

“Final Project Report to the NYS IPM Program, Agricultural IPM 2003-2004”

1. IPM Implementation Project - Continuing Using NEWA Internet Resources To Increase Use of Onion IPM

2. Project Leaders:

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4. Training practitioners to use IPM techniques

5. Wayne, Yates and Steuben Counties

6. Abstract:

Growers on 5 onion farms received a review on how to access information from NEWA and they were assisted in incorporating NEWA disease and weather forecasts, as well as field scouting, into their crop protection decision-making process. The wet season and significant disease pressure were motivating factors in their use of the onion disease and weather forecasts. The Modified Blight Alert and the Michigan Botrytis Forecast numbers were impressive and the growers took the disease pressure seriously. One of the 5 growers never participated in an onion IPM program before.

7. Background and Justification:

Implementation of IPM techniques in onions has continued to be a high priority for the Vegetable IPM Program. Years of research and implementation projects and personal observations have confirmed the validity of these techniques. Most onion growers, over the past 10 – 15 years, have increased their scouting efforts and adjusted spray intervals and choice of materials to some extent based on past IPM projects, winter meeting presentations and information in extension publications like Vegetable Notes and the Weekly Vegetable Update. Use of disease forecasting programs like Cornell’s Blight Alert, the Michigan Botrytis and Alternaria forecasts, and the Canadian downy mildew forecast have been limited, however. This has largely been due to the difficulty of getting local weather station information and disease forecasts into the hands of growers several times per week. Internet adoption had been slow in the local vegetable industry. A few local growers have received the information available on NEWA faxes but their

impact had not been great probably because they needed more assistance with interpretation. One grower subscribed to and used NEWA and the Cornell Guidelines on-line in 2001 and there was a significant impact on him and his pesticide spray program. He was very impressed with all the information he could access and with how useful it was to him. He reduced fungicide rates based on the forecasts in that dry year, did a better job choosing materials, and increased his confidence in his crop protection program. Having weekly scouting reports along with the NEWA disease forecasts was essential for him to see what the forecasts could do. Computer and Internet use is finally becoming more common among local growers and many are excited about exploring on-line resources. The time was right to demonstrate NEWA and other IPM resources on-line to these growers.

8. Objectives:

- 1) Continue familiarizing growers with IPM Internet resources and NEWA.
- 2) Guide growers in the use of onion pest and weather information from NEWA, in addition to field scouting information, so they fine-tune their pesticide spray practices.
- 3) Demonstrate NEWA and other IPM resources at a grower meeting.
- 4) Evaluate how the project has changed grower pest management practices.

9. Procedures:

- 1) Individual consultations were conducted with the growers on their farms and with their computers to review with them NEWA resources (weather data, pest forecasts, weather forecasts) and the Cornell Guidelines on-line. Five growers with about 465 acres of onions participated.
- 2) One to two fields per farm were scouted weekly for diseases and insects and growers received a new, revised and simplified scouting report. This report, printed in the field, made it easier for them to read and understand. The results were emailed from the field to the specialist so discussions with the growers could happen as soon as possible. Some growers waited for this before applying their fungicides and insecticide. This information was related, during the individual consultations, to the disease and onion maggot forecasts and the weather information from NEWA so they could learn how to use this new source of information and to trust its validity. More time was spent with them in 2003 than in 2002. Recommendations on timing of pesticide applications, choice of materials, and rates were given each week based on established IPM procedures and Cornell research. The intention was to help growers fine-tune their pesticide applications to use only what was needed while reducing the risk of crop loss from pests. Growers used the specific information for the scouted field but also used it to help them with their pesticide application decisions in general.

3) This project and NEWA resources in general were mentioned at the NYS Onion Industry Council Tour and Summer Meeting on July 2nd. This occurred on Ken Datthyn's farm, one of the cooperators in Wayne Co., and attendees had a chance to see the weather station for the area. Three of the cooperators attended the meeting. Twenty-five onion growers and agribusiness people attended. Information from the project, about onion disease forecasting, and about NEWA was regularly included in the Weekly Vegetable Update, which is received by the vast majority of onion growers in the region.

4) Spray records were collected and related to the scouting reports, to the disease forecasts on NEWA, and to the weather. Growers were asked how their pesticide application choices compared to those of previous years. They were also asked how NEWA and other Cornell pest management resources could be improved.

10. Results and discussion:

Fields were scouted weekly from early June through mid-August and growers received a printed report form. The scouting remains the most popular part of the program, especially when the scout was able to talk face to face with the growers. They all studied the scouting report forms each week. Typical comments regarding the scouting were: "He does a heck of a job!" "The scouting gave me an early warning" (when Botrytis leaf blight jumped suddenly at the 3 leaf stage) "I wish he could scout the whole farm" "I'd like to hire him."

The growers are becoming more comfortable with the Internet and the NEWA website but still have plenty of questions regarding interpreting the information. It's clear that growers still need lots of practice studying the disease and weather forecasts available on NEWA and relating them to the field situation. This will take time. All the growers logged on generally from one to several times a week, especially if it rained, during the season to check on both the disease and weather forecasts. They all increased the amount they used it compared to 2002. The wet season was a motivating factor. Having NEWA free for another year would encourage growers to experiment with this new technology and what it can do for them. The weather forecasts are what they used the most at first. Most are now fairly comfortable with the Botrytis leaf blight information but still need more experience with the Downy Mildew Forecast.

Integrating the weather forecast with the disease forecast and scouting information to come up with a crop protection strategy takes practice. We don't always call it right and we've been doing it since the 1980s! Scouting just once a week makes it imperative that the grower be watching weather forecasts carefully and make the call regardless of how things looked the day the scout was there. None of the growers used Blight Alert as it was designed, waiting day by day for the proper conditions, and didn't think that they would in the future because of spray scheduling concerns and the need to control several other onion diseases. Adding to Botrytis leaf blight management the concern about downy mildew, Alternaria purple blotch, black mold, and bacterial diseases makes the decision on when and what materials to apply very complex. There is the tendency for growers to do what they've done in past years if it's worked. That may mean that they apply a little more fungicide than they need to in a dry year but not enough in a wet year.

It will take a few years before growers can effectively make use of all the resources available. Also, without experienced field scouting, the full potential of the onion IPM program will not be realized.

Botrytis leaf blight appeared by the three leaf stage and was well over the threshold in some fields by the four leaf stage. Growers generally initiated fungicide sprays based on the threshold in the scouted field or an adjacent field. One grower began spraying before the threshold but when the Blight Alert and the Michigan Botrytis Forecast indicated high potential for disease. Two of the growers never exceeded 1 lesion per leaf. The other three had high Botrytis leaf blight pressure from late July on and two resulted in blast. The Inoculum Production Index from July 22 on was 20+ on 11 out of 23 days in Wayne Co., 7/22 days in Steuben Co., and just 3/22 days in Yates Co. One of the three farms with the most Botrytis leaf blight had 14 day spray intervals during mid-season due to wet fields. The other two farms applied fungicide no longer than 8 days apart, and on one of the farms had spray intervals of 2 and 5 days due to heavy rains washing off spray coverage. The grower with the best Botrytis leaf blight control applied significantly less Bravo than the other two growers, the same or less Manex, and no Rovral or Switch. His spray interval was 7 days. He made his first fungicide application before the other growers, never reached the threshold of 1 lesion per leaf, and maintained a very low level of Botrytis throughout the season. He was the only grower who used high pressure, with 135 psi early in the season and 225 psi later in the season. He used 40 gpa throughout the season. There is clearly something going on here that needs to be explored. The growers would like to see new varieties screened for susceptibility to Botrytis leaf blight. There were a number of other farms in the area that had blast by the middle of August.

Downy mildew appeared on one farm, beginning on western transplants and spreading into seeded onions. An application of Ridomil, along with full rates of Manex, stopped the spread. This also worked on another farm not in the project, where downy mildew showed up in seeded onions. Alternaria purple blotch/Stemphylium appeared on transplants the beginning of July and was seen in seeded onions in Wayne Co. the beginning of August. On the farm with the worst Botrytis leaf blight the Alternaria was also the worst.

A grower again suggested integrating the weather forecast into the disease “forecast”, using forecasted weather for the next week in the Blight, etc. programs. This was explored in 2003, not for a week but for 2 – 3 days in the future. Unfortunately this would need to be incorporated manually on a daily basis. Also, the NWS rarely forecasts relative humidity at or over 90%, which triggers many of our diseases, so it wouldn't be accurate.

