

ENDURE Policy Brief: Implementing IPM - A gradual path involving many stakeholders

Policy Brief No. 1

November 2010

THE IPM CONTINUUM:

ENDURE RESEARCH SHEDS LIGHT ON THE ROLE OF SOCIAL RELATIONSHIPS

“Member States shall establish or support the establishment of necessary conditions for the implementation of integrated pest management.” (Directive 2009/128/EC, Art. 14.2).

In support of this objective, the European Network of Excellence ENDURE brings insights into the conditions for successful implementation of integrated pest management (IPM).

Changing farmer practices depends not only on the initiative of individual farmers but also on the knowledge, economic and social networks to which they belong.

Integrated Pest Management (IPM) can be considered as a continuum, ranging from optimisation of pesticide use within the ‘current’ crop protection system to substitution via the adoption of non-chemical strategies and to more radical re-design of production systems by acting on crop rotations, landscape and varieties. At field level, adopting IPM is not merely a matter of adopting new techniques; it is also the product of individual farmers’ histories and the social relationships they establish over time within their professional environment and with society.

Against this background, ENDURE social scientists in France, Switzerland, the Netherlands and the United Kingdom studied how farmers move toward more sustainable crop protection strategies. In total, they conducted 42 face-to-face interviews with wheat farmers and apple growers, supplemented by 10 interviews with other stakeholders in the food chain such as leaders of cooperatives.

1. The path of an individual farmer along the IPM continuum is a gradual process

Among the interviewed farmers who had significantly advanced along the IPM continuum, transition was very gradual and came at different speeds. Among arable crop producers, we found that practices involving reduced dosages, late sowing, low stand density, reduced fertiliser use, foregoing growth regulators and planning longer rotations are adopted in a piecemeal fashion over time. One change often led to another and finally caused system-level changes. The same was true for the IPM apple growers we interviewed: *“We became aware that it was not enough to lower the number of treatments in order to improve fruit quality; that other factors, like manuring, pruning etc. were worth taking into consideration.”*

Main findings:

1. The path of an individual farmer along the IPM continuum is a gradual process and ranges over a number of years. This process involves changing the way in which farmers and their neighbours assess their work.

2. Lasting collective dynamics involving farmers, advisers and researchers are key to the emergence of robust and far-reaching transitions. Policies designed to promote IPM should include support to farmer and farmer-advisor groups.

Implementing IPM: A gradual path involving many stakeholders

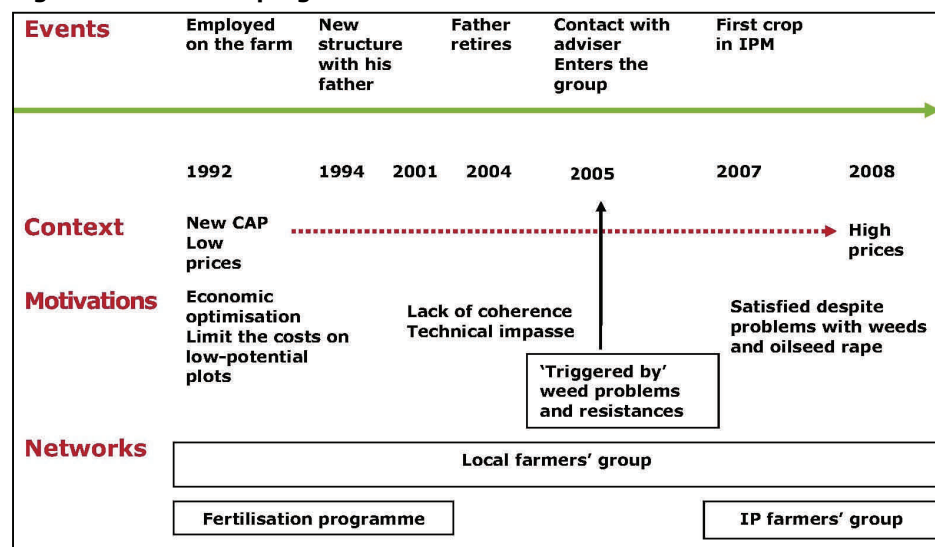
“IPM is not a one-shot event. It can take on a variety of forms over different time spans and be triggered by a variety of events.”

Let us consider the case of Antoine, a French wheat farmer who belongs to an IPM group of farmers (see Figure 1). Antoine manages a wheat-barley-oilseed rape rotation and also produces sugar beet. When he began farming in 1994, his main goal was to optimise profits to ensure two full wages, one for his father and one for himself.

As his farm had fields with very different yield potential, he adapted his plant protection strategies to the potential of each field. He therefore minimised costs in the fields with the lowest potential yields. This first evolution took place in the context of CAP revision and low prices (1992-2006). He describes his practices at the time as 'lightened' conventional farming.

The main event leading him toward more advanced forms of IPM occurred in 2004. The trigger was a heavy weed outbreak associated with a perception that his crop protection strategy was incoherent. For instance, he had reduced the use of herbicides without adjusting other factors such as sowing date and density. This eventually led him to think in terms of crop rotation and to produce his first 'redesigned' IPM crop in 2008. Now he is confident that, regardless of future market changes, he will not revert to earlier farm practices.

Figure 1: Antoine: a progressive and robust conversion to IPM



This story is one of many showing that IPM is not a one-shot event. It can take on a variety of forms over different time spans and can be triggered by a variety of events. Nevertheless, it often involves a series of cumulative steps over time eventually resulting in systemic change.

