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Draft protocol for the evaluation of emergency authorisations of herbicides, soil fumigants, nematicides and other pesticides not covered by related protocols, submitted under Article 53 of Regulation (EC) No 1107/2009

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Abstract

The protocol provides a structured approach for evaluating emergency authorisations of herbicides, soil fumigants, nematicides not covered by other protocols under Article 53 of EU Regulation 1107/2009. It aims to standardise the evaluation of emergency authorisations, prioritise sustainable alternative solutions and ensure compliance with overarching EU strategies. Flowcharts were developed to harmonise the evaluation and to provide a structured evaluation process. A key aspect of the protocol is its flexibility to accommodate various emergency situations. The protocol includes provisions for more comprehensive evaluation in cases involving products with a less favourable profile, while considering the availability of alternative chemical and non-chemical control methods. It underscores the importance of transitioning from emergency authorisation to regular authorisation processes. Additionally, the methodology includes recommendations for repeated authorisations and the establishment of spatial and temporal conditions and restrictions of use. A central focus of the protocol is on fostering sustainable, long-term solutions in case of repeated authorisation requests. By aligning with regulatory frameworks and integrating stakeholder feedback, the protocol aims to improve transparency and efficiency in addressing emergency situations that cannot be managed through other reasonable means.

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Summary

Emergency authorisations[1] are critical tools allowing the time-limited use of pesticides in situations where the emergency cannot be managed by other reasonable means. This protocol offers a detailed framework for assessing emergency authorisations of herbicides, soil fumigants, nematicides and other pesticides not covered by related protocols under Article 53 of EU Regulation 1107/2009. It is designed to ensure that decisions are made consistently, transparently, and efficiently, while aligning with the European Union's broader strategies for sustainability and biodiversity in agriculture. The methodology of the protocol is built around flowcharts that guide competent authorities through the assessment process.

Criteria are set to examine the availability and suitability of available control methods, both chemical and non-chemical. Central to the protocol is its adaptability to various emergency circumstances in relation to the pest status and the hazard/risk and approval status of the examined PPP, tailoring the requirements on the specific context.

Alternative control methods are thoroughly assessed for their potential to serve as long-term solutions. The protocol provides a framework for evaluating their effectiveness and feasibility, noting that only those rated highly in both areas are considered suitable alternatives. The evaluation of eligibility is required to be performed at the national level due to the significant influence of local agro-environmental and socio-economic conditions. An EU-wide inventory of alternative solutions supporting the assessment is available as supporting information. Another essential part of the evaluation is the determination of whether other chemical control options are available. Emergency authorisation is only granted when no viable alternatives exist, or when existing solutions are unsatisfactory. The document details scenarios where emergency use may be granted for resistance management.

The methodology promotes transitioning to regular authorisation pathways. If regular authorisation is foreseeable, emergency approval can serve as an interim solution. The protocol addresses the management of repeated authorisations. When repeated emergency requests occur, applicants are expected to submit structured, time-bound action plans showing their commitment to long-term solutions. These plans should be monitored and adjusted as necessary to ensure a continuous progress. In cases where multiple emergency requests are submitted for the same emergency situation, an assessment by comparison is required to identify the most suitable solution; however, more than one grant may be accepted when the PPPs offer complementary benefits.

Authorisation decisions must define restrictions regarding the timing, location, and method of use. The protocol outlines additional conditions authorities may impose, such as implementation of non-chemical methods alongside emergency PPPs or the submission of post-authorisation monitoring data.

Overall, implementing this protocol is expected to strengthen the EU's capacity to respond to agricultural emergencies effectively and advance sustainable practices.

[1] Granted under Article 53 of Regulation (EU) 1107/2009

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1 Introduction

1.1 Background and terms of reference

The European Commission has tasked EFSA PLANTS Unit with developing fit-for-purpose protocols to assess emergency authorisations granted under Article 53 of the Pesticide Regulation (EC) No 1107/2009. This initiative includes protocols for insecticides and acaricides, fungicides and bactericides, as well as herbicides, nematicides, molluscicides, rodenticides and other types of pesticides not covered by other protocols for emergency authorisation. The protocols should ensure that emergency authorisations granted under Article 53 are not in contradiction with the goals of the EU Biodiversity and Farm to Fork strategies. In line with EFSA's commitment to openness and transparency, activities such as workshops and stakeholder events, either online or in person, were effectively organised. These initiatives collected feedback on the existing related protocols, gathered informed input concerning the criteria for assessing emergency situations, and sought perspectives on the availability and applicability of alternative methods. The insights obtained are considered in the development of the current protocol.

1.2 Outline of the scope of the current protocol and the resulting benefits

The protocol is designed to offer guidance to MS when processing an emergency authorisation request. It articulates the provisions of the GUIDANCE ON EMERGENCY AUTHORISATIONS ACCORDING TO ARTICLE 53 OF REGULATION (EC) No 1107/2009 (SANCO/10087/2013 rev. 1), a document that is currently under review. The protocol is more explicit and specific in its detail than the corresponding guideline, establishing a more structured set of procedures leading to direct actions that can be followed by the competent authorities. The protocol utilises flowcharts which guide evaluators through specific steps towards a decision. Although its main focus is to provide assistance to MS, it is accepted that it can be a good starting point when an application dossier is prepared, as it offers valuable insights on the information that is required.

The current protocol is applicable to herbicides, nematicides, molluscicides, rodenticides, plant growth regulators, desiccants, soil fumigants and other pesticides not covered by other related protocols[2]. The protocol is expected to provide a clear and standardised framework for assessing emergency authorisation requests, ensuring that decisions are made in a timely, transparent and consistent manner minimising delays and uncertainties. Furthermore, the protocol will promote transparency by clearly outlining the criteria for emergency authorisation and the procedures for evaluating applications.

[2] Protocol for the evaluation of emergency authorisations of insecticides and acaricides submitted under Article 53 of Regulation (EC) No 1107/2009 and Protocol for the evaluation of emergency authorisations of fungicides and bactericides submitted under Article 53 of Regulation (EC) No 1107/2009 (https://efsa.onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2026.EN-9905)

1.3 General principles considered in the development of the protocol

1.3.1 Consideration of alternative control methods, including Integrated Pest Management

In the context of the current protocol, the transition to safer plant protection solutions is encouraged through the following methodological considerations:

- Establishment of an inventory with preliminary information on alternative to chemicals control methods tailored to specific crop protection needs against weeds, nematodes, rodents and terrestrial gastropods in several crops. The collected information serves as a reference point for competent authorities in the grading of available alternative control methods regarding effectiveness and feasibility.
- Adaptation of evaluation criteria within decision-making flowcharts for emergency requests, taking into account the profile of the examined product/active substance.
- Conditional granting of emergency authorisations, which may be associated with the implementation or development of specific alternative control methods.

1.3.2 The Importance of Time Efficiency in the Process

Often, emergency authorisations are requested in response to urgent situations requiring prompt actions. To support the need for immediate intervention, the following procedural aspects have been integrated into the proposed methodology:

- Priority-based flowchart structure: The structure of the flowcharts gives priority to the examination of parameters and conditions that are most likely leading to definitive outcomes.
- Optionality of non-impactful information: Information that does not modify the outcome can be treated as optional.
- Situation-specific decision timelines: The time required for concluding the authorisation is tailored to the specific situation under examination, e.g. fewer related steps for requests related to regulated pests.
- Preliminary evaluation (optional): Regulated quarantine pests require a distinct approach, as they often present one-time emergencies that necessitate immediate intervention. The same applies to non-regulated pests that normally do not pose a threat to crops but occasionally can cause a sudden outbreak and become a serious threat. In these instances, when time allows, it is useful to establish preliminary emergency pre-authorisations that can be enacted during an outbreak.
- Administrative completeness check (optional): Upon submission of an emergency authorisation dossier, Member States may choose to perform a preliminary administrative check to identify any missing information or insufficient justification.

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1.4 Confines of the document

The protocol is intended for a structured process to evaluate whether an emergency authorisation is justified. Whether the identified weed species or other pest organisms covered by this protocol qualifies as a 'danger which cannot be contained by any other reasonable means' in the specified situation, is evaluated in accordance with Article 53 of Regulation (EC) No 1107/2009. The document delineates most relevant agronomic and plant health considerations associated with the granting of emergency authorisations. Other aspects of concern, related to consumer safety and the protection of human and animal health or the environment, fall outside the scope of this protocol.

Before applying this protocol to assess the justification for an emergency authorisation, Member States should ensure that the request complies with all other requirements laid down in Article 53 of Regulation (EC) No 1107/2009, as interpreted by the relevant case-law of the Court of Justice of the European Union and the General Court.

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2 Methodology

2.1 Flowcharts for evaluation

The evaluation-support flowcharts are designed to guide competent authorities through the stepwise assessment process. The complete flowcharts are available in Appendix A. The evaluation procedure follows a structured sequence of steps, the number of which varies depending on the circumstances for which an emergency authorisation is examined. It is essential that the flowcharts be utilised in their entirety: partial or selective consideration of individual steps within the process is not recommended. The evaluation procedure may terminate at any step when conditions are not satisfied, resulting in the rejection of the application (i.e. no necessity to examine information pertaining to subsequent steps). The ordering of the steps within the flowchart prioritises those likely to lead to definitive conclusions. This ranking should not be interpreted as an indication of preference.

A summary table compiling applied criteria and examined aspects as well as the conditions and restrictions on emergency authorisation grants is provided in Appendix B. Detailed analysis is covered in Sections 2.4-2.10.

2.2 Recognition of the threat for which emergency authorisation is requested

The emergency situation must be associated with a specific weed or other relevant pests or a narrowly defined group of weed species, plant-parasitic nematode, rodents or other organism with similar biological traits, which belongs to the same taxonomic group. The species within the group should be effectively confined using the same control tools. Emergency authorisation can be associated with a specific crop. However, crop groups could also be considered, if scientifically justified e.g. solanaceous crops (e.g. tomatoes, eggplants, peppers) for the polyphagous plant-parasitic nematodes *Meloidogyne* spp. Examples of eligible and not eligible groups in emergency authorisations are presented in Tables 1a (herbicides), 1b (nematicides),1c (rodenticides), 1d (molluscicides) and 1e (soil fumigants). The examples in the tables below demonstrate both grouping of pest species and crop species.

In case two (or more) distinct weed species or other relevant pests are concurrently acknowledged as emergency situations within the same crop or crop group, each species or group should be examined independently, even if both can be effectively contained by the same PPP.

