

1. Tactical Agriculture (TAg)-Lewis County 2004

2. Project Leaders:

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3. Cooperators

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4. Type of Project:

Training Practitioners to use IPM techniques

5. Project Location:

Lewis County

6. Abstract:

The Tactical Agriculture (TAg) program is an experiential, hands-on training program in integrated pest and crop management for field crop producers, and other agribusiness personnel, that has been active in New York State since 1990. The TAg program teaches field crop producers to better manage field crops, protect the environment and reduce health risks associated with production agriculture. Participants are actively integrated into the growing-season-long program, which focuses on the collection of data from their fields in conjunction with meetings to discuss critical pest and crop management issues that arise during the growing season. In 2004, we implemented TAg program in Lewis County. This TAg team consisted of 4 field crop producers and 3 crop consultants. Collectively, this years grower participants are expected to utilize their IPM and ICM training on the approximately 555 acres corn silage, 105 acres corn grain, 532 acres alfalfa, and 275 acre forage grass for a total of 1467 acres of field crops they manage.

7. Background and Justification

Sound crop and pest management is critical to economical and efficient field crop production in New York State. The diverse landscape of New York State provides a variety of environmental conditions which foster different crop production and pest management challenges and provide opportunities for locally based and adjusted IPM and ICM training. Many growers have indicated that they would like to learn more about Integrated Crop and Pest Management as a way to increase profits while protecting the environment. The Tactical Agriculture program (TAg) was initiated in the early 1990s to help growers learn how to improve their crop and pest management. TAg is an intensive, growing-season-long, educational program that brings together Cooperative Extension educators, field crop producers, and agribusiness personnel to teach, learn, and implement IPM and ICM practices. The experiential hands-on educational philosophy is the foundation of the TAg program approach. TAg builds on the philosophy that a participant learning a new IPM or ICM tactic by hearing, demonstrating, discussing, and practicing, will more likely retain the information and adopt the practice when the information is reinforced throughout the growing season.

Ideally a "TAg team" consists of 3 to 6 producers, and agribusiness personnel from a local area. TAg groups are comprised of farming neighbors who meet at a participant's farm to learn, discuss, demonstrate and practice the IPM and ICM methods. Meetings are scheduled approximately every two weeks to capitalize on the educational and management opportunities of the growing season. This schedule enables participants to observe, assess real field problems and discuss, select, and employ practical integrated solutions. Each

TAg participant brings their own experience and expertise, which can enrich discussion and contribute to the groups' overall learning process. TAg participants enroll individual fields of corn, and alfalfa that serve as classrooms for TAg workshops. On-farm education has been shown to increase participation and rates of adoption (Wuest et al. 1995; Flora 1991). Producers want to see how an IPM and ICM method or new technology might work on their own farm. The small group educational design promotes learning and effective communication among and between TAg participants and Extension facilitators. Participants learn from each other what agronomic methods might work on their farm given their unique crops, soils, equipment, management, and other individual farm strengths and constraints. Designing TAg programs to meet local needs has great potential to dramatically increase the rate of adoption of IPM and ICM practices.

The TAg program focuses on pest and crop issues over the entire growing season. The philosophy is to help participants understand and better anticipate potential pest and crop management needs, challenges, and opportunities. TAg programs help train participants to be proactive and more effectively manage those situations in real time during the growing season when the pest or crop issues are occurring.

The TAg training calendar sequentially addresses critical crop and pest management needs and opportunities that may be expected over the typical NY growing season. When teaching IPM options, producers are familiarized with means to access sources of IPM and ICM information. Participants are also encouraged to understand, consider, and use a variety of pest management tactics, non-pesticide or chemical, based on appropriateness and availability of effective management options. In addition to addressing a set of standard topics, the flexible nature of TAg programs allows facilitators to address unique situations or local concerns. The typical TAg educational series includes the following principles, concepts, and topics:

April	May	June	July	August	September
<ul style="list-style-type: none"> • Collect field history, conduct Pretest evaluation • Soil Fertility • Stand Counts • Calibrate Pesticide Application. Equip. • Weed Identification • Alfalfa Snout Beetle • Water quality issues 	<ul style="list-style-type: none"> • Alfalfa Weevil • Corn Emergence Problems • Weed Management • Disease Management 	<ul style="list-style-type: none"> • Alfalfa Harvest Considerations • Alfalfa Weevil • Early Season Corn • Initial Potato Leafhopper • PreSidedress Nitrogen Test 	<ul style="list-style-type: none"> • Potato Leafhopper • Initial Corn Rootworm • Livestock Facilities Filth Flies • Alfalfa Harvest Considerations 	<ul style="list-style-type: none"> • Corn Rootworm • Corn Harvest Considerations • Fall Weed Management 	<ul style="list-style-type: none"> • Alfalfa Harvest Considerations • Fall Wrap-up • End of season survey, Post-test Evaluation • Soil Fertility • Calibrate Manure Spreader

8. Objectives:

1. Design and implement the Tactical Agriculture program (TAg team) in Lewis County.
2. Collect pest and crop management data from fields enrolled in the TAg program to reinforce the use of IPM and ICM practices by field crop producers and other personnel.
3. Measure the level of adoption of IPM and ICM practices by TAg participants.

