

New England Bean Pest Management Survey Summary

(The following survey was distributed to New England growers in the fall of 2003. A Dillman survey methodology was used to design and conduct the survey.)

Preliminary Card Notice sent to over 750 growers	July 2003
Survey sent to 759 growers in 6 states	August 2003
Reminder card sent to 576 growers in 6 states	September 2003
Second survey sent to 525 growers in 6 states	October 2003
Data Entry Complete	December 2003

Beans

**Table: Summary of New England Bean Pest Management Survey Returns
(December 2003)**

State	#Surveys Sent	#Surveys Returned	%Return ¹	#Growing Beans	#Bean Acres
CT	105	54	51	9	2.24
MA	89	49	55	18	47.67
ME	205	104	51	49	25.04
NH	209	105	50	18	17.21
RI	80	37	46	4	7.53
VT	25	11	44	6	3.77
Total	713	360	51	104	103.46

¹Most percents in this document have been rounded for ease of reporting.

Crop Information for Beans

Massachusetts led the reported bean crop acreage in 2002 with 47.67 acres. Maine followed with 25.04 acres, New Hampshire with 17.21 acres, Rhode Island with 7.53 acres, Vermont with 3.77 acres and Connecticut with 2.24 acres.

The majority of growers throughout the region did not keep track of yield for their bean crop.

Growers planted approximately 78% of the bean crop acreage with green bean varieties, followed by 15% yellow (wax) beans, <1% purple beans, <1% lima beans, and 4% mixed varieties.

The retail market accounted for 78% of the bean crop harvest, followed by the wholesale market at 19%, and remaining harvest split between U-Pick, processing, farmstands, and Community Supported Agriculture programs (CSA).

Horticultural Management for Beans

Thirty-nine percent of the growers used **composted manure** and 11% used **fresh manure**. **Overhead irrigation** was used by 42% of the growers and **drip irrigation** was used by 18% of the growers. Five percent of the growers reported **using staking/trellising** for their bean crop. Other horticultural practices included use of fertilizers (6%), farm compost (4%), and crop rotation (3%).

Sixty-three percent of the growers use **soil samples** to determine their **fertilizer** needs in most years. Thirty-two percent of the growers took soil samples annually, 17% every other year, and 13% every three years.

Bean Crop Pest Management Overview

The average number of annual pesticide applications for insect pests was 1.2, for mites 0.1, diseases 0.4, and weeds 0.4.

Growers ranked the frequency of insect pests with 27% managing Mexican bean beetle on an “annual” basis and 25% managing leafhoppers “occasionally”. But most growers (over 55%) reported that two spotted spider mite, seedcorn maggot, European corn borer, corn ear worm, aphids, tarnished plant bug, and cabbage looper were “rarely a problem” or “never a problem” in beans.

“Annual” or “Occasional” disease management was necessary for rust (29%), white mold (28%) and downy mildew (21%). But most growers (over 55%) reported that anthracnose, bacterial blights, bean common mosaic virus, bean yellow mosaic virus, and seed decay were “rarely a problem” or “never a problem”.

Annual broadleaf weeds were an “annual” problem for 72% of the growers, followed by annual grasses at 61%, perennial broadleaf weeds at 40%, and perennial grasses at 39%.

“Annual” and “occasional” vertebrate pest problems were deer for 18% of the growers, followed by woodchucks at 7%, and rabbits at 2%.

Insect Pest Management for Beans

Leafhoppers were managed using pesticides on 45% of the bean crop. Lannate was used on 28% of the acreage, followed by Asana on 15%, and Malathion on 4%. PyGanic, Sevin, Thiodan, and Provado were all used on 2% and Ambush, Aza-Direct, Bt/Rotenone, Bounce, Pyconyl, Rotenone, Rotenone/pyrethrins, and Surround were used on less than 1% of the acreage. Growers used both full and reduced rates and reported “excellent” and “good” control.

Pesticide applications were applied to 27% of the bean crop to manage **Mexican bean beetle**. Asana XL was used on 11% of the acreage, followed by Lannate on 5%, Malathion on 3%, Thiodan on 2%, and Entrust on 1%. Ambush, Bt/Rotenone, Pyrethrins, Rotenone, Sevin, and Surround were used on less than 1% of the acreage. Growers used both full and reduced rates and reported “excellent” and “good” control.

Aphids were managed using pesticides on 10% of the bean crop. Malathion was used on 5% of the acreage, followed by Ambush on 3%, Lannate LV on 3%, and Sevin XLR Plus on 1%. BT/Rotenone, Rotenone, and Thiodan were all used on less than 1%. Growers used reduced rates and reported “excellent” control.

Pesticide applications were applied to 5% of the bean crop to manage **two spotted spider mite**. Metasystox was used on 2.5% of the acres and Kelthane was used on <1%.

Tarnished plant bug was managed using pesticides on 3% of the bean crop. Lannate was used for 2% of the beans and Malathion, Pyronyl, Rotenone and Sevin XLR were used on less than 1%. Growers used both full and reduced rates and reported “excellent” control.

Pesticide applications were applied to 2% of the bean crop to manage **seedcorn maggot**. Proector II seed treatment was used for 1% of the beans. Other seed treatments including diazinon treated seeds were used on less than 1%.

Insecticides were applied to control **European corn borer, corn ear worm, cabbage looper, and stripers** on less than 1% of the bean crop acres.

