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Declaration of IPM compatibility (on product labels)

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What is efficacy?

- „The efficacy of a Plant Protection Product (PPP) can be defined as a measure of the overall effect of its application on the agricultural system“
  - Positive effects (control of target pest, improvement of quality or quantity of yield, …)
  - Negative effects (damage to beneficial organisms, development of resistance, reduction of quality or quantity of yield, …)
  - Other aspects (compatibility with other cultural practices, …)

(EPPO Standard PP 1/214(4))

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(EPPO Standard PP 1/214(4))

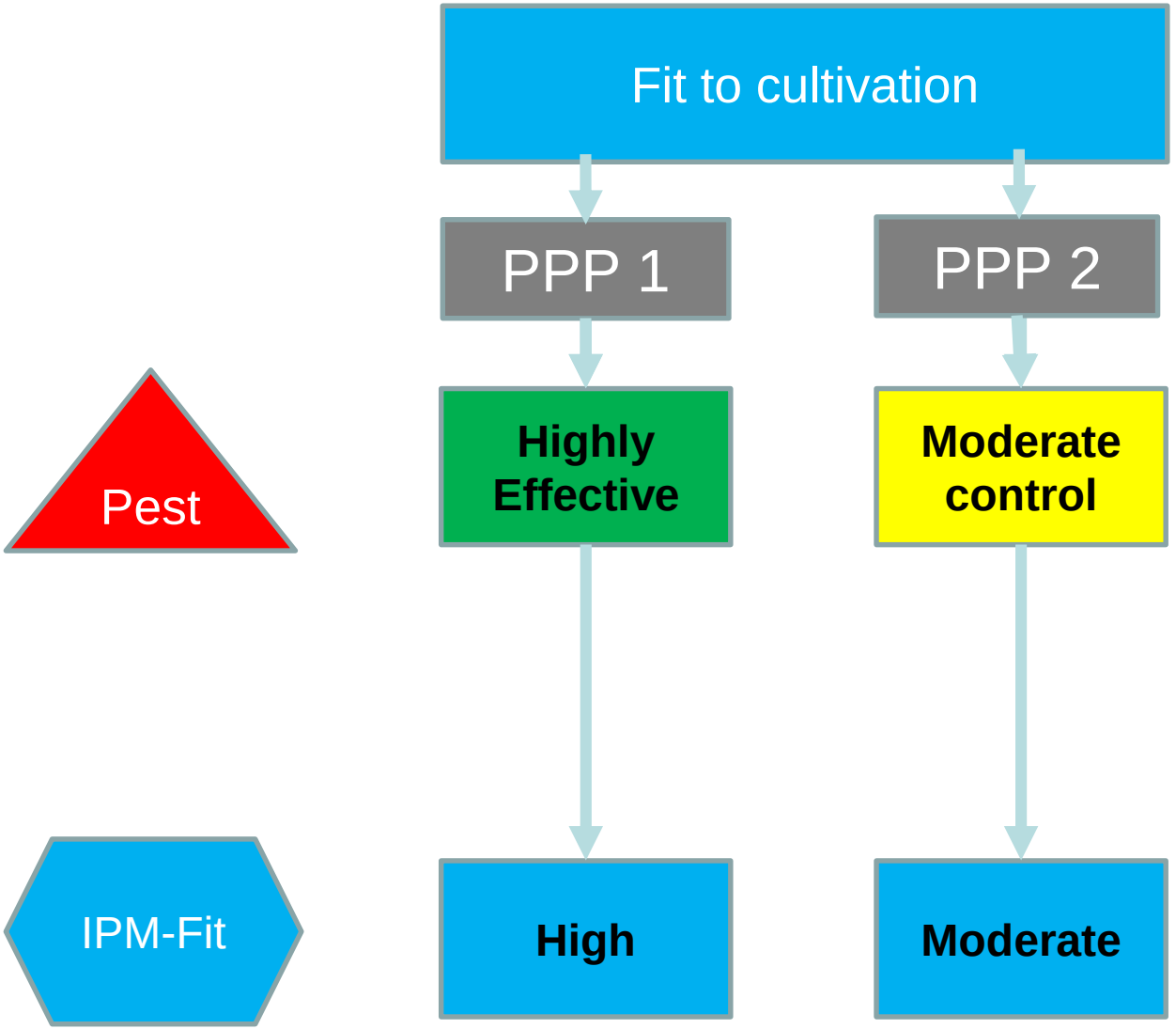
Efficacy and IPM

- As Integrated Pest Management (IPM) is the legal standard for pest control in plant production in Europe (EG 1107/2009), only a PPP with good **IPM-compatibility (=IPM-fit)** can show a good efficacy

