

Procedures and Templates for Pest Management Tactic Surveys

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Survey procedures derived from the Dillman protocol by William Coli and
Natalia Clifton, University of Massachusetts.

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Introduction

Unlike crop profiles and pest management strategic plans, there is no USDA specification for pest management tactic surveys. The survey component of the survey-plan-profile sequence was created by the PRONewEngland Pest Management Network (NEPMNet) because we saw it as a necessary precursor for valid crop profiles and strategic plans.

The tactic surveys are much different than a pesticide use survey. Through the use of a statistically validated protocol, the surveys are a research tool to discover stakeholder pest priorities, pest control tactic selection, user evaluation of efficacy for different options, degree and types of IPM implementation, and major influences on pest management decision making. In addition, the surveys provide basic census information on crop acreage and market destinations. They do not collect information on pesticide dosage.

A survey done according to this template will meet the specifications described in our contract with the Northeastern IPM Center. See Dillman 2000 for details of the survey protocol.

Dillman, D.A.; *Mail and Internet Surveys: The Tailored Design Method. 2nd Edition*; John Wiley Co., New York; 2000

Survey Procedures

To be considered a completed survey, all steps must be completed.

1. Create the survey form

a) Follow the layout and question format of the template.

Survey includes questions on:

b) Amount of production, marketing outlets.

c) Number of treatments for insects-mites, diseases, and weeds.

d) Frequency ratings for key pests.

e) Percent of production treated with pesticide during survey year for each key pest.

f) Pesticide use and efficacy ratings for each key pest with specific mention of each of the pesticides commonly used for each pest.

g) Use of cultural practices for arthropod, disease and weed pest management.

h) List of vertebrate pest problems, strategies, and efficacy.

i) Pest monitoring practices, sources for pest management decision making, pesticide selection criteria.

j) PRONewEngland.org feedback

k) Research, education, and regulatory priorities

Each survey form has a code number associated with mailing list. The code number is used to identify who has returned a survey so that they are removed from the list for follow-up mailings. Once the code number is removed, it is no longer possible to associate a filled out survey to the person who sent it.

2. Survey questionnaire form review

a) Send survey form to each state liaison at least three weeks prior to target date for public distribution of survey. Address comments made on survey draft before distribution.

State liaisons are responsible for reviewing the form and in particular, to evaluate questions for applicability to their state. Even if there are no suggested changes, state liaisons are responsible for notifying the survey leader that the form is approved for use in their state.

State liaisons are also responsible for notifying Extension specialists and other personnel working with the targeted survey group in their state about the survey.

3. Mailing lists

a) Acquire best available mailing list from each state liaison.

If the number of names on those combined lists is too large, then define a subsample list. The size of the subsample must be set according to reasonable expectations for return rates and must be sufficient to generate at least the number of responses required for the survey to provide a statistically valid representation of New England. As a guideline, do not plan on getting more than 40% of surveys returned at all, and expect only 40% of returned surveys to be valid responses from active growers. Thus, do not count on more than 16% of the number of original surveys mailed out to come back as valid responses. For a desired minimum of 100 valid responses, the minimum number of names on the original mailing lists should be at least 600.

4. Survey initiation

All surveys will be conducted in accordance with the Dillman method (Dillman 2000).

a) Two weeks before mailing the survey, send a postcard to people on mailing list notifying them that the survey is being conducted and encouraging their participation.

b) Send survey, stamped return envelope, and cover letter (personalized using mail merge file built from the mailing list) on official letterhead with blue ink signature. See the cover letter template below.

5. Survey follow-through using Dillman protocol

a) Record all returned survey code numbers against the original mailing list so that respondents can be removed from re-mailings.

b) As surveys are returned, create a list for each state of mailing list entries that should be removed because the person has died, moved, or has requested removal.

c) Send a reminder postcard two weeks after original survey mailing date to mailing list members who have not returned the survey.

d) Two weeks later after the reminder post card (i.e. four weeks after original survey mailing), make second mailing of the survey with second stamped return envelope to list members who still have not returned the survey.

6. Data entry and summarization

a) Create a Microsoft Excel workbook to record and summarize responses to the survey. Include columns and summary cells for all possible answers to each question in your survey.

b) Enter the data. Use a separate row to enter response data from each returned survey.

c) Use the Word file for the questionnaire to create a survey results document. For the answers to each question, insert the responses received

(i.e. number and percentage of growers selecting that answer, pest importance ratings etc.). See <http://pronewengland.org/INFO/PROpubs/Survey/AppleSurveyResultsTables.pdf> for an example.

d) Create a survey summary in Microsoft Word. See <http://pronewengland.org/INFO/PROpubs/Survey/AppleSurveySummary.pdf> for an example.

e) Send copies of the questionnaire Word file, survey results Word file, survey summary Word file, and the data entry Excel file to Glen Koehler at UMaine.

7. Mailing list clean-up.

a) After responses from the second mailing tail off, make a list of mailing list corrections for each state and send to the state liaison. Send a copy of the corrected mailing list for each state to Glen Koehler at UMaine.

