

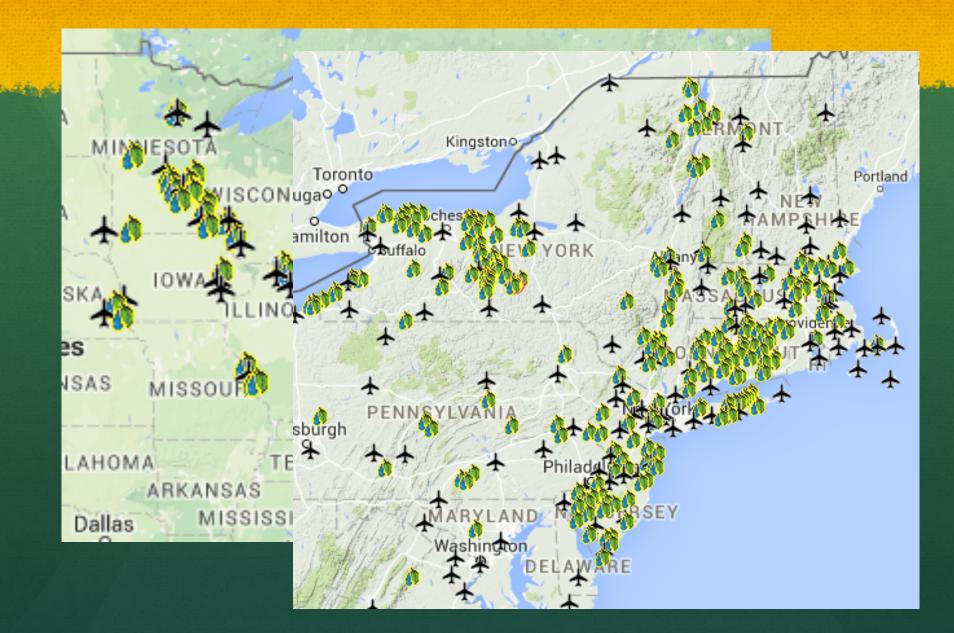
## NEWA

Network for Environment and Weather Applications newa.cornell.edu

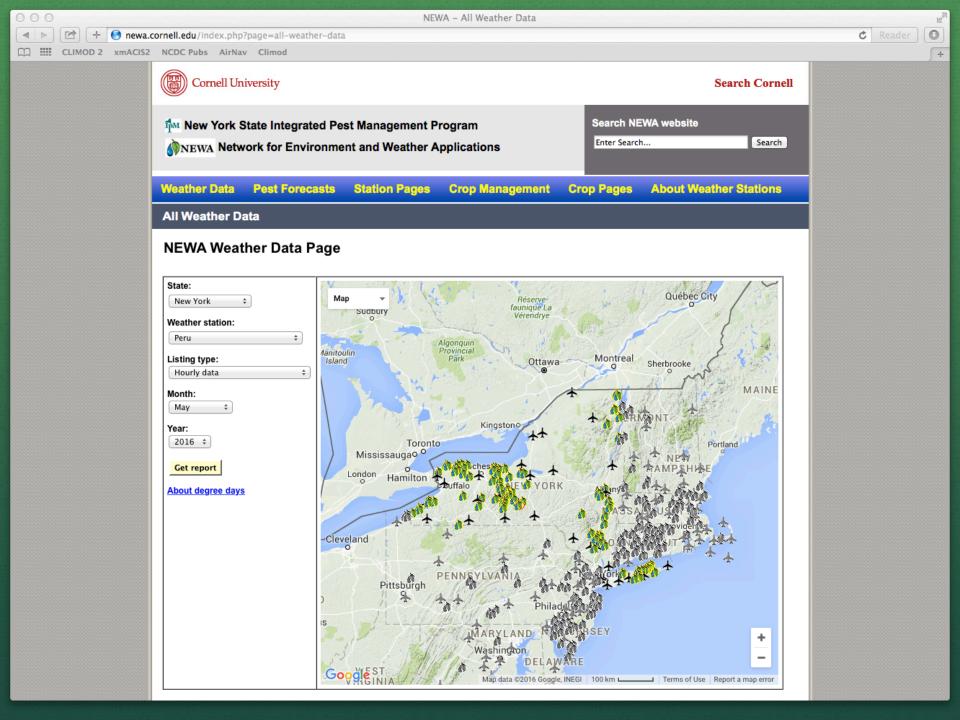
# **STATIONS**



# **STATIONS**







# Weather Data

Date/Time	Temp	LW	Rain	RH	Dewpoint	Wind Spd		Solar Rad	Est LW
05/16/2016 05:00	(F) 36.3	(minutes)	(inches	) %	(F) 27	(mph)	(degrees) 298	(langley)	(minutes
05/16/2016 04:00	35.7	õ	0.00	69	27	1.5	291	õ	õ
05/16/2016 03:00	34.3	õ	0.00	71	26	0.9	277	õ	õ
05/16/2016 02:00	34.0	õ	0.00	71	26	1.2	270	õ	õ
05/16/2016 01:00	35.1	õ	0.00	67	25	0.5	265	Õ	0
05/16/2016 00:00	38.0	22	0.00	59	25	1.9	297	õ	õ
05/15/2016 23:00	38.5	60	0.00	61	26	2.0	283	0	0
05/15/2016 22:00	37.4	60	0.00	69	28	1.3	279	Õ	õ
05/15/2016 21:00	37.1	40	0.01	78	31	2.8	287	õ	60
05/15/2016 20:00	40.0	0	0.00	70	31	3.6	291	3	0
05/15/2016 19:00	39.4	57	0.00	73	31	4.4	291	8	õ
05/15/2016 18:00	39.4	52	0.01	78	33	3.6	276	10	60
05/15/2016 17:00	42.6	0	0.00	64	31	5.4	292	24	0
05/15/2016 16:00	44.2	17	0.00	55	29	4.6	287	30	õ
05/15/2016 15:00	46.0	0	0.00	46	26	4.8	288	25	õ
05/15/2016 14:00	44.8	ő	0.00	57	31	5.2	298	34	õ
05/15/2016 13:00	43.2	Ő	0.00	56	29	3.7	280	20	0
05/15/2016 12:00	42.6	Õ	0.00	56	28	3.3	265	18	0
05/15/2016 11:00	43.6	Õ	0.01	55	29	3.7	281	26	60
05/15/2016 10:00	43.5	Ő	0.00	54	28	3.6	267	32	0
05/15/2016 09:00	44.1	0	0.00	55	29	3.7	280	37	0
05/15/2016 08:00	39.6	Õ	0.00	63	28	2.9	273	8	0
05/15/2016 07:00	39.6	õ	0.00	67	30	1.9	278	1	0
05/15/2016 06:00	39.6	õ	0.00	66	29	2.6	284	0	0