In addition to working on integrating NEWA forecasts with other onion disease information we were also scouting for thrips and working with Tony Shelton, Brian Nault and Jason Plate on thrips management and insecticide resistance. Some onion growers continue to apply pyrethroids for early to mid-season onion maggot flies in spite of efforts to discourage this practice. They also apply pyrethroids late in the season trying to knock down onion maggot flies. Two of the five growers, however, used no pyrethroids

in 2003. Most growers have given up their heavy reliance on Warrior for thrips control. Growers alternated with Lannate, PennCapM and/or Vydate. On one farm where the TIBS assay was done and the grower changed his insecticide selection, he reportedly “saved thousands of dollars.” Thrips pressure was light in 2003 compared to 2002. Only one farm reached the old threshold of 3 thrips per leaf though most of the others were close to the new, more conservative threshold of 1 thrips per leaf. Thrips resistance has been confirmed or suspected on four of the five farms in the past.

The growers reported making a number of changes based on all the information that was available and what was learned in this and previous onion IPM demonstrations. In the past there would have been less difference in fungicide spray programs in wet vs dry years than there should have been. Four out of five growers reported adjusting fungicide timing, material or especially rate based on the program. Spray interval remains generally seven days, plus or minus, depending on need and the ability to get in the field. A couple of growers started spraying earlier than they might have otherwise this year while one grower sprayed twice in one week because of the frequent rain and high disease pressure. Two reported increasing fungicide rates above what they might have in response to the disease pressure. One reduced his rates when the pressure was low and increased it when the pressure increased. While thrips pressure was down in 2003 it would have been typical in past years for growers to apply an insecticide almost every week. Two growers used no foliar insecticides at all for thrips this year. The other three only used insecticides when thrips approached the threshold. All growers who applied insecticides for thrips rotated between classes because of concern regarding resistance. This is a big change compared to recent years. There continue to be some insecticide applications for onion maggot flies, however.

11. Samples of materials attached:

Charts with pest levels, thresholds, spray applications and spray records from the 5 growers

NEWA onion disease tables and weather records for the Potter, Sodus and Prattsburg stations

Sample of the new Onion IPM Grower Report Form

ONION GROWER REPORT FORM

Grower: _____ Field: _____ Date: _____
 Variety: _____ Crop Stage: Flag stage or # green leaves/plant: _____

PEST SUMMARY

Number of plants sampled in this field: _____

<u>Pest</u>	<u>Field Level</u>	<u>Treatment Threshold/Comments</u>
Onion Maggot (OM)	% 1 st brood damage: _____ 2 nd /3 rd brood peak flight?* yes no	Comments: _____ No foliar sprays recommended unless >5% 1 st brood damage (No data showing sprays reduce damage; sprays could increase thrips resistance)
Thrips (T)	# thrips/leaf: _____ Hotspots? _____	Treat at <u>3 thrips/leaf</u> Comments: _____
Botrytis Leaf Blight (BLB)	# lesions/leaf: _____	First spray at <u>1 lesion/leaf</u> Later: follow <u>Blight Alert*</u> Comments: _____
Alternaria Purple Blotch (A)	present absent	See forecast* Comments: _____
Downy Mildew (DM)	present absent Weather favorable/unfavor	See forecast* Comments: _____

Other Insects/Diseases: _____

*Contact the Northeast Weather Association (NEWA) at www.nvsaes.cornell.edu

INSECT, DISEASE & WEED MAP

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Weed Species & Size:

Weed Size Code:

G=germinate/thread/sprout
 S=less than 1" tall/diameter
 L=more than 1" tall/diameter
 F = flowering

Comments:

2003 Potter - Botrytis Leaf Blight - Inoculum Production Index

Planting Date:	4/19	4/29	5/9
Date			
8/25/2003	6.04	6.04	6.04
8/24/2003	5.36	5.36	5.36
8/23/2003	6.69	6.69	6.69
8/22/2003	9.58	9.58	9.58
8/21/2003	11.57	11.57	11.57
8/20/2003	11.47	11.47	11.47
8/19/2003	11.15	11.15	11.15
8/18/2003	12.53	12.53	12.53
8/17/2003	13.39	13.39	13.39
8/16/2003	11.51	11.51	11.51
8/15/2003	11.58	11.58	11.58
8/14/2003	14.42	14.42	14.42
8/13/2003	16.40	16.40	16.40
8/12/2003	17.34	17.34	17.34
8/11/2003	13.45	13.45	13.45
8/10/2003	20.54	20.54	20.54
8/9/2003	14.36	14.36	14.36
8/8/2003	13.47	13.47	13.47
8/7/2003	16.74	16.74	16.74
8/6/2003	21.08	21.08	21.08
8/5/2003	12.51	12.51	12.51
8/4/2003	15.46	15.46	15.46
8/3/2003	16.26	16.26	16.26
8/2/2003	17.82	17.82	17.82
8/1/2003	8.17	8.17	8.17
7/31/2003	11.49	11.49	11.49
7/30/2003	11.32	11.32	11.32
7/29/2003	9.23	9.23	9.23
7/28/2003	4.49	4.49	4.49
7/27/2003	10.68	10.68	10.57
7/26/2003	11.45	11.45	11.31
7/25/2003	16.74	16.74	16.46
7/23/2003	15.87	15.87	15.55
7/22/2003	22.97	22.97	22.39
7/21/2003	11.33	11.33	10.98
7/20/2003	9.32	9.32	8.96
7/19/2003	11.45	11.45	10.93
7/18/2003	5.91	5.91	5.59
7/17/2003	11.05	10.93	10.34
7/16/2003	8.91	8.81	8.24
7/15/2003	9.81	9.68	8.96
7/14/2003	8.80	8.65	7.93
7/13/2003	3.68	3.60	3.26
7/12/2003	9.76	9.51	8.53
7/11/2003	13.03	12.62	11.18
7/10/2003	14.27	13.73	12.02
7/9/2003	5.57	5.31	4.59
7/8/2003	15.31	14.47	12.35
7/7/2003	8.00	7.56	6.36
7/6/2003	3.61	3.38	2.80
7/5/2003	1.44	1.34	1.09
7/4/2003	8.72	7.99	6.43
7/3/2003	8.64	7.83	6.19
7/2/2003	9.55	8.56	6.64

7/1/2003	9.19	8.14	6.20
6/30/2003	7.86	6.88	5.13
6/29/2003	3.72	3.21	2.34
6/28/2003	7.54	6.43	4.57
6/27/2003	6.24	5.25	3.63
6/26/2003	5.51	4.57	3.07
6/25/2003	8.97	7.33	4.76
6/24/2003	7.40	5.95	3.72
6/23/2003	4.75	3.76	2.25
6/22/2003	15.68	12.17	6.97
6/21/2003	7.50	5.71	3.09
6/20/2003	16.04	11.96	6.08
6/19/2003	11.32	8.25	3.88
6/18/2003	6.59	4.69	2.01
6/17/2003	7.35	5.09	1.94
6/16/2003	6.76	4.54	1.49
6/15/2003	11.37	7.39	1.97
6/14/2003	11.64	7.29	1.42
6/13/2003	12.56	7.54	0.83
6/12/2003	8.87	5.08	0.05
6/11/2003	2.70	1.47	-0.16
6/10/2003	4.90	2.49	-0.66
6/9/2003	5.37	2.53	-1.16
6/8/2003	12.19	5.23	-3.75
6/7/2003	5.13	1.96	-2.10
6/6/2003	4.37	1.43	-2.30
6/5/2003	5.54	1.48	-3.67
6/4/2003	3.86	0.75	-3.16
6/3/2003	2.26	0.25	-2.27
6/2/2003	1.61	0.02	-1.97
6/1/2003	6.12	-0.69	-9.13

2003 - Potter

Date	Alternaria		Botrytis*		Downy Mildew
8/25/2003	4.7	H.Risk	2	IIP	Unfavorable
8/24/2003	5.0	H.Risk	2	IIP	Unfavorable
8/23/2003	6.0	H.Risk	7	IIP	Unfavorable
8/22/2003	6.3	H.Risk	4	IIP	Unfavorable
8/21/2003	6.3	H.Risk	24	IIP	Unfavorable
8/20/2003	6.0	H.Risk	51	SIP	Unfavorable
8/19/2003	6.3	H.Risk	84	SIP	Favorable
8/18/2003	6.7	H.Risk	75	SIP	Favorable
8/17/2003	7.0	H.Risk	52	SIP	Unfavorable
8/16/2003	7.0	H.Risk	41	IIP	Unfavorable
8/15/2003	7.0	H.Risk	84	SIP	Unfavorable
8/14/2003	7.0	H.Risk	95	SIP	Unfavorable
8/13/2003	6.0	H.Risk	96	SIP	Favorable
8/12/2003	6.0	H.Risk	97	SIP	Unfavorable
8/11/2003	5.0	H.Risk	97	SIP	Unfavorable
8/10/2003	7.0	H.Risk	95	SIP	Unfavorable
8/9/2003	5.0	H.Risk	94	SIP	Unfavorable
8/8/2003	6.0	H.Risk	95	SIP	Unfavorable
8/7/2003	7.0	H.Risk	96	SIP	Favorable
8/6/2003	7.0	H.Risk	95	SIP	Favorable
8/5/2003	6.0	H.Risk	93	SIP	Unfavorable
8/4/2003	7.0	H.Risk	97	SIP	Unfavorable
8/3/2003	6.0	H.Risk	92	SIP	Favorable

