

Title: NEWA (Northeast Weather Association) 2002: A Year in Review

Project Leaders: John Gibbons, NYS IPM Program, Curt Petzoldt, NYS IPM Program, Geneva, Tim Weigle NYS IPM Program, Fredonia, and Cheryl TenEyck, NYS IPM Program

Type of grant: (not funded in the grants program) Monitoring, forecasting, and economic thresholds

Project location(s): all counties in New York, some in Pennsylvania. website accessible internationally

Abstract: NEWA maintained the electronic weather network in the 2002 growing season with support from NEWA members and the New York State IPM Program. As a result of the free subscriptions provided by the IPM Program in 2002, NEWA usage rose by 84% compared to 2001. The number of people receiving NEWA information is much larger than that measured by web hits since information from NEWA is used in crop updates and Extension newsletters. The National Weather Service provides weather forecasts for the network and continues to provide new forecast products that NEWA makes available on the web site. The Northeast Regional Climate Center provided links to evapotranspiration maps based on data from their cooperative network. The Climate Center hopes to provide ET information from several of the NEWA sites that are capable of supplying the necessary data needed in the ET calculations in 2003. A cellular modem was successfully installed in the NEWA network and with technical advantages over landline modems including flexibility in logger location and isolation from phone lines, which should reduce damage to equipment caused by lightning.

Objectives:

- 1) Keep the NEWA electronic weather network operational for the 2002 season.
- 2) Solicit new members for NEWA from among fruit, vegetable, field crop, and other appropriate growers. IPM offers free subscriptions to NEWA in 2002.
- 3) Enter a cooperative arrangement with the Northeast Regional Climate Center to provide evapotranspiration data from capable sites in the NEWA network.
- 4) Install and test a cellular modem.

Procedures, Results, and Discussion:

1. KEEP THE NEWA ELECTRONIC WEATHER NETWORK OPERATIONAL.

During the 2002 growing season NEWA was able to successfully maintain and operate the electronic weather network. Server sites in Geneva and Canandaigua gathered weather data daily from 36 data loggers. NEWA continued to provide data from several sites through the winter to provide weather data for Stewart's wilt forecasts for sweet corn in New York. NEWA assisted Rick Reisinger from Cornell Orchards in establishing two new instrument sites in orchards in Lansing and Ithaca, New York. At the Freeville research farm cellular modem technology was used to download data from an instrument (See item 4 below for details). NEWA staff provided technical support for setting up and troubleshooting weather equipment in the field.

The network itself was operational on 100 percent of the days between April 1 and October 31, although individual instruments experienced down time from lightning strikes and other problems. The year 2002 featured major drought conditions but thunderstorm activity was much more intense than in recent years. Although lightning damaged six installations, the problems were generally remedied within one or two days of occurrence unless damage to the instrument was major, in which case the instruments were returned to the manufacturer for repairs. The data were summarized and used to operate pest forecast models for potatoes, onions, apples, grapes, sweet corn, and tomatoes daily. Degree-day accumulations were calculated for different base temperatures using several degree-day models as needed by different client groups.

Logs detailing leaf wetness periods for apples were developed and maintained for the first time. A new section for cucurbit crops was added that provided downy mildew forecasts from North Carolina. Since this disease is spread by wind, studying upper air movements can provide information on the spread of this disease. The North Carolina model follows the progression of mildew and forecasts its likely movement in the eastern U.S.

A Michigan model to forecast the occurrence of downy mildew in onions was tested again in 2002. Research is ongoing as to whether it will be applicable in New York. The model is designed to predict at 65 days after planting whether mildew is likely to occur during the remainder of the growing season. This year the model suggested that downy mildew conditions were favorable and that conditions should be monitored closely. Downy mildew was confirmed in one unsprayed location in Wayne County.

The National Weather Service provides forecast information, radar information and other products that can be useful to growers. Links to new NWS products are added as they become available. One such product added this year was graphical forecasts. Links to drought specific products were also added including the Palmer drought index and forecast.

