

Greenhouse IPM

You are Already Using It!

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Are you using integrated pest management (IPM) techniques in your greenhouse? Many growers are and don't realize it. Often growers associated IPM solely with the use of parasitic insects. IPM is much more. A good integrated pest management program utilizes sanitation, insect and disease exclusion, scouting, record keeping and pesticides as part of a comprehensive pest management strategy.

Read through the following list of practices and concepts that make up a good IPM program. You will notice that many of these techniques are already standard practices used in your operation. Consider which additional practices may be incorporated into the standard operating procedures in your greenhouse. A sound IPM program should help to reduce pesticide usage, increase insect control and crop profitability. Remember not all of these practices will be appropriate for every operation.

IPM PRACTICES

Start clean (and stay clean):

- Quarantine new plant material before introducing it into the greenhouse.
- Start with clean stock (use culture indexed when appropriate).
- Exclude pests and weed seeds with screening.
- Use mulches or barriers on floors for weed control.
- No smoking with TMV susceptible crops.

Sanitation

- Pasteurize potting media and soil benches.
- Sterilize reused pots, tools and bench surfaces.
- Remove old crop residues.
- Remove weeds in and around the greenhouse.
- Rogue and destroy infested plants or plant parts when possible.

Crop Culture

- Use pest resistant plant cultivars.
- Provide optimum growing conditions to minimize stress (so that plants can best resist pest attack).
- Avoid overwatering and avoid wetting foliage.
- Heat and vent after sunset to lower humidity (when condensation is a problem).
- Avoid phytotoxicity. Spray when leaves are turgid and early or late on sunny days or on overcast days.

Pest Monitoring

- Use sticky traps to monitor insect populations.
- Inspect crops on a regular schedule. Look for evidence of diseases and insects.
- Correctly identify insects and diseases or seek help in doing so.
- Know damage caused by pests (learn to identify the tell-tale signs).
- Learn insect life cycles, plant preferences and feeding habits.

Spraying (pest control)

- Spot treat when possible.
- Obtain good pesticide coverage.
- Time application frequency to rate of insect development. Insect life-cycles vary with weather conditions and available food.
- Avoid calendar date spraying.
- Use pesticide rotation to avoid build-up of insect resistance.
- Use spreader stickers when appropriate.
- Use lowest effective recommended dose rate to achieve control (do not use suboptimal rates).
- Use least toxic materials when possible (i.e. insecticidal soaps, horticultural oils, Enstar, *Bacillus thuringiensis*).

Manual Control

- Hand pull weeds.
- Hand pick or vacuum insects when possible.
- Mow grass around outside of greenhouse.

Biological Control

- Introduce biological organisms (i.e. Green lacewing and *Aphidoletes aphidimyza* for aphids, *Cryptolaemus* for mealybugs, *Encarsia formosa* for whitefly, and predatory mites for spider or two spotted mites).
- Encourage build-up of natural pests.

Management

- Establish action thresholds when possible (What level of a pest is tolerable?).
- Obtain proper licensing and stay current.

- Read and heed pesticide labels.
- Record results of scouting and trapping, the control actions taken and the effectiveness of these actions.

As you can see, IPM requires common sense, attention to detail and good record keeping. Are you already using some of these concepts? Probably so. Perhaps some practices are familiar but have worked their way out of your program. Try reintroducing these practices into your program and consider whether a few new concepts can be incorporated into the standard routine.