

Choosing Pesticides for IPM Success in Fruits and Vegetables



Choosing when, how and what crop protection solutions to use on a fruit and vegetable farm is a complicated exercise. Costs and maintaining profitability are certainly factors, as are issues of marketability. You have to balance finding effective crop protection methods that secure your harvest with meeting the standards of buyers in the food chain. While demands on food production are increasing, farmers continue to evolve their pest management practices, searching for new and better ideas while also looking out for consumers and the land.

Integrated pest management (IPM) provides a framework for crop protection decisions that fits well in fruit and vegetable farming, where crop protection choices can directly affect maximum value in the marketplace. IPM is a broad topic, but, in the simplest terms, it's a science-based decision-making process that uses a combination of pest management tactics to balance the needs of protecting crops, the environment and farmer productivity.

You probably already use IPM practices, even if you don't always label them that way. Scouting for weeds, monitoring insect pest populations and cover cropping are just a few examples of IPM tactics. Pesticides are also part of the IPM toolbox, and some have qualities that are an especially good match for fruit and vegetable IPM. Identifying pesticides with these attributes can help you grow high-quality, high-value produce with a smaller environmental footprint, which is important to meeting market demands.

If you're using pesticides in fruit and vegetable IPM, here are five factors to help you identify a good fit for your goals.

1. Products that complement a combination of management tactics

The cornerstone of IPM is using diverse tactics for pest management based on the needs of your farm at any given time. You need pesticides that complement your management practices rather than limiting them.

Pesticides with fast knockdown help manage pests when monitoring indicates they exceed levels that will cause economic damage. But you also want products that break down quickly in the environment with short pre-harvest intervals. Such products are also a good choice for farmers using crop rotation, no-till, reduced-till or cover crop strategies. If you use methods such as hand weeding or mulching, look for pesticides with low re-entry intervals so you can efficiently and safely continue manual work in the fields.

2. Low use rates

IPM seeks to use only the amount of pesticide that's needed to manage a target pest. Pesticides with low use rates mean less of the active ingredient goes into the environment. Some low-use-rate pesticides offer lasting protection over a broad spectrum of pests, which allows you to treat fields less often. Isoclast™ active is an example of a newer insecticide with a lower use rate than many other insecticides used in fruits and vegetables.¹ It's replacing certain older products in fruit and vegetable cultivation, which is important, because some products are no longer available to use. Low pesticide use rates can also mean low to no residues on harvested crops, a big benefit for marketability.

3. Diverse modes of action

Pesticides exert strong selection pressure on pests. When an organism with a high reproductive capacity is exposed to the same pesticide repeatedly, it's likely that a few will survive, and the resistant ones can become dominant in a population. Choosing pesticides with diverse modes of action helps reduce the potential of this problem occurring. Some pesticides combine multiple active ingredients in one product, providing more than one mode of action. Others offer novel modes of action without cross-resistance to existing products. Some pesticide products can be tank-mixed with compatible partners or are designed specifically for use in a rotational program approach. Pesticides that make it simple for you to use multiple modes of action on your fields help you reduce the risk of pests developing resistance and ensure the pesticides remain effective, particularly at desired lower use rates.

4. Selectivity

Beneficial insects are vital to fruit and vegetable farming. Beneficial microbes in the soil, pollinators and insects that prey on damaging pests are just a few examples of the helpful organisms that make farms healthier and

more productive. An IPM approach helps preserve this biodiversity. Selective pesticides support this goal by working on very specific sites or biological processes within a target pest. These products are designed to work only against damaging pests without harming nontarget organisms. One example is Reklemel™ active, a nematicide that targets only plant-parasitic nematodes.² When farmers use products containing Reklemel, beneficial nematodes that help keep soil healthy are not affected.

5. Flexible application

In an IPM framework, pests are treated only when they reach thresholds where the crop will be damaged economically. Pesticides that work in a range of conditions – those that are rainfast or that work in cold weather, for instance – can help you take action only when you need to. Zorvec™ active, for example, is a fungicide active ingredient that is rainfast 20 minutes after application,

which helps farmers get out and treat fields in sometimes less-than-ideal conditions.³ Look for products that are also fast-acting to gain control over pest issues quickly and reduce the need for retreatments.

IPM fits naturally with many fruit and vegetable farmers' goals: to use resources wisely, leave a smaller environmental footprint and grow the abundant, high-quality food that consumers want. Today, advances in crop protection allow fruit and vegetable farmers to maximize IPM in new ways, identifying threats in the field sooner and taking targeted action through a range of practices, including applying pesticides when needed. By looking for pesticides that work in an IPM framework, you can find more choices to help you farm the way you want and protect quality, profitability and marketability for your fruits and vegetables.

¹ Isoclast™ active <https://www.corteva.com/products-and-services/isoclast.html>.

² Reklemel™ active <https://www.corteva.com/products-and-services/reklemel.html>.

³ Zorvec™ active <https://www.corteva.com/products-and-services/zorvec.html>.