Dillman Survey Checklist

___1. Design survey questionnaire.

___2. Send questionnaire to state liaisons for state approval. It is the responsibility of the state liaisons to find expert input on validity of questions for their state, and to notify interested parties in their state that the survey is being conducted.

___3. Incorporate questionnaire review comments. Send finalized questionnaire to each state liaison.

___4. Acquire mailing list from each state liaison. Select recipients.

___5. Print four mailing labels for each recipient (alternatively, you can only print two per recipient initially and later print labels again for non-respondents to the initial mailing. This saves the cost of 3rd and 4th labels for individuals who respond to the first mailing, but requires printing labels a second time).

___6. Address and postage 1st contact cards. Mail two weeks before the survey mailing date.

___7. Print surveys.

___8. Number surveys (front and back page) with code numbers.

___9. Print cover letter using personalized greeting (mail merge in Word) and letterhead.

- ___10. Address and postage survey mailing envelopes.
- ___11. Address and postage return envelopes.
- ___12. Collate mailing envelope, letter, and survey w/number and return envelope.
- ___13. Mail surveys.
- ___14. Keep a record of surveys returned to remove names from mailing list for second contact card and survey mailing.
- ___15. Address and postage 2nd contact cards. Mail to non-respondents two weeks after survey mailing.
- ___16. Prepare for 2nd survey mailing. (Repeat steps 7-14. Expect this to include about 75% of the original mailing list).
- ___17. Make 2nd survey mailing two weeks after 2nd contact card was sent.
- ___18. Design data entry Excel workbook.
- ___19. Enter responses.
- ___20. Fix mailing lists (remove retired and dead people etc.). Sending mailing list corrections to each state.
- ___21. Create survey results document
- ___22. Create survey summary

How to Use This Survey Template

Instructions are located between rows of asterisks in maroon Verdana font.
Red text indicates where crop specific content is needed.

1. Copy the survey cover letter and questionnaire template on the following pages and paste them into a new Word document to begin creating your survey. The letter and questionnaire are in Palatino font because they will be used as printed documents, for which a serif font is easier to read. Palatino is easier to read than Times Roman. We are asking people to donate time to fill out these surveys, the least we can do is make them easy to read.
2. You will have to copy template questions for each of the key pests addressed in your survey. Some of the questions in the template may need to be altered or discarded because they are not applicable to the subject of your survey. If you create new questions, please copy the format of one of the existing questions on the template.
3. Keep adequate white space between questions, and never have a question extend across a page break.
4. The questions in this survey have been deigned in accordance with the Dillman 'Tailored Design Method' (Dillman 2000). Using this template as a foundation will make creating your survey easier and faster, and will help us get better results.

Survey Cover Letter Template

Dear **FIRSTNAME**,

With your help and with the help of growers throughout New England, the University of **STATE NAME** in cooperation with the universities of Connecticut, Maine, Massachusetts, Rhode Island, New Hampshire, and Vermont are creating a New England **CROPNAME** pest management strategic plan. The first step in the process is to gather accurate information on current practices.

USDA and EPA use strategic plans to support the continuation and introduction of key pesticide registrations. The survey results and strategic plan will also be useful to Extension staff and others for identifying research and educational needs in New England. Being able to cite a survey with many responses is an advantage when applying for funds to support Extension and research. Your help in filling out the survey can come back to you through better understanding of your needs by EPA and USDA, and through enhanced education and research programs.

Please take the time to fill out the enclosed survey. We need your information if we are to develop an accurate picture of the needs of you and your neighboring growers. Please note – the information that you give us will be strictly confidential.

If you have any questions please feel free to **contact SURVEY COORDINATOR NAME** at **(XXX) XXX-XXXX** or email **XXX@XXX.edu**.

Thank you very much for your assistance.

Sincerely,

***** Rearrange so survey leader name is in first slot *****

Natalia P. Clifton, Dr. Patricia Vittum
University of Massachusetts

Dr. Alan Eaton
University of New Hampshire

Candace Bartholomew
University of Connecticut

Dr. Steven Alm, Margaret Siligato
University of Rhode Island

Dr. James Dill, Glen Koehler
University of Maine

Ann Hazelrigg, Sarah Kinsley-Richards
University of Vermont

***** **To use this questionnaire template** – Shown below is the 2006 Raspberry survey which you can change as needed to create your new survey. Avoid letting questions run across page breaks. If only a few lines of a question before page break, it is better to have the extra white space than to interrupt the questions. Maintain alternate row shading on multiple-choice lists, make sure list items line up consistently.



Pest management Resources Online for New England (PRONewEngland.org)

Cropname Pest Management Survey



This survey should be completed by the person most responsible for crop management decisions on your farm.

Do you grow Cropname for sale? (Please circle your answer)

Yes ----> continue with question A1.

No ----> if no, please answer the questions on **Page XX** and return this questionnaire using the self-addressed stamped envelope – Thank you!

Please fill in the blanks or circle your answers where indicated in the questions below for **cropname**.