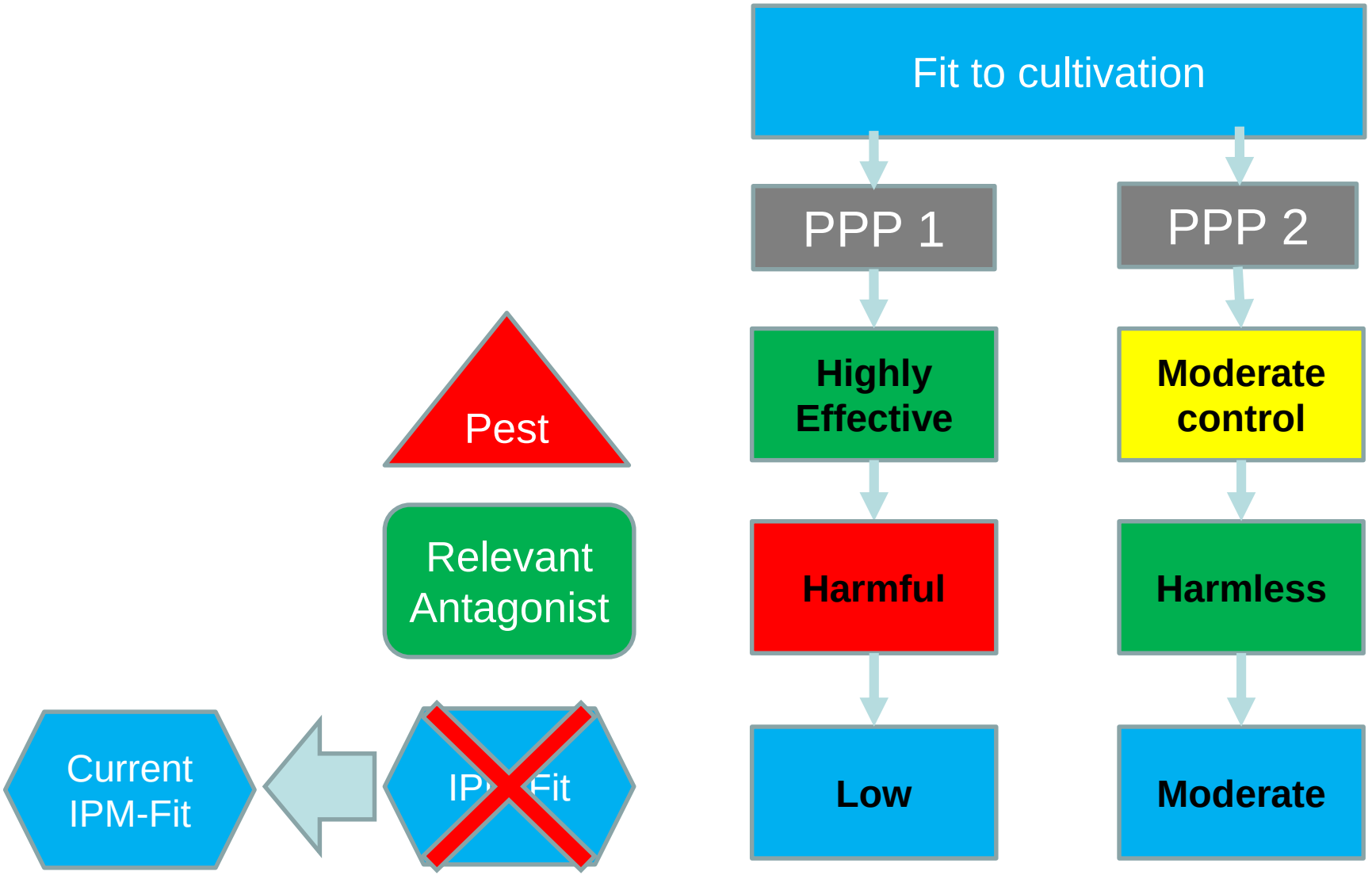
➢ But the degree of IPM-fit of a PPP depends on