05/15/2016 05:00	40.4	õ	0.00	67	30	3.0	286	õ	õ
05/15/2016 04 00	41.5	~	0.00		22	2.1	200	~	~







# Weather Data

Date/Time	Temp (F)	LW (minutes)	Rain (inches)	RH %	Dewpoint (F)	Wind Spd (mph)	Wind Dir (degrees)	Solar Rad (langley)	Est LW (minutes
03/30/2010 15:00	84.5	U	0.00	42	29	7.1	213	/1	U
05/30/2016 14:00	83.4	0	0.00	57	67	4.7	225	67	0
05/30/2016 13:00	82.4	0	0.00	57	66	3.5	240	58	0
05/30/2016 12:00	79.7	0	0.00	69	69	4.8	201	75	0
05/30/2016 11:00	78.3	0	0.00	75	70	2.7	141	64	0
05/30/2016 10:00	72.8	0	0.00	88	69	2.2	143	47	0
05/30/2016 09:00	69.6	0	0.00	92	67	2.7	229	23	60
05/30/2016 08:00	66.6	15	0.00	97	66	2.2	236	6	60
05/30/2016 07:00	66.4	60	0.00	98	66	0.9	316	2	60
05/30/2016 06:00	66.6	60	0.01	98	66	0.9	175	0	60
05/30/2016 05:00	66.5	60	0.00	98	66	0.7	267	0	60
05/30/2016 04:00	66.6	60	0.01	99	66	0.4	248	0	60
05/30/2016 03:00	66.6	60	0.00	98	66	0.4	231	0	60
05/30/2016 02:00	66.5	60	0.00	98	66	0.4	253	0	60
05/30/2016 01:00	66.8	60	0.00	98	66	0.5	284	0	60
05/30/2016 00:00	66.9	60	0.00	98	66	0.9	245	0	60
05/29/2016 23:00	67.7	60	0.02	98	67	0.5	145	0	60
05/29/2016 22:00	68.5	56	0.01	98	68	2.6	273	0	60
05/29/2016 21:00	69.5	53	0.00	96	68	3.2	261	0	60
05/29/2016 20:00	69.0	60	0.00	98	68	1.5	158	1	60
05/29/2016 19:00	69.7	60	0.15	98	69	2.0	183	0	60
05/29/2016 18:00	70.7	60	0.05	98	70	0.7	100	1	60
05/29/2016 17:00	71.2	60	0.07	98	71	3.2	293	1	60
05/29/2016 16:00	70.4	60	0.01	98	70	1.5	294	4	60
05/29/2016 15:00	72.3	26	0.20	94	70	3.0	197	2	60
05/20/2016 14:00	70.9	0	0.00	K0	×0	2.0	00	51	0

