a product is authorised at a dose of 1 L/ha and a spray treatment is planned on only 40% of the surface area of a 1 ha parcel, the maximum quantity that can be applied on the surface area actually treated (i.e. 0.4 ha) is 0.4 L. The applied dose will be 0.4 L per 0.4 ha treated, which corresponds to the authorised dose of 1 L/ha. In this way, the maximum dose of 1 L/ha is respected on the treated area, which is reduced to 40% of the parcel.

This localised application technique enables the dose and efficacy of the treatment to be maintained at the target level, while reducing the total amount applied to the parcel. In this way, the risk of resistance development is not increased and the pressure on the environment is reduced. The service Plant Protection and Fertilising Products and the

Authorisation Committee therefore encourage users to reduce the area treated wherever possible.

Authorisation holders are encouraged to provide such advice to users through their product labels. This advice can also be communicated through other means of communication and by other stakeholders in the sector (research centres, etc.).

Conclusion

If a product is authorised for treatment of the entire parcel (generalised treatment):

This product can also be applied to a smaller surface area than to the entire crop (band spraying, spraying using sprayers with detection algorithms that identify and treat only the targets, etc.), provided that the conditions set out in the authorisation certificate are met and that the dose applied corresponds to the dose per hectare based on the surface area actually treated.

In this case, as with products authorised for use on the entire parcel, it is forbidden not to comply with the conditions set out in the authorisation certificate, and therefore prohibited, among others:

- To apply this product on a crop for which it is not authorised,
- To apply this product on a crop for which it is no longer authorised,
- To apply a higher dose than the authorised dose,
- To increase the number of applications of the product compared to the number of authorised applications,
- To deviate from the authorised stage of application or the period between the last treatment and harvest.

2. Uses authorised only for localised treatment

The term “localised treatment” covers a wide range of situations in terms of the technology used. A low-tech “localised treatment” may involve applying the product with a knapsack sprayer / hand-held applicator. A high-tech “localised treatment” may involve depositing a granule in the planting hole / furrow / ridge, using a ramp with automatic section cut-off or

nozzle by nozzle closure, in combination with a GPS system, sensors, satellite imagery, field mapping, weed recognition camera, etc. (precision agriculture), or even an automated localised application on the parcel. Authorisations certificates may contain a variety of restrictions.

Restrictions on location

Certain authorised uses of products impose a restriction of the “spot treatment” type. Then, depending on the case, the user may only be allowed to treat a portion of the crop or parcel. For example, only spots or islands (of weeds, for instance) occasionally present in the parcel may be treated, so the restriction relates to a surface area on the ground. The application of certain products can also be limited in the sense that only a specific height of the plant can be sprayed (for example, to treat only the foliage). In certain situations, it may be necessary to treat an inter-row area using a shield to avoid contact with the crop, or to target the crop only, leaving the area between the rows untreated (“Band or row/inter-row application” according to EPPO).

As described on <https://fytoweb.be/en/guide/crop-protection/guidance-environmental-fate-and-behaviour>, the risk assessment for human health and the environment has been conducted as if the restriction "max. 40% of the total crop area can be treated" was present in the authorisation certificate (more critical exposure scenario than recommended practice, to cover all situations).

Special case (different from row/inter-row treatments): “strip crops.” As described on <https://fytoweb.be/fr/produits-phytopharmaceutiques/consulter-autorisations/utilisation-des-produits-phytopharmaceutiques>, these are two or more crops in alternating strips that are intended to be harvested or used as a cover/source of beneficial organisms.

- 1. When treated within strips, the crops can be considered as separate crops. They can be treated individually with a product authorised for the target crop without affecting other adjacent crops.*
- 2. If treated across strips, the product must be authorised on all crops presents. Treatment may only be performed with a product that has been authorised in all harvested or grazed crops, provided that the application stages correspond. The lowest dose and the most stringent risk mitigation measures should be applied.*

Restrictions on quantity

In contrast to the above situations where the limitation is not explicitly quantified, within the authorisations, certain uses may mention a restriction/remark relating to the size of the area that can be treated, for example: "For the localised destruction of the grassland before partial renewal" or "max. 30% of the total area of the crop may be treated". In this case, the reduction of the treated area is mandatory, and the dose (quantity of product per unit of area treated) specified in the authorisation must be respected. A generalised application is therefore prohibited for these uses and the size of the area that can be treated is limited. This restriction is usually put in place to reduce an identified risk to human health or the environment to an acceptable level.

