

New England Vegetable and Berry Growers Association's 2006 Strategy

Strategic Approach

NEVGBA focuses on grower education to increase adoption of IPM to reduce environmental and human health risks and improve economic long term sustainability for New England agriculture.

In an effort to effectively utilize resources and increase levels of implementation, our 2006 project efforts will be heavily focused on sweet corn production in Massachusetts. The New England region ranks eleventh in the nation for sweet corn sales, Within New England, Massachusetts has the largest number of acres planted to sweet corn, and consequently has the highest dollar value of production.

By having a concentrated effort in Massachusetts, the NEVBGA endeavors to improve the sweet corn pest management program to effectively demonstrate to other growers in New England the benefits of scouting, accessing pest management messages, using reduced-risk pesticides or biological control and other production data.

The NEVGBA membership is committed to supporting on-going education in pest monitoring and employing biopesticides, reduced risk products, and biological control in agricultural production. The 2006 strategy, with efforts on sweet corn insect pest management programs, builds on and creates momentum to impact more growers of this high value and well loved summer staple.

As part of our on-going commitment to pesticide and environmental stewardship, we support and implement our outlined strategic approach.

Progress on 2005 Activity 1

Develop a replicable sweet corn insect pest scouting program to include: European corn borer, corn earworm, and fall armyworm.

Specific tasks included identifying growers (33) to participate in a scouting program and in-field support from Extension IPM Specialists conducting on-site grower training for evaluating trap catches, conducting a scouting program from May, 2005 through September, 2005 which included growers submitting trap information/results to Extension IPM Specialists for distribution, conducting 2 demonstration twilight meetings on selected farms during the growing season, evaluating grower experiences and benefits, and compilation of results.

State Participation Results:

- Connecticut: A total of 7 growers participated. 113 acres were scouted.
- Maine: A total of 5 growers participated. 35 acres were scouted.
- Massachusetts: A total of 18 growers participated. 307 acres were scouted.
- New Hampshire: A total of 4 growers participated. 220 acres were scouted.
- Summary: A total of 34 growers participated and 675 new acres were scouted.

Scouting Summary: All growers felt that direct on-farm scouting was the preferred method of deciding when to spray. This was preferred over relying on trap counts published in Extension newsletters, although this has worked well in the past. About 60% of growers hired a scout; the remaining producers scouted themselves. Growers reported on-farm scouting resulted in needing fewer sprays, better overall pest control, and less corn ear damage. Additionally, they reduced capital expenditures for pest control, generating additional profit. It was also reported and there were fewer machinery repairs and maintenance due to less spraying. In general, growers who performed on-farm scouting reduced the overall number of sprays per acre from 5 to either 3 or 4 on average. Earlier in the season, when pest pressure was lower, growers consistently saved 2 sprays per acre.

All scouting information generated as a result of monitoring on these 34 farms was added to the weekly pest messages published and disseminated by the various state Extension services. This information reaches growers who produce 80% of the sweet corn acreage in New England. Overall, at least 20% of the acreage is managed based on the results/information published in these weekly production messages.

Progress on 2005 Activity 2

Based on monitoring results, growers will use biopesticides, reduced risk pesticides, or biological controls.

Reduced-risk Products Used by State:

- Connecticut: 7 growers participated. 22 Acres were treated with Avaunt; 6 with Spintor.
- Maine: 5 growers participated .18 Acres were treated with Avaunt ; 5 with Spintor.
- Massachusetts: 18 growers participated 46 Acres were treated with Avaunt; 65 with Spintor.
- New Hampshire: 4 growers participated 14cres were treated with Avaunt ; 4 with Spintor.

Biological Control:

- Massachusetts: 34 acres were treated with Trichogramma.

Summary:

- 100 Acres were sprayed with Avaunt, 80 with Spintor, and 34 were treated with Trichogramma.

Use History Prior to Project:

In a prior survey, grower use of targeted pesticides and biopesticides were as follows:

- 60% used Lannate, (Methomyl-RUP, Carbamate)
- 71% used Warrior, (lambda Cyhalothrin)
- 7% used either Spintor or Entrust (organic formulation),
- 0% used Avaunt,
- 0% used Trichogramma (parasitic wasp)

Most growers used either Lannate (carbamate) or Warrior (pyrethroid) as their main insecticides.

