Proceedings of the 6th Autralasian Applied Entomological Research Conference. University of Queesnland.

IPM LABELING: COMMUNICATING WITH CONSUMERS ABOUT PEST MANAGEMENT.

Curtis H. Petzoldt and Anthony M. Shelton

Cornell University IPM Program, NYSAES, Geneva, NY, 14456.
Department of Entomology, NYSAES, Geneva, NY 14456

Abstract

As a result of interest from food retailers, processing companies, and growers, a method has been developed by the Integrated Pest Management (IPM) Program at Cornell University to define and document the practice of IPM based on crop and site specific "IPM Elements". An associated point system allows for flexibility in the documentation of IPM practice and the incorporation of new research results and technologies. Retailers, processors, and growers are using the data from IPM documentation to communicate the practice of IPM to consumers, through the use of an IPM logo printed on product labels. The current IPM identifying logo is trademarked and licensed for use by the Cornell Research Foundation (CRF). Licensees are required to collect records for documentation; are limited to promoting IPM as a program of environmental stewardship and NOT as a food safety program; are required to have promotional materials reviewed by CRF; and are required to have key employees knowledgeable about IPM. The CRF also leaves open the possibility to negotiate a user fee for the logo, to support new IPM research and extension projects.

Since few consumers understand IPM, licensees produce brochures, in-store signage, video information, and television and radio explanations of IPM. The potential consumer and retailer demand for IPM products provides an incentive for stronger grower adoption of available IPM practices and creates a demand in the industry for the development of new environmentally sound IPM practices.

Introduction

In many studies, consumers have shown that they have concern about the use of pesticides on farms (Anderson et al. 1995, Auld et al 1994, Bruhn et al 1992, Burgess 1989, Hartman 1996. Pool 1996, Underhill and Figueroa 1993.). Concern about pesticide use consistently ranks as an important concern among consumers. At the same time consumers hold sometimes contradictory desires for unblemished appearance and have little tolerance for pest damage to foods. Also, consumers often do not have enough connection with agriculture to understand how pests impact crop yields and quality and how to translate their concerns into purchase decisions which reward those growers who practice good environmental stewardship. Growers consistently express frustration about the disconnect with agriculture they perceive among consumers and ask for consumer education about agriculture and marketing assistance from cooperative extension staff.

In cooperation with a supermarket (Wegmans), a processor (Comstock Michigan Fruit - CMF), and growers, we have attempted to bridge this communication gap. A project has been initiated to identify and document the use of IPM techniques, which are known to reduce pesticide use, and then communicate good environmental stewardship to consumers through the use of the term IPM. There are important challenges for all parties undertaking this project, including the

definition of IPM, documentation of IPM, evaluation and certification, and education of many parties about IPM.

Methods

Definition of IPM

To define and evaluate the practice of IPM, several problems need to be addressed. Among these are that IPM is region specific, crop specific, needs to be flexible enough to fit into an individual farmer's method of operation, a need to convey to the consumer that IPM is something tangible, that a farmer practicing IPM actually did something to improve or conserve the environment.

To address these needs, we chose to use the design of crop and region specific elements of IPM (Petzoldt et al 1998) as the basis for evaluating IPM practice. The word elements was chosen to avoid words that have regulatory connotations such as Standards or Guidelines. Each element represents an item of importance for the practice of IPM on that crop in that region. For example, an element for sweet corn is the use of insect pheromone traps to monitor flights of European corn borer - an established technique recommended by Cornell/Cooperative Extension. Other sweet corn elements are the scouting of fields on an individual basis for important pests, and following recommended thresholds for European corn borer. Each element identified was a practice recommend by Cornell (Petzoldt et al 1990, Petzoldt et al 1988), the use of which could be documented in some way by grower's records. A sample set of elements is shown in Appendix 1.

Once a draft list of IPM elements was established, a series of meetings of the partners (Cornell staff, growers, Wegmans, CMF, private consultants) interested in using the IPM label were held to discuss and agree upon a final list of items. Agreement was surprisingly easy although it became apparent that all parties were thinking of IPM in the broadest possible definition. Elements were identified which addressed fertility practices, post harvest handling, and post harvest field sanitation, which could possibly be listed as crop production items but had relevance to good IPM practices and good environmental stewardship.

The groups of program partners that met to discuss the IPM elements to be included also began discussions which led to a measuring strategy for IPM practice. IPM elements were prioritized into high, medium, or low categories, according to how important the group felt an element was to the practice of IPM. A point scale was established relating to the priority of items - high priority items were given 10 points, medium priority items were given 5 points and low priority items were given 3 points. The groups set acreage goals between 1% and 100% for each element according to whether it was an element which growers were expected to practice extensively or test. The groups decided that 80% would be the level of points that must be achieved to be considered for identifying a product as IPM produced.

