

## **Surveys show that New York fresh market sweet corn growers increase adoption of IPM practices**

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### **Introduction**

Surveys of fresh market sweet corn growers Integrated Pest Management (IPM) practices were conducted in 1995 and 2002. The surveys were based on IPM Elements developed in order to define and document the practice of IPM in New York. Graphical comparison of the results of the two surveys indicate that fresh market sweet corn growers have increased their adoption of IPM practices over the 7 year interval between the surveys. Grower education in sweet corn IPM and marketplace demands for documented IPM products that occurred during the time between the surveys may have contributed to the increased IPM practice growers reported.

### **Procedures**

IPM Elements for fresh market sweet corn were used as the basis for both surveys (Petzoldt 2005). IPM Elements are lists of IPM practices that are crop and region specific. Fresh market sweet corn IPM Elements were developed in 1994 and 1995 by a group of Cornell faculty, Cornell Cooperative Extension (CCE) staff, consultants, and growers who listed and prioritized the IPM practices they considered to be important for fresh market sweet corn. Since the purpose of IPM Elements was to use them as a basis for documenting the practice of IPM, either 3 (low priority), 5 (medium priority), or 10 (high priority) points were associated with each individual element. A grower's product that achieved 80% of the total points was considered to be eligible for attaching an IPM identifying label.

In 1995 NYS IPM staff working with New York State Agricultural Statistics Service (NASS-NY) staff identified proper survey wording for 27 questions – some multipart - based on the IPM Elements for fresh market sweet corn (see Appendix). Most of the questions were designed to elicit either “yes” or “no” answers that would indicate whether a particular IPM practice was used by that farmer while a few of the questions elicited a number or percent answer. As part of a larger sweet corn survey being conducted by NASS-NY, the IPM survey was administered in interview sessions by NASS-NY staff to 206 fresh market sweet corn farmers across New York state that were selected from the NASS-NY database. Interviews were conducted during the non-growing season in December 1995 and January 1996.

The second survey of 166 fresh market sweet corn farmers was conducted in December 2002 and January 2003 and consisted of the same questions plus 5 additional questions that resulted from some new IPM practices developed after the first survey. Survey procedures were the same for both questionnaires.

For the purposes of comparison only the answers to the 23 questions or sub-questions that were yes/no and were the same for both surveys were evaluated. The answers to the additional questions may be useful for future surveys and comparisons to trace the practice of IPM by New York sweet corn farmers.

In order to compare the results of the two surveys, the yes/no answers were first converted into points based on the IPM Elements assigned valuation. In other words, if a grower answered “yes” to the practice of a low priority item on the list, that answer was credited for 3 points; a “yes” to a medium priority element was credited 5 points; and a high priority “yes” answer received 10 points. The total points available if all answers were “yes” was 144. A score

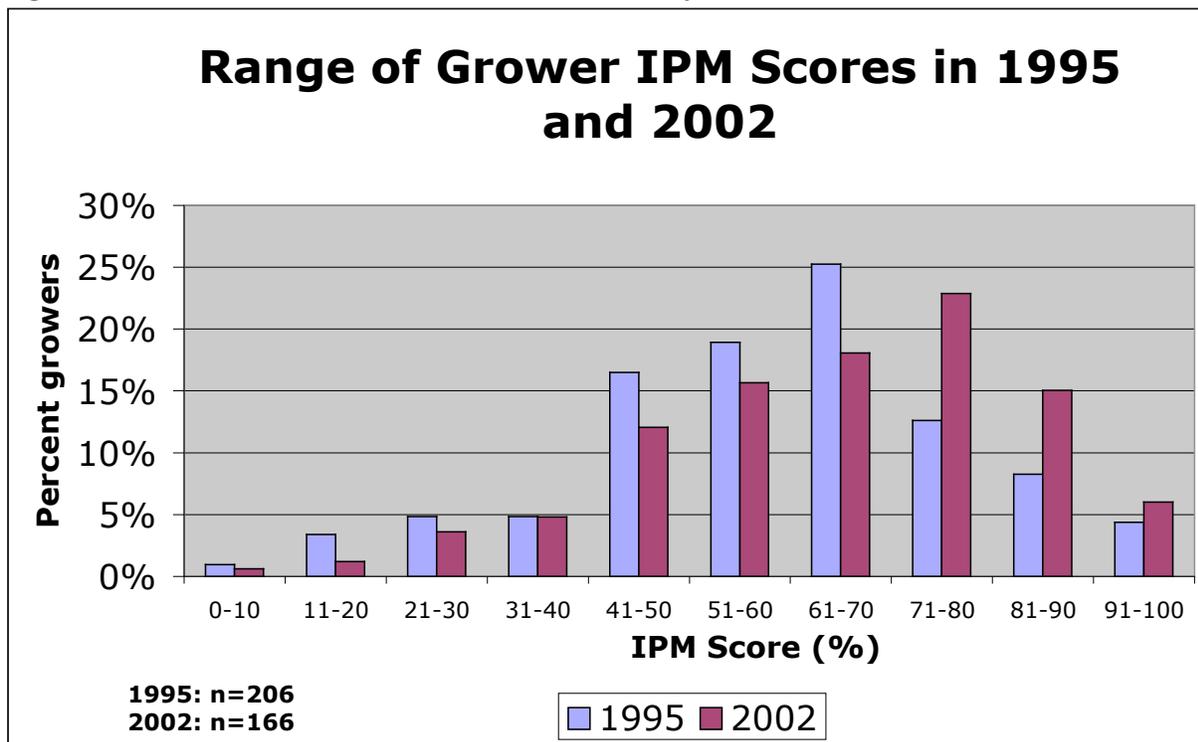
was obtained for each individual grower respondent and converted to a percent of the 144 points available. The percent of growers for each survey whose percent score earned fell into each ten percent scoring interval was calculated.