Table 1a. Eligible and non-eligible pest/crop groups for consideration in emergency authorisation for herbicides

Eligible groups	○ Species of the same genus (spp.) for target weed species that are difficult to identify to species level at the early growth stages and often cause equal damage on the crop in question in terms of quantity and quality, e.g., *Matricaria* spp., *Brassica* spp., *Lolium* spp. Where significant interspecific variation in sensitivity to the active substance exists within a genus, determination of the exact weed species is necessary.

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Non eligible groups	○ Families, with species diversity on biology e.g. *Asteraceae*, *Brassicaceae* ○ Taxonomic groups higher than family, e.g. *Poales*, *Brassicales* ○ General categories of weeds, e.g. annual dicotyledons or monocotyledons or perennial dicotyledons or monocotyledons

Table 1b. Eligible and non-eligible pest/crop groups for consideration in emergency authorisation of nematicides

Eligible groups	○ A single nematode species occurring on several closely related crops and resulting in a defined damage pattern, e.g. Tylenchulus semipenetrans on citrus. In these circumstances, separate assessments for individual citrus crops are unnecessary when the same control measures are applicable to all crops within the group ○ Species of the same genus (spp.) for target nematodes that occur as species complexes and cause the same type of damage to the host crop, e.g. Meloidogyne spp., Globodera spp. can be grouped at genus level ○ Target pests for phytosanitary control, containment of quarantine pests as vectors of plant viruses e.g. Xiphinema americanum sensu lato complex and Longidorus diadecturus
Non eligible groups	○ Taxonomic groups higher than family, e.g. *Tylenchida* ○ General taxa of nematodes, e.g. plant-parasitic nematodes, root-infecting nematodes ○ Groups defined based on crop association rather than taxonomic relatedness, e.g. *Meloidogyne* affecting vegetables, *Pratylenchus* in fruit crops ○ Genera where species differ significantly in host range, damage and response to control measures, e.g. *Ditylenchus* spp., unless a clear crop- and use-specific justification is provided

Table 1c. Eligible and non-eligible pest/crop groups for consideration in emergency authorisation of rodenticides

Eligible groups	○ A single species or genus (e.g. *Microtus*) is associated with a defined crop group of similar sensitivity, where it causes the same type of damage
Non eligible groups	○ Broad rodent taxa associated with general crop taxa e.g. rodents in arable crops ○ Rodent genera or groups where species differ significantly in host range, damage and response to control measures unless a clear crop- and use-specific justification is provided

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Table 1d. Eligible and non-eligible pest/crop groups for consideration in emergency authorisation of molluscicides

Eligible groups	○ A single slug/snail species or genus associated with a specific host crop or a defined crop group of similar susceptibility to the pest, where it causes the same type of damage (e.g. *Deroceras reticulatum* or *Deroceras* spp. causing leaf damage in leafy vegetables or in arable crops)
Non eligible groups	○ Broad gastropod taxa associated with general crop categories e.g. *Gastropoda* in arable crops, slugs/snails in ornamentals ○ Slug/snail genera or groups where species differ significantly in host range, damage and response to control measures (e.g. omnivorous *Deroceras* spp. along with keeled slugs in arable crops) unless a clear crop- and use-specific justification is provided

Table 1e. Eligible and non-eligible pest groups for consideration in emergency authorisation of soil fumigants

Eligible groups	○ Specific species or genera of soil pests, e.g. *Verticillium dahlae*, *Heterodera* spp. associated with a specific host crop or a defined crop group of similar susceptibility
Non eligible groups	○ "All soil-borne pests", in general

2.3 Identification of the circumstances under which emergency authorisation is requested

The identification of the situation/circumstances for which an emergency request is applied for is prioritised within the evaluation framework for the selection of the suitable evaluation flowcharts. The aspects considered when identifying the circumstances under which emergency authorisation is requested are outlined below:

Hazard/risk and approval status of the active substance: Emergency authorisations may carry greater uncertainty than regular authorisations, as they are associated with a non-comprehensive evaluation process and decisions are relying on incomplete information. The magnitude of the uncertainty is associated with the status of the active substance in the PPP under evaluation. Within the framework of the present protocol, the active substances are categorised based on their approval and hazard/risk status, and different evaluation criteria are applied to each group. The level of required information and the robustness of the acceptability criteria follow this order: approved *low-risk active substances → approved active substances other than low-risk → non-approved active substances in the EU.*

For non-approved active substances, the associated uncertainties may also vary depending on the level of information that is available when the decision must be reached. The non-

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approved active substances may include substances which do not fulfil Annex II criteria of the Pesticide Regulation (e.g. previously approved active substances without renewal) or active substances with incomplete knowledge regarding their safety profile (e.g. newly introduced substances).

Risk status of the weed/relevant pest: Most emergency authorisations granted relate to non-regulated weed species/relevant pest. However, the need to control the introduction or spread of a regulated pest[3] may be considered an emergency situation. In such cases, an emergency authorisation is granted as part of a biosecurity contingency plan aimed at eliminating the high-risk pest and/or preventing its spread. Due to the urgency of the situation, the procedures followed should ensure a prompt resolution. In such cases, specific steps typically suitable for non-regulated pests are omitted.

Intended use in organic farming: Requests for emergency authorisations to be used only in organic farming, while not considered as a distinct situation within the current methodology, must nonetheless consider factors which are specific to this type of farming. For instance, chemical solutions are limited in organic farming while conventional farming has access to a broader range of options. A separate analysis may be required upon request for emergency authorisation of a PPP suitable for both conventional and organic farming.

2.4 Examination of the suitability of the product under evaluation to address the emergency situation

Scientific evidence or a rationale supporting that the product under evaluation can manage the identified threat is required in specific circumstances. The final decision on the suitability of the product examined is taken by the competent authorities, considering the evidence provided by the applicant and any other available information.

For products containing EU **non-approved** active substances, a reasoning grounded in solid evidence from field trials should be available, in case there is no previous experience with this active substance[4]. Data should demonstrate that the product can provide a satisfactory control of the target weed/relevant pest covered by this protocol when applied as intended i.e. same application dose and method of application. The trials should originate from MS or other geographical regions with climatic conditions similar to the MS in which authorisation is sought[5]. Studies conducted under GEP status are preferable, but efficacy can also be addressed with non-GEP compliant studies. Evidence from open literature can also be accounted for. There is no minimum number of studies that applicant should submit to fulfil this requirement. The decision on the completeness of the presented data package lies with the competent authorities, which should take into consideration the following aspects when deciding on the adequacy of the information:

- Any previous experience with the PPP on the same target e.g. if a repeated authorisation is requested and whether monitoring of the performance of the product

[3] Under Regulation (EU) 2016/2031.
[4] Field trials are not required when the PPP for which emergency authorisation is requested has been previously (regularly) authorised in the MS for the specific use (same pest-crop combination) and following the same application scheme (e.g. dose, method of application).
[5] Köppen-Geiger climate classification (http://koeppen-geiger.vu-wien.ac.at/) and relevant EPPO Standards (EPPO PP 1/241 and PP 1/269). For climate-independent uses (e.g. use in greenhouses and seed treatment) the entire EU is regarded as one zone.

under examination supports the claims of effectiveness and absence of adverse effects on the crop or crop produce.

- Any evidence with the use of the PPP on other similar weed/relevant pest covered by this protocol, where the product was used in the same way e.g. same application rate. The extrapolation of data should consider all related aspects, e.g. similar biological traits of the target weed/relevant pest.

Generally, the suitability of the product under evaluation associated with an EU approved active substance can be addressed relying on expert judgement and previous experience from the use of the product in the MS or in other regions with similar agronomic and climatic conditions. However, scientific data from field studies are necessary in the following situations:

- When a lower application rate is requested than standard/historic rate.
- When the intended method of application differs from those previously considered.

For regulated pests, it can be accepted that data on effectiveness/phytotoxicity in the MS or in other MS may be limited or unavailable. In such cases, experience/expert judgement can be sufficient. Any relevant information derived from a geographic area with different agronomic and climatic conditions can be acceptable.

2.5 Examination of availability and suitability of other PPP

The underlying principle for this part of the evaluation is that emergency authorisation may be substantiated only when no other PPPs are available, or the available PPPs are unable to provide a satisfactory control of the weed/relevant pest. The examination of the availability of PPPs may not be restricted to products available in the market at the time of application but can also encompass PPPs that may potentially become available shortly. The search for available PPPs can be EU-wide, where it is feasible. Given that regular authorisation is prioritised, the competent authorities may examine the possibility of mutual recognition (Article 40) of a product that is already authorised in another MS and investigate if other PPPs are presently undergoing evaluation as part of the regular authorisation process (i.e. under Article 33). A request for emergency authorisation can be declined in view of the anticipated availability of an appropriate PPP. The projected timeframe for the availability of the alternative PPP is the factor that drives the decision: if required, emergency authorisation may be granted for a restricted period until the alternative solution is available. It is highlighted, however, that exhaustive examination of alternative PPPs in other MS and checking of ongoing evaluations for authorisation may not be feasible. Thus, this step is set as optional and may be practised at a case-by-case basis.

In case PPPs authorised for the specific emergency situation are available, the examination of the **necessity clause** is triggered (see Necessity Chart in Appendix A). The necessity of emergency authorisation is established when the product under examination can potentially lead to more satisfying and consistent results compared to alternatives in relation with resistance management, beneficial attributes in effectiveness, the support of an established IPM programme. These considerations are detailed below.

2.5.1 Resistance management

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The use of emergency authorisations as part of a contingency plan where resistance has already occurred/evolved can justify an emergency authorisation (reactive anti-resistance management). The use of emergency authorisations as part of a proactive anti-resistance strategy is not foreseen. The relevant justification should be based on up-to-date information and a complete resistance analysis.

Delaying the development of resistance by rotating PPPs with different modes of action is a recognised anti-resistance strategy. It is relevant when there is scientific evidence for a shift in the sensitivity of the pest towards commonly used PPPs, which is reflected in a failure of the available PPPs to achieve the expected level of control, or a need for an increased number of applications for effective control. An emergency authorisation can be requested to combat and slow down the evolution of pesticide resistance if there is no authorised alternative product available. The product under evaluation should have a different MoA (HRAC, IRAC or other commonly agreed classification), show no cross-resistance with available PPPs, and present a low or moderate risk for resistance development. Exceptionally, PPPs containing an active substance with a high potential for resistance development may be accepted, but this possibility is examined only when PPPs having a lower risk for resistance are unavailable.

