NINE STEPS TO FOLLOW FOR BUILDING A STRONG IPM PROGRAM

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Creating a well-planned and well-executed Integrated Pest Management Program (IPM) is the foundation for raising a sellable and profitable crop. IPM programs are customized to each grower's crop, environmental conditions, and predicted disease and pest pressure. The basic structure of all IPM programs involves a variety of pest and disease control products that include cultural, physical, chemical and biological methods. All of these elements must be purposefully integrated to work in tandem to ensure they are more effective than if chemical controls only were used.

Here are nine critical steps to follow to build a strong IPM program:

STEP #1 Start with a clean greenhouse

If you ask an expert what growers should pay more attention to, sanitation is a top answer. Sanitation is not exciting, but it allows growers to reap benefits while eliminating potentially costly headaches. Start clean by removing all plant debris, and eliminate weeds, algae, and soil in the greenhouse, as these elements can play host to mites and other pests in between crops. Sanitize benches, floors, hose nozzles and other surfaces. Avoid over-fertilizing plants, because lush new growth is especially attractive to mites.

EXPERT TIPS

STEP #2 Inspect all incoming plants

Be sure to properly inspect all incoming plants, including cuttings and plugs. Inspect for disease or pest problems, and if any are noticed, quarantine infected plants and put them through treatment before moving them into the greenhouse.

STEP #3 Know your pests and plants

Knowing the pests you have and understanding when they start appearing is the core of developing and executing an IPM program. Learn to identify significant greenhouse pests and what they look like at all stages of their life cycle. Without proper identification of the problem, it is impossible to treat it effectively. Most beneficial insects and some new insecticides narrowly target particular species, so misidentification can be costly in both time and money. Call an expert to help you identify if you are not sure.

STEP #4 Scout properly and frequently

Many greenhouse issues are too small to be seen without close inspection. That is why it is important to dedicate a regular time for scouting, which includes checking for pests and diseases by walking the crop and examining flowers, stems, roots, and leaves.

1) Prep the greenhouse: Divide the greenhouse into areas and spend a predetermined amount of time in each area, starting with plants nearest entryways where pests often come in.
2) Inspect the Plants: Use a 10x hand lens to inspect upper and lower leaf surfaces and the undersides of leaves, stems, and flowers. Turn over mature leaves and inspect carefully along the midvein where mites are usually first seen. Don't forget to remove a few plants from their pots in each section to inspect the roots.
3) Monitor for pest populations: Yellow sticky cards, indicator plants and potato disks are commonly used to trap insects and monitor populations. Yellow sticky cards should be placed at regular intervals throughout the greenhouse, usually three to four cards per 1,000 square feet. Make sure there are extra cards placed near doorways and vents.
4) Keep records of scouting results
5) Scout frequently: The inspection should be done at minimum once per week, and more often when conditions are favorable or ripe for problem pests. Frequent scouting provides the opportunity to detect and address problems early before damage has occurred.

STEP #5 Choose the right treatment

Consider Biological Controls: The use of living organisms such as predators, wasps, nematodes or bacteria to control pests is an essential tool in an IPM program. Combined with scouting, sanitation, record keeping and conventional pesticides, biocontrols can keep overall pest levels down. Some biocontrol organisms feed on a variety of plant pests, but others may be quite specific to an insect or pathogen.

Conventional Pesticides: Using chemical pesticides in an IPM program is recommended for the most severe infestations. When used in conjunction with beneficial insects, it must be done carefully though. We highly recommend you consult an expert who understands the effects of each chemical on the beneficial population. Know what pesticides you can use with beneficial insects. For example, contact pesticides with a low residual work best with beneficials. If necessary during an infestation, broad-spectrum chemicals can be used, but re-introduction of the beneficiaries may be required. Softer, more targeted chemistries are making it easier to work both conventional pesticides and biocontrols into the same program. When building your plan, try to anticipate what problems you may have, and know what backup pesticides you can use. Sometimes fungicides can also affect certain beneficial insects.

STEP #6 Have a long-term rotation plan in place

It is important to know your control measures and their modes of action. To prevent pests from developing resistance, it is crucial to rotate chemicals by mode of action during the season and follow all label guidelines about rates and frequency. Many newer products target specific species and life stages, so careful monitoring is key to getting the best results.

STEP #7 Included a planned control method

Your IPM program should include planned control methods in case there is a problem. In some cases, you may apply controls preemptively, but in others, you may wait until the first sign of a problem. It is most important to have a plan in place if you need to use a chemical. Be sure to consider how it interacts with any biological controls already in the greenhouse, and ensure it has a different mode of action than a previous application to prevent the buildup of resistance.

STEP #8 Keep records

Record any actions you take on your crops. This is an essential part of your IPM program. Being able to look back to the previous year's successes and challenges allow you to design a program to address potential problems this year more successfully. Additionally, you should also keep track of when and if biological controls are used, as well as the environmental conditions when pests are observed. Track inputs such as fertilizer and plant growth regulators, and monitor how the plants grow. We suggest measuring the height and width of plants at regular intervals to manage growth and make adjustments in future growing seasons.

STEP #9 Ask for expert help!

Even experienced growers might encounter a stubborn problem or a new one, and calling in a specialist can be helpful. Consult a biocontrol expert, especially when starting your program. Once established with a program, it is also useful to have someone follow-up during the season to see if any changes are needed, as well as to provide insight on new products, techniques or research. If you are using biocontrols, it is recommended to consult with experts who know life cycles, environmental requirements, and effects of pesticides for advice on the right biocontrol method to use.

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