8/2/2003	6.0	H.Risk	75	SIP	Favorable
8/1/2003	4.7	H.Risk	18	IIP	Unfavorable
7/31/2003	6.3	H.Risk	23	IIP	Unfavorable
7/30/2003	5.7	H.Risk	56	SIP	Favorable
7/29/2003	6.0	H.Risk	80	SIP	Favorable
7/28/2003	6.3	H.Risk	72	SIP	Unfavorable
7/27/2003	5.7	H.Risk	84	SIP	Unfavorable
7/26/2003	5.7	H.Risk	91	SIP	Unfavorable
7/25/2003		High risk	96	SIP	
7/24/2003	5.0	H.Risk	97	SIP	Unfavorable
7/23/2003	6.0	H.Risk	96	SIP	Unfavorable
7/22/2003	5.7	H.Risk	91	SIP	Unfavorable
7/21/2003	5.3	H.Risk	44	IIP	Unfavorable
7/20/2003	6.0	H.Risk	12	IIP	Favorable
7/19/2003	6.0	H.Risk	37	IIP	Favorable
7/18/2003	6.3	H.Risk	30	IIP	Unfavorable
7/17/2003	6.7	H.Risk	30	IIP	Favorable
7/16/2003	6.7	H.Risk	4	IIP	Unfavorable
7/15/2003	6.0	H.Risk	15	IIP	Unfavorable
7/14/2003	5.3	H.Risk	44	IIP	Favorable
7/13/2003	5.7	H.Risk	84	SIP	Unfavorable
7/12/2003	6.0	H.Risk	92	SIP	Favorable
7/11/2003	5.7	H.Risk	83	SIP	Favorable
7/10/2003	6.7	H.Risk	83	SIP	Favorable
7/9/2003	7.0	H.Risk	21	IIP	Unfavorable
7/8/2003	6.3	H.Risk	19	IIP	Unfavorable
7/7/2003	3.7	L.Risk	2	IIP	Unfavorable
7/6/2003	5.3	H.Risk	2	IIP	Unfavorable
7/5/2003	5.3	H.Risk	2	IIP	Unfavorable
7/4/2003	5.7	H.Risk	0	IIP	Unfavorable
7/3/2003	5.7	H.Risk	0	IIP	Unfavorable
7/2/2003	6.3	H.Risk	8	IIP	Unfavorable
7/1/2003	6.0	H.Risk	0	IIP	Favorable
6/30/2003	6.0	H.Risk	0	IIP	Unfavorable
6/29/2003	5.3	H.Risk	0	IIP	Unfavorable
6/28/2003	5.3	H.Risk	0	IIP	Favorable
6/27/2003	5.7	H.Risk	2	IIP	Unfavorable
6/26/2003	5.7	H.Risk	0	IIP	Unfavorable
6/25/2003	5.7	H.Risk	0	IIP	Unfavorable
6/24/2003	5.7	H.Risk	23	IIP	Unfavorable
6/23/2003	6.0	H.Risk	77	SIP	Unfavorable
6/22/2003	6.0	H.Risk	95	SIP	Unfavorable
6/21/2003		High risk	92	SIP	
6/20/2003	6.0	H.Risk	85	SIP	Unfavorable
6/19/2003	4.3	L.Risk	38	IIP	Favorable
6/18/2003	5.0	H.Risk	14	IIP	Unfavorable
6/17/2003	5.7	H.Risk	54	SIP	Favorable
6/16/2003	5.7	H.Risk	89	SIP	Favorable
6/15/2003	6.3	H.Risk	97	SIP	Favorable
6/14/2003	4.7	H.Risk	96	SIP	Unfavorable
6/13/2003	4.3	L.Risk	91	SIP	Unfavorable
6/12/2003	4.7	H.Risk	67	SIP	Favorable
6/11/2003	4.3	L.Risk	44	IIP	Unfavorable
6/10/2003	6.0	H.Risk	87	SIP	Favorable
6/9/2003	6.7	H.Risk	81	SIP	Unfavorable
6/8/2003	5.3	H.Risk	88	SIP	Favorable
6/7/2003	4.0	L.Risk	85	SIP	Favorable

6/6/2003	5.7	H.Risk	85	SIP	Favorable
6/5/2003	4.3	L.Risk	60	SIP	Unfavorable
6/4/2003	3.7	L.Risk	25	IIP	Unfavorable
6/3/2003	4.3	L.Risk	56	SIP	Unfavorable
6/2/2003	5.0	H.Risk	74	SIP	Unfavorable
6/1/2003	3.3	L.Risk	66	SIP	Unfavorable
5/31/2003	3.0	L.Risk	39	IIP	Favorable
5/30/2003	5.0	H.Risk	54	SIP	Unfavorable
5/29/2003	5.0	H.Risk	82	SIP	Unfavorable
5/28/2003	5.0	H.Risk	92	SIP	Favorable
5/27/2003		High risk	95	SIP	
5/26/2003	5.0	H.Risk	94	SIP	Unfavorable

Potter May Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
05/30/03	61	68.5	53.1	0	0.00	6
05/29/03	63	74.5	51.5	0	0.00	1
05/28/03	57	66.3	46.6	8	0.00	10
05/27/03	55	66	41.6	10	0.01	12
05/26/03	52	56.9	46.8	19	0.26	24
05/25/03	56	65.2	50.2	15	0.30	20
05/24/03	55	61.3	51.8	18	0.58	24
05/23/03	54	63	40.1	3	0.01	12
05/22/03	51	63.7	36.5	7	0.00	8
05/21/03	49	56.7	40.5	7	0.07	14
05/20/03	61	74.3	44.8	3	0.18	8
05/19/03	58	75.7	37.5	8	0.00	9
05/18/03	59	71.9	46.3	0	0.00	10
05/17/03	55	63.1	45.5	5	0.01	9
05/16/03	52	54.1	46.8	24	0.59	24
05/15/03	51	63.9	33.5	13	0.03	12
05/14/03	49	55.3	40.8	1	0.00	14
05/13/03	46	48.8	42.2	9	0.06	22
05/12/03	50	52	47.3	14	0.15	12
05/11/03	62	74.5	53.2	4	0.98	13
05/10/03	58	74.5	39.5	0	0.00	9
05/09/03	53	64.5	35.7	5	0.00	6
05/08/03	54	63	45.1	9	0.01	14
05/07/03	56	64.1	44.9	10	0.02	13
05/06/03	58	76	45	1	0.00	12
05/05/03	47	57.5	34	9	0.19	11
05/04/03	48	66.5	28.1	2	0.00	9
05/03/03	44	53.7	33.4	7	0.00	10
05/02/03	49	56.2	42	12	0.76	24
05/01/03	66	80	57	2	0.08	4
04/30/03	52	66.1	33	0	0.00	6
04/29/03	55	66.8	39.6	0	0.00	0
May SUMMARY	54.2	80.0	28.1		4.29	

Potter June Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
06/30/03	67	76	56.3	7	0.16	10
06/29/03	70	80.3	58.9	0	0.00	3
06/28/03	67	82	50.6	3	0.00	7

06/27/03	68	73.4	55.8	0	0.00	7
06/26/03	77	90.4	63.2	0	0.00	7
06/25/03	75	90.1	57	0	0.01	7
06/24/03	71	88.2	51.6	4	0.00	10
06/23/03	72	84.6	56.1	0	0.00	2
06/22/03	67	78.7	56.5	10	0.02	10
06/21/03	59	65.8	53.8	13	0.44	21
06/20/03	58	65.9	48.7	4	0.07	10
06/19/03	61	68.9	52.7	11	0.01	24
06/18/03	62	68.9	56.8	7	0.06	16
06/17/03	66	77.8	50.2	7	0.00	8
06/16/03	60	74.8	41	7	0.00	10
06/15/03	63	73.4	47.6	9	0.00	10
06/14/03	66	73.5	59	2	0.00	17
06/13/03	69	74.7	63	13	0.26	17
06/12/03	61	64.2	56.5	11	0.26	20
06/11/03	69	76.9	63.4	3	0.03	7
06/10/03	64	74.7	49.2	4	0.00	8
06/09/03	63	71.7	54.8	9	0.04	9
06/08/03	68	78.6	58	2	0.00	9
06/07/03	60	64.1	56.5	9	0.13	24
06/06/03	63	73.9	53.3	1	0.00	10
06/05/03	58	62.6	54.3	3	0.10	10
06/04/03	57	63.4	52.6	11	0.17	14
06/03/03	56	68.4	41.5	4	0.00	8
06/02/03	58	69.2	45.6	0	0.00	0
06/01/03	49	58.4	43.6	8	0.35	13
05/31/03	53	55.6	49	14	0.95	24
05/30/03	61	68.5	53.1	0	0.00	6
05/29/03	63	74.5	51.5	0	0.00	1

