

# Organic Agriculture



# Integrated Pest Management (IPM)

## WORKING TOGETHER FOR SUSTAINABILITY

### What is organic agriculture?

As defined by the Food and Agriculture Organization (FAO, 1999), organic agriculture is a

“holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system.”

Hence, organic agriculture prohibits the use of most pesticides that have potential adverse effects, including nearly all pesticides made from synthetic ingredients. Instead, it relies on ecological processes, biodiversity, and nutrient cycles through crop rotations, cover crops, green manures (IFOAM 2005), and pesticides derived from natural products. Keep in mind that organic farming is a whole-systems approach and is not simply the substitution of natural materials for synthetic ones.

### What is Integrated Pest Management?

Integrated Pest Management (IPM) is a science-based, decision-making process that identifies and reduces risks from pests and pest management related strategies. IPM coordinates the use of pest biology, environmental information, and available technology to prevent unacceptable levels of pest damage by the most economical means, while minimizing risk to people, property, and the environment. IPM provides an effective strategy for managing pests in all arenas including agricultural, residential, and natural areas. It can be used within all production systems, including organic production. As described by Phillips et al. (2014), IPM adoption in any system is on a continuum that ranges from optimizing the timing and selection of pesticides plus limited use of other tactics (Low-level IPM) to the use of biologically based and cultural pest management tactics leading to greatly reduced reliance on pesticides (Biointensive IPM) (Fig. 1). Pesticide options include both naturally derived and synthetic substances that have been approved for their use by the US Environmental Protection Agency and/or other relevant authorities. In short, IPM is a framework for sustainably managing pests wherever they occur while minimizing environmental, human health, and economic risks.