Example: the authorised (approved) dose is 1 l/ha of treated area and only 30% of the total area can be treated. This means that on a parcel of 1 ha, only 33 ares can be treated and this at a dose of 1 l/ha, it is forbidden to treat more than 33 ares.

Restrictions related to application material

Some authorisations include a requirement regarding the application equipment to be used. This may be due to optimised or mandatory positioning of the product to ensure its efficacy or to avoid phytotoxicity. Alternatively, a limitation may also be mandatory to reduce an identified risk to human health or the environment to an acceptable level. In these cases, the use assessment has been carried out taking into account the specific equipment. Moreover, the following conditions have been previously verified:

- The technique or technology must be available and widely used. Ideally, the compatibility between the user's equipment and the type of application prescribed in the authorisation certificate should be verified at source, i.e. when the product is purchased. The service Plant Protection and Fertilising Products is therefore examining the possibility of the phytolice mentioning the type of material available to the holder of each phytolice.
- The technique or technology must be realistic and practical. Expensive measures or equipment that may, for example, result in a loss of comfort for the user should be avoided as far as possible.
- The technique or technology must be controllable. During an inspection, the user must be able to demonstrate that the equipment allows the application of the product in accordance with the restriction.

Certain restrictions on application materials also involve low-tech techniques, such as brushes, or higher-tech techniques, such as wick applicators or micro granulators. These restrictions are indicated on the authorisation certificate. This restriction procedure allows an authorisation to be granted, for example, when the type of formulation is related to the application material (for micro-granules requiring specific application equipment, etc.).

For spray-applied products where a specific technique or technology is required to reduce an identified risk to human health or the environment to an acceptable level, the authorisation holder shall, when submitting the application for his product, provide a formal guarantee that only techniques or technologies with an acceptable risk to health or the environment will be used in order to exclude generalised spraying. This guarantee is a sine qua non for these specific techniques or technologies to be considered in the evaluations submitted to the Authorisation Committee for Pesticides for Agricultural use. A declaration of intent does not constitute a guarantee. A guarantee consists at least of a concrete action plan with monitoring of the results and submission of a follow-up report to the competent authorities.

Specific case of drones: Products currently authorised for generalised or localised treatment can be used with precision techniques, except for drones. The products authorised so far have not been evaluated using a methodology that can be extrapolated to a drone application. Drone application is also always considered an aerial application. It is therefore prohibited unless an exemption is granted (cf. Annex 1 of the Royal Decree of 13 March 2013 to achieve a use of plant protection products and adjuvants compatible with sustainable development).



Drones in flight and on the ground (photo's: ASBL Corder)

Conclusion

If a product is only authorised for spot treatment:

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This product must be applied with the type of material specified on the authorisation certificate. If the technological innovations correspond to this type of equipment, they can be used, provided that the conditions laid down in the authorisation certificate are met and that the dose applied corresponds to the dose per hectare based on the area actually treated.

In this case, as with products authorised for generalised treatment of the parcel, it is forbidden not to comply with the conditions laid down in the authorisation certificate and it is therefore prohibited, among other things:

- To use any other type of equipment which does not comply with the conditions of the authorisation, or which does not allow the conditions of the authorisation to be met,
- To apply this product on a crop for which it is not authorised,
- To apply this product on a crop for which it is no longer authorised,
- To apply a higher dose than the authorised dose,
- To increase the number of applications of the product compared to the number of authorised applications,
- To deviate from the authorised stage of application or the period between the last treatment and harvest.

Some examples of application equipment that allows less exposure to humans or the environment:



Precision sprayer for ultra-localised detection and spraying (nozzle spacing of 8.8 cm) of Rumex in grassland (photo: Walloon Agricultural Research Centre)



Standard sprayer equipped with multispectral sensors to identify and locally treat weeds in the crop, pulsation nozzle spacing of 50 cm (photo: Walloon Agricultural Research Centre)



Spraying modules with detection algorithms distinguishing the weeds from the crop and allowing ultra-localised spraying, nozzle spacing of 4 cm (photo: Walloon Agricultural Research Centre and ASBL Corder)