

NEWA (Network for Environment and Weather Awareness) 2007: A Year in Review

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Abstract: NEWA operated and maintained the electronic weather network in 2007 with funding support from the NYS IPM Program. There are now 1171 users registered in the NEWA database. Compared to 829 in 2006, this represents a 41% increase. Visits or “hits” to NEWA’s website increased 7.5% over last year. Weather stations are now being sourced from RainWise Inc. and a tour of these installations successfully worked out final details of networking them through NEWA. Eight grants were submitted to fund pest forecast model development and improvements to the NEWA website. A survey of NY onion, potato, grape and apple growers documented NEWA impact. These growers reported that they can save, on average, \$19,500 per year in spray costs and prevent, on average, \$264,000 per year in crop loss as a direct result of using NEWA pest forecast models. The Northeast Regional Climate Center (NRCC) began collaborating with NEWA, creating a database for NEWA weather data and programming NEWA pest forecast models. The NEWA network completed a project expanding into eastern NY where there are now seven weather stations with another two slated for installation.

Objectives:

- 1) Operate and maintain the NEWA electronic weather network.
- 2) Track and promote NEWA usage.
- 3) Update the NEWA website and pest forecast models.
- 4) Collaborate with the Northeast Regional Climate Center.
- 5) Expand NEWA into Eastern NY.

Procedures, Results, and Discussion:

1. OPERATE AND MAINTAIN THE NEWA ELECTRONIC WEATHER NETWORK.

During the 2007 growing season, NEWA successfully maintained and operated a network of 44 weather stations collecting and delivering data to server sites in Geneva and Canandaigua. Most NEWA weather stations provided data year-round. Winter data was used for Stewart’s wilt forecasts on sweet corn and to track low temperature in vineyards and apple orchards.

The year 2007 featured abnormally cold and wet conditions during the early part of the growing season, followed by hot and dry conditions later. The hot and dry conditions allowed some growers to save on pesticide usage in 2007.

NEWA personnel made over 98 visits for maintenance, troubleshooting, and repair in 2007. Thunderstorm activity continued to cause sporadic problems to the network. Lightning may have damaged the North Appleton logger and testing of that unit is underway.

In 2007, TenEyck developed a NEWA Info database containing contacts and descriptions of each weather station in the network. This has streamlined the maintenance of metadata and will support the expansion of the network.

RainWise Inc. weather stations and tour.

NEWA completed the transition to RainWise, Inc. MK III SP1 and SP2 weather stations and installed five in Eastern NY. The NYS IPM Program purchased eight MK III weather instruments to replace the Field Monitors owned by NYS IPM. The previously used Field Monitors, manufactured by Sensatronics Co., are no longer available, although they will continue to service them whenever possible since a majority of NEWA sites still employ Field Monitors.

Gibbons installed and tested an IPM-owned MK III SP2 station in Farmington, NY. Installation was straightforward and software set up was equally easy. This installation utilized the FTP data delivery option on the collaborating grower’s computer. A software bug was found during initial testing of an MK III SP2 unit slated for Savannah, NY, with the modem data delivery option. The problem was corrected by RainWise and the station installed in November.

Before the IPM Program and collaborating growers took delivery of the RainWise MK III SP1 and SP2 weather stations, Wayne Burnett of RainWise, Gibbons, and Carroll planned a three-day tour to visit with growers and extension educators at established and proposed MK III sites. During the tour we went over site issues with existing equipment and site preparations for new equipment. All parties came away with improved knowledge of site analysis needs for successfully installing the weather stations. All remaining issues with the RainWise MK III weather station installations and data delivery were resolved.

2) TRACKING AND PROMOTING NEWA USAGE

In 2002, NEWA website and data access fees were eliminated and since then funding support has been provided by the NYS IPM Program. NEWA website visits or “hits” continued to increase in 2007 (Table 1 and Figure 1). NEWA usage was up, on average 7.5%, for the months of January to December, in 2007 compared to 2006. The number of registered NEWA users continued to climb, up 41% from 829 in 2006 to 1171 in 2007.

Table 1. NEWA web hits for the last five years. No data is available for January 2005 (na).

Month	2003	2004	2005	2006	2007
January	3131	6260	na	9083	9548
February	3515	2986	11535	6182	7507
March	2933	2695	6697	8633	9776
April	3967	5902	8341	15305	9859
May	9533	9969	14759	14084	12908
June	9286	8810	11422	12848	13301
July	6934	7590	10542	11434	13433
August	5846	6371	9899	10708	10262
September	4060	4627	8515	10044	17257
October	3104	3423	9028	9034	9334
November	2776	3296	9151	5649	8252
December	2088	4210	7438	6662	7244
Total	57173	66139	107327	119666	128681

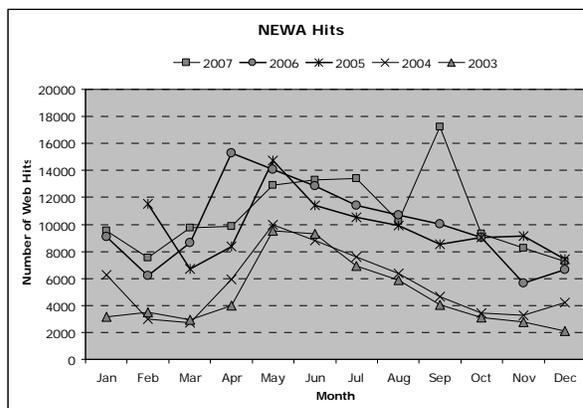


Figure 1. Number of web hits to the NEWA website for the years 2003 – 2007. Peak usage occurs in spring to summer.