Provided that the abovementioned conditions are satisfied, emergency authorisation covering the whole MS or only designated geographic areas where resistance has been confirmed may be issued. The final decision on the geographic extension of the grant is reached after a thorough risk analysis and consideration of all interconnected factors, e.g. the extent of utilisation of preventative non-chemical methods that act as resistance modifiers. The decision report should provide clear instructions on how the product could be utilised in the context of an anti-resistance management strategy. Restriction can be related to the timing of application or to the implementation of specific preventative methods, particularly those which are recognised as modifiers of resistance development. Post-authorisation obligations of the authorisation holder may include monitoring of weed populations or other pest organisms covered by this protocol[6] to assess the effectiveness of the PPP rotation strategy.

2.5.2 Examination of beneficial attributes in relation with effectiveness

The necessity of the PPP under evaluation may be substantiated by considering its potential to offer a distinct advantage over existing solutions i.e. higher or more consistent level of control and longer duration of protection[7]. To substantiate this potential, a scientific rationale incorporating all available information should be presented by the applicant upon submission of the request and reviewed by the competent authorities.

Other beneficial attributes, relevant only for low-risk active substances or when the eradication/control of a regulated pest is required include:

- targeting different developmental stage of the pest or crop growth stage compared to alternatives,
- introduction of a novel method of application,
- suitability of the PPP as a mixing or alternation partner to already available PPPs.

[6] Post-authorisation monitoring is set as optional. Refer to Section 2.11 for more details
[7] Refer to Appendix B for more details

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2.5.3 Product is a component in an established IPM programme

The emergency authorisation procedure must ensure that already established IPM programmes are not interrupted or negatively affected by the unavailability of a PPP, where relevant. An emergency authorisation of the PPP, which is part of an established IPM framework, is possible for a period deemed adequate to facilitate efforts in identifying a suitable replacement. The emergency authorisation is applicable solely within the geographical area where the specific IPM programme is implemented and exclusively for growers adhering to this programme.

2.6 Examination of the eligibility of alternative control methods[8]

Although numerous alternative control methods for weeds/relevant pests have been explored globally, not all of them can be considered immediately operational. Alternative management tactics do not apply to all possible situations, meaning that there is no one-size-fits-all solution. An alternative control method (or array of interrelated methods or an effective IPM programme) can only be considered eligible when it is already practised by growers, or when the method has been experimentally validated for suitability under the specific environmental and agronomic conditions. Given the wide array of factors influencing the performance of alternative control methods, assessments concerning their effectiveness and feasibility are only meaningful when conducted at the MS level. A comprehensive analysis of the two aspects - effectiveness and feasibility - determining the eligibility of alternative solutions is presented in 2.6.2 and 2.6.3.

2.6.1 Inventory of alternative control methods that should be examined for their eligibility in managing the emergency situation

The examination of suitability of possible alternative control methods is a particularly laborious task. To prevent delays, the construction of an inventory of alternatives covering some of the most frequently encountered weed species, nematodes, rodents and terrestrial gastropods in emergency authorisations in the EU was initiated as part of the current work, and the outcome of this literature search is considered an integral part of the current document. The inventory can serve as a reference for competent authorities in the establishment of the eligibility of the alternative control methods (in terms of effectiveness and feasibility) in their MS. The alternative control methods analysed, along with the respective outcomes, are available in Zenodo under this link: https://zenodo.org/records/19048894

The efficacy and feasibility levels as listed in the inventory for different alternative methods are based on the results of the literature studies analysed. An evaluation of the time needed to reach full effectiveness and prerequisites are not included in the database as they are highly dependent on the conditions in the respective MS. Therefore, the efficacy and feasibility levels are only indicative.

The final decision on the efficacy and feasibility of a given alternative control method (or a combination of methods or IPM programme) rests solely with the experts of the competent authority in the MS where the application was submitted. This is justified by the fact that both

[8] See definition of alternative control methods in the Glossary

effectiveness and feasibility of each alternative intervention are heavily influenced by local agroeconomic and climatic conditions. Moreover, the viability of these methods can depend on specific technical or socio-economic factors unique to each MS.

2.6.2 Effectiveness

The evaluation of the effectiveness of an alternative control method may be different from that of a conventional PPP as the effects may be slower to develop. The evaluation can be achieved through a consolidation of evidence-based information and expert judgement. This can be related to previous experience from practical use in the MS and in areas with similar agroclimatic conditions or on the outcomes of monitoring the diffusion and success of established IPM programmes. It is important to collect information on the effectiveness of the alternative solution under relevant conditions and avoid extrapolating from vastly different conditions. Experience from other countries may be a good indicator of the success of a control method in a specific region, but it is not a guarantee, and, thus, a case-by-case examination is required.

Effectiveness of alternative control methods in this protocol is defined as the positive effects of the use of the method or the combination of methods in achieving the desired objectives (either control of the weed species/relevant pests or enhancement of crop growth or quantity improvement). The duration for which the method continues to be beneficial is considered a related feature. To facilitate the establishment of the level of effectiveness and ensure consistency in the decisions, four effectiveness levels are proposed (Table 2). Specific examples illustrating each effectiveness level are presented in Tables 3a and 3b for weeds and nematodes. Level 1 is included to enable evaluation of all methods identified in scientific literature, even if this level has no practical importance.

Setting fixed quantitatively defined thresholds that can apply to all situations is considered impractical. Thus, association of each effectiveness level to percentage-based thresholds is not considered in this document. However, the quantitative approach could be explored by MS when it is feasible.

Table 2. Effectiveness index for alternative control methods based on the best available knowledge and expert judgement

Effectiveness index	**Indexing criteria**
Level 1	The alternative control method/combination of methods/IPM programme is not effective.
Level 2	The alternative control method/combination of methods/IPM programme has low effectiveness.
Level 3	The alternative control method/combination of methods/IPM programme has moderate and/or variable effectiveness.
Level 4	The level of control (or benefit) of the alternative control method/combination of methods/IPM programme is satisfactory and consistent.

Effectiveness is considered as "not effective" – level 1 when the method/combination of methods/IPM programme has been tested under field conditions or in practice and failed

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to control the weed or other pest population or to reduce the damage to the crop/crop product compared to no treatment.

Effectiveness is considered as "low" – level 2 when the method/combination of methods/IPM programme has been tested under field conditions or in practice and showed a low control of the weed or other pest population or a limited reduction of the damage to the crop/crop product compared to no treatment.

Effectiveness is considered as "moderate" – level 3 when the method/combination of methods/IPM programme has been tested under field conditions or in practice and showed a moderate reduction of the weed population or other pest population or moderate reduction of the damage to the crop/crop product compared to no treatment. Effectiveness would also be classified at level 3 when the method/combination of methods/IPM programme has been tested under field conditions and showed inconsistent effectiveness.

Effectiveness is considered as "high" – level 4 when the method/combination of methods/IPM programme has shown a high and consistent level of control under field conditions compared to the PPP currently used in practice. High effectiveness may be reached with a single alternative control method or when alternative control solutions are combined within an IPM programme.

Table 3a. Examples of effectiveness levels 1-4 for alternative weed control methods. When methods are mentioned as examples for different efficacy levels, it is based on differences among the weed species to be managed. References are included as examples, but are not exhaustive *

Level 1	-In most perennial weeds, specific types of **primary tillage** or **mechanical weeding** increase the presence of new weeds by cutting the underground vegetative organs into small sizes. For this specific situation, this alternative method is not effective and should be avoided[9] -A sufficient, consistent, **allelopathic effect** of cultivated species has rarely been demonstrated based solely on chemical interaction and the efficacy depends on the weed species to control -**False/stale seed beds** have low (short) effect on species that germinate throughout the year (e.g. *Poa annua*)
Level 2	-Enhanced **crop competitiveness** (weed tolerance or weed suppression due to genetic differences or cultural practices to support crop growth) has low efficacy levels (e.g. Some wheat cultivars [10] provided higher weed suppression than others (mixed weed population), but only a few percentage points, yet significant). - **Cover crop**, e.g. Brassica species reduced the amount of *Abutilon theophrasti* with low efficacy in a consecutive crop[11]. Using rye as a cover

[9] Melander, B. and M. R. McCollough (2022). Advances in mechanical weed control technologies. Burleigh Dodds Science Publishing: 255-282.
[10] Drews, S., et al. (2009). Weed suppression ability of three winter wheat varieties at different row spacing under organic farming conditions. Weed Research 49(5): 526-533.
[11] Haramoto and Gallandt (2005). Brassica cover cropping: I. Effects on weed and crop establishment. Weed Science 53(5), 695-701

	crop, weed biomass, incl. *Abutilon theophrasti*, was reduced after terminating the cover crop with low efficacy[12]. **- Flaming** for control of grass weeds: for flaming to be efficient, the growing point of the weed plant must be exposed to the flame. Grass weeds in the early growing stages have their growing point below the soil surface (e.g. shown for *Setaria* spp.[13])
Level 3	- Among the cultural control methods **false/stale seed bed** and **crop rotation** can provide level 3 control for weed species with a short seed longevity in soil: **- False/stale seed beds** have moderate efficacy and are particularly important for targeting specific scenarios where little or no chemical solutions are available. In Greece, long experience exists about this method for the control of weedy red rice (*Oryza sativa*[14]) in the rice crop. This method has been included in the list of non-chemical supportive schemes and participating farmers received 200 euros/ha as a green measures scheme. Additionally, this method has been suggested and locally practiced controlling black nightshade (*Solanum nigrum*) in industrial tomato in Thessaly and Peloponnese regions in Greece. False/stale seed bed is also recommended as one of more cultural methods against winter annual grasses in winter cereals in Northern Europe[15] or to improve establishment conditions in crops with low competitiveness in the early growth phase (e.g. vegetables or sugar beets) **- Crop rotation** has moderate immediate efficacy but can be very effective against, for example, strictly autumn-germinating grass weed species in annual cropping systems, and it is an essential factor in long-term weed management where alternation between spring and autumn establishment can decrease the severity for dominant weed species. Including a variety of crop types in a rotation also offers opportunities for increased variability in weed management methods. As such, it is considered the baseline non-chemical method that all other methods could be built on in the IWM systems[16] **- Cover crops** have been reported to provide moderate effect in specific cases and are particularly important prior to crop establishment. In arable and perennial cropping systems, they are used to suppress annual weeds mainly during the winter/early springtime[17]. In Greece, there are examples of spontaneous vegetation (i.e. *Oxalis* spp.)[18] that controls many weed