Values in *brown italics* were estimated from adjacent hours or a nearby location. <u>More information</u> is available on the estimation technique.



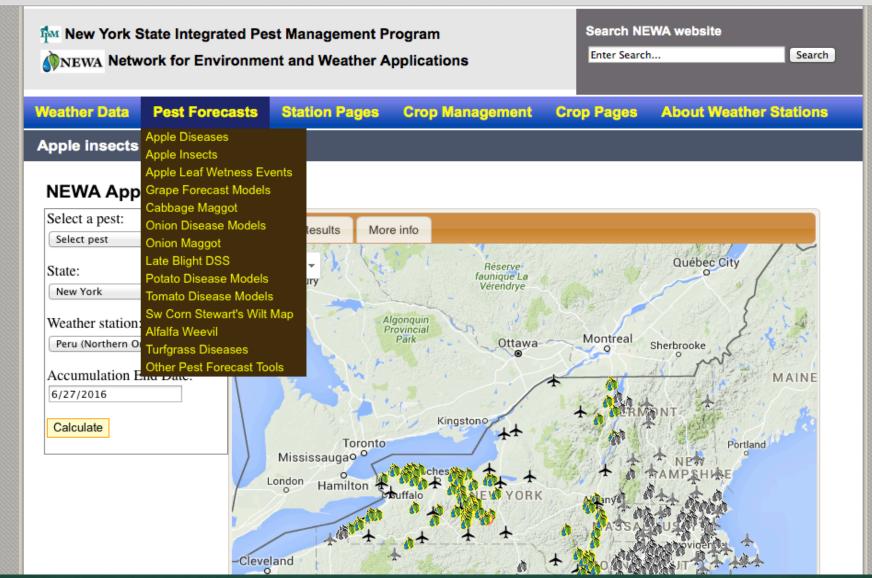


## **Pest Forecasts**

NEWA - Apple Insects

s newa.cornell.edu/index.php?page=apple-insects

xmACIS2 NCDC Pubs AirNav Climod



## Apple Insect Models

Select a pest: Spotted Tentiform Leafminer ‡	Мар	Results More i	nfo									
State: Pennsylvania ‡		Spotted Tentiform Leafminer Results for York Springs (Lerew) First Trap Catch: 3/31/2016 Second Generation Flight Start: 6/5/2016										
Weather station:												
York Springs (Lerew) Accumulation End Date: 6/27/2016	The dates above are estimated based on degree day accumulations or user input. Enter the actual dates for blocks of interest and the model will calculate protection period more accurately. Accumulated degree days (base 43°F) second generation flight start through 6/26/2016: 579 (0 days missing)											
Calculate			Past	Past	Current		5-Day Forec	ast Forec	ast Details			
		Date	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1	Jul		
		ily Degree Days (Base 43BE)	30	27	26	32	27	28	30	32		
ect a pest:	Accumu	lation since January 1	1802	1830	1856	1888	1914	1942	1971	200		
elect pest potted Tentiform Leafminer riental Fruit Moth odling Moth lum Curculio bliquebanded Leafroller pple Maggot an Jose Scale	Accumulated Degree-Days	1000 2000		Accu	mulated Degre	ee-Days				/		
	Ac	0 Jan 1	Feb 1	Mar		Apr 1	May 1		Jun 1	Jul		

