

Results from Small IPM Demonstrations and Field Research Projects in the Capital District.

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It is important to educate vegetable growers with new ideas. New ideas are transmitted best when people are able to see those ideas in practice. Field research, demonstrations and data collection are important tools for Cooperative Extension Educators when working with vegetable growers. Rather than have one large summer meeting, growers have expressed their preference for small, localized meetings covering topics they value. Meetings were held in Saratoga, Washington, Rensselaer, Columbia, Albany and Schoharie Counties. Since there is a large distance from one end of this area to the other end, field demonstrations were done multiple times, on different farms in different counties. This approach necessitated small demonstrations to make specific educational points. Information collected from the field was used in newsletters covering eight counties.

The summer field research and demonstration projects included:

A demonstration of the late blight prediction model utilizing a weather station in Washington County.

The demonstration was held at the Albert Shelton potato farm, Washington County. The weather station is located in the middle of the farm. The summer technician scouted fields and collected data on potato conditions and pests. The Late Blight Forecasting (LBF) model is based on hours of relative humidity (RH) over 90%, average temperature (Av Tp) and total precipitation (Total prcp). The data collected from the weather station is sent to the computer in Geneva, NY and formulated into severity values (SV). The first spray occurs when 18 severity value units have been accumulated. In our demonstration, the grower applied his first spray when the potato plants had 4 leaves. Using the Late Blight Forecasting model, after the first spray, subsequent sprays are applied when 6 or more severity value units have been accumulated. The grower used a conventional system of spraying weekly on a 7 day schedule.

Looking at the following data shows the results of the comparison. The SV column shows the dates when severity values were accumulated. The next two columns show

when the grower sprayed using the weekly system and when sprays were called for using the late blight forecasting (LBF) model. Growers should not go longer than 10-14 days between sprays so new growth can be covered. If plants are growing quickly and rain is predicted, the interval between sprays should be tightened to a minimum of 7 days. Later in the season, when top growth has slowed, spray intervals can be extended as new leaf growth is not occurring. Unfortunately, the weather station broke down on August 9. Using the LBF model, one spray was saved. The breakdown of the weather station coincided with the driest weather of the summer. The grower continued to spray his fields weekly till mid September. It did not rain after the middle of August and using the LBF model; the grower could have felt confident in stretching out his spray interval.

When the weather is wet, the LBF model calls for sprays as needed. When the weather is dry, the LBF indicates a longer period of time between sprays can occur. This is common sense. By having a good tool in the weather station and the LBF model, growers can have more confidence in making good management decisions thus saving time and money.

Cambridge, Washington County - Late Blight Forecasting (LBF) Model

	Hrs	Av	Total	SV	<u>Conventional weekly</u>		<u>LBF Model</u>	
					Accum.	Accum.	SV	Action
	RH	Tp	Prcp		SV	Action	SV	Action
5/26/01	13	57	0.72	1	1			
5/27/01	31	58	0.66	7	8			
6/2/01	33	57	0.98	7	15			
6/3/01	23	57	0.03	4	19			
6/10/01	35	57	0.88	8	27			
6/16/01	15	69	0.83	2	31			
6/17/01	13	61	0	2	33			
6/20/01	9	61	0.37	10	43			
6/22/01						1st Spray		Spray
6/23/01	22	65	1.16	5	5		5	
6/24/01	15	60	0.01	2	7		7	Spray
6/26/01	11	62	0	1	8		8	1
6/26/01						Spray		
6/27/01	11	63	0	1	1		1	2
6/30/01	10	71	0	1	2		2	3
7/3/01						Spray		
7/4/01	19	62	1.94	4	4		4	7 Spray
7/7/01	13	62	0.19	2	6		6	2
7/8/01	15	66	0	2	8		8	4
7/9/01	12	62	0	1	9		9	5
7/10/01						Spray		
7/14/01	13	56	0	1	1		1	6 Spray
7/16/01	14	62	0.26	2	3		3	2
7/16/01						Spray		
7/17/01	14	58	0	1	1		1	3
7/22/01	11	68	0	1	2		2	4