[12] Boselli, R., et al. (2021). Improving weed control in sustainable agro-ecosystems: Role of cultivar and termination timing of rye cover crop. Italian Journal of Agronomy 16(4): 1807.
[13] Sivesind, E. C., et al. (2009). Weed Response to Flame Weeding at Different Developmental Stages. Weed Technology 23(3): 438-443.
[14] Kanatas, P., Travlos, I., Gazoulis, J. et al. (2020). The combined effects of false seedbed technique, post-emergence chemical control and cultivar on weed management and yield of barley in Greece. Phytoparasitica 48, 131–143.
[15] Zeller, A. K., et al. (2021). A long-term study of crop rotations, herbicide strategies and tillage practices: Effects on Alopecurus myosuroides Huds. Abundance and contribution margins of the cropping systems. Crop Protection 145: 8.
[16] MacLaren, C., et al. (2020). An ecological future for weed science to sustain crop production and the environment. A review. Agronomy for Sustainable Development 40(4).
[17] Gerhards, R. and A. Schappert (2020). Advancing cover cropping in temperate integrated weed management. Pest Management Science 76(1): 42-46.
[18] Lozzia, C. (2003). Working Group "Integrated Protection and Production in Viticulture": Proceedings of the Meeting, Volos (Hellas). IOBC WPRS Bulletin, 26(8).

	species in certain regions. Sown cover crops (i.e. cereals, legumes or mixtures of them) are effective in controlling many weeds (mostly annuals).
Level 4	This level of control is not easily achieved by the implementation of a single alternative method. However, high effectiveness may be reached when alternative control solutions are combined in an IPM scheme or when a complete program utilizing different alternative methods is applied - Level 4 control of many weed species can only be obtained with a combination of methods. The term 'the many little hammers' originates from weed science and highlights that stand-alone methods which can replace herbicides are very rare. An example of combination is rotary hoeing combined with flaming, which was very effective in controlling *Abutilon theophrasti* in soybean[19]. In a study aiming at lowering the input to maize crops (among others 50% herbicide reduction), a combined strategy provided similar efficacies against *Echinochloa crus-galli* as the conventional system[20]. - **Mechanical weeding** (using various types of equipment) can have a high level of effectiveness in controlling annual weeds. Traditionally mechanical interrow weeders or **flaming** have been applied, but electrocution [21]and lasers[22] have also been explored, e.g. flaming and laser weeding are effective against common lambsquarters *Chenopodium album* plants when applied at their optimal (early) growth stages. Newer types of sensor-/camera-guided equipment) could control both intra- and inter-row annual weeds. Effectiveness is dependent on environmental conditions, wet soils, weed size, and species[9]. Sensor based systems to guide mechanical weeding can further increase the efficacy, e.g. for weed control in sugar beets[23]. Another example is the use of transplanting in combination with mechanical weeding in sugar beet production[24,25,26] - Preventive **solarization** can effectively control *Digitaria sanguinalis*.[27] **- Hand weeding** could control annual weeds in both intra- and inter-row of the crop, e.g. for *Hibiscus trionum* or *Echinochloa crus-galli*[28,29].

* Important note: Examples are prepared and integrated in the document to illustrate potential cases and promote common understanding between MS experts. They should not be considered as proposals for grading the effectiveness and feasibility of the existing alternative control methods by the MS.

[19] Erin C. Taylor, Karen A. Renner, Christy L. Sprague (2012). Weed Technology 26(4) : 793-799
[20] Adeux, G., et al. (2017). Low-Input Maize-Based Cropping Systems Implementing IWM Match Conventional Maize Monoculture Productivity and Weed Control. Agriculture 7(9): 74.
[21] Slaven, M. J., et al. (2023). Exploring the potential of electric weed control: a review. Weed Science 71(5): 403-421.
[22] Czymmek, V., et al. (2026). Field Validation of a Laser-Based Robotic System for Autonomous Weed Control in Organic Farming. Agriengineering 8(4): 133.
[23] Machleb, J., et al. (2021). Sensor-Based Intrarow Mechanical Weed Control in Sugar Beets with Motorized Finger Weeders. Agronomy 11(8): 1517.
[24] Melander, B. (2000). Mechanical weed control in transplanted sugar beet. In Proceedings of the 4th EWRS Workshop on Physical Weed Control Elspeet, the Netherlands (pp. 25-25).
[25] M. Pérez-Ruiz, D.C. Slaughter, C.J. Gliever, S.K. Upadhyaya (2012). Automatic GPS-based intra-row weed knife control system for transplanted row crops, Computers and Electronics in Agriculture: 80, 41-49.
[26] Søgaard, H.T., Nørremark, M. (2004). Robotic localisation of sugar beets by use of RTK-GPS, computer vision and seed maps. Proceedings of AgEng, Leuven, Belgium.
[27] Vizantinopoulos, S., Katranis, N. (1993). Soil solarization in Greece. Weed Research 33, 225–230.
[28] Almajed, A.A., et al., (2024). Evaluation of Five Pendimethalin-Based Pre-Emergence Herbicides Formulations for Long-lasting Weed Infestation Control in Broadcasted Sesame (Sesamum indicum L.). Journal of Global Innovations in Agricultural Sciences 12:1159-1170.
[29] Travlos, I.S., et al., (2014). Green Manure and Pendimethalin Impact on Oriental Sun-Cured Tobacco. Agronomy Journal, 106: 1225-1230.

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552 **Table 3b.** Examples of effectiveness levels 1-4 for alternative control methods for
553 nematodes*

Level 1	- **Soil fertilisation** practices aimed at improving plant nutrition are not expected to provide control of plant parasitic nematodes under field conditions[30]
Level 2	- **Crop rotation** is expected to contribute to the reduction of nematode populations; however, its effectiveness is often limited. The wide host range of *Meloidogyne* spp. and *Pratylenchus* spp.[31], as well as the long-term survival of cysts in *Globodera* spp., allows populations to persist despite rotation schemes - The **use of antagonistic plants** such as Tagetes spp. is expected to reduce populations of *Meloidogyne* spp.; however, the level of suppression is generally low and dependent on agronomic conditions and the Tagetes species[32]
Level 3	- **Biological control agents**, including fungi and bacteria such as *Pochonia chlamydosporia*, *Purpureocillium lilacinum* and *Bacillus* spp., are expected to reduce populations of plant parasitic nematodes under field conditions. Their effectiveness may vary depending on soil characteristics, environmental conditions, application practices and nematode density[33,34] - **Biofumigation** with Brassicaceae crops is expected to reduce populations of *Meloidogyne* spp. through the release of isothiocyanates following biomass incorporation[35]. Its effectiveness depends on biomass, soil conditions and incorporation practices[36] - The cultivation of **resistant varieties** is expected to reduce populations of plant parasitic nematodes; however, its effectiveness depends on the nematode population present and is reduced in the presence of virulent or mixed populations[37] **- Soil solarisation** provides a high level of control of plant parasitic nematodes under suitable climatic conditions. Its effectiveness depends on

[30] Schmidt J.H., et al., (2017). Effect of tillage, subsidiary crops and fertilisation on plant-parasitic nematodes in a range of agro-environmental conditions within Europe. Annals of Applied Biology, 171(3): 477-489.

[31] Wesemael, W.M.L., Viaene, N., Moens, M. (2011). Root-knot nematodes (*Meloidogyne* spp.) in Europe. Nematology, 13(1): 3-16.

[32] Viaene, N., Coyne, D.L., Davies K.G. (2013). Biological and Cultural Management. In: Perry, R.N. & Moens, M. (Eds). Plant nematology, 2nd Edition. Wallingford, UK, CABI Publishing. pp. 383-410.

[33] Tzortzakakis, E.A. (2009). Variation in colonization of field soil and associated roots by the nematophagous fungus *Pochonia chlamydosporia*. *Nematologia Mediterannea*, 37: 183-189.

[34] Kiewnick, S., Sikora, R.A. (2006). Biological control of the root-knot nematode *Meloidogyne incognita* by *Paecilomyces lilacinus* strain 251. *Biological control*, 38(2): 179-187.

[35] Colombo, A., Cataldi, S., Marano, G. (2008). Effectiveness of biofumigation technique to control the southern root-knot nematode (Meloidogyne incognita) in Sicily. Abstracts of the Third International Biofumigation Symposium, 21-25 July, Canberra, Australia, 52.

[36] Brennan, R.J.B, et al., (2020). Biofumigation: An alternative strategy for the control of plant parasitic nematodes. Journal of Integrative Agriculture 19: 1680–1690.

[37] Cook, R., Starr, J.L. (2006). Resistant cultivars. In: Perry, R.N. & Moens, M. (Eds). Plant nematology Wallingford, UK, CABI Publishing. pp. 370-389.

	soil depth, duration and temperature, and may vary across different agronomic conditions[38,39]
Level 4	- The combination of methods within an **IPM scheme**, such as the use of resistant cultivars combined with crop rotation or biological control agents, as well as soil solarisation combined with biological control agents, provides a high and consistent level of control of plant parasitic nematodes under field conditions[40].

* Important note: Examples are prepared and integrated in the document to illustrate potential cases and promote common understanding between MS experts. They should not be considered as proposals for grading the effectiveness and feasibility of the existing alternative control methods by the MS.

The time required to reach complete protection or implementation of the alternative control method is a parameter that should be considered in the decision of the effectiveness of the alternative control method (Table 4). While PPPs typically work quickly and result in immediate control, non-PPP alternatives may necessitate longer time before reaching their full effectiveness. Given that emergency situations often demand prompt actions, this delay in reaching full effectiveness must be accounted for in any evaluation process. When time constraints apply, it is essential to consider an emergency authorisation as a temporary solution: the emergency authorisation may serve to bridge the time gap between implementation of the non-PPP method and the full effectiveness. Thus, the duration of its authorisation and/or the frequency of repeated emergency authorisations shall be restricted to what is absolutely necessary.

Table 4. Time necessary for the alternative control method to become fully effective

Time index	**Indexing criteria**
Level 1	A certain time (months, years) is necessary to achieve complete protection.
Level 2	The method is expected to reach full effectiveness shortly after its implementation.

