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BIORATIONALS **in** **Integrated Pest Management** **strategies**



Agenda

- **What the law says?**
- How the biorationals fit into IPM rules?
- Misunderstandings
- Availability
- Conclusions



IPM is obligatory in the EU

General principles of integrated pest management (...) are implemented by all professional users by 1 January 2014.*

*Directive 2009/128/EC



DIRECTIVE 2009/128/EC of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides

“Directive establishes a framework to achieve a sustainable use of pesticides by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of **integrated pest management** and of alternative approaches or techniques such as **non-chemical alternatives to pesticides**.”

- ‘**integrated pest management**’ means careful consideration of all available plant protection methods and subsequent integration of appropriate measures that discourage the development of populations of harmful organisms and keep the use of plant protection products and other forms of intervention to levels that are economically and ecologically justified and reduce or minimise risks to human health and the environment.
- ‘**non-chemical methods**’ means alternative methods to chemical pesticides for plant protection and pest management, based on agronomic techniques (...) or physical, mechanical or biological pest control methods;



**DIRECTIVE 2009/128/EC of 21 October 2009
establishing a framework for Community action
to achieve the sustainable use of pesticides**

- In very sensitive areas (such as Natura 2000 sites, parks and gardens, sports and recreation grounds, school grounds and children's playgrounds): appropriate risk management measures should be established and low risk pesticides as well as biological control measures should be considered in the first place.



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General principles of integrated pest management

(Annex III of the Directive 128/2009)

1. Prevention and/or suppression of harmful organisms.* (!)
2. Monitoring of harmful organisms.
3. Application of protection measures on the basis of the monitoring of harmful organisms and threshold levels.*
4. Preference of non-chemical methods over chemical methods if they provide satisfactory pest control.*
5. Preference of specific pesticides and of pesticides with the least side effects over the others.*
6. Keeping the use of pesticides to levels that are necessary.
7. Prevention of resistance development.*
8. Checking protection results.



Application of protection measures on the basis of the monitoring of harmful organisms and threshold levels.

Moderate effectiveness may be acceptable, e.g. **when the pest pressure is low**, when a product will be used as a component of an IPM programme (...)*

*EPPO PP 1/296 (1) approved in September 2017
Principles of efficacy evaluation for low-risk plant protection products



Preference of non-chemical methods over chemical methods if they provide satisfactory pest control

If both: biological and chemical plant protection products are registered for the same scope of use **and show similar efficacy**, biological products should be chosen in IPM rather than chemical.

To be considered:

- Cost
- Some biorationals are less effective in a short-term but act longer



Preference of specific pesticides and of pesticides with the least side effects over the others

Some biorationals, especially microbial plant protection products and pheromones are very specific to a particular pest, also biorationals usually decompose easily and are less persistent than chemical pesticides.



Prevention of resistance development

Biorationals are **not** resistance proof!!!

But: their mode of action is often different than chemical pesticides.

If used interchangeably with chemical pesticides or other means of protection, can constitute a worthy tool in the resistance prevention strategy.



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Some biorationals may have preventive action

- Suppression of pest development
- Stimulation of crop defence system
- Improvement the conditions of plant growth or availability of nutrients allows the crop to grow better and be more robust to pest pressure



However unnecessary use of any preparations is hardly in line with the IPM principles

- Use of any product in IPM should be well thought out.
- Claims like “Product X **should be** used in IPM strategies” are a **misuse**
- Promotion of a fertilizer or an unregistered product as a tool to control pest is **always against the law**
- Disturbing fact: Unregistered products of unknown composition in EU MS are promoted as “safe”, “environmentally friendly” and “suitable for IPM”



‘Integrated pest management’ means careful consideration of all available plant protection methods and subsequent integration of appropriate measures that discourage the development of populations of harmful organisms and keep the use of plant protection products and other forms of intervention to levels that are economically and ecologically justified and reduce or minimise risks to human health and the environment.



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		Uniform availability	
Uniform rules	PPP	YES	Basic Substances
	NO		YES
	Biostimulants	NO	

Source: Matyjaszczyk E. 2017 Plant protection means used in organic farming throughout the European Union. Pest Management Science DOI: 10.1002/ps.4789



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Conclusions

- Use of biorationals is clearly recommended in IPM strategies.
- If biological and chemical plant protection products are registered for the same scope of use and show similar efficacy, biological products should be chosen in IPM rather than chemical.
- Biological PPP showing moderate effectiveness can be of use in IPM when the pest pressure is low



Conclusions

- Some biological PPP, especially microbial plant protection products and pheromones are very specific to a particular pest.
- Can constitute a worthy tool in the resistance prevention strategy.
- Biorationals usually decompose easily and are less persistent than chemicals.



Conclusions

- Some biological PPP may have preventive action.
- Unnecessary use of any preparations is not line with the IPM principles.



**Thank you for
your attention!**