A1. How many acres of cropname did you manage in 200X? _____ Acres

A2. Over the past five years, what is your average annual yield of harvested cropname per acre?
_____ Crop unit/Acre or _____ Pounds/Acre

Continue to next page

A3. What percentages of your **cropname are:**

Cultivar 1	_____	%
Cultivar 2 etc.	_____	%
Other (specify _____)	_____	%
Total	100	%

A4. What percentage of your **cropname crop is sold through each of these markets?**

Pick-your-own	_____	%
Fresh market, wholesale	_____	%
Fresh market, retail farm stand	_____	%
Processing	_____	%
Other (specify _____)	_____	%
Total	100	%

Horticultural Management for **Cropname**

***** Adapt the questions below as needed to fit your crop/setting. Use these questions to collect information on use of horticultural practices that influence pest management. If the practice has no bearing on pest management, do not include it.

B1. Which of the following pruning practices do you use? Please circle all that apply.

Dormant season removal of old canes
Dormant season thinning of primocanes
Other (please specify) _____

B2. Do you use leaf tissue analysis to determine fertilizer needs? Please circle yes or no.

Yes or No

If yes, how frequently is it performed? Please circle the answer that best fits your practices.

1 time each year
Every other year
Every third year
Other (please specify) _____

Continue to next page

B3. Do you use a soil sample to determine fertilizer needs in most years? Please circle yes or no.

Yes or No

If yes, how frequently is it performed? Please circle the best answer.

1 time each year

Every other year

Every third year

Other (please specify) _____

B4. Which soil and/or nutrient management practices do you use? Please circle all that apply.

Single Spring fertilizer application

Split fertilizer application (May/June)

Compost application

Other (please specify) _____

General Pest Management Information for **Cropname**

C1. Which of these insects/mites require routine annual management, require occasional management, or are never a problem in your **cropname?** Please circle and rate all that apply.

Insects & Mites

Frequency of required management

Pest A	Routine, annual management	Occasional	Never a problem
Pest B	Routine, annual management	Occasional	Never a problem
Pest C Etc.	Routine, annual management	Occasional	Never a problem
Other insect/mite (Specify: _____)	Routine, annual management	Occasional	
Other insect/mite (Specify: _____)	Routine, annual management	Occasional	

C2. Which of these diseases require routine annual management, require occasional management, or are never a problem on your **cropname?** Please circle and rate all that apply.

Diseases

Frequency of required management

Disease A	Routine, annual management	Occasional	Never a problem
Disease B	Routine, annual management	Occasional	Never a problem
Disease C etc.	Routine, annual management	Occasional	Never a problem
Other diseases:(Specify: _____)	Routine, annual management	Occasional	
Other diseases:(Specify: _____)	Routine, annual management	Occasional	

Continue to next page

C3. Which of these weed types require routine annual management, require occasional management, or are never a problem on your **cropname? Please circle and rate all that apply.**

<u>Weeds</u>	<u>Frequency of required management</u>		
Annual Broadleaf Weeds	Routine, annual management	Occasional	Never a problem
Perennial Broadleaf Weeds	Routine, annual management	Occasional	Never a problem
Annual Grasses	Routine, annual management	Occasional	Never a problem
Perennial Grasses	Routine, annual management	Occasional	Never a problem

C4. Which of these vertebrate pests require routine annual management, require occasional management, or are never a problem on your **cropname? Please circle and rate all that apply.**

<u>Vertebrate pests</u>	<u>Frequency of required management</u>		
Bear	Routine, annual management	Occasional	Never a problem
Birds	Routine, annual management	Occasional	Never a problem
Deer	Routine, annual management	Occasional	Never a problem
Pine Voles	Routine, annual management	Occasional	Never a problem
Porcupines	Routine, annual management	Occasional	Never a problem
Raccoons	Routine, annual management	Occasional	Never a problem
Skunks	Routine, annual management	Occasional	Never a problem
Turkey	Routine, annual management	Occasional	Never a problem
Other Vertebrate pest (Specify: _____)	Routine, annual management	Occasional	
Other Vertebrate pest (Specify: _____)	Routine, annual management	Occasional	

Continue to next page

In order to document the importance of various pesticides and alternative strategies to **cropname** production, the following sections D-F ask for information about your pest management methods and actual pesticide use.

D. Insect and Mite Pest Management for **Cropname**

D1. Which of the following methods did you use to manage insects or mite pests?

Please circle all that apply.

- a) Field scouting for Tarnished plant bug nymphs
- b) Field scouting for mites
- c) Field scouting for other pests (Please specify _____)
- d) Release predatory mites to control twospotted mites
- e) Using traps for Japanese beetles
- f) Using traps for yellowjackets
- g) Handpicking of insect pests
- h) Pick all berries even overripe
- i) Eliminate wild host plants
- j) Remove weeds that may harbor insect pests
- k) Avoid excess N fertilizer application
- l) Read state or regional pest alerts/newsletter
- m) None
- Other (please explain) _____

D2. Please indicate the number of applications that you made for **cropname in 200X with the following insecticides and miticides.** Please select a number of applications for each product, even if none.