### Spotted Tentiform Leafminer

#### Pest stage: 2nd generation moths flying & laying eggs

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations. +

Pest Status	Pest Management
Eggs from second generation of STLM will begin to hatch when 690 to 840 degree days have accumulated since the second generation flight start.	No control measures are recommended at this time and it is too early to sample for second generation larvae.

Disclaimer: These are theoretical predictions and forecasts. The theoretical models predicting pest development or disease risk use the weather data collected (or forecasted) from the weather station location. These results should not be substituted for actual observations of plant growth stage, pest presence, and disease occurrence determined through scouting or insect pheromone traps.



Мар	Results	More info								1
		a								
		Seco	nd Generatio	n Flight Star	rt: 6/19/201	16				A
The dates	above are est	and	AT -							
А	ccumulated	degree days (b	ase 43°F) sec	cond generat	ion flight sta	rt through 6	/ <b>26/2016:</b> 23	2 (0 days mis	sinį 5	
		Past	Past	Current		5-Day Forec	ast Fored	cast Details		
	Date	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1	Jul 2	
	Degree Days ise 43BE)	30	27	28	32	27	28	31	32	

1916

1944

1974

2006

- Carrison

Pest stage:

1830

1802

Accumulation since

January 1

Moth flight increasing & 10% of eggs have hatched 💠

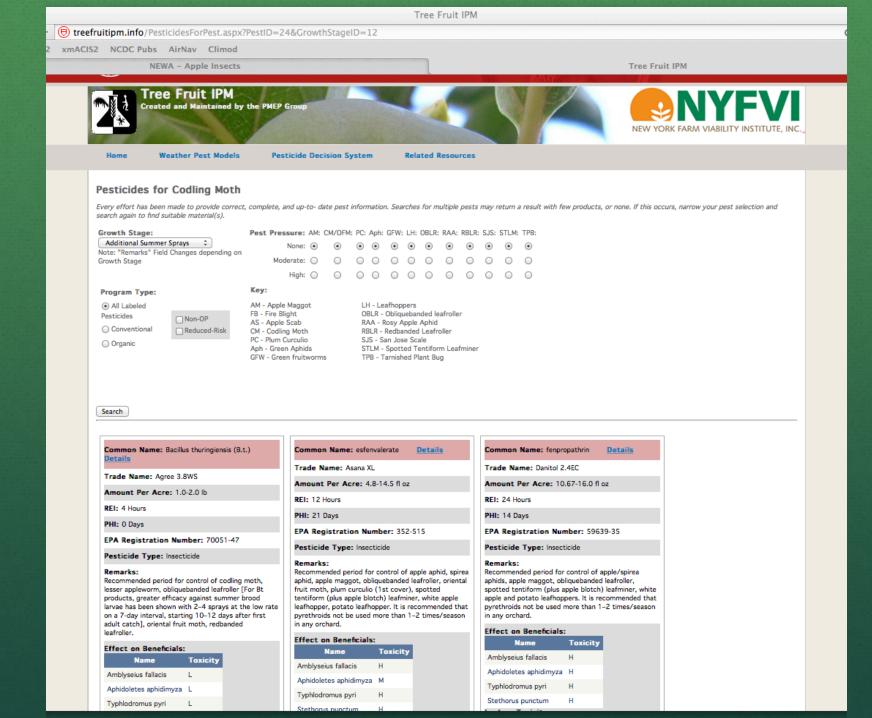
1889

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Show Degree Day Graph

1857

Pest Status	Pest Management	2
About 10% of the eggs laid by the second generation of OFM have hatched.	The initial control spray to control the second generation of OFM should be applied. In orchards that have a history of previous fruit infestation from this pest, populations may be resistant to organophosphates or pyrethroids. Therefore, it might be better to use another class of materials against OFM. Eggs from the summer generation of OBLR may also begin to hatch during this time and, if possible, a material should be selected that also will control larvae of this pest. <u>Pesticide information</u>	