Other materials mentioned were: Larvin, Spintor, Dipel, Entrust, and Permethrin.

Grower Evaluation:

When properly timed, both Avaunt and Spintor worked as well as Lannate or Warrior for control of European Corn Borer.

For Fall Armyworm, Avaunt worked better than the other materials. Growers who used Avaunt for this pest said that they would prefer to use Avaunt in the future.

Several growers raised concerns about the cost of the “reduced-risk” materials (Spintor and Avaunt). They stated that the cost(s) would be a deterrent to using them consistently for control of European Corn Borer. 15% of growers said that would use Spintor at least once per year for European Corn Borer resistance management.

Predatory Release:

Trichogramma worked well for control of European Corn Borer. Once Trichogramma is released, follow-up scouting is needed to determine if the borer eggs have been parasitized. This is time consuming and is a factor to address/overcome. If the eggs are not parasitized, follow up applications are needed. On the fields where Trichogramma wasps were released, spraying was needed and it was determined that the Trichogramma was released a few days too late. However, it was noticed that the Trichogramma wasps were able to move by themselves to later corn plantings and provide control of this pest, saving sprays. Control with these wasps was excellent in the later plantings. It is not known if this mobility can be expected in other years. There is also some question regarding the overwintering capability of the wasps which may influence control in subsequent years.

Grower education focused on sweet corn insect pest monitoring and reduced risk product information will be shared at twilight meetings-hosted by a project participant and university based project leads.

Several twilight meetings were held to share project information with growers. Grower interactive sessions were held in Concord and Ipswich Massachusetts. In Connecticut, project information was shared with growers at the annual winter meeting.

Selected State Sweet Corn IPM Program Highlights:

2005 Growing Season University of Maine:

The goal of the University of Maine Cooperative Extension Integrated Pest Management (IPM) program is to teach farmers how to minimize pesticide inputs needed for growing sweet corn while improving the effectiveness of their insect management efforts. During the 2005 growing season, 24 volunteer farmers cooperated in our insect monitoring program. Their fields were regularly scouted for pest populations by our summer students, and specific action thresholds were used to determine if and when pest populations were high enough to economically justify an insecticide application. Over 100 farmers received weekly updates of the pest situation on the participating farms and management advice through the Sweet Corn IPM newsletter, available as both e-mail and surface mail. Post-season surveys indicate that most growers harvested good to average yields in 2005, despite some poor weather conditions. Insect pressure was thought to be somewhat lower than average, with corn earworm perceived to be the most significant problem followed in order by European corn borer and fall armyworm. Weeds and birds also caused significant injury for some growers. Of the 22 surveys returned by growers receiving our IPM information, 90% indicated that using it improved the quality of their crop. Most of the growers receiving the information (73%) significantly reduced the number of pesticide applications they made to their crop as a result. Nearly 90% of farmers found that the program improved the profitability of their crop this year by reducing pesticide application costs and/or improving the number of marketable ears harvested.

Overall Project Impacts:

The greatest savings were on farms of direct project participants (675 acres of sweet corn) in the four-state region. In the early part of the season, these growers eliminated 2 insecticide applications per acre ($\$18/\text{acre} \times 675 \text{ acres} = \$12,150$). The amount of pesticide use reduction was 506 pounds of the higher risk materials. This information was also passed to other growers (2818 acres) who eliminated 1 spray ($\$50,724$). The additional amount of high-risk pesticide pounds reduced was 1057 pounds. Total reduction of high-risk pesticides was 1563 pounds.

Later in the 2005 season, there was a very high peak in corn earworm numbers. The project activities reduced culling of ear-damaged corn. Through our participating growers and the weekly pest messages, this information was quickly passed to growers to incorporate into their pest management program. In 2005, sweet corn retailed for \$4-5 per dozen; with production at 1000 doz/acre. As a result of project activities, it is estimated

the overall impact was eliminating 100 dozen culled ears per acre on 675 acres (retail cost savings \$270,000). There was a more modest impact on farms that used the pest messages at \$1,127,200. Over total positive financial impact on these farms was \$1,397,200.