<u>Insecticide(s) and Miticide(s) used</u>	<u>Number of Applications</u>						
Pesticide brand name A (active ingredient)	1	2	3	4	none	other	_____
Pesticide brand name B (active ingredient)	1	2	3	4	none	other	_____
Pesticide brand name C (active ingredient) etc.	1	2	3	4	none	other	_____
Other Pesticide used:							
Please specify: _____	1	2	3	4	none	other	_____
Please specify: _____	1	2	3	4	none	other	_____

Continue to next page

For each of the following insects and mites, indicate the **percentage of your total cropname crop treated in 200X**. If you **did not treat for the pest**, put "0" in the "percent treated" slot. **Please do not leave the answer slot blank**. If question is left blank, we won't know whether you meant zero percent treated or if you skipped the question.

Please circle the insecticides and miticides that you use and rate their effectiveness (Excellent, Good, or Poor). If you used non-pesticide methods to manage a pest, please list and rate them in the "Other Methods Used" area.

D3. Pest name

a) Percent of cropname treated for Pestname in 200X _____%

b) **Insecticide(s) and Miticide(s) used.** Please circle and rate all the products that you used.

	<u>Effectiveness</u>		
Pesticide brand name A (active ingredient)	Excellent	Good	Poor
Pesticide brand name B (active ingredient)	Excellent	Good	Poor
Pesticide brand name C (active ingredient) etc.	Excellent	Good	Poor
Other Insecticide or Miticide used: Please specify: _____	Excellent	Good	Poor
Other Methods Used:			
Method 1	Excellent	Good	Poor
Method 2	Excellent	Good	Poor
Other (Please specify) _____	Excellent	Good	Poor

**** Copy and expand above as needed for list of important pests in this crop. ****

DX. Other Insect/Mite Pests. Please Specify _____

a) Percent of cropname crop treated for Other Insect/Mite(s) in 200X _____%

b) **Pesticide/Methods used.** Please list.

	<u>Effectiveness</u>		
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor

Continue to next page

Disease Management for Cropname

E1. Which of the following practices did you use to manage diseases in cropname?

Please circle all that apply.

- Remove all wild cropname within 600 feet of planting
- Use certified virus-free plants
- Disease tolerant varieties
- Crop rotation
- Application of fungicides
- Prune out diseased plants
- Thin to 4 to 5 canes per foot of row
- Raised beds
- Narrow fruit rows about 2 feet wide
- Plant rows in direction of prevailing winds
- Other (Please specify) _____

E2. Please indicate the number of applications that you made for cropname in 200X with the following fungicides and bactericides. Please select a number of applications for each product, even if none.

Fungicides and Bactericides(s) used	Number of Applications						
Pesticide brand name A (active ingredient)	1	2	3	4	none	other	_____
Pesticide brand name B (active ingredient)	1	2	3	4	none	other	_____
Pesticide brand name C etc. (active ingredient)	1	2	3	4	none	other	_____
Other Pesticide(s) used:							
Please specify: _____	1	2	3	4	none	other	_____
Please specify: _____	1	2	3	4	none	other	_____

Continue to next page

For each of the following diseases, indicate the **percentage of your total **cropname** crop treated in 200X**. If you **did not treat for the disease**, put “0” in the “percent treated” slot. **Please do not leave the answer slot blank**. If question is left blank, we won’t know whether you meant zero percent treated or if you skipped the question.

Please circle the pesticides that you used and rate their effectiveness (Excellent, Good, or Poor). If you used non-pesticide methods to manage a disease, please specify them in the “**Other Methods Used**” area.

E3. Disease A

a) Percent of **cropname** treated for **Disease A** in 200X _____ %

b) **Fungicides & Bactericides used**. Please circle and rate all that you used.

	<u>Effectiveness</u>		
Pesticide brand name A (active ingredient)	Excellent	Good	Poor
Pesticide brand name B (active ingredient)	Excellent	Good	Poor
Pesticide brand name C etc. (active ingredient)	Excellent	Good	Poor
Other fungicide or bactericide used: Please specify: _____	Excellent	Good	Poor
Other Methods Used:			
Method 1	Excellent	Good	Poor
Method 2	Excellent	Good	Poor
Other (Please specify) _____	Excellent	Good	Poor

EX. Other Diseases. Please list. _____

a) Percent of **cropname** treated for other diseases in 200X _____ %

b) **Pesticide/Methods used**. Please list.

	<u>Effectiveness</u>		
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor
_____	Excellent	Good	Poor

Continue to next page

Weed Management for **Cropname**

F1. Which of the following weed management methods did you use for **cropname?** Please circle all the methods that you used and rate their effectiveness: Excellent, Good, or Poor.