#### NEWA Onion Disease

State: Massachusetts ‡	Map	Results	Forecast info	-								
Weather station: Ipswich (Russell Orchards)		Onion Disease for Ipswich (Russell Orchards)										
Planting Date:			Past 7 Days		Today		5-Day Forec	ast For	ecast Details			
April  21 Date of Interest: 6/27/2016 Get report	Dis	Disease		Average rating per day	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1	Jul 2		
Getreport	Rain Pr Night I	rob (%) Day <mark>?</mark>			0   5	19   27	59   48	27   10	10   10	37   38		
	Botrytis leaf blight	Michigan Botrytis forecast (BLB)	0	0	0	0	0	5	33	9		
	lear bigit	Modified Blight Alert (IPI)	1	4.81	3.01	2.68	6.27	3.74	2.59	3.08		
	Downy	Mildew	1	NA	Not favorable	Not favorable	Not favorable		-	-		
	Purple Blo	otch (PRI)	0	4.9	5.0	5.0	4.3	5.3	5.3	5.0		
		Extremely Very fa	Days favorable vorable y favorable				<u>Threshol</u> fichigan Botr lodified Bligh Purple Blotc	tis: BLB	I≥7			

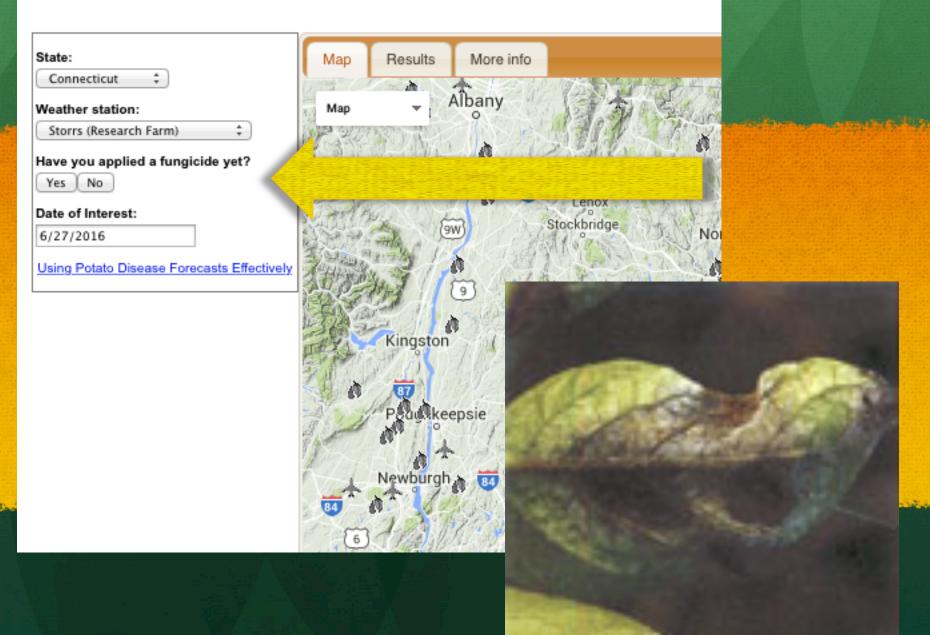
Slightly favorable

Not favorable

Over threshold

Below threshold

### NEWA Potato Disease Forecast





#### **NEWA Potato Disease Forecast**

State: Connecticut ‡	Map R	Results More info										
Weather station: Storrs (Research Farm) ‡		Potato Disease Forecast for Storrs (Research Farm)										
Crop emergence date:		Forecast	Yesterday	Today	(	6-Day For	ecast	Forecast	Details			
May \$ 10 \$		Torcease	6/26	6/27	6/28	6/29	6/30	7/1	7/2	7/3		
Date of potato cull sprouting or volunteer emergence: May	1	Early blight P-Days Show p-day log	372	380	389	399	408	417	425	434		
Date of Interest: 6/27/2016		ate Blight Blitecast	23	23	25	28	29	29	29	29		
Get report	Observed date	a available through 6/27/2016 14:0	0.				<u> </u>					
Using Potato Disease Forecasts Effectively			P-l	Days Key								
Start over	>=300 P-Day threshold exceeded.											
	Blitecast Key											
	>= 18 Severity value threshold exceeded.											