## Results

In 1995 fresh market sweet corn growers reported that they adhered to IPM Elements to a level that would receive an average of 84.1 points or 58.4% of the points available. In 2002, growers reported adhering to the same IPM Elements to a level that would receive 92.6 points or 64.3% of the points available. This represents an increase of 8.5 points in grower practice translating into each grower practicing between 1 and 3 additional IPM Elements in 2002 compared to 1995.

A more detailed representation of the survey results is shown in the Figure. Both surveys resulted in a bell shaped curve of survey responses. The 2002 survey results are shifted noticeably to the right meaning that more growers achieved a high IPM score in 2002 compared to 1995. The number of growers achieving greater than 80% on the IPM score (the threshold for IPM identification in the marketplace) increased from 26 of 206 (12%) in 1995 to 35 of 166 (21%) in 2002. In addition the 71-80% range of IPM scores had an increase of 12 growers between 1995 and 2002. All of the levels of IPM scores below 70% showed a decrease from 1995 to 2002.

Figure: Results of fresh market sweet corn IPM surveys.



## Discussion

Although additional surveys in the future are needed to confirm these trends, these two surveys show that New York fresh market sweet corn growers report that they have increased their use of IPM practices over the period from 1995 to 2002. There were resources expended

encouraging the adoption of IPM practices during this 7-year period and these may have led to the observed increase in IPM practice.

Eleven IPM Program mini-grants to Cornell and CCE staff with the purpose of increasing IPM adoption and totaling \$31,880 were funded between 1995 and 2002. IPM staff offered approximately 35 formal and informal IPM training sessions at the NYS Vegetable Conference and on farms during the growing season. Wegmans Food markets initiated an IPM labeling program for many vegetable crops including fresh market sweet corn in 1995. Three on-farm full season demonstrations of IPM practices were held in the Rochester, NY area as a result. A Northeast Sustainable Agriculture grant allowed full season on farm IPM practice demonstrations for 3 years – they were placed in the Syracuse, Eden, and Southern Tier regions of the state.

The survey data presented here indicates that the efforts at IPM education conducted in New York between 1995 and 2002 by the New York State IPM Program and Cornell Cooperative Extension and incentives offered by a supermarket chain may have resulted in increased adoption of IPM practices as reported by fresh market sweet corn farmers in surveys. In order to be sure that this trend is continuing, further surveys in future years will need to be conducted.

### **Reference**

Petzoldt, Curtis, Joseph Kovach and Abby Seaman. Eds. 2005. Integrated Pest Management Elements for New York Crops. New York State IPM Program No. 124.

<http://www.nysipm.cornell.edu/elements/index.html>

### **Acknowledgement**

The New York State Agricultural Statistics Service, Director Steven Ropel and his staff, provided valuable advice on the formulation of questions and conducted interviews with farmers to obtain the survey data.

**Appendix:** Questions asked in the 1995 and 2002 grower surveys of IPM adoption.

1. Do you make a written weed map of the field to use for evaluating the pre-emergent herbicide program and making postemergent treatment decisions?
  - 1a. If yes, do you review weed maps of each field before planting to choose appropriate weed control strategies?
2. Do you rotate your fields i.e., plant only in fields where sweet or field corn has not been grown in the previous year to avoid corn root worm, anthracnose, and northern corn leaf blight?
  - 2a. If yes, on what percentage of your acreage?
3. Do you use tolerant or resistant varieties whenever possible for controlling common rust, smut, Stewart's wilt, northern corn leaf blight, maize dwarf mosaic, maize white line mosaic?
  - 3a. If yes, on what percentage of your acreage?
4. Do you use seeds treated with fungicide for control of root and seed rots?
5. Have you tested the use of banded herbicide applications and cultivation to reduce herbicide use?
6. Do you use PSNT (Pre Sidedress Nitrogen Test) to decide if additional sidedress N is needed?
  - 6a. If yes, on what percentage of your acreage?
7. Do you monitor flights of E and Z race european corn borer, the corn earworm, and the fall armyworm on your farm using recommended pheromone traps and lures?
8. Do you scout as recommended for european corn borer, fall armyworm, corn earworm, flea beetles, and common rust?
9. Do you calibrate your pesticide sprayers annually?
  - 9a. If not annually, how frequently? Never? Custom? 2 years? Over 2 years?
10. Do you use recommended action thresholds for making decisions about applying pesticides for insects and diseases of importance?
11. Do you choose effective pesticides that have the lowest environmental impact?
  - 11a. If yes, what do you use as a basis for making that determination? Cornell? Other?
12. Do you keep written field records of: Pest levels? Pesticides? Pest management? Biological Control?
13. Do you establish cover crops for weed control and to scavenge leachable nitrates?
14. Do you mow or disk fields after harvest to reduce pest populations?