

# Science for Environment Policy

## Factors affecting farmers' adoption of Integrated Pest Management

**Integrated Pest Management (IPM)** is a sustainable approach to reduce pesticide use and risks of adverse effects on human health and the environment. However, its adoption by European farmers cannot be based only on mandatory regulation by the European Union, a new study suggests. The research identified four key factors driving IPM adoption; including market forces, policy instruments and farmers' attitudes to the environment.

**IPM combines a range of complementary methods to reduce pests**, using non-chemical methods where possible, and minimising effects on the ecosystem. Under the EU [Sustainable Use of Pesticides Directive](#)<sup>1</sup> all Member States were required to submit National Action Plans by December 2012. It then became obligatory to create the conditions for the implementation of the general principles of IPM by January 1<sup>st</sup> 2014. Annex III of the Directive lays down these general principles and Member States can choose how they should be implemented by professional users. In addition, Member States must establish incentives to encourage professional users to implement crop or sector-specific guidelines on a voluntary basis.

However, despite legislation, there is likely to be a period of transition before crop-specific IPM strategies are available and adopted by all farmers. This delay could be exacerbated by a lack of knowledge or technology in some areas. Taking an economic perspective, this study (part-funded by the EU [PURE](#) project<sup>2</sup>) reviewed the scientific literature to identify factors affecting IPM adoption. The researchers identified four main drivers:

### *The cost-effectiveness and risks of IPM*

IPM could reduce costs in many ways, from lowering input costs to improving yields and crop quality. However, the size of such benefits may vary greatly depending on the IPM programme, crops and local conditions. Furthermore, experience of IPM is currently not yet sufficient in all Member States to be able to provide guidance on the best IPM strategies; as such, many farmers still perceive some risks associated with IPM.

### *Market drivers*

Unlike organic produce, food grown using IPM principles is rarely labelled as such, and as a result consumers have a very limited understanding of the approach. Early adopters of IPM got access to specific markets segments, but did not get a premium for their produce. The new legislation is not expected to have a major impact on market organization, since it only transforms a requirement imposed by retailers into one imposed by the European legislator. Its main effect will be to force retailers and producers to revise their certification schemes and ensure compliance with legal requirements or to promote specific aspects going beyond these requirements.

### *Farmer's attitudes towards innovation, the environment and health risks*

There was evidence that some farmers adopted IPM out of concern over the environmental and health risks of using pesticides, suggesting non-financial incentives could play a positive role in IPM adoption. Attitude to change and innovation could also have an important effect, as some farmers see IPM as a high-risk strategy, due to the novelty of some IPM strategies as well as gaps in knowledge and experience of the approach. These behavioural factors can explain why, even when alternative pest control methods are more profitable than chemical control, other external incentives to adopt IPM are still required, at least during the transition period.

Continued overleaf...



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1. [http://ec.europa.eu/food/plant/pesticides/sustainable\\_use\\_pesticides/index\\_en.htm](http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/index_en.htm)

2. Pesticide Use-and-risk Reduction in European farming systems with Integrated Pest Management (PURE) was supported by the European Commission under the Seventh Framework Programme. See: [http://ec.europa.eu/research/bioeconomy/agriculture/projects/pure\\_en.htm](http://ec.europa.eu/research/bioeconomy/agriculture/projects/pure_en.htm)

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### *Policy instruments/ Public intervention*

Through the Sustainable Use Directive, the EU has decided to rely on regulation. However, it is recognized that adjustment to the new legal requirements can be slow and costly. This may create a need for incentive-based instruments. These might include pesticide tax, as a possible useful means for supporting implementation, or payments compensating part of the costs, such as rural development programme measures.

Moreover, the researchers suggest that there is also a fundamental role for the state in improved communication, training and advisory services regarding IPM. This would complement legislative incentives, improving farmers' environmental awareness and clarifying the risks and benefits of IPM. An example of this is the CAP-related Farm Advisory Service, which provides specific advice related to the Sustainable Use Directive. Improved communication campaigns for the general public may also increase how much they are willing to pay for IPM produce.