Applicator Health and Safety Impacts:

A comparison of Worker Protection issues shows that Spintor is the safest product to handle. Growers who use this product incur the lowest costs for personal protective equipment (PPE) while those using Warrior incur the greatest costs.

Activities for the Coming Year

Activity 1

Work with growers in Massachusetts to improve on-farm scouting of sweet corn pests and increase the use of reduced-risk pesticides and biologicals for control of European corn borer and Fall armyworm. One-on-one education is critical to improving grower adoption of these newer products. Growers who commit to scout on their own farms will have more accurate information to make pest management decisions and will improve and contribute to the overall information across the entire New England production area for growers who obtain their scouting information from neighboring farms via the Internet. The Massachusetts pest management message is located at: www.umassvegetable.org

How does this activity reduce pesticide risk?

Pest monitoring is a cornerstone of IPM. By committing to monitoring, growers employ the monitoring strategies to generate timely and geographically significant data that will guide them to make a production decision that is based on the pest conditions on their farms. Increasing timely accessibility to additional geographical monitoring data contributes to effective pest management and associated production decisions.

Facilitating accessibility to alternative products: biopesticides, reduced risk products or biological controls, enables growers to try out products or pest management methods that at present are not a regular part of their pest management strategy. Application of a biological or a biopesticide is more complex from a decision making standpoint and will require specialized grower educational efforts.

How will you measure the risk reduction gained from this activity?

Biopesticides and reduced-risk pesticides are considered to be safer options for the applicator. In some cases, the efficacy of the reduced-risk product may be better than the standard. Adoption of these technologies offers increases for: applicator safety, improved

efficacy (at times), and yield and profitability. Growers will receive direct hands on training the first year which will allow them to be trained with no risk over a season. Biopesticides and biologicals can be sequenced with a reduced-risk pesticide if they fail, decreasing the risk of adoption. Reduced-risk pesticides are a direct replacement for early season European corn borer control and for late season pre-silk Fall armyworm control.

Measures:

- Growers will be asked to document prior insect pest management practices versus practices using their own insect monitoring stations.
 - Number of acres committed to project activities.
 - Number of acres likely to be impacted by project.
 - Number(s) and volume of applications of traditional pesticides and substitutions by reduced risk pesticides, biopesticides, and biological controls will be documented and compared.
 - Supplemental impacts can be measured by REIs, amount of PPE, and toxicity rating as stated on the pesticide label.
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Activity 2

Assess what growers have learned and determine if they continue to use the safer alternatives. The NEVBGA will support U Mass Extension and independent IPM scouts to determine which pesticide products are being used to better target educational efforts when it is determined that safer alternatives are viable. For example, if an organophosphate or carbamate is still the treatment of choice for insect pests when safer alternatives exist and resistance is not an issue, education will be focused on addressing how growers can transition to safer products or management strategies.

How does this activity reduce pesticide risk?

See Measures outlined under Activity 1.

How will you measure the risk reduction gained from this activity?

Massachusetts growers will be surveyed after the 2006 growing season. Specialists will work with the growers so that there will be a 100% response rate. The survey will query what growers have learned and what pest management approaches will be utilized for the 2007 growing season.

Activity 3

Support/facilitate grower meetings where pesticide recertification credits and IPM education is offered.

How does this activity reduce pesticide risk?

The New England Vegetable and Berry Growers Association (NEVBGA), the oldest vegetable growers association in America, is organized to further the vegetable and berry industry in New England. NEVBGA has approximately 500 members representing the six New England states. Crops are grown predominantly for fresh market use and include wholesale sales to roadside stands, restaurants, and supermarkets. Retail outlets include: roadside stands, farmers' markets and a thriving "pick-your-own" industry.

In addition to promoting crops, the organization is active in supporting on farm research and educational efforts to improve understanding of pest problems and to develop pest management programs that strive to minimize environmental and human health risk and address economic impacts to the grower. Key components of these efforts include ongoing IPM research and scouting programs, developing IPM standards and IPM certification programs, and grower education.

How will you measure the risk reduction gained from this activity?

- Monitor the number and type of grower educational opportunities-twilight meetings, trade show sessions, in-field demonstrations, etc.
- Monitor the number of growers who attend meetings where pesticide recertification credits and IPM education is offered.