June SUMMARY 63.8 90.4 41.0 2.11

Potter July Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
07/31/03	69	80.5	56.6	0	0.00	8
07/30/03	68	82.3	53.8	3	0.00	12
07/29/03	65	79.9	48	9	0.00	12
07/28/03	66	71.3	56	1	0.00	5
07/27/03	71	77.1	64.9	7	0.18	8
07/26/03	69	79.8	56.3	9	0.00	11
07/25/03	68	80.6	52.8	10	0.00	12
07/24/03	65	71.5	60.7	13	0.56	19
07/23/03	67	76.5	61.6	10	0.27	18
07/22/03	67	74.8	63.1	15	0.79	17
07/21/03	66	70.9	62.3	12	0.65	24
07/20/03	63	73.8	48.9	7	0.04	14
07/19/03	62	75.8	47.2	8	0.00	10
07/18/03	67	75.2	52.5	4	0.56	9
07/17/03	68	81.5	50.1	5	0.00	9
07/16/03	67	74.5	62.1	9	0.22	12
07/15/03	71	82.1	57.1	1	0.02	9
07/14/03	68	81.9	50.6	6	0.00	10
07/13/03	67	78.1	57.7	2	0.00	3
07/12/03	64	71.2	54.8	3	0.00	7

07/11/03	70	79.1	63.4	3	0.31	10
07/10/03	64	72	53.5	14	0.00	14
07/09/03	66	72.8	59.7	11	0.01	13
07/08/03	75	85.3	64.3	9	0.01	8
07/07/03	69	80	59.2	6	0.06	16
07/06/03	76	86	63.4	0	0.00	4
07/05/03	78	85.8	72.9	0	0.00	0
07/04/03	76	89.2	59.4	0	0.00	8
07/03/03	75	87.4	63.9	1	0.00	9
07/02/03	72	85.9	54.3	0	0.00	9
07/01/03	68	82.2	51.2	5	0.00	10
06/30/03	67	76	56.3	7	0.16	10
06/29/03	70	80.3	58.9	0	0.00	3

July SUMMARY 68.6 89.2 47.2 3.68

Potter August Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
08/25/03	71	80.1	59.5	0	0.00	4
08/24/03	62	73.1	43.7	3	0.00	8
08/23/03	66	75.1	55.7	0	0.00	2
08/22/03	73	81.1	58.2	0	0.00	9
08/21/03	73	86.9	57.9	3	0.00	12
08/20/03	71	85	55.4	0	0.00	12
08/19/03	67	83.7	52.6	8	0.00	12
08/18/03	65	78.3	50.8	8	0.00	12
08/17/03	66	74.3	56.1	9	0.00	14
08/16/03	73	81.5	63.2	2	0.07	14
08/15/03	73	86.2	58.2	4	0.00	12
08/14/03	73	86.7	60.1	9	0.00	12
08/13/03	73	85.5	64.3	9	0.01	15
08/12/03	72	80.3	67.8	14	0.04	17
08/11/03	70	76.5	64.3	13	0.14	20
08/10/03	73	83.1	67.2	9	0.49	14
08/09/03	70	76.5	65.7	19	0.19	21
08/08/03	71	77.5	62.8	12	0.04	15
08/07/03	71	83.4	58	13	0.01	14
08/06/03	67	76	60.6	12	0.06	19
08/05/03	68	78.4	62.2	14	1.02	24
08/04/03	74	82.5	67.1	9	0.01	13
08/03/03	71	83.2	61.2	12	0.42	16
08/02/03	70	82.1	62.5	10	0.10	17
08/01/03	68	73.9	62.3	10	0.75	19
07/31/03	69	80.5	56.6	0	0.00	8
07/30/03	68	82.3	53.8	3	0.00	12

August SUMMARY 68.5 86.9 41.2 3.96

2003 Prattsburg - Botrytis Leaf Blight - Inoculum Production Index

Planting Date:	4/19	4/29	5/9
Date	IPI	IPI	IPI
8/25/2003	11.39	11.39	11.39
8/24/2003	9.10	9.10	9.10
8/23/2003	11.42	11.42	11.42
8/22/2003	14.47	14.47	14.47
8/21/2003	13.25	13.25	13.25
8/20/2003	12.98	12.98	12.98
8/19/2003	12.48	12.48	12.48
8/18/2003	13.92	13.92	13.92
8/17/2003	15.17	15.17	15.17
8/16/2003	13.49	13.49	13.49
8/15/2003	13.43	13.43	13.43
8/14/2003	16.35	16.35	16.35
8/13/2003	16.32	16.32	16.32
8/12/2003	23.65	23.65	23.65
8/11/2003	16.33	16.33	16.33
8/10/2003	23.58	23.58	23.58
8/9/2003	20.21	20.21	20.21
8/8/2003	16.24	16.24	16.24
8/7/2003	18.58	18.58	18.58
8/6/2003	21.14	21.14	21.14
8/5/2003	14.38	14.38	14.38
8/4/2003	16.35	16.35	16.35
8/3/2003	16.07	16.07	16.07
8/2/2003	20.80	20.80	20.80
8/1/2003	13.30	13.30	13.30
7/31/2003	12.08	12.08	12.08
7/30/2003	12.59	12.59	12.59
7/29/2003	11.26	11.26	11.26
7/28/2003	18.11	18.11	18.11
7/27/2003	9.00	9.00	8.90
7/26/2003	11.33	11.33	11.20
7/25/2003	17.87	17.87	17.63
7/24/2003	16.50	16.50	16.23
7/23/2003	21.56	21.56	21.12
7/22/2003	22.63	22.63	22.05
7/21/2003	13.54	13.54	13.12
7/20/2003	10.53	10.53	10.13
7/19/2003	12.78	12.78	12.20
7/18/2003	6.68	6.68	6.31
7/17/2003	11.05	10.94	10.34
7/16/2003	8.96	8.86	8.29
7/15/2003	10.59	10.45	9.68
7/14/2003	10.98	10.79	9.89
7/13/2003	9.41	9.22	8.36
7/12/2003	14.82	14.44	12.94
7/11/2003	14.68	14.22	12.60
7/10/2003	16.75	16.12	14.11
7/9/2003	11.57	11.04	9.54
7/8/2003	16.22	15.34	13.08
7/7/2003	11.46	10.83	9.12
7/6/2003	8.71	8.15	6.76
7/5/2003	1.95	1.80	1.47
7/4/2003	10.51	9.63	7.74
7/3/2003	10.46	9.48	7.49

7/2/2003	10.28	9.21	7.15
7/1/2003	9.93	8.79	6.69
6/30/2003	11.03	9.66	7.20
6/29/2003	9.22	7.97	5.81
6/28/2003	8.12	6.93	4.93
6/26/2003	4.14	3.44	2.31
6/25/2003	8.97	7.33	4.76
6/24/2003	8.10	6.52	4.08
6/23/2003	6.60	5.22	3.13
6/22/2003	17.72	13.75	7.87
6/21/2003	9.62	7.32	3.97
6/20/2003	15.15	11.29	5.74
6/19/2003	16.63	12.12	5.70
6/18/2003	7.07	5.03	2.15
6/17/2003	7.64	5.28	2.02
6/16/2003	7.25	4.87	1.60
6/15/2003	12.10	7.86	2.09
6/14/2003	16.09	10.08	1.96
6/13/2003	15.22	9.14	1.01
6/12/2003	11.89	6.81	0.07
6/11/2003	4.40	2.38	-0.27
6/10/2003	5.62	2.85	-0.75
6/9/2003	5.78	2.72	-1.25
6/8/2003	11.84	5.08	-3.64
6/7/2003	6.13	2.34	-2.51
6/6/2003	8.15	2.67	-4.30
6/5/2003	9.22	2.45	-6.10
6/4/2003	4.19	0.82	-3.43
6/3/2003	2.81	0.31	-2.81
6/2/2003	3.10	0.03	-3.79
6/1/2003	5.96	-0.67	-8.88