7/23/01					<u>Spray</u>	
7/25/01	12	62	0.68	1	1	5
7/30/01					<u>Spray</u>	
7/31/01	12	74	0	1	1	<u>6 Spray</u>
8/1/01	10	76	0	1	2	1
8/3/01	18	72	0.57	3	5	4
8/4/01	14	73	0	2	7	<u>6 Spray</u>
8/5/01	13	77	0	2	9	2
8/6/01					<u>Spray</u>	
8/7/01	21	77	0	4	4	<u>6 Spray</u>
8/8/01	12	69	0	1	5	
8/9/01	- Weather station broke down					
					<hr/>	
				Total Sprays	8 sprays	7 sprays

A Trichogramma wasp demonstration for the control of European Corn Borer in Sweet corn

The trichogramma wasp demonstration took place on two farms, one in Washington County and the other in Albany County. From past experience, it was felt waiting till corn was knee high was too late for the first release of trichogramma wasps. Needing to plan by the availability of the eggs from Ithaca, we released the eggs in late May, traditionally when the first of European corn borer (ECB) flight occurs. This spring was a cool one and ECB did not start to fly till the second week of June. Fortunately, we were able to obtain another quantity of eggs for a release to coincide with the flight.

In the past, we have had very little luck finding early season trichogramma wasp infested ECB egg masses. This year, every where we looked we found at least 60-80% infested egg masses. The grower in Washington County abandoned his fields for personal reasons but the grower in Albany County was successfully impressed to only apply one spray to his early corn. ("Early corn is too valuable to take a chance on.") Harvest evaluations showed the corn to be totally clean from ECB damage.

As a result of this demonstration, we learned we got the best results from timing the trichogramma release to the ECB flight and the grower gained confidence in this technology. In the past, with knee high releases, we only ever found late season infested egg masses. This summer, the technician looked for infested egg masses during the second flight but populations were so low, no egg masses were found. On a year when corn ear worm (CEW) arrives late, trichogramma wasp technology may be helpfully in reducing ECB populations. This year, the ECB population was so low, many growers saved sprays till early September, when CEW finally arrived. These results were shared at twilight meetings held in Washington and Albany Counties.

A Spintor low toxicity insecticide demonstration in sweet corn using reduced rates to reduce costs.

Over the years, a number of low toxicity, biological insecticides have come onto the market. Trials of these products have not always shown good results against the three main sweet corn insects, european corn borer (ECB), fall army worm (FAW) and corn ear worm (CEW). Spintor, produced by Dow, a fermented product, originally came on the market in 1999. Various researchers have looked at Spintor and reported good results. In the Capital District, growers were interested in a large scale, in-field trial to see if this new product would do the job. In 2000, the trial was set up with four participating commercial sweet corn growers. Since Warrior is the standard insecticide used by sweet corn growers, it was used as the comparison product. Fields ranged from 1 to 5 acres in size. Those results showed Spintor was comparable to Warrior in effectiveness against both european corn borer and corn ear worm. Where Spintor came up short was in a cost comparison with Warrior. A rate of 4.5 ounces of Spintor was almost twice as expensive as the cost of using Warrior.

Upstate NY does not have the corn ear worm pressure that Long Island or New Jersey has. With our insect populations, it appears Spintor is just as effective as Warrior under most situations. Caution should still be used when monitoring insect flights. When corn ear worm flights are extremely heavy, (15-20/night neighborhood) it might be a good idea to switch from Spintor to another effective corn ear worm product.

For 2001, we wanted to look at lower rates of Spintor to see if we could bring the cost per acre down. Work done by Professor Dick Straub, at the Hudson Valley Lab indicated lower rates of Spintor would work. We tried two and three ounce rates.