This was the first year access to NEWA information was not offered by fax service. NEWA members are relying on the internet for weather information. The fact that it is still a challenge to find economical broadband internet service in rural areas may pose some limitations to access, although activity on the website in 2002 nearly doubled over 2001 (See Section 2).

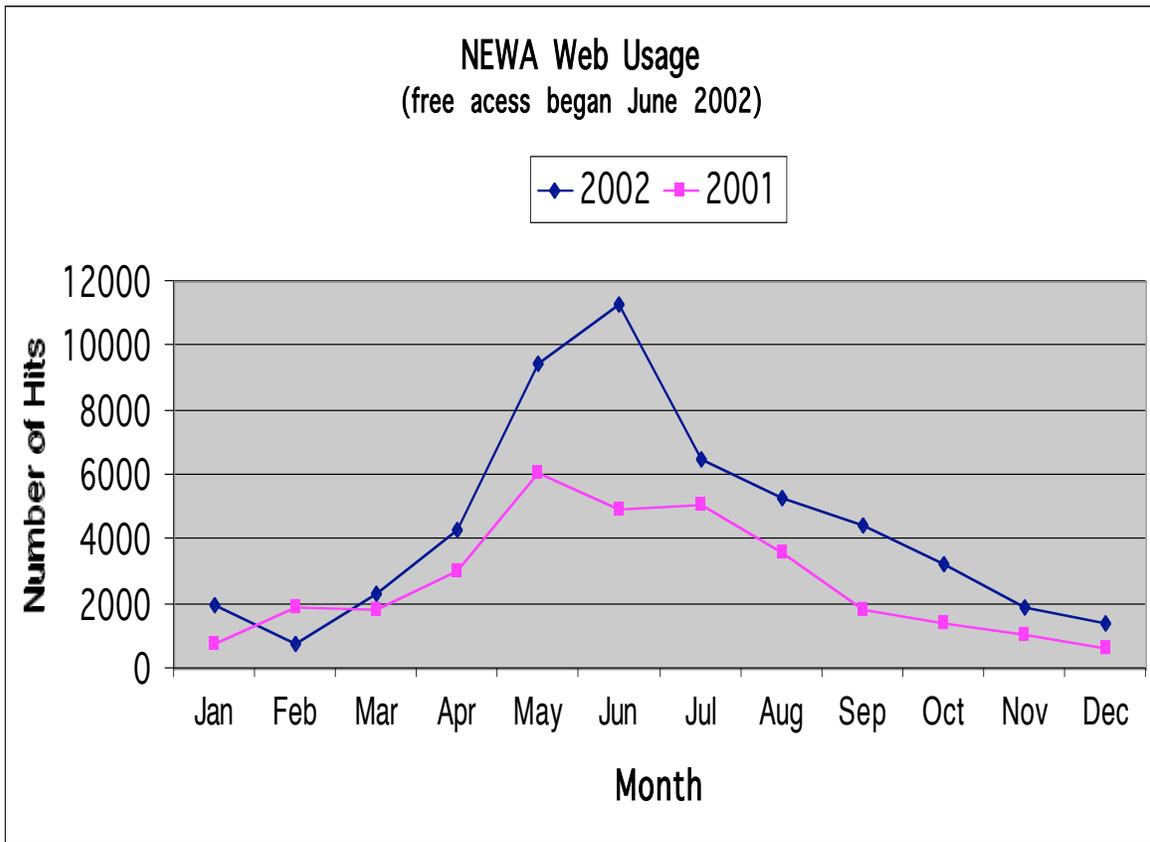
2) SOLICIT NEW MEMBERS FOR NEWA FROM AMONG FRUIT, VEGETABLE, FIELD CROP, AND OTHER APPROPRIATE GROWERS.

