

New England Peas & Carrots 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

Peas

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

State	#Surveys Sent	#Surveys Returned	%Return ¹	#Growing Peas	#Pea Acres
CT	105	56	53	4	0.64
MA	89	49	55	15	14.27
ME	205	104	51	54	41.97
NH	209	107	51	14	4.67
RI	80	37	46	2	1.0
VT	25	11	44	5	4.66
Total	713	364	51	94	67.21

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

Crop Information for Peas

Maine led the reported pea crop acreage in 2002 with 41.97 acres. Massachusetts followed with 14.27 acres, New Hampshire with 4.67 acres, Vermont with 4.66 acres, Rhode Island with 1.0 acre and Connecticut with 0.64 acres.

The majority of growers throughout the region did not keep track of yield for their pea crop. Growers planted approximately 79% of the pea crop acreage with English/Garden Pea varieties, followed by 13% Sugar Peas/Sugar Snap, 4% Edible Podded/Snow Peas, and 1% mixed varieties.

The retail market accounted for 82% of the pea crop harvest, followed by the wholesale market at 9%, U-Pick at 7%, and remaining harvest split between processing and Community Supported Agriculture programs (CSA).

Horticultural Management for Peas

Thirty-nine percent of the growers used **composted manure** and 18% used **fresh manure**. **Overhead irrigation** was used by 41% of the growers and **drip irrigation** was used by 16% of the growers. Thirty-five percent of the growers reported **using staking/trellising** for their pea crop. Other horticultural practices included use of commercial fertilizers (5%), compost (3%), and mulch (2%).

Sixty-three percent of the growers use **soil samples** to determine their **fertilizer** needs in most years. Twenty-seven percent of the growers took soil samples annually, 15% every other year, and 22% every three years.

Pea Crop Pest Management Overview

The average number of annual pesticide applications for insect pests was 0.12, for mites 0.01, diseases 0.09, and weeds 0.37.

Growers ranked the frequency of insect pests with 13% managing corn earworm and 5% managing fall armyworm on an “annual” basis. But most growers reported that corn earworm (55%), fall armyworm (60%), and pea aphid (57%) were “never a problem” in peas.

“Occasional control” was necessary for seed decay (16%) and damping off (12%). But most growers reported that stem canker (53%), root rot (49%), damping off (44%), and seed decay (42%) were “never a problem”.

Annual broadleaf weeds were an “annual” problem for 70% of the growers, followed by annual grasses at 54%, perennial broadleaf weeds at 38%, and perennial grasses at 36%.

“Annual” vertebrate pest problems included deer for 8% of the growers, followed by woodchucks at 5%, and raccoons at 4%.

Insect Pest Management for Peas

Pesticide applications were applied to 4.5% of the pea crop to manage **pea aphids**. Lannate LV was used on 4.5% of the acreage, followed by Diazinon on 3%, and Sevin XLR Plus on <1%.

Pesticide applications were applied to <1% of the pea crop to manage **corn earworm**. Sevin XLR Plus, pyrethrins, and Neem were each used on <1% of the acreage.

Pesticide applications were applied to <1% of the pea crop to manage **fall armyworm**. Sevin XLR Plus was applied on <1% of the acreage.

Disease Management for Peas

Seed decay was a disease managed by 11% of the growers on 16% of the pea 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 3% of the pea crop to manage **damping off**. Growers used treated seed on 2% of the acreage. Pyrethrins, garlic pepper spray and Bravo were each used on <1%.

Pesticide applications were applied to 3% of the pea crop to manage **powdery mildew**. Bravo was used on 3% and pyrethrins on <1%.

Forty-four percent of the growers used one or more **cultural practices** to control diseases in peas. Growers used **crop rotation** (27%), followed by **cultivation** (13%), **hand hoeing** (3%), and **staking** (3%). Several other practices were reported including using compost, using raised beds, and removal of diseased plants in the management of diseases. Most growers reported “excellent” and/or “good” disease management using these practices.

Weed Management for Peas

Thirteen percent of the pea crop acreage received **stale seedbed** herbicide applications. Roundup Ultra 4S was applied to 13% and Basagran to 5% of acres. Growers used both full and reduced rates and reported “excellent” and/or “good”.