Finally, the groups decided that IPM elements are dynamic - that they change with changing conditions and new research. The groups decided that IPM Elements would be reviewed on an annual basis and new elements might be added, old ones dropped or point distributions changed. In the process of element revision, the groups agreed that a general goal should be to raise the level of IPM practiced in the industry.

Elements have been formulated for snap beans, processing sweet corn, fresh market sweet corn. cabbage for sauerkraut, carrots, beets, peas, dry beans, greenhouse tomatoes, strawberries.

raspberries, and blueberries. New elements are being constructed upon request from each industry involved.

Identifying the product as produced using IPM practices
All partners agreed that a product identifier was needed to communicate with consumers. Since consumers are busy when shopping, the identifier needs to convey the IPM designation in a rapid manner. It was agreed that the current logo of the New York State IPM program would convey the IPM message to consumers (see Figure 1).

Licensing the IPM label
There are two major challenges to IPM labeling. The first is to assure consumers that IPM practices have been used to produce the commidities. The second challenge is to precvent "unscrupulous users" of the IPM identification from claiming IPM production methods without actually practicing them. Both challenges are met by means of a licensing agreement, signed between the Cornell Research Foundation (CRF) and the users of the IPM logo.

The CRF is a private subsidiary of Cornell University. It holds all patents and licensing agreements related to intellectual property at Cornell University. Representatives of CRF trademarked the IPM logo as used in the product identification. Those groups or individuals who want to use the logo to identify their products as grown using IPM practices identified in the IPM elements and documented according to the review procedures outlined here, need to sign a licensing agreement with CRF.

The licensing agreement addresses five issues. It requires 1) documentation of IPM practice in order to use the logo according to the methods described in this paper, 2) education of key licensee employees about IPM to a degree where they can accurately portray IPM to potential customers, 3) a prohibition against making claims about the product other than those of environmental stewardship, 4) protection for Cornell and CRF against liability, and 5) a possible fee arrangement negotiated on an individual basis. Any fees collected are used to offset costs incurred by the CRF. Any additional fees are used for Cornell IPM research and extension programs.

Documentation
The responsibility for the collection of data to document the practice of IPM initially belongs to the growers. Growers agree to document whether or not each individual IPM element has been practiced on a field by field basis. CMF and Wegmans provide assistance in the collection of data by giving growers templates for record keeping, providing notebooks for record organization, and checking periodically to see if growers have questions about recordkeeping requirements. CMF modified tracking software and procedures in processing plants to ensure that only documented IPM product was placed in packages labeled as IPM grown.

Evaluation and certification
An independent third party evaluator is retained by either CMF and/or Wegmans, depending on the crops and the IPM licensee. The evaluator consults with Cornell staff as to methods and decision-making processes. One evaluator designed a computerized program and developed methodology for evaluation of the documentation collected against the IPM Elements. Evaluation is conducted on a field by field basis. Each field receives a rating for the percentage of points achieved. In order to be included in the product mix sold as IPM, a field needs to meet or exceed the 80% point threshold.

The third party evaluator submits the evaluations to the CRF to prove documentation and continue the licensing agreement for the use of the IPM logo. The CRF reviews the information and verifies that all fields achieved the 80% standard. Ultimately, the data and evaluation remain with the licensee to provide documentation of IPM practice to outside parties who request information about the practice of IPM under the label or the meaning of the label.

Education
All growers, CMF field staff, and other participants have been requested to attend IPM training sessions. Both classroom situations and in-field demonstrations have been conducted regularly. Requests for attendance are made by the licensee of the label - Wegmans or CMF. Attendance has been excellent, with a high percentage of growers attending all sessions. Sessions have been offered as both stand alone meetings or as part of regular educational meetings held for the vegetable industry.

Burgess (1989) found that about 12% of consumers in the Rochester and Corning areas of New York were familiar with the term Integrated Pest Management. Pool (1996) found that six years later, knowledge of IPM in Rochester, NY had increased to 19%. Although this is an impressive increase in knowledge among consumers, there are still many consumers to whom an IPM label is meaningless. As a result, Wegmans and other licensees have undertaken measures to educate consumers about IPM by means of in-store signage, an in-store videotape explanation of IPM, brochures, television advertising, newsprint advertising and radio informational spots.

Results

1996:
In 1996, 14 growers of seven processing and fresh market vegetables grew 3490 acres of crops that could potentially be labeled as IPM grown by achieving 80% of the points available for IPM elements and documenting their activities. Not all of the product was labeled as IPM since both Wegmans and CMF allowed for more product to be produced under the IPM protocols than they intended to market, to allow for flexibility in marketing plans.