<u>Method</u>	<u>Effectiveness</u>		
Mechanical cultivation	Excellent	Good	Poor
Hoeing	Excellent	Good	Poor
Hand pulling	Excellent	Good	Poor
Banded herbicide application (over the row only)	Excellent	Good	Poor
Shielded application (between rows)	Excellent	Good	Poor
Spot treatment	Excellent	Good	Poor
No-till or zone-till	Excellent	Good	Poor
Mulch (please specify type) _____	Excellent	Good	Poor
Other (please specify) _____	Excellent	Good	Poor
Other (please specify) _____	Excellent	Good	Poor

***** Specific products left in template because many herbicides are labeled for multiple crops. Leaving them here might save you having to type these names. *****

F2. Please indicate the number of applications that you made for **cropname in **200X** with the following herbicides.** Please select a number of applications for each product, even if none.

<u>Herbicide(s) used</u>	<u>Number of Applications</u>					
Pesticide brand name A (active ingredient)	1	2	3	4	none	other _____
Pesticide brand name B (active ingredient)	1	2	3	4	none	other _____
Caliber 90 (simazine)	1	2	3	4	none	other _____
Casoron 50WP/4G (dichlobenil)	1	2	3	4	none	other _____
Devrinol 50 DF (napropamide)	1	2	3	4	none	other _____
Fusilade DX (fluazifop)	1	2	3	4	none	other _____
Gallery 75D (isozaben)	1	2	3	4	none	other _____
Gramoxone Max (paraquat)	1	2	3	4	none	other _____
Poast (sethoxydim)	1	2	3	4	none	other _____
Princep 4L (simazine)	1	2	3	4	none	other _____
Roundup Weather Max (glyphosate)	1	2	3	4	none	other _____
Scythe (pelargonic acid)	1	2	3	4	none	other _____
Sinbar 80WP (terbacil)	1	2	3	4	none	other _____
Solicam 80DF (norflurazon)	1	2	3	4	none	other _____
Surflan 4AS (oryzalin)	1	2	3	4	none	other _____
Touchdown (sulfosate)	1	2	3	4	none	other _____

Other herbicides used:

Please specify: _____	1	2	3	4	none	other _____
Please specify: _____	1	2	3	4	none	other _____

For each of the following weed management practices, indicate the **percentage of your total cropname crop managed in 200X**. If you **did not use the practice**, put “0” in the “percent treated” slot. **Please do not leave the answer slot blank**. If question is left blank, we won’t know whether you meant zero percent treated or if you skipped the question.

Please circle the pesticides that you used and the effectiveness of the management strategy (Excellent, Good, or Poor). If you used non-pesticide strategies to manage weeds please specify them in the “**Other Methods Used**” area.

F3. Pre-emergence weed control

a) Percent of cropname acreage treated with pre-emergent herbicides in 200X _____%

b) **Herbicide(s) used.** Please circle and rate all that you used. Effectiveness

Casoron 50WP/4G (dichlobenil)	Excellent	Good	Poor
Devrinol 50 DF (napropamide)	Excellent	Good	Poor
Princep 4L (simazine)	Excellent	Good	Poor
Sinbar 80WP (terbacil)	Excellent	Good	Poor
Solicam 80DF (norflurazon)	Excellent	Good	Poor
Surflan 4AS (oryzalin)	Excellent	Good	Poor
Other Herbicide(s) used:			
Please specify _____	Excellent	Good	Poor
Other Methods Used:			
Method 1	Excellent	Good	Poor
Method 2	Excellent	Good	Poor
Other (Please specify) _____	Excellent	Good	Poor

Continue to next page

F4. Post-emergence weed control

a) Percent of **cropname** acreage treated with post-emergent herbicides in 200X _____%

b) **Herbicide(s) used.** Please circle and rate all that you used.

	<u>Effectiveness</u>		
Gramoxone Max (paraquat)	Excellent	Good	Poor
Poast (sethoxydim)	Excellent	Good	Poor
Roundup Weather Max (glyphosate)	Excellent	Good	Poor
Scythe (pelargonic acid)	Excellent	Good	Poor
Other Herbicide(s) used: Please specify _____	Excellent	Good	Poor
Other Methods Used:			
Method 1	Excellent	Good	Poor
Method 2	Excellent	Good	Poor
Other (Please specify) _____	Excellent	Good	Poor

G. Vertebrate Pest Management for Cropname

G1. Which methods do you use to manage birds in **cropname**? Please circle all the methods that you used and rate their effectiveness: Excellent, Good, or Poor.

<u>Type of protection used</u>	<u>Effectiveness</u>		
Avitrol bait	Excellent	Good	Poor
Cannons	Excellent	Good	Poor
Recorded distress call devices	Excellent	Good	Poor
Scare-eye balloons	Excellent	Good	Poor
Shell crackers	Excellent	Good	Poor
Other visual or sound devices Please specify _____	Excellent	Good	Poor
Other strategies: Please Specify _____	Excellent	Good	Poor
Please Specify _____	Excellent	Good	Poor

Continue to next page

G2. Which methods did you use to manage deer in **croptime in 200X?** Please circle all the methods that you used and rate their effectiveness: Excellent, Good, or Poor.

