



December 1, 2008

Dear Grower;

**What pest management challenges do you face?  
How can we help YOU with these problems?**

We all hate to complete surveys, BUT, this is not just another one to take up your time. Results will be used to develop programs that DIRECTLY meet YOUR needs. We received a USDA "planning grant" to develop pest management strategies for greenhouses in northern New England. The first step is to learn what your pest management problems are and how we can help you solve them through research and outreach. We will develop a full proposal from this information which, if funded, will support a major regional Integrated Pest Management initiative that will target your needs.

Please complete the enclosed survey as soon as possible. It looks long but is designed to take less than 8 minutes. When complete, place it in an envelope and mail it to us. Your answers will be confidential. We will send you a summary of the results in the future.

**To show our appreciation, we will send you a copy of our "Greenhouse Manager's Guide to Integrated Pest Management" when we receive your completed survey.**

**Thanks very much!**

Sincerely yours,

A handwritten signature in cursive script that reads "Margaret Skinner".

Margaret Skinner  
University of Vermont

This project is funded by the USDA Specialty Crops Research Initiative and UVM College of Agric. & Life Sciences with matching support from several public and private organizations.

## Survey of Needs for Pest Management in Greenhouse Ornamentals in Northern New England

We are conducting this survey to determine pest management priorities for growers in ME, NH and VT. Research and outreach programs will be developed to meet grower needs based on the results. **YOUR ANSWERS WILL BE TOTALLY CONFIDENTIAL.**

**1) What type of horticultural business or organization are you affiliated with and what is your position? (Check all that apply)**

Retail greenhouse: \_\_\_\_\_ Wholesale grower: \_\_\_\_\_ Interiorscapes: \_\_\_\_\_  
 Cut flower grower: \_\_\_\_\_ Landscaper: \_\_\_\_\_ Extension System: \_\_\_\_\_  
 Garden center: \_\_\_\_\_ State agency: \_\_\_\_\_ Federal agency: \_\_\_\_\_  
 IPM consultant: \_\_\_\_\_ Co/Owner: \_\_\_\_\_ Head grower: \_\_\_\_\_  
 Greenhouse worker: \_\_\_\_\_ Univ. researcher: \_\_\_\_\_ Research tech.: \_\_\_\_\_  
 Pesticide supplier/distributor: \_\_\_\_\_ Biocontrol supplier/distributor: \_\_\_\_\_  
 Other (specify): \_\_\_\_\_

**2) Where is your business or office located? (Check 1)**

Maine     New Hampshire     Vermont     Other \_\_\_\_\_ (where?)

**3) What percentage of your revenue comes from these crops (% of total revenue)? Total should equal 100%.**

Bedding plants	Flowering potted plants	Foliage plants	Perennials	Cuttings/Plugs	Cut flowers	Vegetables
Other:		Other:		Other:		

**4) How many square feet of greenhouse do you use?**

1 – 10,000 \_\_\_\_\_    10,001 – 25,000 \_\_\_\_\_    25,001 – 50,000 \_\_\_\_\_  
 50,001 – 75,000 \_\_\_\_\_    75,001 – 100,000 \_\_\_\_\_    over 100,000 \_\_\_\_\_

**5) How many acres do you use to grow perennials and other plants outside?**

None \_\_\_\_\_    Under ¼ \_\_\_\_\_    ¼ -½ \_\_\_\_\_    1-2 \_\_\_\_\_    2-4 \_\_\_\_\_  
 4-6 \_\_\_\_\_    over 6 \_\_\_\_\_ (how many?)

**6) How many hired workers (equivalent to full time) do you employ?**

None \_\_\_\_\_    1-2 \_\_\_\_\_    3 - 4 \_\_\_\_\_    5-6 \_\_\_\_\_    over 6 \_\_\_\_\_ (how many?)  
 Not applicable \_\_\_\_\_

7) Rate the importance of these pest, disease and production problems in your greenhouse crops over the past 3 years.

I am not directly involved with growing greenhouse ornamentals and therefore won't answer this section.