1. **Slow fluctuating factors** (cultural practice, yield and quality effects on specific crop, resistance, …)
2. **Fast fluctuating factors** (the current [and future] presence and relevance of pests and antagonists in the crop)

Example


Fit to cultivation
PPP 1
PPP 2
Pest
Highly Effective
Moderate control
IPM-Fit
High
Moderate

Example


Fit to cultivation
PPP 1
PPP 2
Highly Effective
Moderate control
Harmful
Harmless
Low
Moderate
Pest
Relevant Antagonist
Current IPM-Fit
IP Fit

The Current-IPM-fit concept

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OPINION PAPER

"Current-IPM-Fit": a new proposal for enhanced efficacy labelling of plant protection products

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Abstract
In the European Union, plant protection products (PPP) undergo an intensive evaluation procedure including toxicology, ecotoxicology, fate and residues for approval of the active substance. On product level, additionally the efficacy against pests and adverse effects on pest antagonists and on the cultivated plant itself, i.e. phytotoxicity, are evaluated. Currently, a development towards a two-class classification system takes place in which PPP with low impact in risk categories ("low-risk products") can be approved with reduced efficacy requirements. Other parallel registration pathways that include limited or no evaluation of efficacy exist for basic substances and minor-use registrations. Nevertheless, registration of a product does not give information of its efficacy level in many European countries. The situation for the effects of PPP on antagonists of

Böckmann, E., F. Feldmann, and U. Vogler. **2019**. "Current-IPM-Fit": a new proposal for enhanced efficacy labelling of plant protection products. J. Plant Dis. Prot. 126–385

The Current-IPM-fit concept

Focus on Pests and Antagonists (P&A) because

- Occurence, population density and relevance of change within one growing season
  - Automated Monitoring and Decision Support Systems facilitate estimation of P&A
- Effects of PPP are already evaluated within the evaluation process in Europe
- Existance of established guidance documents (EPPO- and IOBC-standards)
- Growers base their decision on specific PPP to date already on P&A-effects