Three growers took part in the trial. Two growers did one comparison trial each while the third grower did two comparison trials. All four trials tested against ECB only. Corn ear worm (CEW) did not arrive till early September and by that time all three growers were out of corn. Fields were scouted by the technician weekly. Pheromone traps were located by each trial. Fields were divided into three sections, one section for Warrior, one section for Spintor and the third section for an unsprayed check. For early season corn, the 15% threshold was used and both Warrior and Spintor fields were sprayed at tassel emergence. Harvest evaluations were conducted by picking 100 ears from each section and evaluating for damage.

The first grower had 16% ECB infestation and using the 3oz. Spintor and Warrior rate we found no ECB damage in either the Warrior or Spintor corn. There was 4% aphid presence on the Spintor section. The check had 2% ECB damage and 5% aphid presence. Bird damage on all three sections averaged 13%.

The second grower had 12% ECB infestation and using a 2oz. Spintor rate and 3oz. Warrior rate. We again found no ECB damage in the Warrior or Spintor sections. There

was 5% aphid presence in the Spintor section. We found only 3% ECB damage and 6% aphid presence in the check. Bird damage averaged 10% in the three sections.

Grower three had 56% and 94% ECB infestation in two Spintor sections and 86% ECB infestation in the Warrior section. A rate of 3oz. was used for both products. The Warrior and Spintor sections were clean of ECB. The first Spintor field had 6% aphid presence but the second Spintor field had 38% aphid presence. The Warrior section had 1% aphid presence. Bird damage averaged 18% in all three sections. There was no check in this trial as the grower refused to leave an un-sprayed section.

2001 Cost analysis – Warrior vs. Spintor

- 2 applications of Warrior at 3oz. rate
- 2 applications of Spintor at 3oz. rate

Warrior at \$9.84 per application = 2 applications = \$19.68/acre

Spintor at \$16.17 per application = 2 applications = 32.34/acre

- 2 applications of Warrior at 3oz. rate
- 2 applications of Spintor at 2oz. rate

Warrior at \$9.84 per application = 2 applications = \$19.68/acre

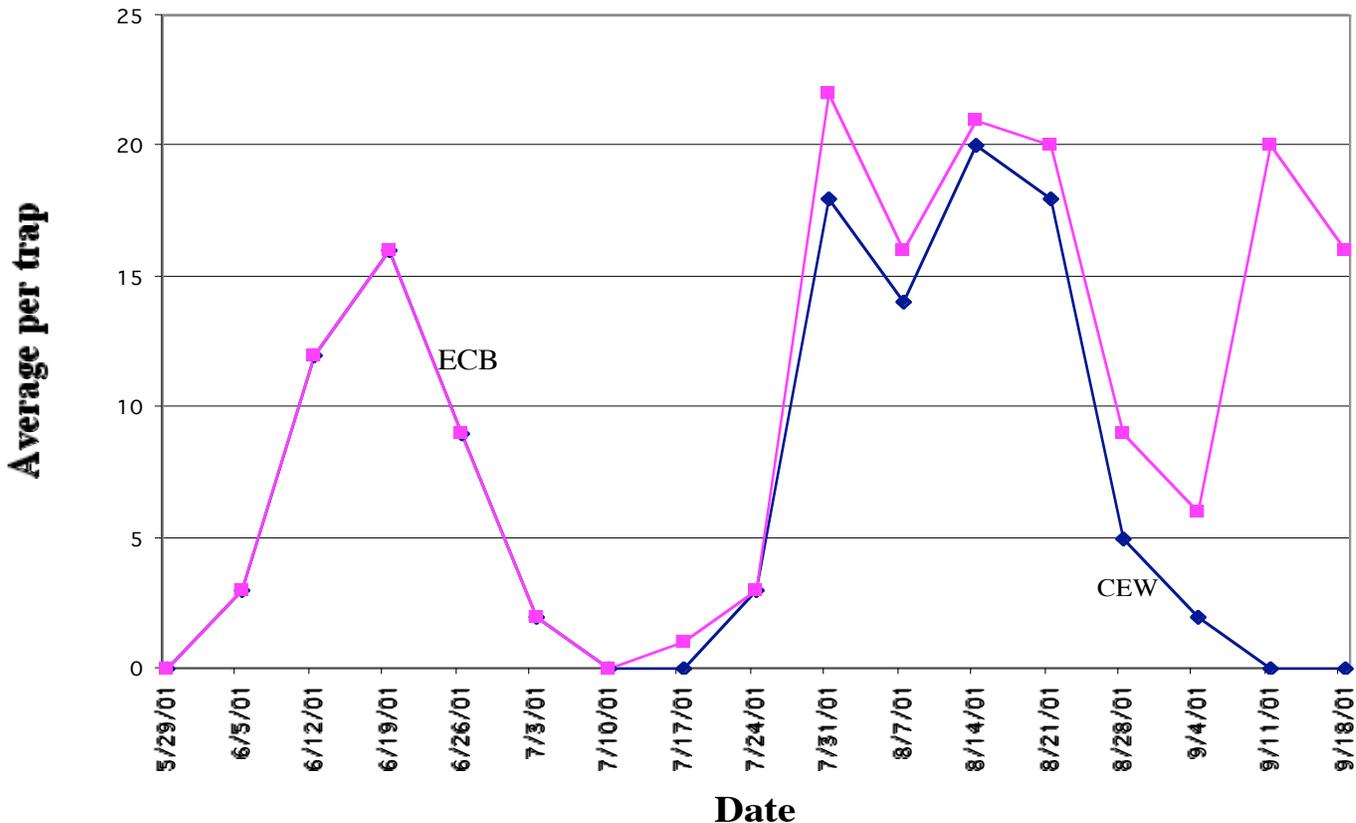
Spintor at \$10.78 per application = 2 applications = \$21.56/acre