2003 Prattsburg

Date	Alternaria	Botrytis*	D. Mildew
8/25/2003	5.3 H.Risk	38 IIP	Unfavorable
8/24/2003	6.0 H.Risk	48 IIP	Favorable
8/23/2003	6.7 H.Risk	68 SIP	Unfavorable
8/22/2003	5.7 H.Risk	45 IIP	Unfavorable
8/21/2003	6.3 H.Risk	59 SIP	Unfavorable
8/20/2003	6.0 H.Risk	81 SIP	Favorable
8/19/2003	6.3 H.Risk	94 SIP	Favorable
8/18/2003	6.7 H.Risk	89 SIP	Favorable
8/17/2003	5.0 H.Risk	84 SIP	Favorable
8/16/2003	6.0 H.Risk	80 SIP	Unfavorable
8/15/2003	7.0 H.Risk	93 SIP	Unfavorable
8/14/2003	7.0 H.Risk	98 SIP	Unfavorable
8/13/2003	5.0 H.Risk	98 SIP	Favorable
8/12/2003	5.0 H.Risk	98 SIP	Unfavorable
8/11/2003	5.0 H.Risk	98 SIP	Favorable
8/10/2003	6.0 H.Risk	98 SIP	Unfavorable
8/9/2003	5.0 H.Risk	98 SIP	Unfavorable
8/8/2003	5.0 H.Risk	97 SIP	Unfavorable
8/7/2003	6.0 H.Risk	97 SIP	Unfavorable
8/6/2003	5.0 H.Risk	97 SIP	Favorable
8/5/2003	5.0 H.Risk	95 SIP	Unfavorable
8/4/2003	6.0 H.Risk	97 SIP	Favorable

8/3/2003	5.0	H.Risk	95	SIP	Favorable
8/2/2003	5.7	H.Risk	92	SIP	Favorable
8/1/2003	4.3	L.Risk	64	SIP	Unfavorable
7/31/2003	6.0	H.Risk	68	SIP	Favorable
7/30/2003	6.3	H.Risk	89	SIP	Favorable
7/29/2003	6.3	H.Risk	93	SIP	Favorable
7/28/2003	6.3	H.Risk	89	SIP	Favorable
7/27/2003	5.0	H.Risk	86	SIP	Unfavorable
7/26/2003	5.0	H.Risk	93	SIP	Favorable
7/25/2003		High risk	97	SIP	
7/24/2003	5.0	H.Risk	98	SIP	Unfavorable
7/23/2003	6.0	H.Risk	97	SIP	Unfavorable
7/22/2003	4.7	H.Risk	89	SIP	Unfavorable
7/21/2003	4.3	L.Risk	73	SIP	Unfavorable
7/20/2003	6.0	H.Risk	44	IIP	Favorable
7/19/2003	6.0	H.Risk	74	SIP	Favorable
7/18/2003	5.3	H.Risk	52	SIP	Unfavorable
7/17/2003	6.7	H.Risk	52	SIP	Favorable
7/16/2003	6.7	H.Risk	15	IIP	Unfavorable
7/15/2003	6.0	H.Risk	29	IIP	Unfavorable
7/14/2003	5.7	H.Risk	77	SIP	Favorable
7/13/2003	6.0	H.Risk	92	SIP	Unfavorable
7/12/2003	6.3	H.Risk	96	SIP	Favorable
7/11/2003	4.7	H.Risk	92	SIP	Favorable
7/10/2003	6.7	H.Risk	89	SIP	Unfavorable
7/9/2003	5.0	H.Risk	45	IIP	Unfavorable
7/8/2003	7.0	H.Risk	52	SIP	Unfavorable
7/7/2003	4.3	L.Risk	1	IIP	Unfavorable
7/6/2003	6.3	H.Risk	1	IIP	Unfavorable
7/5/2003	6.0	H.Risk	1	IIP	Unfavorable
7/4/2003	6.3	H.Risk	0	IIP	Unfavorable
7/3/2003	6.0	H.Risk	8	IIP	Unfavorable
7/2/2003	6.0	H.Risk	20	IIP	Unfavorable
7/1/2003	6.0	H.Risk	15	IIP	Favorable
6/30/2003	6.0	H.Risk	12	IIP	Unfavorable
6/29/2003	6.3	H.Risk	0	IIP	Favorable
6/28/2003	6.0	H.Risk	0	IIP	Unfavorable
6/27/2003	6.3	H.Risk	1	IIP	Unfavorable
6/26/2003	4.3	L.Risk			
6/25/2003	6.0	H.Risk	0	IIP	Unfavorable
6/24/2003	5.7	H.Risk	37	IIP	Unfavorable
6/23/2003	5.7	H.Risk	82	SIP	Unfavorable
6/22/2003	6.0	H.Risk	96	SIP	Favorable
6/21/2003	4.3	L.Risk	96	SIP	Unfavorable
6/20/2003	6.7	H.Risk	91	SIP	Favorable
6/19/2003	4.7	H.Risk	68	SIP	Favorable
6/18/2003	5.0	H.Risk	25	IIP	Unfavorable
6/17/2003	5.7	H.Risk	62	SIP	Favorable
6/16/2003	6.0	H.Risk	91	SIP	Favorable
6/15/2003	6.7	H.Risk	97	SIP	Favorable
6/14/2003	5.0	H.Risk	98	SIP	Favorable
6/13/2003	4.7	H.Risk	94	SIP	Unfavorable
6/12/2003	4.0	L.Risk	87	SIP	Favorable
6/11/2003	4.7	H.Risk	61	SIP	Unfavorable
6/10/2003	6.0	H.Risk	89	SIP	Favorable
6/9/2003	5.3	H.Risk	87	SIP	Unfavorable
6/8/2003	6.3	H.Risk	92	SIP	Favorable

6/7/2003	4.0	L.Risk	87	SIP	Favorable
6/6/2003	6.0	H.Risk	92	SIP	Favorable
6/5/2003	4.7	H.Risk	71	SIP	Unfavorable
6/4/2003	3.0	L.Risk	56	SIP	Unfavorable
6/3/2003	4.7	H.Risk	65	SIP	Favorable
6/2/2003	5.0	H.Risk	71	SIP	Unfavorable
6/1/2003	3.3	L.Risk	76	SIP	Unfavorable
5/31/2003	3.3	L.Risk	60	SIP	Favorable
5/30/2003	5.3	H.Risk	66	SIP	Unfavorable
5/29/2003	5.3	H.Risk	85	SIP	Unfavorable
5/28/2003	5.7	H.Risk	90	SIP	Unfavorable
5/27/2003	5.7	H.Risk	92	SIP	Favorable
5/26/2003	4.0	L.Risk	90	SIP	Unfavorable
5/25/2003	4.7	H.Risk	78	SIP	Favorable
5/24/2003	3.3	L.Risk	59	SIP	Unfavorable
5/23/2003	5.0	H.Risk	22	IIP	Favorable
5/22/2003	5.0	H.Risk	8	IIP	Favorable
5/21/2003	3.0	L.Risk	0	IIP	Favorable
5/20/2003	5.3	H.Risk	11	IIP	Favorable
5/19/2003	5.3	H.Risk	68	SIP	Favorable
5/18/2003	5.7	H.Risk	87	SIP	Favorable
5/17/2003	3.3	L.Risk	83	SIP	Favorable
5/16/2003	3.3	L.Risk	79	SIP	Unfavorable
5/15/2003	5.0	H.Risk	0.5	IIP	Unfavorable
5/14/2003	2.3	L.Risk	89	SIP	Favorable
5/13/2003	2.7	L.Risk	82	SIP	Unfavorable
5/12/2003	3.7	L.Risk	58	SIP	Unfavorable
5/11/2003	3.3	L.Risk	48	IIP	Favorable
5/10/2003	5.3	H.Risk	62	SIP	Favorable
5/9/2003	5.3	H.Risk	79	SIP	Favorable
5/8/2003	4.3	L.Risk	74	SIP	Favorable
5/7/2003	5.0	H.Risk	20	IIP	Favorable
5/6/2003	4.0	L.Risk	3	IIP	Unfavorable
5/5/2003	5.0	H.Risk	2.75	IIP	Favorable
5/4/2003	5.3	H.Risk	53	SIP	Unfavorable
5/3/2003	5.3	H.Risk	22	IIP	Unfavorable
5/2/2003		High risk	2	IIP	
5/1/2003	4.3	L.Risk	0	IIP	Unfavorable

Prattsburg May Weather Summary

-----	AVG	MAX	MIN	RAIN	% Relative
	Temp	Temp	Temp	(in.)	Humidity
05/30/03	60	70.2	51.7	0.00	9
05/29/03	60	71.2	48.5	0.00	7
05/28/03	57	66	50.5	0.05	12
05/27/03	53	65	41.4	0.01	14
05/26/03	52	56.8	46	0.16	24
05/25/03	56	65.4	48.8	0.00	17
05/24/03	54	61.4	49.7	0.62	24
05/23/03	52	60.8	38.4	0.00	12
05/22/03	51	64	35.9	0.00	8
05/21/03	48	56.1	38.2	0.03	16
05/20/03	58	73.3	42.2	0.31	10
05/19/03	56	75.7	34.9	0.00	11
05/18/03	58	70.4	44.9	0.00	11
05/17/03	52	59.6	43.2	0.00	15