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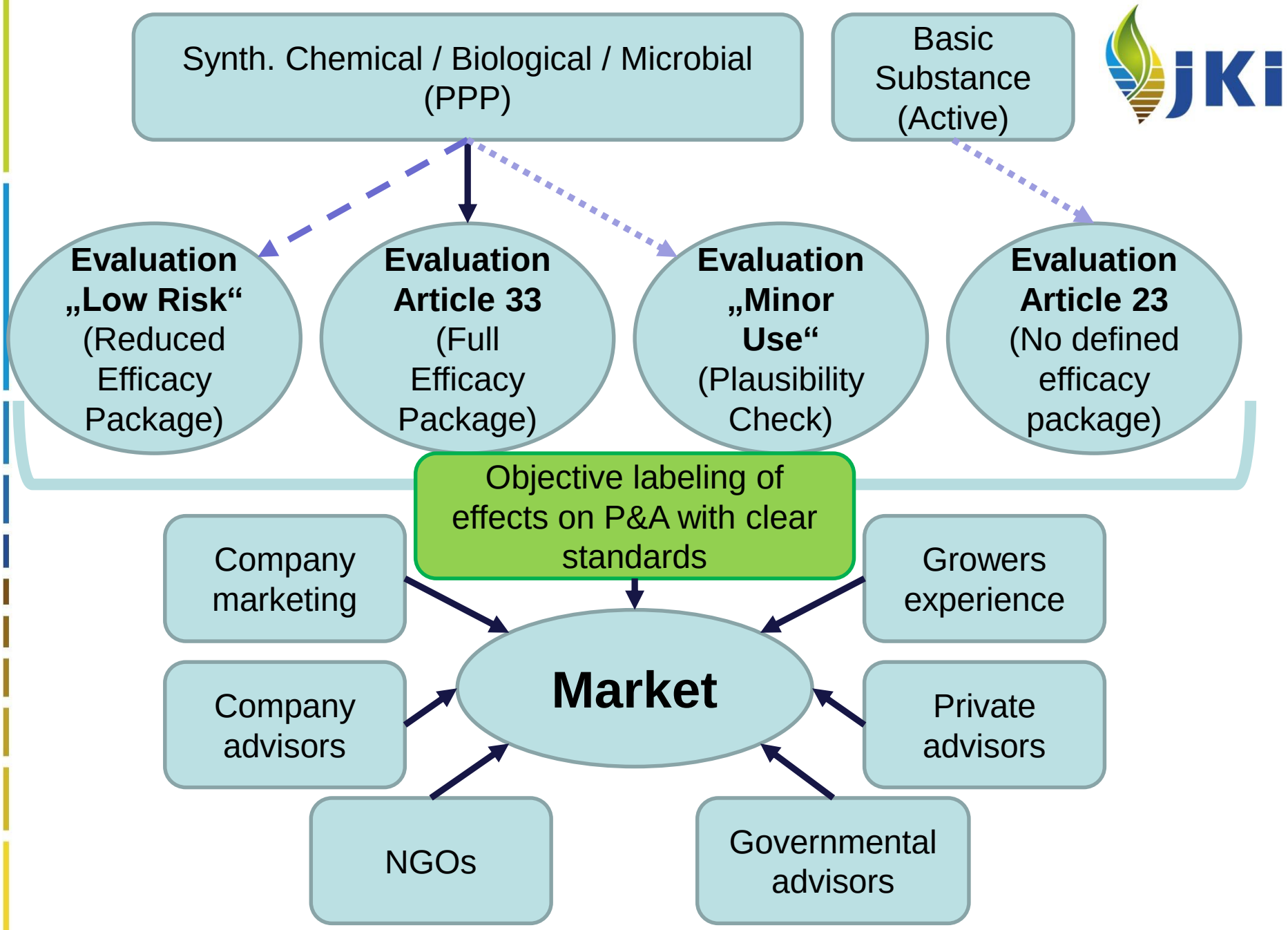
Status quo of official information on P&A-Effects

- At latest since the „Low Risk“-evaluation, the significance of an PPP-approval for efficacy is confusing for applicants
- Some countries label efficacy degrees, but there is no aligned European approach
- Status for Antagonists? (DE: on label, webpage JKI, but mainly indicator species)
- Most information used in practice come from private companies (PPP-companies, Beneficial Producers)
  - Information basis not transparent
  - No clearly defined standards for evaluation
- For new products, growers and advisors have no experience and would benefit from additional information (Feedback from the 29. Tagung der Fachreferenten für Pflanzenschutz im Gemüse-und Zierpflanzenbau/Baumschulen, Braunschweig, Germany, 2019)


Synth. Chemical / Biological / Microbial (PPP)
Basic Substance (Active)
Evaluation „Low Risk“ (Reduced Efficacy Package)
Evaluation Article 33 (Full Efficacy Package)
Evaluation „Minor Use“ (Plausibility Check)
Evaluation Article 23 (No defined efficacy package)
Objective labeling of effects on P&A with clear standards
Company marketing
Growers experience
Company advisors
Market
Private advisors
NGOs
Governmental advisors

The Current-IPM-fit concept

Table 1 Proposed coloured light indicators (CLI) for assessment of the Current-IPM-Fit after evaluation of efficacy and adverse effects onists during the evaluation process of PPP within the registration process

Colored Light Indicator	Efficacy Level on pest organisms*	Side-Effect Level on antagonists**
Green	Highly effective / Good level of control/ Control ≥75% reduction (sf, f)	Harmless or slightly harmful 0% - <50% reduction (el, sf, f) (0% - <80% reduction (lab))
Yellow	For infestation reduction / Moderate control <75% - ≥50% reduction (sf, f)	Moderately harmful ≥50% - <75% reduction (el, sf, f) (≥80% - <100% reduction (lab))
Red	Only partially effective / Some control <50% - 0% reduction (sf, f)	Harmful ≥75% reduction (el, sf, f) (100% reduction (lab))
Grey	No data / data not sufficient for evaluation	No data / data not sufficient for evaluation
Colour range	If trials of a PPP are to less than 90% within one category, every other category that represents at least 10% of the trial results is added. Every gap category in-between the relevant categories is added additionally, resulting in a colour stream from the first to the last relevant category.	