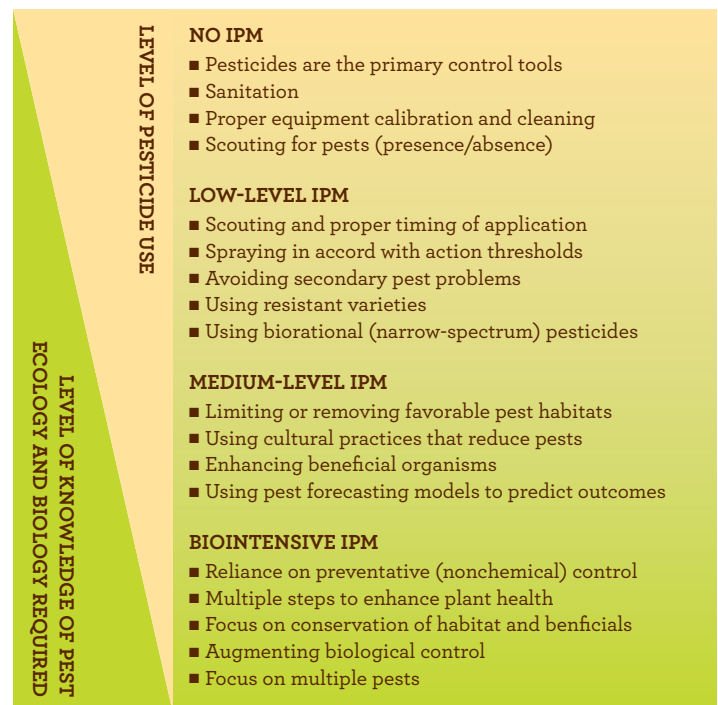


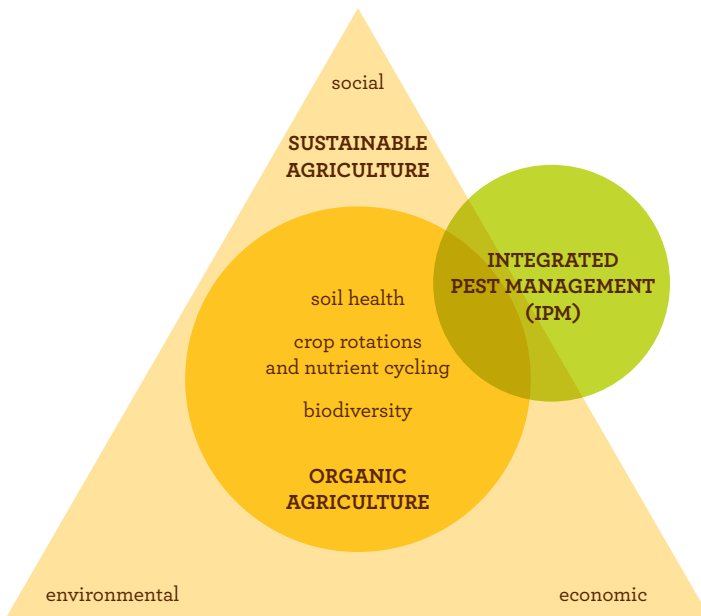
FIGURE 1 • The IPM continuum, ranging from heavy reliance on pesticides with little use of other tactics (no IPM) to reduced pesticide use and more reliance on biologically based and cultural tactics (biointensive IPM) (modified after Phillips et al., 2014).

### How are IPM and organic systems similar?

IPM and organic agriculture share many of the same goals including a focus on eliminating the reasons pests are present, such as preventing pests from accessing food, moisture, and protection from unfavorable weather while increasing natural enemy populations. Both IPM and organic methods for pest management address environmental and human health concerns (Fig. 2). Further, both emphasize pest management based on preventive tactics. Organic agriculture places strict limits on the types of pesticides used and prohibits genetically-modified organisms.

### IPM is the foundation of organic pest management.

The USDA's National Organic Program (NOP) Final Rule (USDA, 2000) requires the use of preventive and cultural practices that enhance crop health, such as crop rotation, cover



**FIGURE 2 • Pest management in organic systems and IPM share common foundations rooted in ecology and concerns about human, environmental, and economic health. While both focus on managing pests, in organic systems the use of synthetic inputs (e.g., pesticides) is prohibited. The sustainable soil and nutrient management required for organic systems can enhance the success of organic pest management. IPM can be practiced in organic as well as in non-organic farming systems.**

cropping, sanitation measures, cultural and biological controls, which are also tactics used in IPM.

Certified organic farmers must develop or update an Organic System Plan as part of their annual certification application. It outlines planned production and pest management practices for crops being certified. Only when preventive practices have failed to prevent or control pests may an organic farm manager apply a pesticide allowed for organic production. The practice of organic agriculture and IPM are site-specific in nature, with individual tactics determined by the particular crop/pest/environment scenario.

### How can I find out what materials are allowed for organic pest management?

In the United States, the USDA NOP regulates the substances and materials that may be used for organic farming including pest management tools and practices, handling, and processing. Organic growers must use pesticide, fertilizer, and other products that are on the NOP's National List of Allowed and

Prohibited Substances (USDA, 2015). In general, synthetic substances are prohibited for crop and livestock production unless specifically allowed, and non-synthetic substances are allowed for crop and livestock production unless specifically prohibited.

Organizations such as the Organic Material Review Institute (OMRI) and/or the Washington State Department of Agriculture (WSDA) interpret the NOP list of allowed and prohibited substances to create brand-name products. Many certifiers recognize the OMRI and/or WSDA lists. Some certifiers maintain their own internal lists instead of, or in addition to, OMRI and WSDA. These lists are not blanket-use approvals; certain products might be usable with restrictions. If you have questions about whether a particular practice or product is allowed in organic production, consult your certifier.

### Where can I buy food produced using IPM or organic practices?

Organic- and IPM-produced food can be purchased nearly everywhere food products are sold. Certified organic foods are likely to be clearly labeled with the USDA Certified Organic seal. IPM-produced food products are less likely to be identified unless they are produced and certified under an eco-label program that requires IPM such as Rainforest Alliance, Food Alliance, Eco Apple or Salmon Safe. The level of IPM practice required to earn the certification mark is specified in the standards, and is typically more than low-level IPM. For more information on eco-labels and what they require, including organic, visit [www.greenerchoices.org](http://www.greenerchoices.org), maintained by Consumers Union, publisher of Consumer Reports.



#### References

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