Disease Management for Beans

White mold was a disease managed by 8% of the growers on 30% of the bean crop. Growers used treated seeds on 15% of the acreage. Captan was used on 6% of the acreage and pyrethrins on <1%.

Pesticide applications were applied to 2% of the bean crop to manage **anthracnose**. Bravo Ultrex 82 WDG was used at full rate on 2% of the crop.

Downy mildew was also treated with fungicides on 2% of the bean crop. Bravo Ultrex 82 WDG was used at full rate on 2% of the crop.

Pesticide applications were applied to 3% of the bean crop to manage **bacterial blights**. Kocide 4.5 LF was used at full rate on 3% of the crop.

Rust treated with pesticides on 2% of the bean crop. Bravo Ultrex 82 WDG was used at full and reduced rates on 2% of the crop with “excellent” results.

Forty-four percent of the growers used one or more **cultural practices** to control diseases in beans. Growers used **crop rotation** (17%), followed by **cultivation** (7%), **weeding** (6%), **wide spacing** (5%), **mulch** (4%), and **raised beds** (2%). Most growers reported “excellent” and/or “good” disease management using these practices.

Weed Management for Beans

Seven percent of the bean crop acreage received **stale seedbed** herbicide applications. Roundup Ultra 4S was applied to 5% and Gramoxone to <1% of acres. Growers used both full rates and reported “good” results. Flaming was used on

Preplant incorporated herbicide applications were applied to 28% of the bean crop acres. Treflan 4E was applied to 22% of the acres, followed by Dual Magnum on 13%, Prowl 4EC on 13, and Eptam 7E plus Treflan 4E on 1%. Also Eptam 7E was used on 3% of the acres and Trilin on <1%. Growers used full and reduced rates and reported “good” control.

Thirty percent of the bean crop acreage received herbicide applications **at planting**. Dual was applied to 16% of the bean crop acreage, followed by Eptam 7E plus Treflan 4E at 8%, Metolachlor at 5% and Dacthal 75 WP at 1%. Growers used full rates and received “good” control.

Postemergence herbicide applications were applied to 18% of the acres. Basagran 4E was applied to 16% of the acres, followed by Poast 1.5L on 4%, and Basagran plus Oil on <1%. Growers used full and reduced rates and reported “excellent” and/or “good” control.

Eighty-one percent of the growers reported using **cultivation** for weed management in beans. They also reported “excellent” and/or “good” weed suppression.

Growers used other cultural weed management strategies including **handweeding** (75%), **mulching** (13%), and **mowing** (8%). Most reported “excellent” and/or “good” weed management.

Vertebrate Pest Management for Beans

Sixteen percent of growers used strategies to manage bird damage. Scare eye balloons and flash tape were used by 9% of the growers, followed by netting (5%), and owls (2%). Growers reported “excellent” and “good” control with these strategies.

Forty-one percent of the growers reported other vertebrate pest problems. Deer and woodchucks were most often reported by growers. Twenty-seven percent of growers used various management strategies for **deer** including fencing (10%), electric fences (8%), and shooting (5%). Eleven percent of the growers had problems with **wood chucks** and they used smoke bombs (4%), rifles (4%), and traps (3%). Other vertebrate problems reported included raccoons, groundhog, and coyote with control strategies including, shooting, trapping, and fences. Growers reported “excellent” or “good” management with these strategies.

Information for Pest Management Decisions

Fifty-two percent of the growers implemented **IPM practices** such as insect trapping, and field sampling. Growers (46%) did their own **scouting**, but some had a farm employees/family members (9%), or private consultants (3%) to conduct the scouting. Those who used **sampling methods** used informal sample patterns (33%) or standardized sample patterns (6%) and used insect traps (10%).

Factors that were “very important” in choosing a pesticide were **toxicity** of pesticides (69%), **effectiveness** (69%), potential **environmental impacts** (63%), **phytotoxicity** (60%), impacts on **non-target organisms** (51%), **packaging** (37%), and **cost per acre** (37%).

Weather information was used frequently to make pest management decisions. Sixty-one percent of the growers frequently use **rain forecasts**, followed by **wind speed forecasts** (54%), **rainfall totals** (37%), **humidity** (34%), and **temperature** (29%). Thirty-two percent of the growers would “frequently” base their irrigation schedule on observed and forecast weather.

Growers ranked the following sources information as being “very important” in making their pest management decisions – **New England Vegetable Management Guide** (47%), **other growers** (41%), **off-season education meetings** (39%), **University/Extension staff** (38%), and **newsletters** (35%). “Somewhat important” were trade publications (39%), suppliers/dealers (37%), web sites (31%), and twilight meetings (28%).

Of those growers who describe their crop production, 40% reported **organic**, 30% **conventional**, and 19% **IPM**.

Additional Survey Information

To obtain a copy of the survey and complete results please refer to the New England Pest Management Information Network website at www.pronewengland.org

Special thanks to the hundreds of growers who supported this project.

Also to the members of the New England Pest Management Network team including, Glen Koehler and James Dill-University of Maine, Candace Bartholomew-University of Connecticut, William Lord-University of New Hampshire, Margaret Siligato-University of Rhode Island, Ann Hazelrigg, Alan Gotlieb and Sarah Kingsley-Richards-University of Vermont, and William Coli, Amanda Duphily, and Patricia Vittum-University of Massachusetts.

Submitted by Natalia P. Clifton, Department of Plant, Soil, and Insect Sciences and UMass Extension Pesticide Education Program, University of Massachusetts-Amherst, September 2004.

Funding provided by the USDA Northeast Pest Management Center.