More Information

#### **NEWA Potato Disease**



Results

Map

+

More info

State: Connecticut ‡ Weather station: Storrs (Research Farm) Crop emergence date: May ‡ 10 ‡ Last fungicide application: June ‡ 26 ‡

Cultivar:

All Blue

Date of Interest:

6/27/2016 Get report

Potato Cultivar Susceptibility

Using Potato Disease Forecasts Effectively

+

Start over

Potato Dise	ase Forecast	for Storrs	(Research	Farm)
-------------	--------------	------------	-----------	-------

Forecast	Yesterday	Today	6-Day Forecast Details								
	6/26	6/27	6/28	6/29	6/30	7/1	7/2	7/3			
Early blight P-Days Show p-day log	372	380	389	399	408	417	425	434			
Late blight Simcast Blight Units	0	0	6	13	19	24	29	29			
Late blight Simcast Fungicide Units	0	-1	-5	-10	-14	-15	-16	-17			
Observed data available through 6/27/2016 12:0	Observed data available through 6/27/2016 12:00.										

The NEWA Simcast Late Blight model assumes that fungicide applications were made at 11am on the date specified in the user interface. The BlightPro Decision Support System (DSS) is a more robust tool for managing late blight that, among other things, allows you to specify the time of fungicide application. The BlightPro DSS is the preferred tool for monitoring late blight. More information on the DSS can be found at <a href="http://newa.cornell.edu/index.php?page=potato-late-blight-dss">http://newa.cornell.edu/index.php?page=potato-late-blight-dss</a>.

	P-Days Key								
>=300	>=300 P-Day threshold exceeded.								
	Simcast Key								
	Below threshold.								
<= -15	<= -15 Fungicide unit threshold exceeded.								
	More Information								

# **Crop Management**

Search NEWA website M New York State Integrated Pest Management Program Enter Search... Search NEWA Network for Environment and Weather Applications Weather Data **Pest Forecasts** Station Pages **Crop Management About Weather Stations** Crop Pages Apple Carbohydrate Thinning Apple Irrigation National Weather Service Forecast Welcome 10 Apple Evapotranspiration Apple Frost Risk Enter "City, ST" or "zip code" Growing Degree Days City,ST Go Click on Degree Day Calculator the weather station's home page. Degree Day Forecasts - NY About NEWA Degree Day Forecasts - MA ique La endrve Map Evapotranspiration Maps About NEWA Soil Temperature Map Contact Us Other Crop Tools ulin Montreal Ottawa Sherbrooke NEWA Press Releases & Reports Vision Statement You're NEWA Blog Kingstono Other Weather Data Sources Toronto Portland Mississaugao O 6-10 Day Outlook (NWS) London Hamilton National Doppler Radar Sites National Weather Service

### Cornell Apple Carbohydrate Thinning Model

State:	Мар	Res	ults	More info								
North Carolina 💠		Ар	ole Carl	bohydrat	e Thinning	Model f	or Edne	yville (App	ole Wedge)			
Weather station:				•	0							
Edneyville (Apple Wedge) \$		Ch	ange gree	en tip and/o	or bloom date	and click	"Calculat	e" to recalcu	late results.			
Select Date:		Gro	een tip d	ate		Bloo	m date		Calculate			
06/27/2016		2	/22/201	6		3/17	/2016					
Continue								· · ·				
	Apple Carbohydrate Thinning Model Results											
		Max	Min	Solar	Tree Ca	rbohydra	te Status	(g/day)	Thinning			
	Date	Temp (°F)	Temp (°F)	Rad (MJ/m2)	Production	Demand	Balance	4-Day Ave Balance	Recommendation			
	2/22	62	44	5.5	0.00	9.35	-9.35	-7.31	-			
	2/23	47	43	2.5	0.00	6.56	-6.56	-5.85	-			
	2/24	61	38	10.2	0.00	9.04	-9.04	-5.56	-			
	2/25	44	32	7.8	0.00	4.30	-4.30	-5.46	-			
	2/26	40	31	14.5	0.00	3.51	-3.51	-7.96	-			
	2/27	53	28	14.9	0.00	5.41	-5.41	-9.97	-			
	2/28	65	27	15.2	0.00	8.62	-8.62	-9.81	-			
and the second second	2/29	67	40	15.2	0.00	14.29	-14.29	-8.48	-			
	3/1	63	34	9.0	0.00	11.57	-11.57	-6.51	-			
	3/2	47	28	14.3	0.39	5.15	-4.77	-5.28	-			
	3/3	40	27	7.7	0.00	3.31	-3.31	-7.5	-			