NEWA weather and pest forecast information is also distributed in extension newsletters and email alerts that reach many farms. At various meetings talks were given describing NEWA and the new RainWise weather instruments (Table 2).

Table 2. Presentations on NEWA given during 2007.

Date	Title	Location	Audience	#
May 17	NEWA update	Valois, NY	Grape growers and CCE	200
Jul 25	Weather stations for NEWA pest forecast modeling	Geneva, NY	Growers, industry, CCE, Cornell staff	50
Nov 15	NEWA – weather information for viticulture	Ithaca, NY	Viticulture faculty and educators	22

A phone survey of NY onion, potato, apple and grape growers was conducted from January 15 to March 19, 2007 to document the impact of NEWA. These growers reported that they can save, on average, \$19,500 per year in spray costs and prevent, on average, \$264,000 per year in crop loss as a direct result of using NEWA pest forecast models. A separate report on the survey results was submitted to the NYS IPM Program Annual Reports.

3) UPDATE THE NEWA WEBSITE AND PEST FORECAST MODELS

A NEWA website mapping document, completed in 2006, identified dead links that have been updated and provided insight on others that can now more easily be found on a regular basis. Several grants were submitted in 2007 for pest forecasts and website improvements (see below under Grants.)

Carroll met with extension entomology and plant pathology faculty in tree fruit, berries and grapes to develop perspectives for improving web delivery of pest forecast model results. Meetings will continue in 2008 with Cornell Cooperative Extension educators.

4) COLLABORATE WITH THE NORTHEAST REGIONAL CLIMATE CENTER.

The Northeast Regional Climate Center (NRCC) provides NEWA with links to Stewart's wilt forecast maps, evapotranspiration (ET) maps, degree-day maps and NWS degree day forecasts. NRCC data is compiled from information provided by airport observations and the Cooperative Observer Network.

A collaboration between NRCC and NEWA for data archiving and pest forecast programming was funded in 2007. Since spring, NEWA weather data is being uploaded into the NRCC database and sister weather stations identified for use to patch missing or erroneous data when calculations are made. NRCC is programming various NEWA pest forecast models. Most of the modeling has been completed and proofing the outputs of has begun.

5) EXPAND NEWA INTO EASTERN NEW YORK

NEWA expanded its network into Eastern NY apple orchards with seven new installations in this region. Two additional sites will be installed. Expansion was funded through a NE Regional IPM grant and a NE SARE grant. The projects' goal is to support weather-based IPM practices for

eight major apple pests using the weather information that NEWA provides. The NE Regional IPM final report was submitted to the NYS IPM Program Annual Reports.

NEWA GRANTS

Funded

- Carroll. 2006. Impact of the NYS IPM Program's Network for Environment & Weather Awareness (NEWA) on Agricultural Production. NYS IPM Special Project \$12,000.
- Carroll, Gibbons, TenEyck, Petzoldt, and Weigle. 2007. Northeast Regional Climate Center weather database collaboration with the NYS IPM Program Network for Environment & Weather Awareness. NYS IPM Special Project \$3000 and NEWA \$6000.
- Fry. 2007. Improved late blight forecasting – the roles of weather, inoculum, host resistance, and fungicide. Hatch. \$60,000.
- Reissig. 2007. Development of enhanced, web-based Cornell tree fruit pest management guidelines. NY Farm Viability Institute. \$100,000

Submitted

- Carroll and Weigle. 2007. Weather-driven grape IPM forecast models and decision aids from the Network for Environment and Weather Awareness. Smith-Lever \$20,000.
- Carroll. 2007. Applying weather data and forecasts for managing crop inputs and reducing crop losses. Northeast Center for Risk Management Education \$77,000.
- Fry, DeGaetano, Carroll, Petzoldt and Zitter. 2007. A web-based decision support system: potato late blight. Northeast Regional IPM \$60,000.
- Reissig, Cooley, and Clements. 2007. Development of web-based New York and New England regional tree fruit pest management guidelines. Northeast IPM Center \$69,120.
- Reissig, Agnello, Cox and Carroll. 2007. Development of web-based New York tree fruit pest management guidelines. Smith-Lever. \$75,000.
- Winnett. 2007. Pesticide management for high-value crops. USDA Natural Resources Conservation Service \$40,000.