Pest or Crop Management Problem	Low	Moderate	High
<b>Diseases</b>			
Anthracnoses			
Bacterial leaf spots or cankers			
Botrytis blight			
Canker diseases			
Crown gall			
Damping off			
Downy mildews			
Fungal leaf spots			
Fusarium wilt			
Phytophthora root, stem or crown rots			
Powdery mildew			
Pythium root, stem or crown rots			
Rhizoctonia root, stem rot or blight			
Rust diseases			
TSWV/INSV (thrips-vectorred viruses)			
Verticillium wilt			
Black root rot – <i>Thielaviopsis</i>			
Other (specify):			
Other (specify):			
<b>Insects &amp; Mites</b>			
Aphids			
Black vine weevil			
Cyclamen mites			
Broad mites			
Fungus gnats			
Lace bugs			
Leaf feeding beetles			
Leaf feeding caterpillars			
Leafhoppers			
Leafminers			
Mealybugs			
Scales			
Shore flies			
Spider mites and other mites			
Thrips			
White grubs			
Whiteflies			
Other (specify):			
Other (specify):			

<b>Crop Production</b>			
Algae and/or moss			
Environmental control (heating/cooling)			
Fertility and fertilization (pH, EC, etc.)			
Irrigation and/or watering			
Potting media (quality, drainage, etc.)			
Rodents			
Slugs & Snails			
Waste water treatment/disposal			
Weather (frost, heat, drought, etc.)			
Weeds			
Other (specify):			

**8) What management practices do you use for commercial production?  
(Check all you use)**

- |  |  |
|--|--|
| <input type="checkbox"/> Sticky cards                                | <input type="checkbox"/> Reemay plant covering               |
| <input type="checkbox"/> Indicator plants                            | <input type="checkbox"/> Culture indexed plants              |
| <input type="checkbox"/> Screen vents                                | <input type="checkbox"/> Spot pesticide treatment            |
| <input type="checkbox"/> Crop rotation                               | <input type="checkbox"/> Fallow crop space                   |
| <input type="checkbox"/> Regular scouting                            | <input type="checkbox"/> Use DIF                             |
| <input type="checkbox"/> Hire commercial scout                       | <input type="checkbox"/> Drip irrigation                     |
| <input type="checkbox"/> Professional insect/disease ID              | <input type="checkbox"/> Remove weeds                        |
| <input type="checkbox"/> Inspect new plant shipments                 | <input type="checkbox"/> Recycle water                       |
| <input type="checkbox"/> Rotate pesticide classes                    | <input type="checkbox"/> Use chemical pesticides             |
| <input type="checkbox"/> Identify pests/diseases yourself            | <input type="checkbox"/> Soil testing                        |
| <input type="checkbox"/> Use deg. days to track pests                | <input type="checkbox"/> Water testing                       |
| <input type="checkbox"/> Foliar testing                              | <input type="checkbox"/> Use disease test kits               |
| <input type="checkbox"/> Disinfect growing areas                     | <input type="checkbox"/> Pest resistant varieties            |
| <input type="checkbox"/> Sanitize pots or use new ones               | <input type="checkbox"/> Cover floor with weed cloth         |
| <input type="checkbox"/> Sanitize soil or use new soil               | <input type="checkbox"/> Preventative pesticide treatment    |
| <input type="checkbox"/> Release predators, parasites, nematodes     | <input type="checkbox"/> Send plants out for disease testing |
| <input type="checkbox"/> Spray insecticides on floor/benches         |  |
| <input type="checkbox"/> Use pesticides less toxic to beneficials    |  |
| <input type="checkbox"/> Use pesticides with short residual activity |  |
| <input type="checkbox"/> Use microbial biocontrol (fungi, bacteria)  |  |
| <input type="checkbox"/> Other (specify): _____                      |  |

**For this survey:**

**IPM (Integrated Pest Management) is defined as using multiple tactics (scouting, cultural practices, biological control, pesticides, etc.) to manage pests while minimizing chemical pesticide use.**

**Conventional Pest Control is defined as using chemical pesticides as the primary method to manage pests and diseases.**

**9) What kind of production system best describes your operation?**

IPM \_\_\_\_\_ Conventional Control \_\_\_\_\_ Other (specify): \_\_\_\_\_

**10) Compared to Conventional Control, how do you think IPM performs?**

	Worse	The Same	Better
Effectiveness			
Cost			
Reliability			
Uniformity			
Consumer approval			
Easy to use			