el extended lab, *f* field trial, *sf* semi-field trial, *lab* laboratory trial on initial toxicity

*Efficacy trials should be carried out in accordance with the respective EPPO-Standards (EPPO 2019)

**Side effect trials should be carried out in accordance with the respective IOBC-Standards (IOBC-WPRS 2019)

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Table 2 Example of a product labelling for some possible categories of relevant pests and antagonists with the Current-IPM-Fit categories defined in Table 1

Efficacy against pest organism		Adverse Effect on antagonists	
Aphids (excluded: *Myzus persicae*)		*Aphidius colemani*	
Myzus persicae		*Aphidoletes aphidimyza*	
Trialeurodes vaporariorum		*Encarsia formosa*	
Bemisia tabaci		Predatory bugs	
		Coccinellidae	
		Syrphidae	

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Level	Example	Number of valid trials
Species	*Myzus persicae* / bell pepper	≥ 5
Family	Aphididae / bell pepper	≥ 15, covering the most relevant species
Functional group	Sucking insects / bell pepper	≥ 30, covering the most relevant species

European alignement needed for:

- Relevant species for each crop / crop group
- Crop groups
- Pest groups
- Antagonist groups (?)
- Number of valid trials

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The Current-IPM-fit concept

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A proposal for a positive listing of the uses evaluated at zonal level according to EPPO Standard PP 1/278

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WORKING DOCUMENT ON THE WORK-SHARING OF THE CENTRAL ZONE MEMBER STATES UNDER REGULATION EC 1107/2009

Efficacy data requirements and guidance documents

1. Introduction

The present working document is inspired by the "Hungarian proposal [illegible] the EPPO standard PP1/226 about number of trials", the "Working document on the work-sh[illegible]ern Zone Member States under Regulation EC 1107/2009" and the "Guidance on requirem[illegible]ata for zonal evaluation of a plant protection product in the Northern Zone". It summarizes ge[illegible] zonal data production and evaluation and general principles for number of trials per use described in v[illegible] standards. Please refer to EPPO standards for additional details.

Harmonisation

Hucorne, P. 2018. A proposal for a positive listing of the uses evaluated at zonal level according to EPPO Standard PP 1 / 278. Bull. OEPP/EPPO Bull. 48: 540–545

The Current-IPM-fit concept

… the following aspects should be respected for delivered data complementing the legally required data package:

1. Easily comprehensible reports of the Current-IPM-Fit categories in a central European web platform/label.
2. Clearly defined guidelines for the voluntary additional data sets that need to be delivered by companies to claim a specific Current-IPM-Fit category for their products.
3. Voluntariness of companies in order to not hamper registration of new PPP for the European market.
4. No impact from additional data concerning side effects on antagonists on the official risk analysis.

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The Current-IPM-fit concept

	On PPP-Label	In a Web Platform
Availability	• Always available	• Access needed
Flexibility	• Update with PPP-renewal	• New data can be provided “any time” (cf: feasibility)
Feasibility	• Can be implemented directly in the current evaluation procedure • Requires harmonization of European PPP-labels	• New data must be evaluated • Web platform must be hosted, financed and maintained ➢ Additional costs
Complexity	• Some additional points could be added (e.g. persistence)	• More complexity can be mirrored (e.g. climate conditions) • Relevant crop-pest-antagonist combination can be selected and compared for different PPP • Broader analysis enable conclusions on data variability • Can be accessed by DSS

The Current-IPM-fit concept

Pros	Cons
Objective and fast comprehensible information for growers and advisors	Complexity is not fully mirrored *(but more than before!)*
Incentive for companies to voluntarily submit more data	Workload in evaluation increases
Increased awareness for the importance of efficacy evaluation	Evaluation becomes more visible and may be questioned if practice results differ
Can be a driver for more harmonization in Europe	
Corrective measure to practice expectations of different evaluation pathways	

Thanks for your attention