

Is reducing environmental impact in the EU feasible?

January 30 2014, by Dr. Pm (Piet) Boonekamp



By 2023 all EU member states must be complying with more stringent guidelines related to Integrated Pest Management (IPM). "The essence of the new guideline is reducing the environmental impact of pesticides," says Piet Boonekamp, manager of the Bio-interactions and Plant Health business unit at Wageningen UR. "In principle this European goal can be achieved, as has been shown by the Dutch agriculture and horticulture

sectors. But only if European politicians don't lose themselves in the details."

Prevention, monitoring and control

According to European regulations, the integrated [crop protection](#) of the future must complete three consecutive steps. The planning of the cultivation and choice of crops must comprise preventive measures, such as working with pathogen-free seeds and choosing resistant varieties. During cultivation, the crop has to be closely monitored. And when there is a risk of a disease or plague outbreak, the control method must be chosen carefully with 'chemicals' being the remedy of last resort.

"Each of these three steps consists of various elements," Boonekamp explains. "The danger now is that European politicians want to agree on 'benchmarks' and goals for each of those individual elements, which would create an impossible situation. It would be better for Europe to only set the eventual goal: the intended reduction of the [environmental impact](#) of pesticides before 2023. Farmers and pesticide producers must figure out for themselves how to achieve this goal using the tools handed them by the research. It is not possible to arrange everything centrally for all the different crops, soil types and conditions."



Cleaner surface water

The Netherlands is currently a European leader with regard to reducing pesticide residues on fresh produce. There is still plenty of work to be done in the Dutch agricultural sector nonetheless. Due to the high yield per hectare, the impact of pesticides per hectare is still relatively high, for example. In the specific, relatively wet Dutch conditions it is particularly important to further reduce the impact on the surface water. Boonekamp: "We will therefore have to develop advanced and integrated tools for every cultivation system in order to meet the guideline."

Sustainable crop protection

The DuRPh project involving the sustainable control of Phytophthora

offers a good insight into how the sustainable control of pathogens and plagues can be organised for other crops, according to Boonekamp.

"Within DuRPh we are working on collecting various resistance genes in one potato. We are also monitoring the 'virulence genes' used by the Phytophthora-causing fungi to infect the potato. Potato farmers are only allowed to spray when fungi with 'risky virulence genes' are found near the field. In other cases the resistant potatoes are able to ward off the harmful fungus themselves."

To transfer the DuRPh project from the lab into practice, Boonekamp is making an urgent appeal to politicians. "Stacking resistance genes from potatoes is a perfect example of integrated pest control, but it currently falls under the laws on [genetic modification](#). Due to social resistance the threshold for producers to translate the principle into practice is still too high. Cisgenesis - transferring genes within one variety - should be removed from the stringent laws on genetic modification so that the approach can also be applied to other crops."

Cooperation between organic and chemical sectors

Not just farmers and politicians will have to take steps to realise what Boonekamp has dubbed 'crop protection 2.0'. "Producers of pesticides will also have to change their work methods. Various major producers have already indicated that they expect to realise at least 25 per cent of their turnover from organic products in the future. This involves, for instance, micro-organisms that can be used similar to chemical products to combat specific pathogens and plagues.

"It is obviously important for such an approach that a colleague does not use a chemical pesticide against another pathogen which also that eliminates the useful micro-organisms. If the focus is on protecting plants from all pathogens and plagues with a diversity of chemical and organic products, producers of chemical and organic pesticides would

have to work closely together from an early stage. Our knowledge of the interaction between plant, pathogen and organic and/or chemical pesticides can help producers create harmony in the product package. After all, only a truly integrated approach at all levels can seriously reduce the impact of [pesticides](#) on people, animals and the environment."

Provided by Wageningen University

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