Deer damage prevention methods used.	Effectiveness		
	Excellent	Good	Poor
Fence (non electric)	Excellent	Good	Poor
Electric fence	Excellent	Good	Poor
Baited (peanut butter) electric fence	Excellent	Good	Poor
Capsaicin (Spray repellent)	Excellent	Good	Poor
Hinder (Spray repellent)	Excellent	Good	Poor
Deer Away (Spray repellent)	Excellent	Good	Poor
Other repellents: Please specify _____	Excellent	Good	Poor
Dogs	Excellent	Good	Poor
Hunting	Excellent	Good	Poor
Hanging soap	Excellent	Good	Poor
Other strategies: Please specify. _____	Excellent	Good	Poor
Please Specify _____	Excellent	Good	Poor

G3. Which strategies do you use to manage raccoons in **croptime?** Please circle all the methods that you used and rate their effectiveness: Excellent, Good, or Poor.

Raccoon damage prevention methods used.	Effectiveness		
	Excellent	Good	Poor
Electric fence	Excellent	Good	Poor
Plant trap crop at edge	Excellent	Good	Poor
Trapping	Excellent	Good	Poor
Dogs	Excellent	Good	Poor
Other strategies: Please specify _____	Excellent	Good	Poor
Please Specify _____	Excellent	Good	Poor

G4. Other Vertebrate Pests and Strategies. Please list the vertebrate pest name, the methods used, and rate their effectiveness.

Please Specify Pest(s)	Methods used	Effectiveness		
		Excellent	Good	Poor
_____	_____	Excellent	Good	Poor
_____	_____	Excellent	Good	Poor
_____	_____	Excellent	Good	Poor
_____	_____	Excellent	Good	Poor

Continue to next page

H. Pest Management Decision Making:

H1. Please select the single option that best describes your use of monitoring for insect and mite pests.

- a) Treatments primarily made on calendar basis, with few decisions based on monitoring.
- b) Informal observations influence decisions, but formal sampling methods and thresholds not used.
- c) Sampling according to standard procedures or with traps, observations compared to pest threshold.
- d) Sampling or trapping with thresholds, plus use of pest models to determine need or timing for control.

H2. Please select the single option that best describes your use of monitoring for disease management.

- a) Treatments primarily made on calendar basis, with few decisions based on monitoring.
- b) Decisions based on informal observations, but formal leaf/fruit sampling or infection period tracking not used.
- c) Infection period duration or intensity estimated, leaf or fruit sampling for symptoms.
- d) Detailed infection period tracking and sampling or use of disease models.

H3. Please select the single option that best describes your use of monitoring for weed management.

- a) Treatments made on calendar basis, with few decisions based on monitoring.
- b) Decisions based on informal observations, but no formal weed scouting or weed mapping.
- c) Decisions based on informal observations, but weed scouting records or weed map used for a few special situations.
- d) Weed scouting records or weed map used for most plantings.

H4. Who does insect trapping or field scouting on your farm? Please circle ALL that apply.

- a) You
- b) Farm employee or family member
- c) Private IPM scout/consultant
- d) University or Extension staff
- e) No one
- f) Other: Please specify: _____

Continue to next page

H5. How important are these information sources in making your pest management decisions?

Please circle a rating for each item.

a) Twilight meetings, field days	Very important	Somewhat impt.	Not impt.
b) Off-season educational meetings	Very important	Somewhat impt.	Not impt.
c) New England Cropname Guide	Very important	Somewhat impt.	Not impt.
d) Extension newsletters or pest alerts	Very important	Somewhat impt.	Not impt.
e) Web sites	Very important	Somewhat impt.	Not impt.
f) Trade publications	Very important	Somewhat impt.	Not impt.
g) Other growers	Very important	Somewhat impt.	Not impt.
h) Suppliers/dealers	Very important	Somewhat impt.	Not impt.
i) University/Extension staff	Very important	Somewhat impt.	Not impt.
j) Private consultant	Very important	Somewhat impt.	Not impt.
k) Other _____	Very important	Somewhat impt.	Not impt.

H6. How often do you use the following weather information in making your pest management decisions? Please circle a rating for each item.

a) Forecasts for timing of next rain	Frequently	Occasionally	Rarely
b) Rainfall accumulation (for effect on spray residue)	Frequently	Occasionally	Rarely
c) Temperature or degree days	Frequently	Occasionally	Rarely
d) Humidity or leaf wetness hours	Frequently	Occasionally	Rarely
e) Wind speed forecast	Frequently	Occasionally	Rarely

H7. How would you describe your crop production practices? Please circle the answer that best describes your practices.

- Conventional
- IPM
- Organic
- Other (please specify: _____)

Continue to next page

I. Pesticide Practices:

I1. How important are these factors to you when choosing pesticides for use on your farm?

Please circle a rating for each item.