Specific **prerequisites** may be associated with the effectiveness of an alternative control method (Table 5). Alternative control methods may depend on parameters beyond the control of the growers, e.g. coordination of pest management efforts by all growers on a broader spatial scale or real-time access to information related to the presence of a pest.

Table 5. Prerequisites to achieve satisfying level of effectiveness

Prerequisite index	**Indexing criteria**
Level 1	Certain prerequisites must be fulfilled to achieve optimal effectiveness,

[38] Candido, V., et al., (2008). Greenhouse soil solarization: Effect on weeds, nematodes and yield of tomato and melon. Agronomy for Sustainable Development 28(2): 221–230.

[39] Wang, K.-H., McSorley, R. (2008). Exposure time to lethal temperatures for *Meloidogyne incognita* suppression and its implication for soil solarization. Journal of Nematology 40: 7–12.

[40] Fullana, A.M., et al., (2023). Crop rotation with Meloidogyne-resistant germplasm is useful to manage and revert the (a)virulent populations of Mi1.2 gene and reduce yield losses. Frontiers in Plant Science, 14.

	Example 1 The full effectiveness of a control method relies upon the availability of a real-time forecast and prognosis system, communicable early warning systems or area-wide pest scouting and monitoring to target IPM suppression strategies. Example 2 The high effectiveness is reached only when the method is embraced and implemented in a large scale in the same geographic area (e.g. coordinated baiting campaigns for rodents), requiring adoption of the method by multiple growers in the region).
Level 2	There is no prerequisite.

2.6.3 Feasibility

A wide array of variables and barriers for successful implementation of alternative control methods must be evaluated. The obstacles for implementation may vary between geographical regions, and can be grouped as scientific, technical, economic, agronomic or regulatory (Table 6).

Table 6. Various aspects related to the feasibility of alternative control methods and strategies

Feasibility aspects	
Scientific	Optimisation may be needed for a successful broad-scale implementation. Scientific obstacles are often observed for technologically advanced solutions like drones, autonomous robots, geographic information systems, precision agriculture, or weather-driven computational models. Approaches involving digital technologies may need to consider adaptations in the concepts of economic thresholds, sampling, population forecast, injury identification, and ultimately the localised use of control tactics[41].
Technical	Technical constraints can be the need for specific equipment, upgraded infrastructure, or absence of training and technical support. Also, control may rely on practices which are labour-intensive and time-consuming, or the complexity of some practices increases the knowledge burden on the potential adopter. The compatibility with existing practices, i.e. how well the alternative control method integrates with current farming practices and crop management strategies, should also be considered.

[41] Iost Filho, F.H., et al., (2022). How does the digital transformation of agriculture affect the implementation of Integrated Pest Management?. Frontiers in Sustainable Food Systems 6.

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Economic	Alternatives to PPPs should not be so expensive that farmers suffer economic losses in the short-term. If the full implementation of a control method entails a high starting cost, it should be considered if the investment cost is recuperated within the foreseeable future. Any information on the costs of the different control options should be searched for. It should be taken into account that the economic disadvantage of an alternative control method may be recurrent over several years/crop seasons. Various costs should be considered in the cost-benefit analysis: the startup costs, the cost for the recurrent use of the control method (running costs). Some state-of-the-art tools are primarily suited for larger farms because of the high cost of investment. Market incentives to encourage farmers to adopt sustainable practices may differ between MS, and this should be taken into consideration. Also, MS may lack proper funding to support the use of alternative control strategies over a wide geographical area. Long-term economic benefits from the use of alternative control methods instead of PPPs could also be considered.
Agronomic	A control method may not be universally applicable to the same crop across various cultivation systems. It is recognised that not all non-chemical methods can be broadly implemented, as their effectiveness may be constrained by factors such as soil type, rotational cycles, seasonal variations, or local conditions, and they are often highly reliant on favourable weather conditions.
Regulatory	Certain alternative control methods may be inaccessible to farmers due to prohibitions within a MS (e.g. biological control agents). Regulatory constraints apply to use of drones or autonomous robots. Furthermore, low risk pesticides are required to undergo the standard authorisation process prior to being regarded as viable alternatives.

Analysis of information of the five abovementioned elements would give the overall score of the method/combination of methods. A grading system is proposed, where each of the five feasibility aspects (Table 6) is ranked based on the presence/absence and magnitude of implementation obstacles (Table 7). The feasibility level is derived from the integration of all relevant feasibility aspects, eliminating the necessity for separate classification of each aspect. The final score is determined by the lowest rating among the aspects, thus, the aspect with the lowest feasibility score drives the overall conclusion. Examples of each feasibility level for weed management are included in Table 8. The connection between the feasibility grade (Levels 1-3) and the final decision for withholding or permitting an emergency authorisation in view of the availability of an alternative control method is delineated in 2.6.4.

Table 7. Ranked index of feasibility of alternative control methods based on best expert judgement and current scientific knowledge

Feasibility index	**Indexing criteria**

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Level 1	Significant implementation obstacles are identified. The alternative control method cannot be implemented under any circumstances.
Level 2	The alternative control method can be implemented under certain conditions[42], but not in all cases.
Level 3	The alternative control method can be implemented under most situations[43].

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600 **Table 8.** Examples of Levels 1-3 of feasibility for alternative weed control methods

Level 1	**Low risk products and biopesticides** that have not been authorized cannot be used
	Crop competitiveness based on **weed-suppressive cultivars** never managed to address the significant yield loss, and therefore no existing commercial weed-suppressive cultivar exists with critical agronomic and economic importance. Developing weed-tolerant cultivars has been proposed in many research publications. Old cultivars and landraces of wheat and rice exist but lack the yield potential of elite commercial varieties. In this context, this method is therefore not feasible. Although there exists a list of competitive traits, novel weed-suppressive cultivars are not expected in the foreseeable future (Perspective index: Level 3). Significant scientific obstacles such as the physiological mechanism, the understanding of genotype × environment (phenotyping) and advanced breeding technologies need to be undertaken towards the development of cultivars with enhanced competitive ability (scientific constrains)
Level 2	Integrated weed management that includes decision systems based on climatic parameters are subject to the conditions under which the models have been validated.
	Primary tillage operations are characterized as a short-term approach since they invert the soil and bring older weed seeds up the soil profile, which may then germinate. Effectiveness is dependent on environmental conditions, wet soils, weed size and species (Perspective index: Level 1). **Mechanical weeding**: Some of the primary tillage disadvantages could be minimized, e.g., there is equipment that does not invert the soil profile and hence no older seeds are brought in the soil surface. Also, no cutting in smaller sizes the underground vegetative organs of the perennial weeds and therefore the disadvantage of the primary tillage does not occur. Effectiveness is dependent on soil and environmental

[42] Level 2: applicable in a limited range of situations
[43] Level 3: can be implemented in the majority of agronomic situations

	conditions (stony soils, wet soils, weed size and species). Also, the capacity is often lower (more hours per hectare), which could impose economic constraints. There is, however, a rapid technological improvement that would enhance the feasibility of such methods (Perspective index: Level 3).
Level 3	**Crop rotation** is considered the most global alternative method applied in non-perennial cropping systems for weed control. It is the baseline that all other alternative methods could be integrated with. However, in practice, current crop rotations are often the ones maximizing net profit, and changes in crop rotation can be associated with a significant economic loss.

2.6.4 Thresholds for eligibility of the alternative control method

In the process of analyzing the eligibility of alternative control solutions, it is essential to compile all pertinent information. A template intended to facilitate this compilation is not included within the protocol and should be developed at the MS level. Appendix C provides an example of what a completed data collection form may resemble. An alternative control method qualifies as eligible if its implementation can lead to a satisfactory level of control and can be applied under most circumstances. Thus, only methods rated with an effectiveness level 4 and feasibility level 3 are considered viable alternatives (Table 9). It is important to note that the procedure aiming at examination of the potential of the alternative control methods should focus on those methods anticipated to meet the eligibility criteria. Thus, a targeted, rather than an exhaustive, analysis of alternative solutions is advisable. A high level of effectiveness, fulfilling the threshold for eligibility, can also be attained by integrating two or more alternative control methods, each of which may not be fully effective if applied independently, as they can act complementary to each other, e.g. when methods having a direct effect are combined with a preventative method[44]. However, it should be kept in mind that eligibility is substantiated by robust information deriving from practical use in the same areas or in areas with similar agronomic and climatic conditions. At no point should theoretical/anticipated outcomes from combination of methods be considered as adequate grounds for establishing eligible alternatives. The time required for maximum effectiveness to be reached, and the necessary prerequisites may modify the decision. The table presented below (Table 9) outlines all possible combinations of results along with the evaluation outcomes.

Table 9. Possible decisions depending on the outcome of the evaluation of the available alternative control methods

[44] Combination of more than one method may also affect the feasibility of the combination relatively to the methods when applied individually.

	Effectiveness index	Feasibility index	Time required for maximum effectiveness to be reached	Prerequisites to reach full effectiveness	Decision
Case 1	Level 4	Level 3	Level 2	Level 2	The alternative control method is eligible. The emergency authorisation application should be rejected.
Case 2	Level 4	Level 3	Level 1	Level 2	Emergency authorisation may be granted as an interim solution; however, repeated authorisation should be restricted.
Case 3	Level 4	Level 3	Level 1	Level 1	The decision is dependent upon the fulfilment of the prerequisites and the alternative control method to become fully effective. Emergency authorisation should be granted in areas where these prerequisites have not been met and provided that a plan is established to ensure the prompt fulfilment of all prerequisites. Repeated authorisation should be restricted based on the time needed for full effectiveness.
Case 4	Level 4	Level 3	Level 2	Level 1	The decision is dependent upon the fulfilment of the prerequisites. Emergency authorisation should be granted in areas where these prerequisites have not been met and provided that a plan is established to ensure the fulfilment of all prerequisites.

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Any other case	Level 1-3	Level 1-2			The alternative control method is not eligible. Emergency authorisation may be granted.

2.7 Examination of the potential for transitioning from emergency to regular authorisation

Regular authorisation is always preferred over emergency authorisation when addressing an emergency weed or other relevant pests. Therefore, assessing whether the immediate need can be resolved in the short or long term through regular authorisation is part of the evaluation procedure.

