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Integrated Pest Management

The perspective of partners in the food value chain

This document has been prepared in common by the following associations:

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European Crop Protection Association
member of CropLife International

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THE FORUM FOR THE FRESH PRODUCE INDUSTRY

PIP
FOR SUSTAINABLE DEVELOPMENT OF THE ACP HORTICULTURAL INDUSTRY

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What is Integrated Pest Management (IPM)?

IPM means managing, in a given situation, populations of plant pests, diseases and weeds by the combination of all appropriate agricultural practices (preventive measures, cultural, mechanical, biological and chemical practices), in a holistic approach that reduces the impact of pests and damage to an acceptable level and at the same time ensuring the protection of human health and the environment.

Is there a widely accepted definition of IPM?

Many definitions of IPM exist. However, the following most common definition has been agreed by the UN's Food and Agricultural Organisation (FAO), and is supported by NGOs, the plant protection industry, and the International Farmers Organization:

"Integrated Pest Management (IPM) means the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimise risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agri- ecosystems and encourages natural pest control mechanisms"[1]*.*

This definition is also reflected in the European Directive on the Sustainable Use of Pesticides[2].

What has IPM to do with sustainable agriculture?

Integrated Pest Management and Integrated Crop Management (ICM) comprise the practical methods and strategies on the ground to meet the requirements of sustainable agricultural production[3]. As such, these are vehicles to achieve sustainable agriculture allowing to ensure that increasing demands for food, feed, fibre and energy are met against a background of finite agricultural land and water supplies and without depleting natural resources for future generations.

How is IPM inter-linked in the broader context of handling pests and diseases?

IPM should not be viewed in isolation, but should be considered as part of the overall integrated production practice of a crop, which includes seed/variety selection, land preparation, fertility, water and soil management etc.

As such, IPM is a key element of the broader concept of Integrated Crop Management which in turn is a vital component of Integrated Farming (IF), all of which need to be handled and adapted according to the site and situation.

Integrated Crop Management/Integrated Farming consider the wider situation across the whole farm and not only one individual crop and one crop protection measure employed at any one time. Changes to production practices will affect pest management practices. For example, changing soil management strategies, changing crops or changing rotations, will not only have an influence on crop protection, nutrition and general crop management, but may impact energy use and emissions,

[1] Article 2, International Code of Conduct on the Distribution and Use of Pesticides (revised version), adopted by the Hundred and Twenty-third Session of the FAO Council in November 2002, FAO, 2003.

[2] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides.

[3] A sustainable food and agricultural system is one which is environmentally sound, economically viable, socially responsible, non-exploitive, and which serves as the foundation for future generations. It must be approached through an interdisciplinary focus which addresses the many interrelated parts of the entire food and agriculture system, at local, regional, national and international level (ALLEN *et al*., quoted in Christen, O. (1999): Sustainable Agriculture – from history of ideas to practical application. Volume 1 of the series of the Institute for Agriculture and Environment (ilu), Bonn.

waste and pollution generation and the inherent biodiversity (non target organism populations) of the farm, field or crop.
The emphasis of IF/ICM is on a system that meets the requirements of long-term sustainability. It is a 'whole farm approach', which involves managing crops profitably but with respect for the environment, in ways which suit local conditions.

What plant protection techniques are used in IPM? Does it include plant protection products[4]?

All plant protection measures that help to prevent or manage pests, whether through general crop management practices such as rotation, or of cultural, physical, biological or chemical nature.
The decisions on pest management measures are taken at farm level based on a wide variety of instruments such as qualified advisers' recommendations, alert services and infestation forecast, research results, experience, threshold values and requirements of production contracts. Crop production is dynamic and pest management must take this into account.
The basic components of an IPM strategy are: prevention, observation, informed decision making and intervention.

The actual techniques included in an IPM approach on-farm will vary, not only between crops but also within the same crop grown in different geographical locations, or between years, depending on pest pressure, weather patterns, crop rotation and other factors, as well as availability of tools and resources. Even within one crop there will be differences between locations, crop growth, yield potentials, pest infestations and the variability in farmer's resources.

It will ultimately be up to farmers to determine the best combination of measures to prevent and manage diseases and pests according to the specific on-farm situation and the local conditions at the time.

IPM is comprising both preventive and curative measures and pesticides are part of these measures. Pesticides are applied when necessary, and a key element of IPM is determining when pesticides actually need to be used. IPM follows the approach "as little as possible but as much as necessary". The choice of chemicals is made with consideration of compatibility with non-chemical methods (e.g. natural predators), pest pressure and resistance management, products' profiles and taking into account the local circumstances.

Why implement IPM in the field? What are the benefits?

The advantages of using IPM methods are that:

- ✓ The use of inputs is optimised ensuring healthy and profitable crops with the least possible disruption to the agri-eco system.
- ✓ Benefits of modern technologies are combined with basic principles of good farming practices.
- ✓ Unnecessary pesticide use is avoided.
- ✓ The use of a combination of different control methods, including chemical and non-chemical ones reduces the risk of pesticide resistance.
- ✓ IPM, practiced within an ICM/IF frame, allows sustainable crop production economically as well as environmentally wise.
- ✓ Interventions are kept to the necessary and justified level considering the protection of health and the environment.
- ✓ Risks to human health and impact on the environment are minimised.

[4] Plant Protection Products (PPP) are part of pesticides, as defined by Directive 2009/128/EC (see footnote 2).

Will IPM implementation contribute to the objectives of the Framework Directive on the Sustainable Use of Pesticides?