9. Procedures:

In 2004, a TAg program was implemented in Lewis County.

County	Number of Farms	Acres Enrolled	Number of fields Enrolled	Total Acreage of Farming Operations
Lewis	4	200	8	1400

Educational Design

Lewis County identified key IPM and ICM educational needs, organized and held timely meetings to address their topics. Meetings were scheduled relative to the needs and opportunities identified. Meetings were held to provide relevant teaching in critical educational moments during the growing season. The following is a list of topics offered in county TAg meetings this summer:

Meeting Time	Topics Taught
April	Manure Spreader Calibration
June	Alfalfa Weevil Management Alfalfa Disease Management Stand counts
June	Early Season Corn Pests Corn Planter calibration (fertilizer and seed drop) Soil Sampling Issues
July	Potato Leafhopper Management Alfalfa Harvest Issues
August	Corn Rootworm Management Alfalfa Harvest Issues
August	Weed Identification and Management
September	Soil Fertility Issues
September	Corn Harvest Issues

Field Scouting

Field monitoring helps document timely data on current crop condition and pest status. This information is highly relevant to producers, perks their interest and participation in TAg meetings and helps to more fully engage them in a fruitful learning and decision making process with direct application to their farm's net profitability. In short, real data on pest and crop management issues from a producer's own farm is ultimately more convincing and effective at promoting behavioral changes than hypothetical examples. This field data was shared with the producer once a week and was used during the educational meetings to reinforce the information being delivered. Each producer was encouraged to scout other fields on their farms during the growing season. This data was also used in other extension educational efforts like newsletters and pest alerts that were shared throughout New York State.

Evaluation of the Program

We conducted a pre-test and a post-test to document participant's knowledge and IPM / ICM skill level prior to program participation. The post-test evaluation documents change in the participant's level of understanding following conclusion of the TAG season. A post-season survey is also conducted to determine how many IPM or ICM practices participants expect to continue to do, on how many acres, and participants suggestions for improving TAG efforts in their county.

6. Results and Discussion:

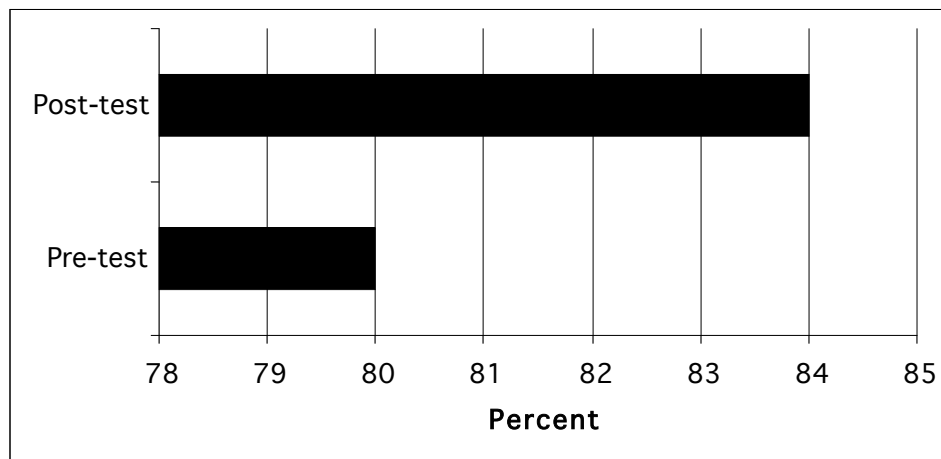
General Perception of the TAG Program by Producers

TAG participants provided very positive feedback regarding their TAG training experience. One hundred percent of the TAG participants agreed the program helped them better understand pest and crop management issues. Growers all indicated that they would recommend the program to other farmers in their area.

Knowledge and Adoption of IPM and ICM

Results of the pre and post-testing indicated that TAG participants slightly increased their knowledge of IPM and ICM. Over all test scores increased 4 percent from the pre-test to the post-test (Figure 1).

Figure 1. Pre-test and post-test averages (4 respondents)



While knowledge of IPM and ICM is important the long-term implementation of these practices is even more critical. After the completion of the TAG program participants completed an exit survey to indicate what IPM and ICM practices they would implement. The following is a summary of IPM and ICM practices that would be implemented into their farming operation.

General IPM

Throughout the data presented, producers for the most part indicated that they would DO or would TRY to do most of the IPM and ICM practices that were taught. As shown in Table 1 their responses to general IPM information, use of thresholds, action plans and record keeping were positive.