The competent authorities may withhold emergency authorisation and instead opt for mutual recognition under Article 40[45]. The timeframe required to complete the Article 40 authorisation process must be factored into the evaluation: if the mutual recognition process timeline overlaps with the time needed to address the threat, an emergency authorisation may be issued until the Article 40 procedure is completed. Emergency authorisations can be used as a temporary solution until regular authorisation procedures are finalised. A request for repeated emergency authorisation is possible, depending on the time required for regular authorisations to be finalised. In situations where the pest is minor, the competent authorities should explore the possibility of granting authorisation under Article 51 of Regulation (EC) No 1107/2009.

2.8 Repeated authorisations[46]

2.8.1 Action plans

The flowcharts outline provisions for repeated authorisations and the conditions that should be fulfilled for consideration of such requests. The flowcharts begin by identifying the situation, and in the case of a repeated authorisation request, it redirects the evaluator to the additional conditions that must be satisfied. The conditions related to repeated authorisation, referred to as action plans, include any actions for transition to regular or mutual authorisation or for identifying permanent and sustainable solutions, for example within an IPM framework.

Actions towards transition to regular/mutual authorisations: The duration of this transitional period can vary and may be extended in cases where there are delays in the regular authorisation process or if additional experimentation is required over multiple seasons. The applicant can present a detailed plan describing the actions that will be taken. This plan should be approved and monitored by the competent authorities.

[45] Assuming that the PPP is already registered in a MS for this use. The necessity for the active participation of the authorisation holder to the mutual recognition process is acknowledged.
[46] For the definition of the repeated authorisation in the context of the current document refer to the glossary

A *comprehensive plan to find permanent solutions* should focus on long-term solutions that involve the use of an alternative control method or combination of methods, e.g. an IPM programme. The plan should be realistic, clear, and detailed, specifying the steps that will be followed by the applicant and indicating a time frame for completion. The plan and results should be constantly updated when a new request for repeated authorisation is submitted.

2.8.2 Conditions in repeated authorisation grants

Emergency authorisations are intended for 'special circumstances' as mandated in Article 53 of the Regulation (EC) No 1107/2009. To prevent emergency authorisations from becoming a long-term regulatory workaround, procedures must be established to ensure transition to permanent solutions.

Instead of setting rigid thresholds, which are scientifically and practically difficult to justify, applicants[47] requesting repeated emergency authorisations should submit a structured, time-bound action plan outlining progress toward a sustainable solution. The number of possible repeated authorisations can thus be directly associated with the progress and finalisation of the action plan. These plans should typically be confined to a period not exceeding **five years**, unless extended based on robust scientific justification.

Monitoring and evaluation play a critical role in this approach. With each subsequent request for emergency use, authorities should assess the applicant's progress in implementing the action plan. The duration of an already established plan may be adjusted when necessary, depending on outcomes achieved or in light of unforeseen circumstances, such as adverse conditions for field trials or unexpected approval/authorisation delays.

In certain cases, particularly those involving minor pests/crops of limited economic return, additional flexibility in the duration and expectations of the action plan may be required. These uses often suffer from insufficient financial incentives to generate the data required for full authorisation of a PPP. Nevertheless, applicants should still be expected to demonstrate credible efforts to reduce reliance on emergency authorisations.

For repeated authorisations associated with regulated pests, the necessity for an action plan can be covered by any available national (contingency) plan under EU Plant Health legislation.

2.9 Concurrent applications for emergency authorisation associated with the same emergency situation

In cases where more than one request for the same emergency situation is received by the MS, a preliminary assessment by comparison of the proposed solutions is required. The primary criteria for this comparison are[48]:

- preference to PPP containing approved active substances

[47] The official submission of an action plan is the responsibility of the applicant. However, the necessity of collaboration among interested parties, in acknowledged and encouraged. Effective engagement may involve industry, research institutions, academic organizations, federal agencies, farmers' associations, and other relevant stakeholders.

[48] The order in which the criteria appear does not indicate priority. The relevance of each criterion can vary depending on the specific situation in which emergency authorisation is requested. Prior experience with the active substance or PPP (for example, demonstrated effectiveness against similar pests) may serve as an extra selection criterion; however, it should be regarded as less important than the four primary criteria outlined in the document.

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- preference to PPP leading to higher effectiveness/consistent control
- preference to PPP with a more favourable (eco)toxicological and environmental profile
- preference to PPP with lower potential for resistance development

Normally, one PPP should be sufficient to address the identified emergency situation. However, exceptions are possible in cases where the utilisation of multiple products targeting the same pest is scientifically justified[49]. In such cases it is required that a higher or more consistent control level is reached when the PPPs are combined (use in alternation or as mixing partners). A clear description of how the two (or more) PPPs should be combined to achieve the expected results should be presented by the applicant(s) and assessed by the competent authorities.

In the case that more than one PPP is required, each associated product should individually undergo the evaluation process described in points 2.1-2.10 of the document.

2.10 Range of implementation and restrictions/conditions of use in emergency authorisation granting

Authorisations should be complemented with a list of conditions and restrictions[50] of use, whenever feasible and justified. Restrictions of use can be spatial or temporal and may result from the analysis performed within the evaluation flowcharts.

The use of the product is restricted to areas within the MS where the emergency encountered and where the severity of the threat justifies the use of the product. Thus, any decision made by MS must explicitly outline the zones/areas where the product can be utilised. Spatial restrictions should align with the reasoning for which authorisation is granted, e.g. when justification is based on the appearance of resistant strains to a PPP widely used in a specific area. Spatial restrictions can also be associated with the availability of alternative solutions within the MS, potentially withholding authorisation in regions where a suitable alternative control method is practised.

All emergency authorisations are legally time limited for a maximum period of 120 days. However, this should not be viewed as the standard duration of an emergency authorisation, as the timeframe can be adjusted to less than 120 days to safeguard a balance between risk and benefits. Other potential restrictions may relate to the mode of application: when various application methods are possible, the method that most effectively minimizes risk to human health or the environment should be selected. The possibility of restricting the use of the PPP exclusively as a mixing or alternation partner to other available solutions can be also examined. Detailed instructions on how the product can be integrated into an application strategy that includes other PPPs and, where applicable, non-chemical solutions are advisable, as this approach would potentially decrease the possibility of misuse.

By leveraging forecasting and pest monitoring data, pest management strategies can become more dynamic and responsive to real-time conditions. Authorisation granting conditions may include instruction on the minimum level of pest abundance that justifies its use. This allows for adaptive management where PPP applications can be triggered or scaled down based on pest population dynamics. Likewise, if the surveillance shows a rapid decrease in pest

[49] For example, situations where different products provide distinct benefits, such as targeting different pest stages or when label restrictions in the number of maximum applications do not allow for an effective control of the target pest.
[50] In the context of this protocol, only conditions and restrictions related to agronomic factors are examined.

populations in the areas where pesticides have been applied, the authorisation can be terminated early, preventing unnecessary pesticide use.

Lastly, limitations on authorisation granting may be associated with restricted use by limited end-users, such as organic farmers, if the necessity of the authorisation grant is grounded on the unavailability of chemical solutions compatible with organic farming. In such specific cases, the access to end-users practising conventional farming must be denied.

2.11 Finalisation of the evaluation

Upon acceptance of an application for emergency authorisation, specific conditions or activities associated with the use of the PPP may optionally be requested by the competent authorities, after consideration of feasibility. The requirements/future activities may include:

A list of alternative weeds or other pests that can be controlled by the PPP: The applicant may be requested to compile a list of potential weeds or other pests that may be controlled when applications targeting the emergency pest species are performed. This consideration safeguards excessive use of other PPPs. The list of pest species controlled by an application aimed at the emergency pest species must consider the conditions at the time of application, such as growth stage of the crop, application rate, frequency of applications and intervals between applications. The competent authorities are responsible for modifying and finalising this list.

The implementation of specific non-chemical control methods by the end users: Implementation of specific alternative control method(s) during the same period for which emergency authorisation is active can be requested by competent authorities. The selected alternative methods may enable an overall reduction in the reliance on the PPP in question, e.g. by allowing for a reduction in the number of required applications. The use of low-risk active substances in alternation with the PPP under evaluation is an example of how these conditions are implemented. Furthermore, specific non-chemical methods may act as modifiers of the risk of resistance development. Preference should be on alternative control methods that growers may be less inclined to adopt due to unfamiliarity or labour intensity. A plan describing when and how these non-chemicals are combined with the PPP for which emergency authorisation was granted could be made available to the end-users.

A plan for monitoring the success of the intervention: The competent authorities may request applicants to provide specific information related to the success of the intervention in the implementation area. Such information may encompass the range of use of the PPP, the total quantity of product utilised, the frequency of use of the PPP, and the overall success of the intervention.

3 Future revision of the protocol

It is crucial to ensure that certain parts of the protocol are kept updated. This relates specifically to the inventory of alternative solutions which should be aligned with any advances and newly acquired scientific knowledge. For instance, the effectiveness of alternative control methods may change over time through adaptation of the methodology to local conditions. Similarly, previously unfeasible methods may become feasible due to technological advancements or more experience with IPM programmes. Additionally, potential threats may

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differ, necessitating that the protocol be better tailored to situations where requests for emergency authorisations increase.

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Glossary and Abbreviations

Definition of terms in the context of this document

Pest	The term "pest" is used in this protocol in a broad sense, covering weeds, nematodes, rodents, terrestrial gastropods and other harmful organisms not covered by other related protocols on emergency authorisation[51].
Alternative control method	Any sustainable method or combination of methods that can effectively address a particular crop protection emergency is considered an 'alternative' within the context of this protocol. This concept encompasses a wide range of non-chemical approaches with either protective or direct action[52], as well as low risk pesticides such as botanicals and biopesticides. The definition also includes IPM programmes.
Repeated authorisation	In this document, repeated authorisation refers to the issuance of more than one (consecutive or non-consecutive) approval under emergency provisions, in response to a specific recurring or persistent threat. The total count of repeated authorisations reflects the total number of approvals for the control of the specific weed or other pest across various time periods, involving same or different products (same or different active substance), and same or different applicants.
Approved, pending and non-approved active substance	The approval status aligns with the EU active substance database.
Number of available chemical solutions	Refers to the total number of active substances available in the MS, including those which are provisionally available, e.g. in view of the provisions of Article 4(7). The future unavailability of an active substance (e.g. the active substance is not expected to be renewed) is not a reason not to consider them as available solution.
Emergency threat	Refers to a specific weed or other pest that poses a danger to plant production or ecosystems and cannot be contained by any other reasonable means.