“Collective dynamics are key to supporting farmer transitions towards substitution and redesign strategies.”

2. Lasting collective dynamics involving farmers, advisers and researchers are key to the emergence of robust and far-reaching transitions

Collective dynamics are key to supporting farmer transitions towards substitution and redesign strategies. Our interviewees acknowledged the value of membership of an IPM farmer group. In these groups, farmers learn from one another and from advisers and, when they are present, researchers (see Box 1). They jointly construct technical solutions adapted to their specific situation. Interviews showed that farmers gain confidence because their individual decisions are taken within a group, or at least challenged with the opinions of other farmers and of the adviser.

“Nearly all farmers who had clearly entered the IPM continuum were also members of professional organisations. In contrast, isolated farmers are less likely to engage in IPM.”

Another fact that corroborates the importance of collective dynamics in supporting farmer adoption of IPM is borne out by the observation that nearly all farmers who had clearly entered into the IPM continuum were also active members of professional organisations. In contrast, isolated farmers are less likely to engage in IPM. In Switzerland, for example, most part-time apple growers did not belong to a grower group and did not enjoy technical support. They were not able to comply with the new Swiss IPM regulation which meant that they could not benefit from the IPM subsidies and eventually gave up farming.

Box 1: Collective dynamics in Switzerland: IPM groups in apple

In Switzerland, the implementation of integrated production was facilitated by connecting researchers, advisers and growers within IPM groups. These groups, set up by a public adviser, a researcher and pioneer growers, were key to the success of the new Swiss agricultural policy linking state payments to IPM implementation. To join an IPM group, producers were required to take courses in IPM and to participate in five annual collective pest monitoring sessions. Each group, convened by the advisory service, was divided into grower-led subgroups that jointly monitored reference plots. All the sub-groups subsequently met to hear their respective observations and comment on them. If relevant, they discussed the need to treat.

This collective system generated many benefits. It generated large data-bases for use by the advisory service and the research station. It made feasible coordinated initiatives such as the collective use of pheromone traps against codling moth. Interviewed growers said they:

- learned from each other
- became more confident about their decisions
- acquired a more general vision due to the large number of reference plots they had been exposed to.

“IPM calls for changes in the criteria used to measure performance, particularly those related to the presence of pests and weeds.”

3. Standards within the farming community

Farming groups also create or maintain standards that can either favour or impede IPM. Even though yields are not direct indicators of economic success, our interviews show that in fact they nevertheless continue to function as a major symbolic reference among the farming community.

Naturally, evaluating performance according to margins rather than yields is more directly related to farmer objectives. This is true with IPM. But IPM, which is associated with changes in risk management, also calls for changes in the criteria used to measure performance, particularly those related to the presence of pests and weeds.

Let's take the example of wheat. In conventional wheat production, early sowing and high nitrogen input cause:

- Aphid and fungal disease outbreaks which make the preventive use of pesticides necessary.
- Risk of lodging, which makes applications of growth regulators a must.

To reduce the risk of fungal disease, Antoine postpones sowing to mid-October.

About ENDURE

ENDURE is the European Network for the Durable Exploitation of Crop Protection Strategies bringing together more than 300 researchers from 18 organisations in 10 European countries. ENDURE is:

- Building an international multi-disciplinary research community with a shared vision
- Interacting with advisers and extension services to ensure research advances become a field reality
- Providing scientific support to policy makers for the implementation of the European Union's new pesticide legislation.

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By so doing, he takes the new risk of having to sow his last fields in unfavourable weather conditions. IPM farmers can accept these sorts of risk, whereas conventional ones would not. Regarding the risk of lodging, whereas IPM growers reduce the density of sowing and postpone their first nitrogen supply, conventional ones rely on growth regulators.

Because IPM and conventional growers don't face the same types

of risks, they have different conceptions of what constitutes good practice. For example, IPM wheat growers that we interviewed were not particularly concerned by more irregular and thinner wheat stands. IPM apple growers didn't pay much attention to weeds present between tree rows. In contrast to conventional growers, they didn't pay attention to the weed-free state or 'cleanliness' of the entire orchard. What matters to them is a weed-free area specifically at the foot of the tree.

It is important that such changes in the way performance is evaluated be shared among the farming community. Our interviews show that farmers pay much attention to advice from colleagues. The networks to which farmers belong are sources of knowledge on individual techniques but they are also the sources of standards used to evaluate performance.



Sustainable apple production places less emphasis on the 'cleanliness' of the entire orchard. © Christophe Maitre, INRA, France.

What it means for policy :

1. The path of an individual farmer along the IPM continuum is a gradual process.

With respect to policy, the essential issue is to enable this process to occur over the long term. Lasting support in terms of more permanent types of funding and institutions dedicated to IPM have a greater chance of success than short-term incentives or educational initiatives. It also means that evaluating the progress of IPM R&D efforts requires a certain lag time.

2. Lasting collective dynamics involving farmers, advisers and researchers are key to the emergence of robust and far-reaching transitions.

Policies dealing with agricultural research and extension can take into consideration the importance of collective dynamics. They can build on existing farmer groups or create new ones involving farmers, advisers, researchers and other relevant stakeholders. Training to develop new types of competencies associated with collective learning processes may be needed.