05/16/03	50	52.5	44.3	0.48	24
05/15/03	49	63.3	32.3	0.04	14
05/14/03	48	54.8	37.9	0.00	15
05/13/03	45	46.2	41.1	0.09	24
05/12/03	49	51.9	43.8	0.14	10
05/11/03	60	75	52.6	0.22	14
05/10/03	57	74.2	39.4	0.00	10
05/09/03	51	64	33.9	0.00	10
05/08/03	54	62.1	43.3	0.01	16
05/07/03	54	65.7	44.2	0.05	14
05/06/03	56	74.4	43	0.01	12
05/05/03	44	55.2	33.9	0.15	18
05/04/03	48	66.4	29.3	0.00	10
05/03/03	44	53.9	34.5	0.00	12
05/02/03	50	56.5	41.4	0.45	24
05/01/03	66	81.1	57.3	0.01	3
04/30/03	51	65.9	31.2	0.00	8
04/29/03	54	63	37.5	0.00	0

May SUMMARY 53.0 81.1 29.3 2.83

Prattsburg June Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
06/30/03	67	75.4	55.4	0.00	11	
06/29/03	66	78.8	51.6	0.00	12	
06/28/03	66	80.8	49.3	0.00	10	
06/27/03	66	73.9	55.2	0.00	8	
06/26/03	76	89.2	65	0.00	8	
06/25/03	74	89.5	56.2	0.00	7	
06/24/03	70	87.9	51.2	0.00	10	
06/23/03	71	84.4	59.5	0.00	3	
06/22/03	65	78.9	55.3	0.04	13	
06/21/03	57	62.6	53.3	0.72	24	
06/20/03	57	64.3	47.7	0.08	14	
06/19/03	61	69.6	56.1	0.00	24	
06/18/03	60	67.3	55.8	0.14	24	
06/17/03	62	75.4	46.9	0.00	9	
06/16/03	58	75.3	40.1	0.00	11	
06/15/03	63	73.8	46.4	0.00	11	
06/14/03	66	73.8	57.3	0.01	18	
06/13/03	67	72.7	60.8	0.16	24	
06/12/03	61	62.5	57.8	0.21	24	
06/11/03	66	75.4	59.6	0.54	16	
06/10/03	63	75.8	47.3	0.00	9	
06/09/03	61	68.9	52.6	0.13	10	
06/08/03	66	75.8	57	0.00	10	
06/07/03	58	61.8	52.6	0.13	24	
06/06/03	60	73.4	52.3	0.00	13	
06/05/03	57	63.8	53.6	0.06	20	
06/04/03	54	57.5	50.6	0.13	24	
06/03/03	53	65	40.4	0.00	12	
06/02/03	55	67.5	39.5	0.00	8	
06/01/03	47	55.9	42.3	0.15	16	
05/31/03	52	53.9	48.8	0.78	24	
05/30/03	60	70.2	51.7	0.00	10	
05/29/03	60	71.2	48.5	0.00	8	

June SUMMARY 62.2 89.5 39.5 2.50

Prattsburg July Weather Summary

-----	AVG	MAX	MIN	RAIN	% Relative
	Temp	Temp	Temp	(in.)	Humidity
07/31/03	66	78.3	52.1	0.00	14
07/30/03	66	79.3	51.5	0.00	13
07/29/03	63	77.8	48.3	0.00	14
07/28/03	64	69.8	54.7	0.00	13
07/27/03	69	74.1	64.5	0.27	18
07/26/03	67	78.3	55.3	0.00	10
07/25/03	67	80.1	54.9	0.00	12
07/24/03	64	71.2	59.1	0.53	20
07/23/03	66	72.9	60.4	0.10	18
07/22/03	65	72	62.1	0.76	23
07/21/03	64	70.1	57.4	1.18	24
07/20/03	61	73.8	49.1	0.01	15
07/19/03	60	74.7	45.8	0.00	12
07/18/03	65	74.2	51.7	0.31	11
07/17/03	67	81.4	51.7	0.00	10
07/16/03	67	72.9	60.7	0.43	12
07/15/03	70	80.5	57.1	0.00	9
07/14/03	66	81.4	49.6	0.00	11
07/13/03	66	77.6	55.8	0.00	12
07/12/03	63	69.6	54	0.00	10
07/11/03	68	77.8	60.1	0.12	16
07/10/03	62	72.6	51.9	0.72	16
07/09/03	65	72.3	58.6	0.33	19
07/08/03	74	86.1	61.6	0.01	12
07/07/03	69	80.4	58	0.03	17
07/06/03	74	84.8	62.4	0.00	12
07/05/03	76	84.7	69.3	0.01	2
07/04/03	74	88.4	57.9	0.00	8
07/03/03	74	86.5	63.5	0.00	11
07/02/03	69	83.1	53.4	0.00	11
07/01/03	67	82	51.3	0.00	11
06/30/03	67	75.4	55.4	0.00	11
06/29/03	66	78.8	51.6	0.00	12

July SUMMARY 67.1 88.4 45.8 4.81

Prattsburg August Weather Summary

-----	AVG	MAX	MIN	RAIN	% Relative
	Temp	Temp	Temp	(in.)	Humidity
08/25/03	68	81.3	53.8	0.00	11
08/24/03	59	72.8	44	0.00	13
08/23/03	63	73.1	52.4	0.00	11
08/22/03	72	81.5	55.9	0.00	12
08/21/03	70	84.9	58	0.00	15
08/20/03	68	83.8	53.6	0.00	14
08/19/03	66	81.1	52.4	0.00	14
08/18/03	62	75	50.1	0.00	14
08/17/03	64	72.6	55.4	0.00	16
08/16/03	71	81.3	62.1	0.14	16
08/15/03	72	84.4	59.8	0.00	14

08/14/03	72	83.8	60.9	0.00	14
08/13/03	72	81.8	65.8	0.00	17
08/12/03	70	79.9	65.7	0.35	17
08/11/03	69	73.6	64.3	0.36	24
08/10/03	71	80	66.9	0.24	17
08/09/03	68	74.4	64.8	1.10	24
08/08/03	69	75.6	63.9	0.41	21
08/07/03	68	81.2	58.8	0.01	17
08/06/03	67	75.9	62.8	0.20	21
08/05/03	68	76.2	62.2	0.06	24
08/04/03	72	82.8	66	0.01	15
08/03/03	69	81.1	61	0.16	17
08/02/03	69	81.1	63	0.62	17
08/01/03	67	75.1	61.6	0.97	24
07/31/03	66	78.3	52.1	0.00	14
07/30/03	66	79.3	51.5	0.00	13
August SUMMARY	67.1	84.9	44.0	4.67	

2003 Sodus - Botrytis Leaf Blight - Inoculum Production Index

Date	4/19 IPI	4/29 IPI	5/9 IPI
8/25/2003	4.22	4.22	4.22
8/24/2003	3.68	3.68	3.68
8/23/2003	11.51	11.51	11.51
8/22/2003	10.50	10.50	10.50
8/21/2003	2.50	2.50	2.50
8/20/2003	13.30	13.30	13.30
8/19/2003	13.08	13.08	13.08
8/18/2003	12.95	12.95	12.95
8/16/2003	12.40	12.40	12.40
8/15/2003	12.51	12.51	12.51
8/14/2003	16.53	16.53	16.53
8/13/2003	24.25	24.25	24.25
8/12/2003	22.05	22.05	22.05
8/11/2003	23.17	23.17	23.17
8/10/2003	21.91	21.91	21.91
8/9/2003	15.49	15.49	15.49
8/8/2003	2.40	2.40	2.40
8/7/2003	21.94	21.94	21.94
8/6/2003	21.61	21.61	21.61
8/5/2003	16.48	16.48	16.48
8/4/2003	18.64	18.64	18.64
8/3/2003	22.61	22.61	22.61
8/2/2003	23.06	23.06	23.06
8/1/2003	7.27	7.27	7.27
7/31/2003	10.68	10.68	10.68
7/30/2003	11.36	11.36	11.36
7/29/2003	10.38	10.38	10.38
7/28/2003	20.51	20.51	20.51
7/27/2003	8.92	8.92	8.83
7/26/2003	11.56	11.56	11.43
7/25/2003	22.49	22.49	22.19
7/24/2003	14.23	14.23	13.99
7/23/2003	19.04	19.04	18.64
7/22/2003	22.33	22.33	21.76
7/21/2003	12.34	12.34	11.95
7/20/2003	10.46	10.46	10.06
7/19/2003	9.58	9.58	9.14
7/18/2003	7.35	7.35	6.95
7/17/2003	15.64	15.48	14.64
7/16/2003	9.67	9.56	8.94
7/15/2003	9.81	9.68	8.97
7/14/2003	11.27	11.08	10.15
7/13/2003	13.59	13.31	12.06
7/12/2003	11.51	11.22	10.06
7/11/2003	12.34	11.95	10.59
7/10/2003	13.80	13.27	11.62
7/9/2003	9.77	9.33	8.06
7/8/2003	20.57	19.45	16.59
7/7/2003	11.46	10.84	9.12
7/6/2003	10.43	9.76	8.10
7/5/2003	3.88	3.60	2.94
7/4/2003	8.63	7.91	6.36
7/3/2003	10.45	9.47	7.48
7/2/2003	9.56	8.57	6.65