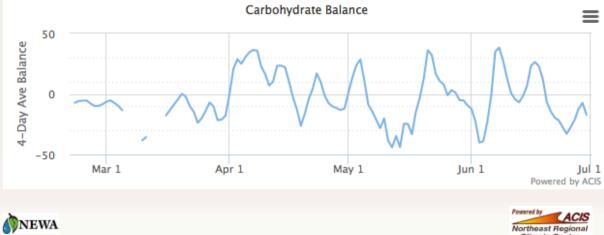
4/00	()		6.0	04.47	76.64	60.07	4.60	
4/21	74	55	19.8	81.20	96.98	-15.78	-4.04	Apply standard chemical thinner rate
4/20	74	53	20.3	82.86	97.74	-14.88	-16.23	Apply standard chemical thinner rate
4/19	79	46	17.5	74.99	97.66	-22.67	-26.35	Decrease chemical thinner rate by 15%
4/18	80	39	22.4	90.39	87.67	2.71	-12.65	Apply standard chemical thinner rate
4/17	74	36	23.6	94.67	70.28	24.39	-2.61	Apply standard chemical thinner rate
4/16	67	36	23.5	93.33	56.46	36.87	10.33	Increase chemical thinner rate by 30%
4/15	63	42	21.0	83.91	59.12	24.79	22.19	Increase chemical thinner rate by 30%
4/14	66	46	20.1	78.50	70.85	7.65	23.43	Increase chemical thinner rate by 30%
4/13	61	42	19.5	76.90	53.55	23.35	23.17	Increase chemical thinner rate by 30%
4/12	65	53	17.1	64.32	78.85	-14.53	10.32	Increase chemical thinner rate by 30%
4/11	64	38	14.5	61.20	49.96	11.24	6.93	Increase chemical thinner rate by 30%
4/10	55	29	17.6	69.47	23.84	45.63	16.42	Increase chemical thinner rate by 30%
4/9	48	38	23.4	74.97	26.01	48.95	22.82	Increase chemical thinner rate by 30%
4/8	55	40	21.9	74.45	37.27	37.18	35.75	Increase chemical thinner rate by 30%
4/7	61	44	18.0	64.87	51.14	13.73	36.37	Increase chemical thinner rate by 30%



#### Apple Carbohydrate Thinning



6/18	75	60	27.4	134.72	106.50	28.22	22.88	-
6/19	75	51	31.3	146.95	93.68	53.27	12.37	-
6/20	83	51	21.0	115.55	104.34	11.21	-6.75	-
6/21	85	61	24.1	119.79	120.99	-1.20	-14.43	-
6/22	87	63	23.3	114.15	127.95	-13.80	-19.56	-
6/23	88	66	23.0	110.41	133.62	-23.21	-21.82	-
6/24	85	69	24.1	114.70	134.20	-19.50	-27.36	-
6/25	86	69	23.7	112.93	134.67	-21.74	-33.01	-
6/26	82	69	20.7	107.41	130.24	-22.82	-27.59	-
6/27	82	66	13.7	81.56	126.93	-45.38	-21.43	-
6/28	82	67	15.0	86.65	128.77	-42.11	-12.49	-
6/29	81	62	23.6	120.32	120.36	-0.04	-7.4	-
6/30	81	61	23.7	121.04	119.24	1.80	-17.27	-
7/1	84	63	23.6	117.37	126.97	-9.60		-
7/2	84	65	21.1	108.49	130.25	-21.76		-
7/3	81	66	15.2	88.04	127.56	-39.52		-





### Cornell Apple ET Model

State:	Map Result	More info				
New Jersey ‡ Weather station:			ple ET Model for U			
Upper Deerfield    Select Date:		tune results. En	I from growing degree ter in-row and betweer rom menu. Click "Calo	n-row spacing (	or trees/acre) and	
6/27/2016	Green tip date	In row spacing	Between row spacing	Trees per acre	Age of orchard	Water balance
Continue	2/28/2016	feet	feet		Mature \$	







Green tip date	In row spacing	Between row spacing	Trees per acre	Age of orchard	Water balance
2/28/2016	3 feet	8 feet	1815	Mature \$	

Apple Irrigation Model

a.T.a.