Abbreviations

[51] Protocol for the evaluation of emergency authorisations of insecticides and acaricides submitted under Article 53 of Regulation (EC) No 1107/2009 and Protocol for the evaluation of emergency authorisations of fungicides and bactericides submitted under Article 53 of Regulation (EC) No 1107/2009

[52] e.g. biological, cultural, physical, mechanical methods.

EPPO	European and Mediterranean Plant Protection Organisation
MS	Member State
IPM	Integrated Pest Management
MoA	Mode of Action
PPP	Plant Protection Product
GEP	Good Experimental Practice
HRAC	Herbicide Resistance Action Committee
IRAC	Insecticide Resistance Action Committee
a.s.	Active substance

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Appendix A - Flowcharts for evaluation

Instructions of use of the flowcharts

- The evaluation should always start from the first step of the introductory chart.
- Preferential/partial use of the flowcharts, e.g. initiation from an advanced step in the charts is not possible.
- The flowcharts may direct the evaluator towards the assisting chart 'Necessity'. The evaluator should refer to this chart before selecting the appropriate option.
- The possible outcomes of the evaluation (highlighted in Bold and Italic in Charts A to D) are indicative and should be tailored to the specific context.
- The analysis following Charts A to D may be performed more than once to address varying circumstances encountered within the Member State. For instance, a separate analysis is relevant when the emergency authorisation request is associated with both organic and conventional farming or where the effectiveness or feasibility of an alternative control method is variable across different regions within the same Member State.
- Separate evaluation for each pest/pest group under the same emergency authorisation request is necessary in view of the difference in the availability of any means of control (chemical or non-chemical).

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Introductory chart - Conditions to be considered when emergency authorisations are requested

1. Application associated with one or more than one weed species or other pest[53]/crop combinations that should be controlled

A. Specific pest/crop combination[54] → Go to 2

B. More than one pest/crop combinations → ***Separate evaluation for each weed or other pest/crop combination under the same emergency authorisation request is necessary***

2. EU approval status of active substance(s) of the PPP under evaluation

A. Non-approved active substance or approval status is 'pending'[55] → Go to 3

B. Approved active substance → Go to 4

3. Current status of the non-approved active substance

A. Never been evaluated at EU level or the approval status is 'pending' - based on the analysis of available information there is strong indication that the substance is expected to fulfil the criteria set out in Reg. 1107/2009 → Go to 4

B. All other non-approved substances → Go to chart A

4. Status of the pest[56]

A. Regulated pest → Go to chart B

B. Non-regulated pest → Go to 5

5. Risk status of the active substance

A. Low risk substance → Go to chart C

B. Active substance other than low risk → Go to chart D

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[53] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.
[54] Refer to Section 2.2 of the protocol for eligible pest/crop combinations.
[55] At least one of the active substances when a PPP contains more than one.
[56] For PPP not related to pest control (e.g. plant growth regulators and desiccants) Step 4 should be omitted and proceed directly to step 5.

797 **Chart A – Evaluation flow chart for PPP containing non-approved active substances**

A1. Number of emergency authorisation requests

A. Request for repeated authorisation[57], action plan is submitted → Go to A2

B. Request for repeated authorisation, action plan not submitted → ***The request should be rejected***

C. Initial request for emergency authorisation → Go to A3

A2. Progress of the action plan

A. Progress is considered satisfactory → Go to A3

B. Progress is insufficient → ***The request should be rejected***

A3. Scientifically sound rationale indicating that the PPP under evaluation can address the emergency situation

A. Yes → Go to A4

B. No → ***The request should be rejected***

A4. Availability of other PPP authorised for control of this pest[58] in the MS[59]

A. Yes → Go to A5

B. No → Go to A6

A5. Scientifically sound reason indicating that the already available PPP(s) is/are insufficient in effectively controlling the pest[60]

A. Yes → Go to A6

B. No → ***The request should be rejected***

A6. Availability of sufficiently effective PPP authorised for control of this pest[61] in other MSs[62] or ongoing authorisations in the MS (based on best available knowledge; comprehensive examination is not required)

A. Ongoing in the MS and finalisation of the process (i.e. availability of the PPP) expected before the onset of the period for which emergency authorisation is requested → ***The application should be rejected***

[57] Check definition available in the glossary before decision.
[58] Or to achieve the beneficial effect in case of plant growth regulators and desiccants.
[59] Currently authorised according to Articles 33, 40, 51, those still available due to Article 4(7), including those which are not expected to be available in the future (e.g. in view of the non-renewal of the active substance). The effectiveness of the alternative PPP or the risk for development of resistance is not a reason to exclude a PPP from the list.
[60] Or to achieve the beneficial effect in case of plant growth regulators and desiccants.
[61] Or to achieve the beneficial effect in case of plant growth regulators and desiccants.
[62] The examination of authorisation grants in other Member States is optional. Given that a comprehensive review is not feasible, it should be conducted on a case-by-case basis, relying on the best available knowledge.

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B. Ongoing in the MS and finalisation of the process (i.e. availability of the PPP) expected after the onset of the period for which emergency authorisation is requested → Go to A7

C. A regular authorisation is granted in another MS and there is sufficient time for mutual recognition → ***Possibility for mutual recognitions is explored. If feasible, the request should be rejected***

D. A regular authorisation is granted in another MS but there is no sufficient time (or it is unclear if there is sufficient time) for mutual recognition → Go to A7

E. No submissions → Go to A7

A7. Availability of alternative control methods (or combination of methods) to control this pest[63]

A. There is at least one eligible alternative control method or combination of methods or IPM programme (Level 4 effectiveness/Level 3 feasibility) → Go to A8

B. No → ***The application could be accepted. A complete plan to derive permanent solution(s) should be officially submitted. The competent authority may compile a list of mandatory non-chemical methods that must be implemented by growers utilising the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests that can be sufficiently contained from the use of the PPP. The period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

A8. Range of implementation and other restrictions

A. The alternative control[64] method can be implemented to all areas where the specific pest is encountered → ***The application should be rejected***

B. An alternative control method can be implemented in certain regions of the MS→ ***The request could be accepted with restriction of use only in areas where the use of the alternative control method is not feasible. A complete plan for actions to derive permanent solution(s) should be officially submitted (or updated). The applicant may provide a list of other pests[65] that can be sufficiently contained by the use of the PPP. The competent authority may request growers/end users to implement the alternative method upon utilisation of the PPP for which emergency authorisation is granted. The effective period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

C. Time is required for attainment of maximum effectiveness of the alternative method(s) → ***The request could be accepted; however, repeated authorisation should be restricted. The competent authority may request growers/end users to implement the alternative method upon utilisation of the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests[66] that can be sufficiently contained by the use of the PPP. The effective period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

D. Specific prerequisites are associated with effectiveness of the alternative method(s)→ ***The request could be accepted for areas where these prerequisites are not met, provided that a plan is established to ensure the fulfilment of all prerequisites; however, repeated authorisation should be restricted. The competent authority may request growers/end users to implement the alternative method upon utilisation of the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests[67] that can be sufficiently***

[63] Or to achieve the beneficial effect in case of plant growth regulators and desiccants.
[64] Or beneficial effect in case of plant growth regulators and desiccants.
[65] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.
[66] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.
[67] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.

contained by the use of the PPP. The effective period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions

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Chart B – Evaluation flow chart for emergency authorisation granting of a PPP for the control of a pest regulated under Regulation (EU) 2016/2031[68,69,70]

B1. Availability of another PPP authorised for this pest in the MS A. Yes → Go to B2 B. No → ***The request could be accepted***

B2. Reasoning for the necessity of the PPP to contain/eradicate the regulated pest (complete analysis is required – Chart: Necessity) A. The PPP is required for satisfactory control of the regulated pests → ***The request could be accepted*** B. Opposite case → ***The request should be rejected***

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[68] For repeated authorisations associated with regulated pests, the necessity for an action plan can be covered by any available national (contingency) plan under EU Plant Health legislation.
[69] Pests regulated under Regulation (EU) 2016/2031.
[70] The suitability of the product under evaluation to address the emergency situation should be examined in line with Section 2.4 of the protocol and Appendix B.

802 **Chart C – Evaluation flow chart for emergency authorisation granting of a PPP**
803 **containing a low-risk active substance[71]**

C1. Number of emergency authorisation requests

A. Request for repeated authorisation[72], action plan is submitted → Go to C2

B. Request for repeated authorisation, action plan not submitted → ***The request should be rejected***

C. Initial request for emergency authorisation → Go to C4

C2. Progress of the action plan

A. Progress is considered satisfactory → Go to C3

B. Progress is insufficient → ***The request should be rejected***

C3. Availability of other PPP authorised for this pest[58] in the MS[73]

A. Yes → Go to C4

B. No → ***The request could be accepted. The applicant may provide a list of other pests that can be sufficiently contained from the use of the PPP***

C4. Reasoning for the necessity of the PPP for control of the emergency situation (complete analysis is required - Chart Necessity)

A. The necessity is addressed → ***The request could be accepted. The applicant may provide a list of other pests that can be sufficiently contained from the use of the PPP***

B. The necessity is not addressed → ***The request should be rejected***

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[71] The suitability of the product under evaluation to address the emergency situation should be examined in line with Section 2.4 of the protocol and Appendix B.
[72] Check definition available in the glossary before decision.
[73] Currently authorised according to Articles 33, 40, 51, those still available due to Article 4(7), including those which are not expected to be available in the future (e.g. in view of the non-renewal of the active substance). The effectiveness of the alternative PPP or the development of resistance is not a reason to exclude a PPP from the list. For requests of emergency authorisation of a PPP to be used exclusively in organic farming, only alternative solutions which are compatible with organic farming should be taken into account.