7/1/2003	9.27	8.21	6.25
6/30/2003	7.84	6.86	5.11
6/29/2003	3.41	2.95	2.15
6/28/2003	3.95	3.37	2.39
6/27/2003	3.48	2.93	2.03
6/26/2003	1.62	1.34	0.90
6/25/2003	1.65	1.35	0.88
6/24/2003	3.33	2.68	1.68
6/23/2003	5.37	4.25	2.55
6/22/2003	17.02	13.21	7.56
6/21/2003	8.65	6.59	3.57
6/20/2003	15.38	11.47	5.83
6/19/2003	9.11	6.64	3.12
6/18/2003	4.84	3.44	1.47
6/17/2003	6.66	4.61	1.76
6/16/2003	7.18	4.82	1.58
6/15/2003	15.10	9.81	2.61
6/14/2003	16.65	10.42	2.03
6/13/2003	15.25	9.16	1.01
6/12/2003	14.68	8.41	0.09
6/11/2003	2.68	1.45	-0.16
6/10/2003	6.76	3.43	-0.91
6/9/2003	5.87	2.76	-1.27
6/8/2003	12.23	5.24	-3.76
6/7/2003	6.06	2.31	-2.49
6/6/2003	6.46	2.12	-3.41
6/5/2003	4.83	1.28	-3.20
6/4/2003	3.34	0.65	-2.73
6/3/2003	2.29	0.25	-2.30
6/2/2003	2.54	0.03	-3.11
6/1/2003	5.35	-0.60	-7.98

2003 Sodus

Date	Alternaria	*Botrytis	D. Mildew
8/25/2003	3.3 L.Risk	33 IIP	Unfavorable
8/24/2003	5.7 H.Risk	56 SIP	Unfavorable
8/23/2003	6.7 H.Risk	68 SIP	Unfavorable
8/22/2003	7.0 H.Risk	52 SIP	Unfavorable
8/21/2003	7.0 H.Risk	60 SIP	Unfavorable
8/20/2003	5.0 H.Risk	0 IIP	Unfavorable
8/19/2003	6.7 H.Risk	94 SIP	Favorable
8/18/2003	6.7 H.Risk	95 SIP	Favorable
8/17/2003	5.7 H.Risk	92 SIP	Unfavorable
8/16/2003	3.0 L.Risk		
8/15/2003	7.0 H.Risk	95 SIP	Unfavorable
8/14/2003	7.0 H.Risk	99 SIP	Unfavorable
8/13/2003	6.0 H.Risk	99 SIP	Favorable
8/12/2003	5.0 H.Risk	99 SIP	Unfavorable
8/11/2003	5.0 H.Risk	98 SIP	Unfavorable
8/10/2003	5.0 H.Risk	98 SIP	Favorable
8/9/2003	5.0 H.Risk	98 SIP	Unfavorable
8/8/2003	6.0 H.Risk	98 SIP	Unfavorable
8/7/2003	5.0 H.Risk	0 IIP	Unfavorable
8/6/2003	5.0 H.Risk	98 SIP	Favorable
8/5/2003	5.0 H.Risk	98 SIP	Unfavorable
8/4/2003	7.0 H.Risk	99 SIP	Unfavorable

8/3/2003	7.0	H.Risk	95	SIP	Favorable
8/2/2003		High risk	88	SIP	
8/1/2003	6.0	H.Risk	56	SIP	Unfavorable
7/31/2003	7.0	H.Risk	64	SIP	Unfavorable
7/30/2003	6.7	H.Risk	92	SIP	Favorable
7/29/2003	6.7	H.Risk	92	SIP	Favorable
7/28/2003	6.3	H.Risk	90	SIP	Unfavorable
7/27/2003	4.7	H.Risk	92	SIP	Unfavorable
7/26/2003	4.7	H.Risk	95	SIP	Unfavorable
7/25/2003		High risk	98	SIP	
7/24/2003	5.0	H.Risk	98	SIP	Unfavorable
7/23/2003	6.7	H.Risk	96	SIP	Favorable
7/22/2003	4.3	L.Risk	86	SIP	Unfavorable
7/21/2003	4.0	L.Risk	26	IIP	Unfavorable
7/20/2003	6.0	H.Risk	10	IIP	Unfavorable
7/19/2003	6.0	H.Risk	48	IIP	Favorable
7/18/2003		High risk	68	SIP	
7/17/2003	6.7	H.Risk	68	SIP	Favorable
7/16/2003	6.7	H.Risk	27	IIP	Unfavorable
7/15/2003	6.7	H.Risk	64	SIP	Unfavorable
7/14/2003	6.0	H.Risk	86	SIP	Favorable
7/13/2003	6.3	H.Risk	93	SIP	Favorable
7/12/2003	6.3	H.Risk	92	SIP	Unfavorable
7/11/2003	5.0	H.Risk	92	SIP	Favorable
7/10/2003	7.0	H.Risk	95	SIP	Favorable
7/9/2003	7.0	H.Risk	89	SIP	Unfavorable
7/8/2003	6.0	H.Risk	84	SIP	Favorable
7/7/2003	4.3	L.Risk	28	IIP	Unfavorable
7/6/2003	6.0	H.Risk	18	IIP	Unfavorable
7/5/2003	6.0	H.Risk	9	IIP	Unfavorable
7/4/2003	6.7	H.Risk	10	IIP	Unfavorable
7/3/2003	6.7	H.Risk	30	IIP	Unfavorable
7/2/2003	6.3	H.Risk	45	IIP	Unfavorable
7/1/2003	5.7	H.Risk	9	IIP	Favorable
6/30/2003	5.3	H.Risk	9	IIP	Unfavorable
6/29/2003	5.0	H.Risk	0	IIP	Unfavorable
6/28/2003	5.0	H.Risk	1	IIP	Unfavorable
6/27/2003	5.0	H.Risk	2	IIP	Unfavorable
6/26/2003	5.0	H.Risk	2	IIP	Unfavorable
6/25/2003		High risk	0	IIP	
6/24/2003	5.3	H.Risk	51	SIP	Unfavorable
6/23/2003	5.7	H.Risk	91	SIP	Unfavorable
6/22/2003	5.7	H.Risk	96	SIP	Favorable
6/21/2003	4.0	L.Risk	95	SIP	Unfavorable
6/20/2003	5.0	H.Risk	84	SIP	Unfavorable
6/19/2003	4.3	L.Risk	59	SIP	Favorable
6/18/2003	5.7	H.Risk	25	IIP	Unfavorable
6/17/2003	6.0	H.Risk	77	SIP	Favorable
6/16/2003	6.3	H.Risk	95	SIP	Favorable
6/15/2003	6.3	H.Risk	99	SIP	Favorable
6/14/2003	4.7	H.Risk	99	SIP	Favorable
6/13/2003	4.0	L.Risk	94	SIP	Unfavorable
6/12/2003	3.3	L.Risk	84	SIP	Favorable
6/11/2003	4.7	H.Risk	67	SIP	Unfavorable
6/10/2003	6.3	H.Risk	91	SIP	Favorable
6/9/2003	7.0	H.Risk	93	SIP	Unfavorable
6/8/2003	5.7	H.Risk	94	SIP	Favorable

6/7/2003	4.7	H.Risk	87	SIP	Favorable
6/6/2003	6.0	H.Risk	82	SIP	Favorable
6/5/2003	4.3	L.Risk	62	SIP	Favorable
6/4/2003	4.3	L.Risk	48	IIP	Favorable
6/3/2003	4.3	L.Risk	74	SIP	Unfavorable
6/2/2003	5.0	H.Risk	82	SIP	Unfavorable
6/1/2003	3.3	L.Risk	81	SIP	Unfavorable
5/31/2003	4.3	L.Risk	72	SIP	Favorable
5/30/2003	4.3	L.Risk	81	SIP	Favorable
5/29/2003	5.0	H.Risk	87	SIP	Unfavorable
5/28/2003	5.3	H.Risk	92	SIP	Favorable
5/27/2003	5.3	H.Risk	96	SIP	Favorable
5/26/2003	3.7	L.Risk	92	SIP	Unfavorable
5/25/2003	5.0	H.Risk	75	SIP	Unfavorable
5/24/2003	2.0	L.Risk	37	IIP	Unfavorable
5/23/2003	4.3	L.Risk	15	IIP	Unfavorable
5/22/2003	4.3	L.Risk	4	IIP	Unfavorable
5/21/2003	5.0	H.Risk	0	IIP	Unfavorable
5/20/2003	4.3	L.Risk	4	IIP	Unfavorable
5/19/2003	4.3	L.Risk	50	SIP	Favorable
5/18/2003	5.3	H.Risk	79	SIP	Unfavorable
5/17/2003	5.7	H.Risk	78	SIP	Favorable
5/16/2003	4.3	L.Risk	71	SIP	Unfavorable
5/15/2003	5.0	H.Risk	83	SIP	Favorable
5/14/2003	5.0	H.Risk	92	SIP	Favorable
5/13/2003	2.7	L.Risk	76	SIP	Unfavorable
5/12/2003	3.0	L.Risk	52	SIP	Unfavorable
5/11/2003	3.7	L.Risk	36	IIP	Unfavorable
5/10/2003	4.3	L.Risk	68	SIP	Unfavorable
5/9/2003	5.3	H.Risk	79	SIP	Unfavorable
5/8/2003	4.3	L.Risk	79	SIP	Favorable
5/7/2003	3.3	L.Risk	22	IIP	Favorable
5/6/2003	2.7	L.Risk	1	IIP	Unfavorable
5/5/2003	3.7	L.Risk	3	IIP	Unfavorable
5/4/2003	4.3	L.Risk	46	IIP	Unfavorable
5/3/2003	4.3	L.Risk	22	IIP	Unfavorable
5/2/2003		Low risk	0	IIP	
5/1/2003	3.7	L.Risk	0	IIP	Unfavorable