Data is available for the four fresh market sweet corn growers who achieved 80% or more points on 428 acres (Table 1). The results of a survey of 206 fresh market sweet corn growers conducted in cooperation with the New York Agricultural Statistics Service are shown in Figure 2. Only 26 of 206 fresh market sweet corn growers surveyed indicated that they were achieving more than 80% of the points available for Fresh Market Sweet Corn IPM Elements. This indicates that the growers who are labeling for IPM fall in the top 13% of sweet corn growers as practitioners of IPM. Similar comparison survey data is not available for other crops at this time.

1997-1998:
Several additional crops and licensees were involved in IPM labeling in 1998. IPM Elements have now been requested for 17 different crops grown in New York. The New York State Berry Growers Association has licensed the IPM logo and more than 50 berry growers participated in the program in 1997. In addition, IPM Elements were developed for greenhouse tomatoes, processing tomatoes (for New York, New Jersey and Pennsylvania), dry beans, blueberries, strawberries and raspberries. Final figures for all participants and acreage are not yet available for the 1997 season. IPM Elements are under development for cauliflower, fresh market tomatoes and cucurbit crops for use in the 1998 season.

This project has spurred interest in other states and IPM Elements have been developed for several processing crops in Wisconsin, asparagus in Michigan, popcorn in Illinois and several other crops. Preliminary discussions have been held among the interested parties about how to apply these techniques of IPM labeling across state lines and into different crop production regions for different crops. Counterparts of the Cornell Reasearch Foundation at other institutions have discussed with IPM Cooordinators how a licensing arrangement might work across the USA.

Discussion

Although consumers are not familiar with IPM, they are definitely interested in encouraging the production of high quality food using environmentally sound methods. Several studies have indicated that consumers may be willing to alter purchase decisions to encourage farmers to adopt environmentally sound practices. This project has developed a methodology to identify such products in the marketplace and document the practice of environmentally sound farming methods to maintain the integrity of the IPM identifying mark. The project has shown that IPM methods are available and can be flexible enough for growers to implement on many crops in New York. Documentation is the most challenging part of the process but all partners in the project have realized the importance of documentation to maintain credibility.

A small sample of growers from one crop has shown that those growers participating in the IPM labeling project do, in fact, use IPM practices to a higher degree than that generally found in their industry. It has long been a goal of Cornell Cooperative Extension to increase the adoption of IPM practices among growers and IPM labeling may be assisting in that process.

It is too early to tell whether consumers are buying the products preferentially. Sales figures have not been made public and may not be made public in the future. Even if available, it would be exceedingly difficult to separate out the "IPM label factor" from all other factors contributing to sales. To date both Wegmans and CMF indicate that no additional price has been paid to growers in order to obtain IPM labeled products. However, there continues to be increasing interest in IPM labeling among those who sell food products directly to consumers. It is likely that IPM labeled products are viewed by these marketers as an additional part of the marketing package which may make their particular product more attractive to consumers.

References

Anderson, Molly D, C. Hollingsworth, V. VanZee, W. Coli, and M. Rhodes. 1995. Consumer Response to Integrated Pest Management and Certification. Agriculture, Ecosystems, and Environment. 60(97-106).

Auld, G. W., P.A. Kendall, and H. Chipman. 1994. Consumer and Producer Perceptions and Concerns Regarding Pesticide Use. Food Technology. March 1994: 100-109.

Bruhn, C. S. Peterson, P. Phillips, and N. Sakovitch. 1992. Consumer Response to Information on Integrated Pest Management. Journal of Food Safety 12:4 (315-326).

Burgess, Rebecca B. 1989. IPM Market Survey. Finger Lakes Research, PO Box 25, Victor, NY 14564.

Hartman, Harvey. 1996. The Hartman Report Phase I. Food and the Environment: A Consumer's Perspective. The Hartman Group, 10422 SE 14th St, Bellevue, WA 98004.

Petzoldt, Curtis, Joseph Kovach, Abby Seaman. 1998. Integrated Pest Management Elements for New York Crops. IPM Publication #124. Cornell University IPM Program, New York State Agricultural Experiment Station, Geneva, NY.

Petzoldt, C. H., L. Pedersen, and C. Koplinka-Loehr. 1990. Snap Bean Pest Management: A Guide to Regular Field Monitoring in New York State. IPM No. 105. (Third Edition)

Petzoldt, C.H. ed, R.F. Becker, H. Dillard, C.W. Hoy, A.M. Shelton, and T.A. Zitter. 1988. A Grower's Guide to Cabbage Pest Management in New York. Third Edition. IPM Number 101A. Cornell University Cooperative Extension.

Pool, William M. 1996. Results of Consumer Attitude Survey on Pesticides and Produce Quality. MS Thesis, Rochester Institute of Technology.

Underhill, Sheila E. and Enrique E. Figueroa. 1993. Consumer Preferences for Non-Conventionally Grown Produce. A.E. Staff Paper 93-07. Cornell University Dept. of ARME.