On May 29, 2002 access to the NEWA website and all of the NEWA information became free as a result of funding from the New York State IPM Program. Announcements of free NEWA were sent through email and placed in local Extension newsletters. Additionally, the entrance web page contained an explanation of how to log on without charge. As a result NEWA usage increased dramatically. By the end of June - one month after the announcement of free NEWA - there were 11,323 hits as compared to 4,940 hits during the same period in 2001. From June through December 2002 there were 34,128 hits to the free NEWA site compared to 18,571 hits during the same period in 2001 when NEWA was not free - an increase of 84% (Figure 1). NEWA information is also redistributed in several CCE newsletters. Based on a survey conducted in 2000, it is estimated that newsletters with a circulation of over 1,200 farms contain NEWA information on a regular basis.

NEWA subscribers who had already paid 2002 subscription fees were offered a choice of refunds or the opportunity to donate those funds to the network. Most subscribers chose to donate their subscription fees to the network. Donated fees were used to upgrade four older instruments that had become obsolete and had been off line for several years. The retrofitted

instruments will be added back to the network in 2003. Also, donated fees were used to purchase 12 surge protectors that will be used to protect additional instruments from lightning damage.

Figure 1: NEWA web access for 2001 and 2002



Free NEWA assisted an IPM demonstration project in Ontario, Wayne and Yates Counties highlighting the use of onion disease forecasts and scouting. The demonstration made growers aware of the onion forecasts and the other online pest management resources. Most growers are starting to utilize the internet and more work needs to be done to show growers the full benefit of IPM internet resources.

NEWA personnel set up demonstrations at trade shows and workshops to attract new members. A demonstration of NEWA was at the NYS Vegetable Conference in conjunction with Sensor Instruments. An internet workshop was offered at the Ontario County CCE office highlighting NEWA as a potential internet resource for crop and weather forecasts. A NEWA newsletter highlighting weather related stories and the content of the NEWA website was distributed. The newsletters were also made available at various conferences and shows around the state.

3) ENTER A COOPERATIVE ARRANGEMENT WITH THE NORTHEAST REGIONAL CLIMATE CENTER.

In 2002 the Northeast Regional Climate Center (NRCC) provided links to evapotranspiration (ET) maps and degree-day maps. The data is compiled through information provided by airport observations and the Cooperative Observer Network. NEWA has access to one instrument with the necessary parameters to calculate ET and NRCC will provide ET from that data. NRCC and NEWA are looking at all opportunities for future collaboration.

4) INSTALL AND TEST A CELLULAR MODEM

In 2002, NEWA successfully implemented a field monitor weather installation with a cellular modem. The unit was placed at the Freeville Research farm under the supervision of Don Halseth. The field station has been in operation for two years but this is the first time data from this station was made available to the NEWA network. The cellular modem is a self-contained device that provides the communication link between the data logger and the NEWA computer. It has its own power unit with a solar cell for recharging. The advantage of a cell modem is that placement of the instrument can be much more flexible since power and phone line locations are not limiting. Another advantage regards lightning protection since isolating the logger from phone lines protects it from damage through these lines. Currently cell modems cost about \$1200 compared to \$100 for landline modems making them cost prohibitive for the NEWA network without additional funding resources.

Summary

NEWA maintained the electronic weather network in the 2002 growing season with support from NEWA members and the New York State IPM Program. As a result of the free subscriptions provided by the IPM Program in 2002, NEWA usage rose by 84% compared to 2001. The number of people receiving NEWA information is much larger than that measured by web hits since information from NEWA is used in crop updates and Extension newsletters. The National Weather Service provides weather forecasts for the network and continues to provide new forecast products that NEWA makes available on the web site. The Northeast Regional Climate Center provided links to evapotranspiration maps based on data from their cooperative network. The Climate Center hopes to provide ET information from several of the NEWA sites that are capable of supplying the necessary data needed in the ET calculations in 2003. A cellular modem was successfully installed in the NEWA network and with technical advantages over landline modems including flexibility in logger location and isolation from phone lines, which should reduce damage to equipment caused by lightning.