	Will Do	Will Try	Will Not Do
Keep scouting records and management action reports	0	100	0
Use threshold tables and guidelines	25	75	0
Prepare IPM scouting plan before the	25	75	0

growing season begins			
Collect reference material to help plan your IPM program	25	75	0

Table 1. Percent of participants implementing a General IPM Philosophy

Field Corn Management

Field corn management is one of the main focuses of the TAG program. Responses by producers indicate that they will try or will implement many of the practices taught during TAG field meetings as shown in table 2.

	Will Do	Will Try	Will Not Do
Scout for early season corn insect pests	50	25	25
Scout for corn diseases	50	50	0
Scout for corn rootworm	75	50	0
Conduct weed surveys	50	50	0
Conduct plant population counts	25	75	0
Identify beneficial insects	25	50	25
Keep abreast of weed identification	0	100	0
Determine the proper leaf stage as it relates to timing of herbicide treatments	0	100	0

Table 2. Percent of Producers Implementing Field Corn IPM

Alfalfa Management

Alfalfa management is the second main focus of the TAG program. As with field corn; producers indicated that they "will do" or "will try" to implement most of the alfalfa IPM practices into their farming operations as depicted in table 3.

	Will Do	Will Try	Will Not Do
Scout for alfalfa disease	50	50	0
Scout for alfalfa weevil	75	25	0
Scout for potato leafhopper	100	0	0
Conduct weed surveys	0	75	25
Conduct plant population counts	25	25	50

Table 3. Percent of Producers Implementing Alfalfa IPM

General Crop Management

As with the IPM practices, producers indicated the importance of implementing ICM practices in their farming operations. As illustrated in table 4, most growers indicated they "will try" or "will" implement many of the ICM practices taught during the TAG meetings.

	Will Do	Will Try	Will Not Do
Make a soil map of your fields	33	66	0
Conduct soil testing to determine proper fertilization needs	100	0	0
Use crop rotation to control certain pests	100	0	0
Understand the importance of testing forage for nutritional quality	100	0	0

Table 4. Percent of Producers Implementing ICM Practices

Becoming a better crop manager

The goal of TAg is to educate producers to help them become better field crop managers. The field crop producers in the TAg program this season indicated that they felt they became better managers of their crops in their farming operations. In figure 2, it suggests that the TAg program had helped them achieve better management practices.

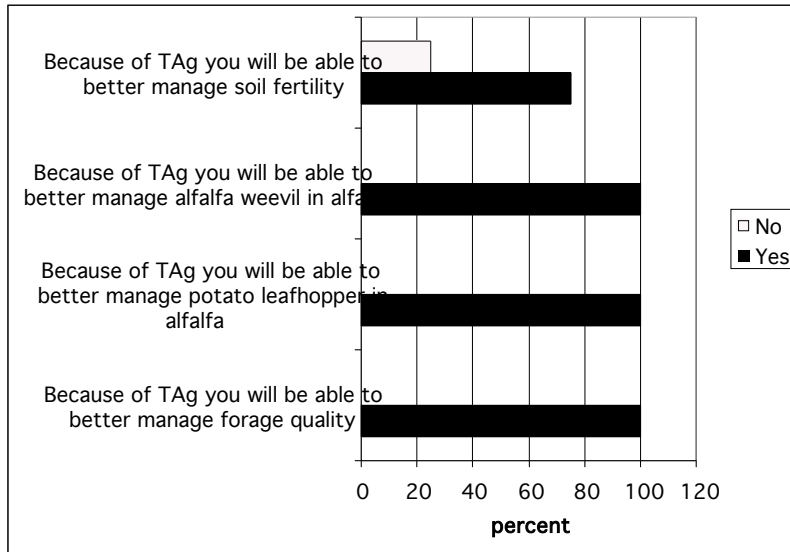


Figure 2: Becoming a better crop manager as a result of the TAg program

Summary

The TAg program in Lewis County has proven to be an excellent educational model for producers to learn and implement IPM and ICM philosophy and practices in their farming operation. When the education is personalized to a producer's specific farming environment and is combined with good, interactive, and participatory learning, farmers will learn to adopt and implement IPM and ICM practices. Overwhelmingly, producers involved indicated receptiveness to the TAg approach and have shown a willingness to implement many of the IPM and ICM practices highlighted in the course.

11. References:

Flora, B. F. 1991. Research Priorities for Sustainable Agriculture. Conference proceedings: Setting Priorities: Research, Practice and Policy for a More Sustainable Agriculture. Leopold Center for Sustainable Agriculture.

Wuest, S. B., Guy, S. O., Smith L. J. and Miller, B. C. 1995. On-Farm Tests as a Tool for Extension Programming. Journal of Extension 33: 4.

12. Comments by Participants

- What I like most about TAg is the hands-on approach to teaching.
- TAg showed me that I can get better quality crops by acting quickly to avoid economic loss.

- TAg has helped me better understand soils and the importance of rotating crops.
- TAg was very beneficial to individual farmers for improving economic viability.
- The TAg program is very beneficial for me and my farming operation.
- TAg has shown me how much I don't know and how important it is to keep up with information.
- I think the TAg meetings are real good to help farmers with all kinds of management problems. They also help improve their operations.