Appendix 1:

1998 Elements of Fresh Market Sweet Corn IPM in New York State

MAJOR PESTS

Insects
European corn borer (ECB)
corn earworm (CEW)
fall armyworm (FAW)
corn flea beetle
corn leaf aphid
western corn rootworm
seed corn maggot
cutworms
common armyworm
sap beetles

Diseases
common rust
smut
northern corn leaf blight (NCLB)
Stewart's wilt
anthracnose
maize dwarf mosaic
seed rots

Weeds
broadleaves
annual grasses
perennials

A. SITE PREPARATION	Priority	Points	Goal for 1998	Achiev
1) Review weed maps of fields to choose appropriate weed control strategies	M	5	50%	
2) Crop Rotation. Plant only in fields where sweet or field corn has not been grown in the previous year to avoid corn root worm, anthracnose, smut, and northern corn leaf blight . **Fields harvested before Aug. 1:**	L	3	25%	
3) As 2) but **Fields harvested after Aug. 1:**	H	10	75%	
4) Soil test at least every three years; fertilize according to recommendation	H	10	100%	

B. PLANTING

1) Use tolerant or resistant varieties whenever possible for controlling common rust, smut, and Stewart's wilt, NCLB, maize dwarf mosaic	M	5	25%	
2) Seed treatment. Use fungicide treated seed for control of root and seed rots.	H	10	100%	

B. PLANTING (CONT.)	Priority	Points	Goal for 1997	Achiev
3) Aviod use of granular, in-furrow insecticides in fields not at risk for seed corn maggot (risk factors include early plantings in cold soil and recently incorporated cover crops or other decomposing organic matter).	L	3	1%	
4) **(Optional)** Test the use of banded herbicide applications and cultivation to reduce herbicide use.	L	3	1%	
C. POST-EMERGENT NUTRIENT MANAGEMENT				
1) Especially if you are using manure or plowing down a cover crop, Use Pre-Sidedress Nitrogen Test to decide if additional sidedress N is needed	L	3	1%	
D. PEST MONITORING AND FORECASTING				
1) Monitor flights of E and Z race ECB, CEW, and FAW on your farm using recommended pheromone traps and lures.	H	10	100%	
2) Scout as recommended for ECB, FAW, CEW, flea beetles, and common rust.	H	3 5 10	25% 50% 75%	
3) Make a written weed map of the field to use for evaluating the pre-emergent herbicide program and making postemergent treatment decision.	H	10	50%	
E. PEST MANAGEMENT				
1) Calibrate sprayer(s) annually or more frequently as needed.	H	10	100%	
2) Use recommended action thresholds for making decisions about applying pesticides for insects and diseases of importance.	H	3 5 10	25% 50% 75%	

E. PEST MANAGEMENT (CONT.)	Priority	Points	Goal for 1997	Achiev
3a) Choose effective pesticides that have the lowest environmental impact based on overall EIQ.	L	3	10% of applications	
3b) Choose effective pesticides that preserve natural enemies based on natural enemy component of EIQ.	L	3	10% of applications	
4) Keep records of pest densities, pesticide applications, cultural pest management practices, and biological control techniques used.	H	10	100%	
5) Cultivate for weed control	M	5	25%	
F. POST HARVEST				
1) Update weed maps to use when planning for next year.	H	10	50%	
2) Establish cover crops for weed control and to scavenge leachable nitrates.	H	10	35%	
3) Mow or disk fields after harvest to reduce pest populations	H	10	60%	

Total Points: 150
80% 120

REFERENCES...

New York IPM Elements can be found at http://www.nysaes.cornell.edu:80/ipmnet/ny/index.html
Specific information about the use of these IPM elements can be found in the following publications:
1998 Fresh Market Sweet Corn IPM Scouting Procedures, IPM Bulletin 111FM
1998 Cornell Pest Management Recommendations for Commercial Vegetable and Potato Production
Pheromone Traps - Effective Tools for Monitoring Lepidopterous Insect Pests of Sweet Corn. Sweet Corn Insect Pest Fact Sheet 102GFS795.00.
A Method to Measure the Environmental Impact of Pesticides. 1992. New York Food and Life Sciences Bulletin Number 139.
The above reference material can be obtained from county Cornell Cooperative Extension offices or by contacting the Audiovisual Resource Center, 8 Business and Technology Park, Cornell University, Ithaca, NY 14850. Telephone 607/255-2080, 607/255-2090 or fax your request to 607/255-9946.

Table 1: IPM label growers, average percent IPM Element points, and acres for 1996 fresh market sweet corn

Grower	% Points	# Acres
1	92	60
2	84	110
3	83	74
4	80	184

Figure 1: IPM logo used to identify IPM grown product

Figure 2: Results of a survey of 206 fresh market sweet corn growers, showing average percent IPM Element points they achieve when growing sweet corn in New York in 1995.