	How Important?		
a) Applicator hazard (toxicity to humans)	Very important	Somewhat impt.	Not impt.
b) Cost per Treatment	Very important	Somewhat impt.	Not impt.
c) Customer relations (food safety concerns)	Very important	Somewhat impt.	Not impt.
d) Effectiveness against pest compared to alternative products	Very important	Somewhat impt.	Not impt.
e) Formulation (liquid vs. dry, water soluble bags, etc.)	Very important	Somewhat impt.	Not impt.
f) Impact on beneficial species (parasites, predators, pollinators)	Very important	Somewhat impt.	Not impt.
g) Label restrictions (reentry & preharvest interval, protective equip.)	Very important	Somewhat impt.	Not impt.
h) Size or type of packaging	Very important	Somewhat impt.	Not impt.
i) Other potential nontarget and environmental impacts	Very important	Somewhat impt.	Not impt.
j) Storage requirements	Very important	Somewhat impt.	Not impt.

I2. How often do you use the following personal protective equipment and protective clothing when mixing and/or applying pesticides. Please circle a rating for each item.

Personal Protective Equipment	How Often do you wear			
Long Pants	Always	Occasionally	Never	Not applicable
Long-sleeved shirt	Always	Occasionally	Never	Not applicable
Gloves	Always	Occasionally	Never	Not applicable
Goggles	Always	Occasionally	Never	Not applicable
Face Shield	Always	Occasionally	Never	Not applicable
Nitrile Gloves	Always	Occasionally	Never	Not applicable
Latex Gloves	Always	Occasionally	Never	Not applicable
Cotton Gloves	Always	Occasionally	Never	Not applicable
Chemical Resistant Suit	Always	Occasionally	Never	Not applicable
Respirator	Always	Occasionally	Never	Not applicable
Boots (chemical resistant)	Always	Occasionally	Never	Not applicable

Continue to next page

I3. Which of the following pesticide application equipment do you use for **cropname?** Please circle all that apply.

- a) Air blast sprayer
- b) Boom sprayer without drop nozzles
- c) Boom sprayer with drop nozzles
- d) Shielded sprayer
- e) Back pack sprayer
- f) Wipers for contact herbicides
- g) Air assisted sprayer
- h) Other (specify: _____)
- i) None of the above

I4. Please indicate how often each the listed activities would require worker presence in an area within 30 days after that area had received a pesticide (insecticide, fungicide, herbicide etc.) application.

For this question, “Frequently” means that for a typical acre of this crop, there is a **50% or greater chance** that the activity would require worker presence at least once during a typical growing season within 30 days after a pesticide application.

“Occasionally” means that there is a **10-49% chance**.

“Rarely” means that there is **less than a 10% chance**.

Please circle an answer for each item.

******* (You need to customize the options below for each crop. Do not use this question as is!)**

a) Soil preparation	Frequently	Occasionally	Rarely
b) Planting, Seeding	Frequently	Occasionally	Rarely
c) Hand weeding	Frequently	Occasionally	Rarely
d) Thinning or Pruning	Frequently	Occasionally	Rarely
e) Fertilization, irrigation	Frequently	Occasionally	Rarely
f) Scouting	Frequently	Occasionally	Rarely
g) Hand harvest	Frequently	Occasionally	Rarely
h) Post harvest field work	Frequently	Occasionally	Rarely
i) Other (please specify) _____	Frequently	Occasionally	Rarely

Continue to next page

Thank you for your help!

Summarized survey results will be posted online at PRONewEngland.org.

Please return your questionnaire in the enclosed envelope to:

**Your address line 1
Your address line 1
University of XXXXX
Town, State Zipcode**

***** End of questionnaire example. *****

Setting up data entry spreadsheet

1. Put a blank column between sets of columns for separate questions.
2. Make sure that questions and response options appear in the same order in the data entry sheet as in the original survey.

3. Understand the summary fields you use. The type of summary fields differs for different types of questions. Do not copy summary fields across a spreadsheet and leave them there if they do not apply to the column they are in. This will create a mess. Every summary field should be meaningful and appropriate for the column of data it summarizes.

Summary functions

= COUNTIF(A3:A150,"Y") counts number of Yes answers (assuming you enter Y or y for each Yes response when recording returned surveys). The A3:A150 refers to column and rows that hold the response data. Adjust the row numbers to be summarized as needed for a particular data set.

= COUNTIF(A3:A150,"N") counts the number of cells that contain N or n.

= COUNTIF (\$A3:\$A150,"N") does the same thing. The \$ sign before the column letter makes the column reference absolute instead of relative. This keeps the column value from changing if you copy the cell and paste it in a different column.

=COUNTIF(E3:E106, ">0") counts the number of answers in cells E3 through E106 that have a value greater than zero.

= COUNT(A3:A150) counts the number of cells that are not blank, i.e. that contain a text or numeric value. Use this to count the number of values to divide totals by to get average value.

=SUMIF(A3:A150,">0", A3:A150) calculates the sum of all the cells in the range of A3 through A150 that have a value greater than zero.

=AVERAGE(A3:A150,">0", A3:A150) calculates average of all non-blank cells in the range of A3 through A150. If you don't want to count zero values, you must make delete the zeroes to make them blank cells.