**11) What challenges hinder your greater adoption of IPM? Rank each as follows:**

**1** = a little hindering; **2** = moderately hindering; **3** = greatly hindering.

- |  |  |
|--|--|
| <input type="checkbox"/> Hard-to-control insect/mite pests                         | <input type="checkbox"/> Hard-to-control diseases      |
| <input type="checkbox"/> Pesticide-resistant insects & diseases                    | <input type="checkbox"/> Hard-to-control weeds         |
| <input type="checkbox"/> Lack of knowledge about alternatives                      | <input type="checkbox"/> Unreliable biocontrols        |
| <input type="checkbox"/> Lack of workers skilled in IPM                            | <input type="checkbox"/> Ineffective pesticides        |
| <input type="checkbox"/> Biological control is too expensive                       | <input type="checkbox"/> Quarantine regulations        |
| <input type="checkbox"/> Lack of knowledge of pest biology                         | <input type="checkbox"/> Lack of confidence in IPM     |
| <input type="checkbox"/> Selective pesticides are expensive                        | <input type="checkbox"/> Pest diagnosis & ID           |
| <input type="checkbox"/> Lack of time to implement IPM                             | <input type="checkbox"/> Gives unreliable results      |
| <input type="checkbox"/> Consumer intolerance for infested plants                  | <input type="checkbox"/> Plants bought in are infested |
| <input type="checkbox"/> IPM in general is too expensive                           | <input type="checkbox"/> IPM supplies not available    |
| <input type="checkbox"/> Owner/manager won't let me                                |  |
| <input type="checkbox"/> Consumers will not pay higher price for "greener" product |  |
| <input type="checkbox"/> Other: _____  |  |

**12) What limits your use of biological control agents (parasites, predators, microbials, etc.)? Rank each as follows: 1 = a little limiting; 2 = moderately limiting; 3 = very limiting.**

- There are no limits (if you select this, select no others)
- |   |  |
|---|--|
| <input type="checkbox"/> Can't risk economic loss                                     | <input type="checkbox"/> Biological control is not reliable  |
| <input type="checkbox"/> Poor shelf life  | <input type="checkbox"/> Don't know where to order them      |
| <input type="checkbox"/> Biological control is too expensive                          | <input type="checkbox"/> Owner/manager won't allow their use |
| <input type="checkbox"/> Lack confidence that biologicals work                        |  |
| <input type="checkbox"/> Consumer intolerance for plants with visible natural enemies |  |
| <input type="checkbox"/> Lack of knowledge about how or when to use them              |  |
| <input type="checkbox"/> Low quality of biological control agents purchased           |  |
| <input type="checkbox"/> Not compatible with chemical pesticides                      |  |
| <input type="checkbox"/> Consumer intolerance for plants with visible pest insects    |  |
| <input type="checkbox"/> Quarantine laws require pesticide treatment                  |  |
| <input type="checkbox"/> Biocontrol agents are not readily available                  |  |
| <input type="checkbox"/> Don't know how to reduce chemical pesticide use.             |  |
| <input type="checkbox"/> Other: _____   |  |

**13) How can Extension or State Dept. of Agriculture personnel best help you adopt more IPM? Rank each as follows: 1 = a little helpful; 2 = moderately helpful; 3 = very helpful.**

- Provide regular site visits by specialists
  - Prepare/circulate fact sheets on key pests
  - Hold educational workshops for growers
  - Crop insurance if I use biological control
  - Establish a professional IPM advising service
  - Conduct efficacy trials and publish the results
  - Establish regional computer links to communicate problems & solutions
  - Establish regional newsletter to communicate problems & solutions
  - Establish consumer education about benefits of IPM
  - Other: \_\_\_\_\_
- Set up demonstration projects
  - Set up IPM certification prog.
  - Incentive programs to use IPM

**14) What research/information is needed to help you adopt more IPM?**

Rank items below as follows: 1= low need; 2= moderate need; 3= great need.

- Biological control guidelines
  - Pesticide/biocontrol compatibility
  - Local guidelines for IPM
  - Spray application methods
  - Action thresholds (pest levels at which action should be taken)
  - Cost/benefit analyses for production
  - Computer-based pest management programs
  - Other: \_\_\_\_\_
  - Other: \_\_\_\_\_
- Scouting methods
  - Pest-resistant plant cultivars
  - Pest/disease biology
  - Degree day monitoring

**THANK YOU FOR YOUR ASSISTANCE!**

Please place this in an envelope and return it to:

**Cheryl E. Frank, Entomology Research Laboratory  
661 Spear Street, Burlington, VT 05405-0105**

Additional comments are most welcome:

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Where should we send your copy of the Greenhouse Managers Guide to IPM?

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_