Eighteen percent of the pea crop acreage received **preplant incorporated** herbicide applications. Treflan HTP was applied to 10% of the acres, followed by Roundup on 6%, and Trilin 4EC on 5%. Growers used full rates and reported “good” control.

Postemergence herbicide applications were applied to 37% of the acres. Basagran 4E was applied to 30% of the acres, followed by Poast 1.5L on 18%, and Dacthal on 1%. Growers used full rates and reported “excellent” and/or “good”.

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

Growers used other cultural weed management strategies including **handweeding** (66%), **mulching** (14%), and **mowing** (9%). Most reported “excellent” and/or “good” weed management.

Vertebrate Pest Management for Peas

Twenty-seven percent of growers used strategies to manage bird damage. Scare eye balloons were used by 12% of the growers, followed by flash tape (10%), owls (5%), propane cannons (4%), netting (3%), and Remy (3%). Most growers reported “good” control with these strategies.

Thirty-eight percent of the growers reported other vertebrate pest problems. Deer and woodchucks were most often reported by growers. Seventeen percent of growers used various management strategies for **deer** including electric fences (5%), other fencing (5%) and shooting (2%). Nineteen percent of the growers had problems with **wood chucks** and they used smoke bombs (5%), rifles (4%), dogs (4%), and traps (2%). Other vertebrate problems reported included moles, raccoons, groundhog, and mice with control strategies including, shooting, trapping, baiting, and fences. Most growers reported “excellent” and/or “good” management with these strategies.

Carrots

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

State	#Surveys Sent	#Surveys Returned	%Return	#Growing Carrots	#Carrot Acres
CT	105	56	53	3	0.17
MA	89	49	55	12	6.88
ME	205	104	51	37	4.99
NH	209	107	51	10	0.78
RI	80	37	46	0	0
VT	25	11	44	4	1.32
Total	713	364	51	66	14.14

Crop Information for Carrots

Massachusetts led the reported carrot crop acreage in 2002 with 6.88 acres. Maine had 4.9 acres, followed by Vermont with 1.32 acres, and Connecticut and New Hampshire with less than an acre each.

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

The retail market accounted for 74% of the carrot crop harvest, followed by the wholesale market at 25%, and the remaining 1% split between U-Pick, processing, restaurants, and Community Supported Agriculture programs (CSA).

Horticultural Management for Carrots

Forty-seven 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 21% of the growers. Six percent of the growers used compost and/or fertilizer. Other horticultural practices included use of raised beds, cover crops, rotation, and hand watering.

Sixty-one percent of the growers use **soil samples** to determine their **fertilizer** needs in most years. Twenty-seven percent of the growers took soil samples annually, 9% every other year, and 26% every three years.

Carrot Crop Pest Management Overview

The average number of annual pesticide applications for insect pests was 0.4, for mites 0, diseases 0.3, and weeds 0.4.

Growers ranked the frequency of insect pests with 17% managing leafhoppers, 14% managing carrot weevil, and 12% managing carrot rust fly on an “annual” or “occasional” basis. But most growers reported that carrot rust fly (67%) and carrot weevil (63%) were “rarely a problem” or “never a problem” in carrots.

“Occasional” control was necessary for leaf blight (11%) and root-knot nematode (8%). But most growers reported that yellows (73%), root-knot nematode (70%), root rot (70%), crown rot (70%), *Xanthomonas* leaf blight (68%) and leaf blight (65%) were “rarely a problem” or “never a problem”.

Annual broadleaf weeds were an “annual” problem for 70% of the growers, followed by annual grasses at 59%, perennial broadleaf weeds at 39%, and perennial grasses at 36%.

Deer were the major vertebrate problem (annual or occasional control) for only 8% of the growers.

Insect Pest Management for Carrots

Pesticide applications were applied to 5% of the carrot crop to manage **leafhoppers**. M-Pede was applied to 4% of the acres, followed by Methoxychlor on 1%, Rotenone/Pyrethrins and Sevin XLR on <1%. Growers used full rate and reported “excellent” and/or “good” results.

