



November 22, 2010

Dear Grower;

**How much could you save on energy consumption in your greenhouses?**

**What can we do to help YOU save money on energy use?**

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 Sustainable Agriculture Research and Education grant to encourage energy conservation among greenhouse growers in Maine, New Hampshire and Vermont. Our first step is to learn what growers' energy demands are and what they are doing for energy conservation. Based on the survey results, we will develop strategies to help growers enhance energy conservation.

Please complete the enclosed survey by January 5. It 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, when we receive your completed survey, we will send you a copy of our "Greenhouse Manager's Guide to Integrated Pest Management".**

**Thanks very much!**

Sincerely yours,

A handwritten signature in black ink, appearing to read "Bruce L. Parker".

Bruce L. Parker

A handwritten signature in black ink, appearing to read "Margaret Skinner".

Margaret Skinner

This project is funded by the NE SARE Research And Education Program and UVM College of Agric. & Life Sciences with matching support from several public and private organizations.

## Survey of Greenhouse Energy Use and Conservation in Energy Conservation in Greenhouse Production in Northern New England

We are conducting this survey to determine energy use in greenhouses in ME, NH and VT and conservation measures growers take to reduce consumption. 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)**

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Retail vegetable grower  | <input type="checkbox"/> Wholesale vegetable grower   | <input type="checkbox"/> Interiorscapes    |
| <input type="checkbox"/> Retail ornamental grower | <input type="checkbox"/> Wholesale ornamentals grower | <input type="checkbox"/> Cut flower grower |
| <input type="checkbox"/> Landscaper               | <input type="checkbox"/> Garden center:               | <input type="checkbox"/> Co/Owner          |
| <input type="checkbox"/> Head grower              | <input type="checkbox"/> Greenhouse worker:           | <input type="checkbox"/> Univ. researcher  |
| <input type="checkbox"/> Research tech.           | <input type="checkbox"/> Other (specify): _____       |  |

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

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

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

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

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

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

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

- 1 – 10,000       10,001 – 25,000       25,001 – 50,000       50,001 – 75,000       75,001 – 100,000       over 100,000

**5) What percentage of your total greenhouse space do you use each month over the year?**

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec

**6) What kind of heating and cooling systems do you have in your greenhouses? (Check all that apply)**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Oil fired heater         | <input type="checkbox"/> Horizontal air vents      | <input type="checkbox"/> Bottom heat            |
| <input type="checkbox"/> Propane gas fired heater | <input type="checkbox"/> Geothermal heating syst.  | <input type="checkbox"/> Biodiesel fired heater |
| <input type="checkbox"/> Wood fired heater        | <input type="checkbox"/> Electronic thermostats    | <input type="checkbox"/> None                   |
| <input type="checkbox"/> Pellet fired heater      | <input type="checkbox"/> Horizontal air flow syst. | <input type="checkbox"/> Other (specify): _____ |
| <input type="checkbox"/> Solar powered heater     | <input type="checkbox"/> Manure heating systems    | <input type="checkbox"/> Other (specify): _____ |
| <input type="checkbox"/> Swamp cooler             | <input type="checkbox"/> Wind generator system     | <input type="checkbox"/> Other (specify): _____ |

**7) Approximately how much do you spend per year on fuel to heat your greenhouses?**

- Less than \$10,000       \$10,001–25,000       \$25,001–50,000       \$50,001–75,000       over \$100,000

**8) Approximately how much do you spend per year on electricity in your greenhouses?**

- Less than \$10,000       \$10,001–25,000       \$25,001–50,000       \$50,001–75,000       over \$100,000

**9) How many of these energy saving measures do you use in any one of your greenhouses? (Check all you use)**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> High efficiency boiler         | <input type="checkbox"/> Bottom heat                   | <input type="checkbox"/> Don't grow cold sensitive plants |
| <input type="checkbox"/> High efficiency furnace        | <input type="checkbox"/> Horizontal air flow system    | <input type="checkbox"/> Remy covering over crops         |
| <input type="checkbox"/> Insulation energy curtain      | <input type="checkbox"/> Geothermal heating systems    | <input type="checkbox"/> Plastic covering over crops      |
| <input type="checkbox"/> Oil heater                     | <input type="checkbox"/> Energy efficient light bulbs  | <input type="checkbox"/> Adjust planting dates            |
| <input type="checkbox"/> Solar water storage            | <input type="checkbox"/> Wind generator                | <input type="checkbox"/> Grower cool-temperature plants   |
| <input type="checkbox"/> Use DIF                        | <input type="checkbox"/> Bubble insulation system      | <input type="checkbox"/> Side wall insulation             |
| <input type="checkbox"/> High insulation plastic        | <input type="checkbox"/> Solar panels                  | <input type="checkbox"/> End wall insulation              |
| <input type="checkbox"/> Seal gaps around doors & vents | <input type="checkbox"/> Energy audit                  | <input type="checkbox"/> Other type of heat storage:      |
| <input type="checkbox"/> Electronic thermostats         | <input type="checkbox"/> Annual furnace/boiler checkup | <input type="checkbox"/> Other (specify): _____           |

**10) What limits you from improving your energy conservation?** 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"/> Too expensive to make changes                       | <input type="checkbox"/> Don't know if I qualify for tax incentives |
| <input type="checkbox"/> Negative impact on production (high humidity, etc.) | <input type="checkbox"/> It is too complicated                      |
| <input type="checkbox"/> Don't have time to make the changes                 | <input type="checkbox"/> Other: _____                               |
| <input type="checkbox"/> Don't know what to do                               | <input type="checkbox"/> Other: _____                               |
| <input type="checkbox"/> Don't know the cost benefits                        |   |

**11) What would most help you adopt more energy conservation measures?** Rank each as follows: **1** = a little helpful; **2** = moderately helpful; **3** = very helpful.

- |   |   |
|---|---|
| <input type="checkbox"/> Provide free energy audits                           | <input type="checkbox"/> Assistance with learning of available incentive programs for energy conservation |
| <input type="checkbox"/> Provide tax incentives for energy conservation costs | <input type="checkbox"/> Establish a professional energy advising service                                 |
| <input type="checkbox"/> Prepare/circulate fact sheets on energy conservation | <input type="checkbox"/> Conduct efficacy trials and publish the results                                  |
| <input type="checkbox"/> Set up energy conservation demonstration programs    | <input type="checkbox"/> Provide computer links to communicate problems                                   |
| <input type="checkbox"/> Hold educational workshops for growers               | <input type="checkbox"/> Other: _____   |

**12) What research/information is needed to help you implement more energy conservation measured?** Rank items below as follows: **1**= low need; **2**= moderate need; **3**= great need.

- |   |   |
|---|---|
| <input type="checkbox"/> Cost benefit analysis                                | <input type="checkbox"/> Production guidelines that reduce energy use |
| <input type="checkbox"/> Energy saving benefits                               | <input type="checkbox"/> Degree day monitoring                        |
| <input type="checkbox"/> Negative production aspects (humidity, access, etc.) | <input type="checkbox"/> Other: _____                                 |

**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**



VT-state Greenhouse IPM Program

Additional comments are most welcome:

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If you would like a free copy of the "Greenhouse Manager's Guide to IPM", where should we send it?

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

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