	Apple Evapotranspiration Model Results							
Cornell Apple ET Mo	Date	Orchard ET (gallons)		Rainfall		Irrigation	Water Ba	lance (gallons/acre)
		per tree	per acre	inches	gallons/acre	gallons/acre	Daily	Cumulative
State:	Jun 20	2.9	5307	0.00	0	0	-5307	-5307
New Jersey ‡	Jun 21	1.1	2020	0.19	3611	0	1592	-3715
Weather station:	Jun 22	2.1	3814	0.00	0	0	-3814	-7529
Upper Deerfield ‡	Jun 23	1.5	2764	0.50	9504	0	6740	-789
Select Date: 6/27/2016	Jun 24	0.4	807	1.68	31933	0	31126	0
	Jun 25	2.3	4085	0.00	0	0	-4085	-4085
Continue	Jun 26	2.6	4744	0.00	0	0	-4744	-8829
	Jun 27	1.6	2924	0.00	0	0	-2924	-11753
	Jun 28	0.8	1523	0.66	12545	0	11022	-731
	Jun 29	1.7	3150	0.00	0	0	-3150	-3881
Englate the state produce	Jun 30	2.3	4249	0.01	190	0	-4059	-7940
	Jul 1	1.6	2831	0.22	4182	0	1350	-6590
	Jul 2	2.1	3799	-	-	0	-3799	-10388
	Jul 3	2.2	4035	-	-	0	-4035	-14424

You can enter your own rainfall or irrigation amounts and click the "Calculate" button which will appear above to recalculate the water balance.

Green tip date	In row	Between row	Trees per	Age of	Water
	spacing	spacing	acre	orchard	balance
2/28/2016	3 feet	8 feet	1815	Mature \$	

Apple Irrigation Model

5.5

		Apple Evapotranspiration Model Results								
Cornell Apple ET Mo	Date	Orchard ET (gallons)		Rainfall		Irrigation	Water Ba	alance (gallons/acre)		
		per tree	per acre	inches	gallons/acre	gallons/acre	Daily	Cumulative		
State:	Jun 20	2.9	5307	0.00	0	0	-5307	-5307		
New Jersey \$	Jun 21	1.1	2020	0.19	3611	0	1592	-3715		
Weather station:	Jun 22	2.1	3814	0.00	0	0	-3814	-7529		
Upper Deerfield +	Jun 23	1.5	2764	0.50	9504	0	6740	-789		
Select Date:	Jun 24	0.4	807	1.68	31933	0	31126	0		
6/27/2016	Jun 25	2.3	4085	0.00	0	0	-4085	-4085		
Continue	Jun 26	2.6	4744	0.00	0	0	-4744	-8829		
	Jun 27	1.6	2924	0.00	0	12000	9076	0		
	Jun 28	0.8	1523	0.66	12545	0	11022	0		
	Jun 29	1.7	3150	0.00	0	0	-3150	-3150		
the general state of the state of the second	Jun 30	2.3	4249	0.01	190	0	-4059	-7209		
	Jul 1	1.6	2831	0.22	4182	0	1350	-5858		
	Jul 2	2.1	3799	-	-	0	-3799	-9657		
	Jul 3	2.2	4035	-	-	0	-4035	-13693		

You can enter your own rainfall or irrigation amounts and click the "Calculate" button which will appear above to recalculate the water balance.

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### **NEWA Partners**



#### Cornell University

Minnesota Apple Growers Association

North Carolina Apple Growers Association



Pennsylvania State University

RUTGERS Rutgers University





University of Massachusetts

University of New Hampshire



University of Vermont

Virginia Tech