806 **Chart D – Evaluation flow chart for emergency authorisation granting of a PPP**
807 **containing an approved active substance other than low risk[74]**
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D1. Number of emergency authorisation requests

A. Request for repeated authorisation[75], action plan is submitted → Go to D2

B. Request for repeated authorisation, action plan not submitted → ***The request should be rejected***

C. Initial request for emergency authorisation → Go to D3

D2. Progress of the action plan

A. Progress is considered satisfactory → Go to D3

B. Progress is insufficient → ***The request should be rejected***

D3. Availability of alternative PPP authorised for this use in the MS[76]

A. Yes → Go to D4

B. No → Go to D5

D4. Reasoning for the necessity of the PPP for control of the emergency pest (complete analysis is required – Chart: Necessity)

A. The necessity is addressed (Reasons 1 or 2) → Go to D5

B. The necessity is addressed (Reason 3) → ***The request could be accepted with the restriction of use only on areas where the specific IPM programme is implemented. A complete action plan leading to the substitution of the active substance in the IPM programme is required***

C. The necessity is not addressed → ***The request should be rejected***

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[74] The suitability of the product under evaluation to address the emergency situation should be examined in line with Section 2.4 of the protocol and Appendix B.
[75] Check definition available in the glossary before decision.
[76] Currently authorised according to Articles 33, 40, 51, those still available due to Article 4(7), including those which are not expected to be available in the future (e.g. in view of the non-renewal of the active substance). The effectiveness of the alternative PPP or the development of resistance is not a reason to exclude a PPP from the list. For requests of emergency authorisation of a PPP to be used exclusively in organic farming, only alternative solutions which are compatible with organic farming should be taken into account.

D5. Availability of sufficiently effective PPP authorised for this pest in other MSs[77] or ongoing authorisations in the MS (based on best available knowledge; comprehensive examination is not required)

A. Ongoing in the MS and finalisation of the process (i.e. availability of the PPP) expected before the onset of the period for which emergency authorisation is requested → ***The application should be rejected***

B. Ongoing in the MS and finalisation of the process (i.e. availability of the PPP) expected after the onset of the period for which emergency authorisation is requested → Go to D6

C. A regular authorisation is granted in another MS[2] and there is sufficient time for mutual recognition → ***Possibility for mutual recognitions is explored. If feasible, the request should be rejected***

D. A regular authorisation is granted in another MS[2] but there is not sufficient time (or it is unclear if there is sufficient time) for mutual recognition → Go to D6

E. No submission/No relevant information is available → Go to D6

D6. Availability of alternative control methods (or combination of methods) for this use

A. There is at least one eligible alternative control method or combination of methods or IPM programme (Level 4 effectiveness/Level 3 feasibility) → Go to D7

B. No → ***The application could be accepted. A complete plan to derive permanent solution(s) should be officially submitted (or updated). The competent authority may compile a list of mandatory non-chemical methods that may be implemented by growers utilising the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests[78] that can be sufficiently contained by the use of the PPP. The period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

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[77] The examination of authorisation grants in other Member States is optional. Given that a comprehensive review is not feasible, it should be conducted on a case-by-case basis, relying on the best available knowledge.
[78] For the definition of pest within the current protocol please refer to Glossary and Abbreviations

D7. Range of implementation and other restrictions of the non-chemical method

A. The alternative method can be implemented to all areas where the specific pest is encountered → ***The request should be rejected***

B. The alternative method can be implemented in specific regions →
The request could be accepted with the restriction of use only on areas where the use of the alternative control method is not feasible. A complete plan to derive permanent solution(s) should be officially submitted. The applicant may provide a list of other pests[79] that can be sufficiently contained bythe use of the PPP. The competent authority may request growers/end users to implement the alternative control upon utilisation of the PPP for which emergency authorisation is granted. The effective period of the emergency authorisation grant shall consider any anticipated changes in the availability of effective chemical solutions, related to the progress of any regular authorisation requests in the EU for the particular pest

C. Time is required for attainment of maximum effectiveness of the alternative method → ***The request could be accepted; however, repeated authorisation should be restricted. The competent authority may request growers/end users to implement the alternative method upon utilisation of the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests[80] that can be sufficiently contained by the use of the PPP. The period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

D. Specific prerequisites are associated with effectiveness of the alternative method→ ***The application could be accepted provided that a plan is established to ensure the fulfilment of all prerequisites. Emergency authorisation should be granted for areas where these prerequisites have not been met. The competent authority may request growers/end users to implement the alternative method upon utilisation of the PPP for which emergency authorisation is granted. The applicant may provide a list of other pests[81] that can be sufficiently contained by the use of the PPP. The period of the emergency authorisation grant shall take into account any expected changes in the availability of effective chemical solutions***

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[79] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.
[80] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.
[81] For the definition of pest within the current protocol please refer to Glossary and Abbreviations.

810 Necessity[82]

	Low risk active substances	All approved active substances other than low risk	Regulated pests
Reason 1	**Na1. Management of resistance** A. Management of resistance that has already developed for an approved active substance which is predominantly being used in the control of the specific pest → **Necessity is established** B. Any other case → Go to Na2	**Nb1. Management of resistance** A. Management of resistance that has already developed for an approved active substance which is predominantly being used in the control of the specific pest if the following conditions are met: - The active substance has a different MoA[83] compared to the already approved active substance(s) for which resistance has been developed - The available solutions are considered not sufficient for a complete contingency plan → **Necessity is established** B. Any other case → Go to Nb2	**Nc1. Management of resistance** A. Management of resistance that has already developed for an approved active substance which is predominantly being used in the control of the specific pests if the following conditions are met: - The active substance has a different MoA compared to the already approved active substance(s) for which resistance has been developed - The available solutions are considered not sufficient for a complete contingency plan → **Necessity is established** B. Any other case → Go to Nc2
Reason 2	**Na2. Beneficial attributes that are not encountered in the available chemical solutions** A. It is expected that the PPP can provide a higher or more consistent level of control or a higher duration of protection → **Necessity is established** B. Has a different pest or crop stage for application compared to alternatives → **Necessity is established** C. A different application method compared to alternative chemical solutions is employed → **Necessity is established** D. Any other case → Go to Na3	**Nb2. Beneficial attributes that are not encountered in the available chemical solutions** A. It is expected that the PPP can provide a higher or more consistent level of control or a higher duration of protection → **Necessity is established** B. Any other case → Go to Nb3	**Nc2. Beneficial attributes that are not encountered in the available chemical solutions** A. Is it expected that the PPP can provide a higher or more consistent level of control or a higher duration of protection → **Necessity is established** B. A different pest or crop stage is targeted compared to alternatives → **Necessity is established** C. A different application method compared to alternative chemical solutions is employed → **Necessity is established** D. The mixing or alternation of PPPs (under evaluation and already authorised) can increase the overall performance → **Necessity is established** E. Any other case → **Necessity is not established**

[82] Some of the provision detailed below (e.g. resistance) are not relevant for plant growth regulators
[83] Refer to Herbicide Resistance Action Committee (HRAC) for more information regarding the herbicide mode of action

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Reason 3	**Na3. Component in an IPM programme** A. The active substance currently under evaluation is an essential element of an existing Integrated Pest Management (IPM) programme implemented within the MS, and there is no information regarding any authorised PPP that could serve as a substitute for its necessity → **Necessity is established** B. Other case → **Necessity is not established**	**Nb3. Component in an IPM programme** A. The active substance currently under evaluation is an essential element of an existing Integrated Pest Management (IPM) programme implemented within the MS, and there is no information regarding any authorised PPP that could serve as a substitute for its necessity → **Necessity is established** B. Other case → **Necessity is not established**

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Appendix B

Table describing the applied criteria and examined aspects as well as the conditions and restrictions on emergency authorisation grants depending on the specific circumstances for which authorisation is requested.

	Related to the active substance			Related to the pest
	Non-approved a.s.	**Low risk a.s.**	**Other approved a.s.**	**Regulated pest**
Criteria considered in the assessment				
Establishment of the effectiveness of the PPP under evaluation	Field data required[84]	Justification when required by the competent authority	Typically, expert judgement and justification may be sufficient. Field data required on specific occasions.	Justification when required by the competent authority
Examination of availability of other chemical solutions within the MS	Yes	Yes	Yes	Yes
Reasoning of necessity when other PPPs are available	• PPP can provide a higher or more consistent control	• PPP can provide a higher or more consistent control • Inherent risk of resistance of the pest species moderate or high • Different pest or crop stage for application • Different application method • Suitable as mixing/alternation partner • Key component in a IPM programme	• PPP can provide a higher or more consistent control • Resistance management strategy • Key component in a IPM programme	• PPP can provide a higher or more consistent control • Inherent risk of resistance of the pest moderate or high • Different pest or crop stage for application • Different application method • Suitable mixing/alternation partner
Examination of ongoing PPP authorisations in the MS	Yes	-	Yes	-
Examination of available PPP authorised for this use in other MS	Yes	-	Yes	-

[84] Unless the PPP has been regularly authorised in the past for this use and the application specifications do not differ.

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	Related to the active substance			Related to the pest
	Non-approved a.s.	**Low risk a.s.**	**Other approved a.s.**	**Regulated pest**
Criteria considered in the assessment				
Availability of alternative control methods	Yes	-	Yes	-
Conditions and restrictions on emergency authorisation grants				
Implementation of specific non-chemical methods by end users	Possible	-	Possible	-
Restrictions of use	Possible (spatial and temporal)	Possible (spatial and temporal)	Possible (spatial and temporal)	Possible (spatial and temporal)
Request for a list of other pests[85] covered by the application target on the emergency pest	Possible	Possible	Possible	Possible

Appendix C

Example of compilation of the alternative control methods and evaluation of effectiveness/feasibility and other related parameters

Alternative control methods[86]	**Effectiveness index**	**Time required for full effectiveness**	**Prerequisites for Level 4 effectiveness**	**Feasibility index**	**Main constraining factor for feasibility**	**Spatial extent of implementation**	**Eligible method**
A	Level 1	Not examined	Not examined	Level 1	Economic	Not examined	**No**
B	Level 2	Not examined	Not examined	Level 3	Regulatory	Not examined	**No**
C	Level 1-3	Not examined	Not examined	Level 2	Not examined	Not examined	**No**

[85] For the definition of pest within the current protocol please refer to Glossary and Abbreviations
[86] Specific method or combination of methods.

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Alternative control methods[86]	Effectiveness index	Time required for full effectiveness	Prerequisites for Level 4 effectiveness	Feasibility index	Main constraining factor for feasibility	Spatial extent of implementation	Eligible method
D	Level 1-3	Not examined	Not examined	Level 1-2	Not examined	Not examined	**No**
B+D	Level 4	Level 1	Level 2	Level 3	No constraints	Northern part of the country	**Yes (with restrictions)**
B+D	Level 4	Level 1	Level 2	Level 2	Technical	Southern part of the country	**No**
E	Level 4	Level 2	Level 2	Level 3	No constraints	All regions within the MS	**Yes**
A+D	Level 4	Level 1	Not relevant	Level 1-2	Technical	Not relevant	**No**
…							

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