To summarize, Spintor at the rates used in this trial, is as effective as Warrior. The 3oz. rate of Spintor makes it more cost comparative with Warrior but it is still more expensive. Using the 2oz. rate of Spintor against the 3oz. rate of Warrior makes Spintor more reasonable. All the participating growers said they would reconsider using Spintor on their farms knowing the cost was more comparative with Warrior. Lower toxicity comes at a higher price.

The collection of sweet corn insect trap data over an eight county area

The technician collected sweet corn insect trap data from 5 counties in the Capital District. The following graph shows the trap catch data.

ECB and CEW Flights 2001



Trap catch data was used in various newsletters and provided growers with valuable information to make good management decisions.

A demonstration of insect and disease resistant varieties of vine crops

Powdery mildew resistant varieties of vine crops were obtained and planted at the Valatie research farm in Columbia County and participating farms in Saratoga County. The demonstration was part of the late-season vine crop twi-light field meetings. Growers saw the quality of the varieties as compared with traditional varieties. Growers are just beginning to learn about the resistant varieties available in the various vine crops. This demonstration showed that beyond the well-know pumpkin varieties, other crops are now gaining PM resistance.

A series of summer twilight meetings to educate growers

Throughout the summer, monthly twi-light meetings were held in Capital District counties. Growers were able to meet, discuss current educational topics and learn new techniques. The summer technician helped to set up these meetings and participated in meetings where she had done the work.

Vegetable grower and employee training in IPM scouting techniques

For the past two years, Saratoga County vegetable growers have been cooperating with the Area Vegetable IPM Educator in a Vegetable IPM Scouting demonstration. Ten farms have participated in weekly scouting, small IPM demonstrations (resistant varieties) and a monthly twilight meeting. Growers in Saratoga County are very supportive of IPM and feel this educational activity is an important asset to their production practices. They have contributed \$2000 toward a summer technician each of the last three summers.

These projects will be carried out on cooperator farms. Growers through the Capital district received timely results from the above work via the electronic Pest Status Report and the Capital District Newsletter.