RESOURCE EFFICIENCY
Using less, living better

Sustainable use of pesticides?

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PAN – Europe & CEPTA

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Pesticides Action Network PAN - Europe

- 31 not-for-profit members in 19 European countries
- Goal of productive + sustainable farming, minimising agrochemical inputs; adverse health & environmental impacts
- Working to replace use of hazardous pesticides with ecologically sound alternatives
- www.pan-europe.info

Recource efficiency & using pesticides

We are not resource efficient until we (need to) use chemical pesticides. The way towards resource efficiency in agriculture is towards:

Better understanding of natural potentials at all levels including adaptation ability to climate change. Utilization of supportive relations within the agro eco systems. ***Preventive and biological control of pests & diseases.*** Reconstruction and strengthening of regional food/feed self-sufficiency, regional production – consumption chains, thus food security.

DIR on sustainable use of pesticides?

What does it means sustainability? „is the **capacity to endure.** In ecology, the word describes how biological systems **remain diverse and productive over time.** “ (*Wikipedia*)

What does it mean pesticides?

„*substances intended for preventing,* ***destroying*** *or controlling any pest* **“** (*FAO*).

- Who benefit from greening the pesticides designed to kill?

Sustainable = Economic, Social and Environmental friendly; real price

Cost category framework for assessing full costs of pesticide use (million US $ per year, adjusted to year 2000)

Damage costs	China[1]	Germany	UK	USA
1. **Drinking water treatment costs**	nd	104	215	1059
2. **Health costs to humans** (farmers, farm workers, rural residents, food consumers)	500-1300	17	2[2]	157
3. **Pollution incidents in watercourses**, fish deaths, monitoring costs and revenue losses in aquaculture and fishing industries	nd	60	7	153
4. **Negative effects on on- and off-farm biodiversity** (fish, beneficial insects, wildlife, bees, domestic pets)	200-500	10	75	331
5. **Negative effects on climate** from energy costs of manufacture of pesticides	148	4	3	55
TOTALS	**848-1948**	**195**	**302**	**1755**

1. China costs are just for rice cultivation; 2 Does not include any costs of chronic health problems; 3nd = no data

(Pretty, J. and Waibel, H. (2005) Paying the price: the full cost of pesticides. In: *The Pesticide Detox. Towards a more sustainable agriculture*, Ed. J Pretty, Earthscan, London, pp.39-54.

WHO PAY?

Pesticides impacts our biodiversity

- Honey-bees pollinate about 46 from 115 world´s leading food crop = 1/3 of the human diet.
- Most danger are insecticides – neonicotinoids:

Germany Rhine valley area of Baden Wuerttemberg 2008 + Slovenia 2011 (clothianidin), England 2008 – third of hives were wiped out (imidacloprid),...

- Organophosphates & carbamates have a toxic effects on the nervous systems of amphibians;
- PAN –E: „**Pesticides and the loss of biodiversity** “

„We conclude that despite decades of European policy to ban harmful pesticides, the negative effects of pesticides on wild plant and animal species persist, at the same time reducing the opportunities for biological pest control. If biodiversity is to be restored in Europe and opportunities are to be created for crop production utilizing biodiversity based ecosystem services such as biological pest control, there must be a Europe-wide shift towards farming with minimal use of pesticides over large areas.

Geiger, F. et al. ***Persistent negative effects of pesticides on biodiversity and biological control potential on European farmland.*** *ELSEVIER - Basic and Applied Ecology (2010), doi: 10.1016/j.baae.2009.12.001*

Good IP-M scheems as a backbone for moving towards resource efficiency

Directive 2009/128/EC:

- **30 June 2013**, Member States report to the European Commission on implementation of IPM (art. 14.3)
- **1 January 2014**, all professional users to implement IPM (art. 14.4)
- Integrated pest management emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages **natural pest control mechanisms**"; (art. 3)

1x Typhlodromus pyri

and NO acaricides are needed

Good and bad IP-M practice. How to compare, to finance, to control?

- Good example of system– Switzerland (IPM compulsory for all), 3+ crop rotation, number of different measures, good advisory support, awareness of farmers;
- Bad example of system – Slovakia RDP 2007-13, weak measures (focus on signalisation and data archiving), no advisory, no real control;
- Good example – SISPO – CZ_ap2010: 31%=0 r; over 50% under 1% of MRL; control + advisory.

What will IPM mean in EU future?

Integrated **P**est **M**anagement ☺

? Or ?

- **I**ntelligent **P**esticides **M**arketing ☹
- **IOBC** as a good guide on a complex & scientifically based approach to IP

IOBC-WPRS
OILB-SROP

- **ENDURE** (NoE 2007-2010)

endure diversifying crop protection

Food Quality and Safety

http://www.endure-network.eu/

- Need for the **EU-IPM Knowledge database** on crop specific best practice of IPM / BC