Sodus May Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
05/30/03	61	67.5	54.1	0	0.00	8
05/29/03	61	72	50.6	0	0.00	8
05/28/03	56	67.7	39.6	4	0.00	13
05/27/03	54	65.4	44.2	8	0.00	16
05/26/03	53	59.2	47	8	0.20	20
05/25/03	56	67.6	49.9	10	0.13	19
05/24/03	55	58	50.5	20	0.68	21
05/23/03	57	63.9	46.6	0	0.00	3
05/22/03	52	60.5	40.4	0	0.00	2
05/21/03	49	55.2	42.7	5	0.08	9
05/20/03	62	76.9	47.3	9	0.38	12
05/19/03	64	76.9	52.3	4	0.30	5
05/18/03	64	76.8	54.3	0	0.00	6
05/17/03	55	65.9	45	8	0.00	9

05/16/03	55	59.2	50	14	0.17	21
05/15/03	54	67.6	38.8	10	0.02	13
05/14/03	51	59.8	43.8	0	0.00	12
05/13/03	47	51	43.1	9	0.12	19
05/12/03	51	53.1	48.5	15	0.25	17
05/11/03	61	73	53.8	5	0.84	10
05/10/03	58	72.2	44.2	0	0.00	5
05/09/03	53	62.2	39.2	0	0.00	5
05/08/03	54	63.9	47.4	11	0.02	13
05/07/03	54	59.2	50.3	9	0.00	15
05/06/03	58	76	45.3	1	0.09	8
05/05/03	50	60.9	40.8	5	0.30	4
05/04/03	48	66.2	31.2	0	0.00	9
05/03/03	44	52.3	36.2	5	0.00	6
05/02/03	47	52.1	44.1	11	0.15	19
05/01/03	62	81.3	53	3	0.42	10
04/30/03	51	61.9	38.8	0	0.00	0
04/29/03	53	64.6	44.9	0	0.00	0
May SUMMARY	54.8	81.3	31.2		4.15	

Sodus June Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
06/29/03	72	82.6	61.7	0	0.02	4
06/28/03	71	85.6	58.1	0	0.00	1
06/27/03	70	75.1	61.9	0	0.00	5
06/26/03	80	91.9	67.1	0	0.00	1
06/25/03	78	92	66.1	0	0.00	0
06/24/03	74	89.3	60.9	0	0.00	1
06/23/03	72	85.4	57.9	0	0.00	3
06/22/03	65	76.5	53.5	0	0.00	10
06/21/03	58	64.1	54.5	15	0.33	23
06/20/03	59	64.8	50.8	0	0.00	9
06/19/03	62	67.9	55.9	0	0.00	24
06/18/03	65	72.1	60.1	0	0.00	9
06/17/03	67	79.4	51.2	0	0.00	8
06/16/03	59	72.2	44.4	0	0.00	9
06/15/03	63	70.5	50.9	5	0.00	11
06/14/03	65	71.2	61.9	1	0.01	24
06/13/03	67	73.4	63.7	16	0.25	24
06/12/03	59	62.6	53.5	17	0.17	24
06/11/03	68	77.4	59.9	6	0.21	17
06/10/03	64	74.2	48.8	0	0.00	9
06/09/03	65	74.2	57.5	7	0.10	12
06/08/03	68	76.7	57.1	1	0.00	10
06/07/03	61	62.7	58.2	6	0.07	24
06/06/03	64	75.5	53.3	0	0.00	12
06/05/03	60	66	56.9	4	0.01	15
06/04/03	61	69.4	52.8	0	0.02	11
06/03/03	56	66.6	44.5	0	0.00	6
06/02/03	57	69.7	43	0	0.00	7
06/01/03	49	60.2	44.3	7	0.08	11
05/31/03	55	59.6	48	12	0.49	21
05/30/03	61	67.5	54.1	0	0.00	8
05/29/03	61	72	50.6	0	0.00	8

June SUMMARY 64.5 92.0 43.0 1.30

Sodus July Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
07/30/03	69	83.2	56	0	0.00	11
07/29/03	67	80.9	55.9	0	0.00	12
07/28/03	67	74.9	59.7	0	0.00	9
07/27/03	71	78.9	67	12	0.13	23
07/26/03	72	83.2	64.2	0	0.00	9
07/25/03	69	82	58.6	3	0.02	12
07/24/03	66	69.4	61.8	17	0.58	24
07/23/03	69	78.5	64.2	8	0.00	15
07/22/03	68	76.1	64.9	17	0.33	20
07/21/03	68	72.6	64.5	10	0.38	24
07/20/03	67	79.3	57.6	0	0.01	13
07/19/03	65	77.2	53.4	0	0.00	11
07/18/03	68	77	57.1	0	0.00	9
07/17/03	70	83.6	56.6	0	0.00	8
07/16/03	69	71.4	63.6	10	0.16	17
07/15/03	73	83.7	59.2	1	0.04	10
07/14/03	68	84	53.9	0	0.00	10
07/13/03	68	79.1	59.7	0	0.00	12
07/12/03	65	72.2	60.4	1	0.02	14
07/11/03	71	79.5	64.3	8	0.06	13
07/10/03	67	76	56.7	3	0.28	13
07/09/03	68	75	60.8	6	0.08	13
07/08/03	74	85.3	66.7	9	0.00	12
07/07/03	69	79.6	60.6	20	0.42	21
07/06/03	74	84.6	65.2	10	0.00	12
07/05/03	78	87.1	66	2	0.15	6
07/04/03	77	89.8	65.7	0	0.00	9
07/03/03	76	87.3	66.5	1	0.00	9
07/02/03	73	89.6	59.1	6	0.01	11
07/01/03	68	81.8	54.1	2	0.00	10
06/30/03	68	75.1	59.1	7	0.03	9
06/29/03	72	82.6	61.7	0	0.02	4

July SUMMARY 69.6 89.8 53.4 2.67

Sodus August Weather Summary

-----	AVG	MAX	MIN	Leaf	RAIN	% Relative
	Temp	Temp	Temp	Wetness	(in.)	Humidity
08/25/03	70	78.7	62.1	0	0.00	5
08/24/03	64	74	50.1	0	0.00	3
08/23/03	65	73.4	60.1	0	0.00	7
08/22/03	72	81	63.1	8	0.04	12
08/21/03	74	88.3	61.2	0	0.00	11
08/20/03	71	86.9	59.5	0	0.00	12
08/19/03	69	84.8	56	0	0.00	14
08/18/03	68	78.7	58.2	0	0.00	14
08/17/03	68	72.6	60.9	6	0.00	14
08/16/03	74	79.9	67.7	2	0.17	20
08/15/03	75	87.2	64.5	0	0.00	13

08/14/03	73	85.4	66.4	0	0.00	13
08/13/03	74	83.9	66.2	4	0.00	17
08/12/03	73	78.4	69.2	11	0.62	24
08/11/03	72	78.9	66.8	6	0.03	24
08/10/03	74	81.1	69.9	12	0.02	24
08/09/03	72	78.8	67.9	16	0.08	24
08/08/03	73	81.4	67.1	9	0.02	16
08/07/03	71	81.6	61.7	9	0.00	21
08/06/03	69	74.2	65.5	19	0.07	24
08/05/03	70	79.7	64.4	17	0.96	24
08/04/03	74	82.8	68.9	9	0.01	17
08/03/03	71	83.6	63.5	14	0.85	19
08/02/03	69	80.3	61.5	17	0.45	24
08/01/03	68	71.8	63.8	9	0.65	23
07/31/03	72	79.3	63	0	0.00	1
07/30/03	69	83.2	56	0	0.00	7
August SUMMARY	69.5	88.3	47.3		4.83	