4. Calculating average category ratings:

For pest importance rankings, the spreadsheet counts the number of times each response (routine, occasional, rarely, never) is chosen for each pest. Each "Routine" is counted as 2 points, "Occasionally" as 1, and "Never a problem" as 0. The total number of points is divided by the number of responses. Thus, the most frequent pests have the highest average. A similar scheme is used for the three-step ratings (Excellent, Good or Poor for efficacy ratings, Very, Somewhat, or Not Important for pesticide attributes and information sources).

5. Calculating average numerical values

The way that the survey summary spreadsheet calculates the average depends on the type of question.

For acreage and yield, the number of valid answers above zero is counted using a COUNTIF function. This number is then divided into the sum of values to get the average reported value.

To calculate the average portion of acreage growers treated for a specified pest, the "Average" function calculates the average of all the values entered, including zeroes. **This value is not the estimated percentage of the total New England crop treated for the pest because responses from growers with small acreage are counted the same as responses from growers with a much higher acreage. We do it this way because our emphasis is on grower decision making, so each grower is weighted equally. If you want to estimate the portion of New England crop treated, you must weigh each grower response with their reported acreage.**

To calculate the average portion of total crop sold through various marketing channels, responses are weighted according to how many acres they represent.

6. Calculating percentages

The percentage of growers who use a particular marketing channel is calculated from the number who reported 1 or more percent in a category. This number is divided by the total number of responses to get the percentage of growers using that sales channel.

For the "choose one of multiple choices" questions, the spreadsheet calculates the percentage of responses in each category by counting the number of responses for each category and dividing by the total number of responses.

Data entry

1. Have a copy of the survey form available when entering data to help interpret answers.
2. Make sure all number fields only have numbers, and that **numbers are formatted as numbers**, not as text representation of a number. **Numbers formatted as text will not be included in sums!**
3. When entering responses to Yes/No questions, **always use capital letters**. While Excel summary functions do recognize both "y" and "Y" as being the letter y, it helps in visually detecting errors if all capitals are used.
4. For questions with four multiple answer options make sure the person entering the responses understands the proper assignment of score for each type of response. For example, confirm they understand that Routine, Occasionally, or Never responses are entered as 4,2,0 respectively.
5. If respondent gave comments do not put the comment in the column used to hold normal answers. Instead create a second column to hold comments received in reply to that question. For example if someone rated a pesticide efficacy as "E – on warm days" and you put that into the reply field, the summary function that counts the number of cells that have an "E" will not count that answer. It only counts cells that have "E" and nothing else. So put the "E" in the answer cell, and put "on warm days" in the next column created to hold comments. This assumes the comments are informative enough to be worth saving. If not, just record the rating.
6. If respondent gives a double answer, for example rates a pesticide efficacy as E-G, or rates the frequency of a pest as Routine-Occasionally, use the lower rating. If a range of values is given for as numerical response, for example 50-70% retail sales, then choose the midpoint (e.g. 60%).
7. For questions that ask growers to estimate percentages for a set of options (such as what % of crop is sold for processing, fresh wholesale, fresh pre-picked retail, or pick your own), if a grower responded to the question but only entered values for some of the options, enter zero for options for which grower did not provide a value. By default, Excel will not include a blank cell in calculating an average, so you need to make an implied zero value explicit or else Excel will not include it in calculating an average response. If the grower skipped the question entirely, do NOT enter zeroes for any of the options. This makes it possible to estimate average percentages.

8. Check to be sure that responses make sense before entering them.

Example 1: On the tomato survey people reported yields per acre with values from 30 to 4800. This indicates that people were interpreting the question in different ways, or were answering in different units. If you can't figure out what units the odd responses are based on so that you can convert them to standard units, ignore the odd responses and do not enter them into the data sheet.

Example 2: On the Tomato survey, some growers reported treating much more acreage than they reported as having in total. This is not possible. They were probably reporting percentage of acreage in those cases, but with no way to be sure what they meant, those responses could not be used because we don't know what units they were using.

Formatting Survey Results and Summary documents in Word

1. Use Arial or Verdana font. Most readers will see these documents online, not as hard copy. Times Roman font is difficult to read on a computer monitor.

2. For the Survey Results document, use the questionnaire file and insert tables with the response info. Round percent values and acreages to nearest whole number. If value is less than 1, report as "<1". For pesticide selection for individual pests, put the pesticides in order of percent growers who used it, with most used pesticide in top row. For frequency or ratings of importance questions, put items in order of highest to lowest rating.

3. For the Survey Summary, write a concise text report of the response highlights. Include a table showing for each state the a) number of surveys in the original mailing, b) the number of surveys returned, c) the percent return rate (whole number), d) the number of responses from people growing the crop, and e) the number of acres or other production unit for represented by those respondents.

The summary should include a discussion of the highlights of the survey responses such as the most frequently used horticultural practices, the top rated pests, the most commonly used pesticides, and the highest rated factors in pest management decision making. Include all options when citing questions that rate practices or decision criteria. For pest importance and pesticide selection questions, you only need to mention the most important or highest rated responses.

4. Do not split tables across a page break unless the table is longer than one page. Do not allow table rows to be split across a page break.

5. Send the Survey Results and Survey Summary documents to Glen Koehler for posting on PRONewEngalnd.org.