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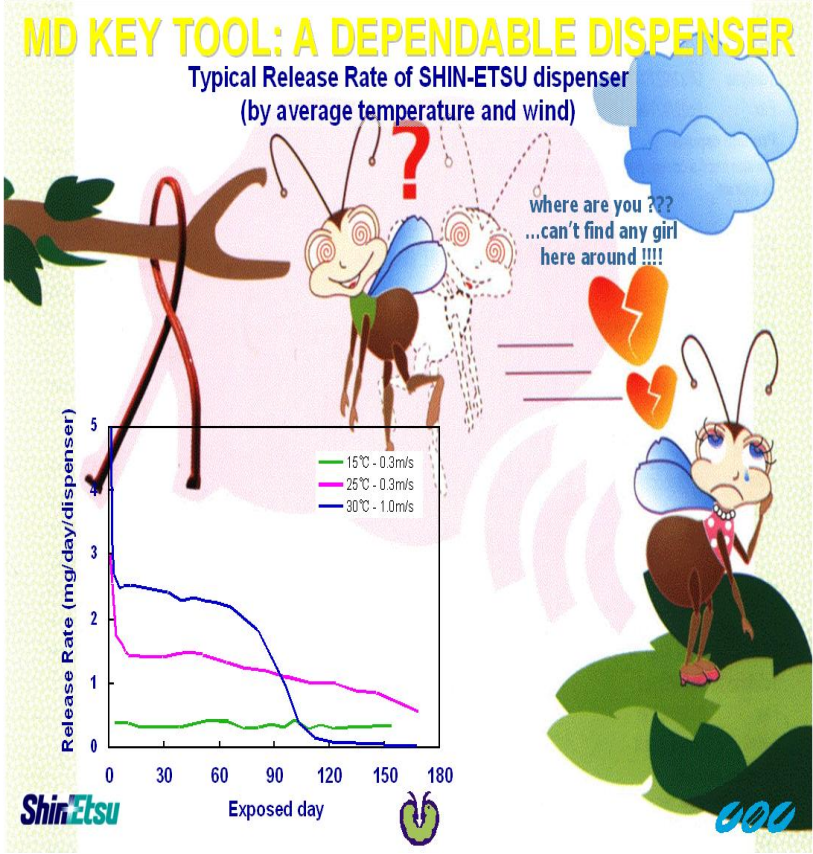
Do we need IPM - EU standards?

Used by 50% or more farmers	Used by 20-35%	Used by less than 10%
Crop rotation	Some element of mechanical weed control	Using pheromones to monitor pest levels
Improved field margins	Flower strips to encourage natural enemies	Sowing a mixture of crop cultivars in the same field
Timing field operations to reduce risk of pest, disease or weed problems	Beetle bank strips in large fields to shelter ground predators for aphid control	Introducing predators for pest control
Sowing disease or insect resistant varieties		Using pheromone traps to control pests
Hand pulling problem weeds		Using trap crops to attract pests away from the cereal crop
Sowing different cereal varieties in different fields		
Spot spraying		

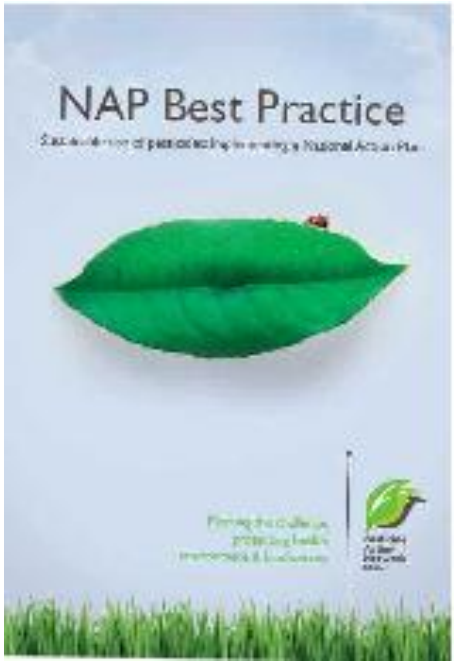


Source: Overcoming market and technical obstacles to alternative pest management in arable systems. Rural Economy & Land Use Programme Policy Note 10. Oct 2009 (www.relu.ac.uk)

National Action Plans?

Implementation of Sustainable Use Directive (SUD):

- **26 November 2011**, Member States to convert Directive 2009/128/EC into national law (art. 23)
- **26 November 2012**, Member States shall communicate National Action Plans (NAP) to Commission and other Member States (art. 4.2)
- PAN – E created **NAP Best Practice** guide for MS (see more at web)



Good NAP should cover also:

1. **Partnership principle** all stakeholders since beginning of its Creation (Good examples – Germany + Denmark; bad examples – CZ, SK);
2. **Reflection of priorities of SUD (**2009/128/EC**)**
3. **Measurable targets / indicators** for good agri - practice and for residues (environment/food)
4. **Exact timetable** and **transparent monitoring**;
5. **Clear responsibility and control mechanisms** at EU as well as at national levels;
6. **Finances and capacity** for its implementation;
7. **Non agriculture use of pesticides restrictions**

Recomendations for resource efficient use of Pesticides in EU

1. Quality indicators and methodology guide for NAP, partnership principle + budget for impl.;
2. Standards for IP-M ladder/levels/... in EU, also as a base-line for subsidies 2014-20 + advisory;
3. MRL limits harmonize with ADI and/or ARfD;
4. Include external costs of pesticides into it´s price (eco-tax, fee...) + farm.&cons. awareness;
5. Speed up the bee and agro-eco systems protection + full support to ORGANIC / BC R&D
6. Speed up registration of alternative PPproducts.

Thank you for your attention

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