Enhancing the implementation of Integrated Pest Management practices will be one of the cornerstones to achieve the goals of the Framework Directive on the Sustainable Use of Pesticides. The practical implementation however needs to reflect the wide diversity in agriculture across the EU.

What needs to be considered for a successful European-wide implementation of IPM?

To promote and encourage a continued and successful implementation of Integrated Pest Management across Europe, several aspects will need to be considered:

- IPM in the wider context of ICM/IF encompasses a holistic approach considering all farming activities.
- All available pest management methods i.e. cultural, mechanical, biological and chemical need to be considered.
- IPM is an on-farm management tool implemented by the farmer. IPM needs to be farm-based as the specific situation of e.g. one field or parcel needs to be considered for the best implementation of IPM measures. The decisions on the ground need to be taken by the farmer on the farm according to the specific situation at the time.
- A sufficient range of scientifically researched, practical options which qualify on farm and available tools ("tool-box") is needed to enable farmers to implement pest management decisions according to site and situation in line with sustainable agriculture. These practical options need to be economically viable.
- The management skills required for IPM are high and ensuring that qualified advice and extension services are available and accessible is important to allow supporting the decision-making process. In addition, access to practical information, on-farm demonstrations, field trials, training, appropriate decision supporting tools and instruments such as alert services, infestation forecasts, etc is very important.
- There is no such thing as a single recipe for IPM. Site (e.g. soil, climate, distance to market), situation (e.g. weather, time in season), experiences and available tools require flexible management decisions to adapt to the local agronomic, pest and on-farm circumstances.
- A practical approach towards IPM is needed to enable farmers to determine the most appropriate course of action, not an approach based on inflexible instructions or on "one size fits all".
- IPM has to be economically sustainable. IPM needs to consider the economics of pest management and the economic viability of the crop, as the crop has to remain profitable, pay for social costs, labour etc. and provide the farmer, with a living comparable to other economical activity.
- It is important to note that, where changes of crop protection strategies need to be undertaken, guidance on possible knock-on effects for example on mycotoxins is provided in time.

How can the implementation of IPM in Europe be supported in the field?

There are several key requirements to ensure a successful implementation of IPM in the field

- Awareness raising amongst farmers and advisers to ensure wide implementation in practice.
- Availability of highly qualified advisors, high quality advisory and extension services at acceptable costs.
- Relevant research in consultation with farmers and advisers to identify needs (avoid research that is impractical for the reality of farming). Research needs to qualify on farm.
- Promotion and awareness raising (campaigns) of the benefits of IPM to increase public awareness and get public support and funding.

- Availability of sufficient and effective plant protection tools, including a variety of PPPs
- Streamlined authorisation to drive the introduction of new plant protection products and to fill the use gaps created in recent years.
- Continuity in government (support) policy and long-term political commitment.
- Availability of sufficient cost effective supporting tools to allow IPM to work in practice.
- Advice, support, on-farm demonstrations and information provision to gain farmers' support and enhancing the practical implementation rather than strong policing regulations.

Consequently, defining general IPM principles and provision of general guidance is possible, as long as these allow for adaptation to the specific situation and provide flexibility for site specific management decisions. Otherwise practical implementation of IPM will be impeded. It is however possible to provide some fairly specific recommendations for a particular crop in a particular region.

What are the benefits for consumers?

IPM being part of Integrated Crop Management and Integrated Farming is one of the most efficient tools to achieve a sustainable agriculture which is environmentally friendly, economically viable and socially responsible. At the same time it allows ensuring food security and delivering wholesome, high quality yet affordable food produced with care, for an ever-growing population.

IPM has been in place over 40 years, what is new?

IPM is not a new concept and has evolved over time. Its techniques are broadly used all around the world. What is new in Europe is that following general IPM principles becomes mandatory for all farmers by 1 January 2014 as provided by the Framework Directive on the Sustainable Use of Pesticides. Indeed, article 14 states that: "*Member States shall describe in their National Action Plan referred to in Article 4 how they ensure that the general principles of Integrated Pest Management as set out in Annex III are implemented by all professional users by 1 January 2014".*

Does IPM cost more for the farmers and consumers?

Implementing IPM does not necessarily imply higher costs on the input sides, although this depends on the crops, the measures being applied and the market situation.
What is required however is investment by farmers in terms of: training in IPM techniques, adaptation measures to be taken by each farmer or additional use of advisory services in order to fully implement IPM as well as costs for potential monitoring or control systems.

Whether these costs will be reflected in the final produce price needs to be seen. Risk of damage and (partly) loss of the crop is not compensated by the market and consumers in most cases are not willing / do not pay more on the basis of production method.

IPM therefore needs to consider the economical viability of the crop. Crop protection is the basic tool to protect crops towards damage or loss by pests. For some crop markets, even minor damages may lead to a total loss of the crop as there are zero tolerances.

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On behalf of the above-mentioned associations:

1. CELCAA European Liaison Committee of Agricultural and Agri-Food Trade www.celcaa.eu
2. COCERAL Comité du Commerce des céréales, aliments du bétail, oléagineux, huile d'olive, huiles et graisses et agrofournitures www.coceral.com
3. PIP Pesticides Initiative Programme (PIP) for ACP countries http://pip.coleacp.org
4. COPA-COGECA European Farmers and European Agri-Cooperatives www.copa-cogeca.eu
5. ECPA European Crop Protection Association www.ecpa.eu
6. FRESHFEL European Fresh Produce Association www.freshfel.org