Pesticide applications were applied to <1% of the carrot crop to manage **carrot rust fly**. Both Diazinon and Sevin were used on <1% of the acreage. Reduced rates were used and rated as “excellent”. However, floating rows covers were used on 2% of the carrot crop to manage carrot rust fly.

Pesticide applications were applied to <1% of the carrot crop to manage **carrot weevil**. A reduced rate of Diazinon worked “excellent” on <1% of the carrot crop that was treated. However, floating rows covers were also used on 2% of the carrot crop to manage carrot weevil.

Cabbage maggot was managed by one grower on 7% of the carrot acres. The grower used Asana XLR at a reduced rate with “excellent” results.

Disease Management for Carrots

Leaf blight was a disease managed by 8% of the growers on 30% of the carrot crop. Bravo Ultrex WDG was used on 23% of the acres, followed by Oxidate on 3%, and Champion and Neem on <1%. Full rates were used with “excellent” and/or “good” results.

Thirty-nine percent of the growers used one or more **cultural practices** to control diseases in carrots. Growers used **crop rotation** (20%), followed by **cultivation** (6%), **weed control/hand weeding** (6%), and **wider spacing** (3%).

Weed Management for Carrots

Nine percent of the carrot crop acreage received **stale seedbed** herbicide applications. Roundup Ultra 4S was applied to 6% and Stoddard to 4% of acres. Other strategies used were cultivation (4%) and flame weeding (<1%).

Treflan HTP was applied as a **preplant incorporated** herbicide on 9% of the acres. Growers used full rates and reported “good” control.

Preemergence herbicide applications were applied to 38% of the acres. Lorox 50DF was applied to 37% of the acres and Select 2EC to 2%. Growers used full and reduced rates and reported “excellent” and/or “good” control.

Postemergence herbicide applications were applied to 46% of the acres. Lorox 50DF was applied to 34% of the acres and Fusilade on 21%. Sencor 4F, Sencor 75DF, and Dactol were each applied to 4% of the carrot acres. Growers used full and reduced rates and reported “excellent” and/or “good” control.

Seventy-four percent of the growers reported using **hand weeding** for weed management in carrots. They also reported “excellent” and/or “good” weed suppression.

Growers used other cultural weed management strategies including **cultivation** (70%), and **mulching** (12%). Most reported “excellent” and/or “good” weed management.

Vertebrate Pest Management for Carrots

Eighteen percent of growers used various management strategies for **deer** including electric fences (6%), other fencing (5%), shooting (6%) and repellents (3%). Most growers reported “excellent” and/or “good” results.

Other vertebrate problems reported included moles, voles, wood chuck, rabbits and mice with control strategies including, cats, fence maintenance, trapping, and eliminating mulching.

Information for Pest Management Decisions

Fifty-six percent of the growers implemented **IPM practices** such as insect trapping, and field sampling. Growers (42%) did their own **scouting**, but some had a farm employees/family members (9%), or private consultants (5%) to conduct the scouting. Those who used **sampling methods** used informal sample patterns (30%) or standardized sample patterns (7%) and used insect traps (17%).

Factors that were “very important” in choosing a pesticide were **toxicity** of pesticides (67%), **effectiveness** (64%), **phytotoxicity** (59%), potential **environmental impacts** (59%), impacts on **non-target organisms** (52%), **packaging** (35%), and **cost per acre** (34%).

Weather information was used frequently to make pest management decisions. Sixty-nine percent of the growers frequently use **rain forecasts**, followed by **wind speed forecasts** (52%), **rainfall totals** (47%), **humidity** (36%), and **temperature** (28%). Thirty-nine 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 – **other growers** (47%), **New England Vegetable Management Guide** (46%), **University/Extension staff** (43%), **off-season education meetings** (42%), and **newsletters** (39%). “Somewhat important” were suppliers/dealers (45%), trade publications (40%), web sites (30%), and twilight meetings (29%).

Of those growers who describe their crop production, 44% reported **organic**, 30% **conventional**, and 28% **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

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