

A pest management toolbox to reduce pesticide use

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Credit: Brad Smith

Integrated pest management gains momentum due to European regulations on pesticides reduction. But the challenges are to integrate all alternative methods and to get farmers involved.

Reducing the level of pesticide use in agriculture is a priority in Europe. A 2009 EU Directive states that the use of pesticide must be compatible with sustainable development. In particular, it encourages so-called [integrated pest management](#) (IPM) initiatives. IPM consists in combining available biological, genetic and agricultural methods to fight pests—such as weeds, bacteria, viruses, insects and fungi – rather than

using extensive pesticide spraying.

Now the EU-funded PURE research project, due to be completed in 2015, aims at providing practical IPM solutions to reduce dependence on pesticides in selected major farming systems in Europe. "Our final objective is to provide farmers a toolbox for implementing IPM," says Françoise Lescourret, director of research at the plants and cropping systems in horticulture laboratory at the French National Institute for Agricultural Research (INRA), in Avignon, France. She is also the project coordinator.

The research focuses specifically on six cropping systems: wheat and maize as field vegetables, as well as pomefruits and grapevine as perennial crops, and tomato as greenhouse crop. Field tests are carried out in ten European countries. Project scientists are testing several solutions including, for example, the phasing of sowing in response to [pest](#) emergence, the use of plant species resistant or tolerant to biological aggressors, and the release of predator insect species in greenhouses.

Alongside these existing methods, the project team also evaluates innovative technological solutions, such as air samplers that can warn the arrival of airborne inoculum of pathogens, or mating disruption for insects involving the release of pheromones.

Then, IPM models taking into account experimental results are designed in the lab, and tested back in the field, in a virtuous circle. "Combining IPM solutions is challenging as all problems do not arise at the same time in farms," Lescourret tells CommNet.

Assessing the cost of these solutions before and after implementation is also a key point of the project. "A good solution results in a positive environmental impact, a good cost-versus-benefit ratio, and preserves the social well-being of agriculture professionals," she tells CommNet.

Economic aspects are indeed crucial. "In order to execute IPM, many more economic thresholds for pest, disease, and weed infestation are needed. Economic thresholds are the levels of the pest that will cause economic loss if the pest is not controlled. Controlling the pest below this level is wasteful, costly and a totally unjustified use of pesticides. In order to assess if a pest is above this threshold, farmers need more sampling methods to measure the pest level. PURE can add to their toolbox" says Richard Meadow, research scientist at Bioforsk, the Norwegian Institute for Agricultural and Environmental Research, in Ås, Norway.

However, a toolbox is not enough, for Hans Muilerman, pesticides & alternatives officer with PAN Europe, the European subsidiary of pesticide action network federating environmental NGOs. "The main thing farmers need is good examples. If the 'hero' of the region adopts IPM, many will follow. Governments should start 'IPM-hero' programs and stimulate it. A toolbox is only needed when farmers feel like changing and this is the big hurdle for now," he tells CommNet.

By the time the project reaches completion, however, the European network ENDURE for the promotion of sustainable agriculture will take over and spread the results among agricultural advisers to maximise the chance that project findings will be implemented.

More information: www.pure-ipm.eu/

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