

New 'Biological Calendar' Predicts Plant Pest Attacks

WOOSTER, Ohio — An Ohio State University scientist has developed a "biological calendar" that predicts the emergence of tree and shrub pests, and thus the best time to spray for control, based on the blooming of ornamental plants.

The calendar shows, for example, that European pine sawfly eggs hatch at the same time as first bloom in PJM rhododendron, and gypsy moths hatch at full bloom in Spring Snow crabapple.

Dan Herms said the research can help nursery managers and gardeners make fewer but more effective pesticide applications. Furthermore, it can help them switch from long-lasting pesticides, which may soon be limited by new federal regulations, to shorter-lived "biorational" types.

Herms, an entomologist at the university's Ohio Agricultural Research and Development Center in Wooster, based the calendar on three years of observations in the center's Secrest Arboretum. A final year of data is currently being collected. But accurate predictions are already possible.

"We've demonstrated that all you need is one year of data," Herms said. "The sequence remains remarkably constant from year to year."

That means plant growers anywhere can develop their own calendars and use them to time their pesticide applications, he said.

Herms' calendar is specific to the arboretum and to similar climates in northern Ohio. A calendar created in one climate is less accurate in another, the study showed.

Predicting insect activity based on plant development is an old practice. Aboriginal people have done it for ages. Recorded observations date back to at least the 18th century. But this is the first study to collect these sorts of observations on a variety of commercial plants and pests, to combine them into a single sequence, and to demonstrate the consistency of this sequence from year to year.

In general, the field is called phenology, the study of recurring biological phenomena and their relationship to weather.

Herms looked at the blooming times of 86 ornamental plants and matched it with the activity of 40 insects and mites. The result is a list, in order, of what happens when.

The calendar is based on degree-days, a measure of seasonal warming. It works because the development of both plants and insects depends on the temperature, and the order of this development is the same every year.

For instance, Herms found that eastern tent caterpillar eggs hatch on average after 92 degree-days (starting from January 1 and calculated using a base temperature of 50 F). The date varied from March 28 in a warm spring to April 4 in a cooler one. But it always coincided with full bloom in Corneliancherry dogwood, which also occurred at 92 degree-days.

Other examples are holly leafminers, which emerge at first bloom in pagoda dogwood; alder leafminers, which emerge at full bloom in Amelanchier 'Regent' and bronze birch bores, which appear when black locust blossoms are peaking.

Until now, the emergence of bronze birch borers has been es-

pecially hard to forecast. "But we found that it can be accurately predicted simply by watching black locusts bloom along the highway," Herms said. "When black locusts begin to bloom, that's when you need to make an insecticide application for bronze birch borer."

Good timing is certainly a benefit, he said. Instead of relying on the date or a schedule of regular applications, growers can spray only when a pest is present, not before and after. Pesticide use is cut yet control is the same or better. This is especially true for hard-to-detect pests and those that are susceptible only at certain stages. A calendar can show when they're present and vulnerable.

It can also make short-lived pesticides, such as insecticidal soaps and oils, more effective, since growers can apply them at

just the right time. Pesticides with a longer residual effect — types that persist on plants and in the environment — might not be needed.

In fact, some of these pesticides might not be available. The Food Quality Protection Act of 1996, which sets new health-based standards for pesticide residues on food, may limit the use of persistent pesticides. So soaps and oils, which don't persist, may see wider use.

Another benefit of a biological calendar is that it can make it easier to manage a nursery. By knowing when pests will appear, "Nursery managers can focus their efforts, take things in the sequence they come, and greatly simplify the logistics of dealing with the huge number of plants in a nursery and the huge number of pests that may infect those plants," Herms said.

"I've found through surveys that most people don't know which species hatches when. By knowing the order that pests occur, growers can plan their pesticide strategies," he said.

The plants on his calendar include red maple, eastern redbud, border forsythia, American holly, and a range of crabapple, viburnum and rhododendron cultivars. Others are beautybush, smokebush, sweet mock-orange, Carolina silverbell, scarlet firethorn and panicked goldenrain tree.

Among the pests are spruce spider mite, birch leafminer, eastern spruce adelgid, holly leafminer, juniper scale, pine needle scale and fall webworm. All can cause damage in nurseries and landscapes.

Also included are three harmless butterfly species — red spotted purple, tiger swallowtail and monarch butterfly — because of

the growing interest in butterfly gardening.

The research is funded by the Horticultural Research Institute and the Nursery Growers of Lake County, Ohio. Additional funding is being provided by the U.S. Department of Agriculture North Central Region Integrated Pest Management Program.

The USDA grant is for developing a Web-based calendar for farmers that lists plant development and insect and weed emergence at locations around Ohio.

For more information, including Herms' calendar and a data sheet for personal observations, request "A Biological Calendar: Using Plant Phenology to Predict Insect Activity," free from SCT, OARDC, 1680 Madison Ave., Wooster, OH 44691, (330) 263-3700, or e-mail ct_oardc@osu.edu.

NYSFDMA To Host 5th Annual Summer Bus Tour

E. SYRAUCUSE, N.Y. — Wayne County is well known for its apple orchards and rich farmland. But it's also rich in history and American heritage.

The New York State Farmers' Direct Marketing Association will be hosting its 5th annual summer bus tour exclusively in Wayne County. On June 28, Joan Allen from Long Acre Farms in Macedon, N.Y., will lead a tour of farm direct marketers through Wayne County's farm market operations that show the agricultural diversity and the history of the county.

The tour will begin at Joan's own farm stand, Long Acre Farms, where she'll show her own style of marketing.

"Bringing families out to the farm and providing them with fun, family activities along their fresh fruits and vegetables, gives them an appreciation of agriculture. We have a huge backyard area with a pavilion where we host corporate picnics and birthday parties. Our best attraction is the Amazing Maize Maze, a four acre corn maze with a different theme each year. Thousands come through every year to take the challenge. It's a lot of fun for them and for us, too," said Joan.

After Long Acre Farms the tour group will visit several other markets with their own unique marketing styles. Maier's Mud Acres, also in Macedon, has participated in farmers' markets for years. They've recently added a farm stand at the farm to accommodate the public's desire to visit them directly and purchase other value-added items.

Spring Valley Greenhouses in Walworth, N.Y. is another stop on the tour of Wayne County's farm market operations. Spring Valley will be celebrating its 25th year in business and is one of the largest producers of clematis liners in North America. They are also known for their beautiful display gardens, which has been a very successful marketing tool for them.

Some of the best produce in New York state is grown in Wayne County and can be found at Pine Hill Orchards, Lyons, N.Y. They offer all of the best fruits and vegetables along with generous portions of hospitality. They host monthly square dances and Friday fish fries. For

the tour group, they'll also be providing lunch.

Orchard View Farm Market is a family run apple orchard in Wayne County. Their apples, cherries, peaches, and other fruits are offered for sale at their farm stand on Ridge Road in North Rose, N.Y. As a special treat, they sell ice cream with their own fruit add-ins.

Wayne County also has a rich cultural background. Alasa Farms near the south shore of Sodus Bay in Alton, N.Y. is an historic Shaker farm. They combine the U-pick orchards with educational tours of the Shaker farmstead that are now attracting motor coach tours.

One final stop takes the tour to Burnap's Farm Market in Sodus, N.Y. They are well known for the quality fruits and vegetables they grow and sell at their farm stand. They also have a bakery and ice cream shop. Of special interest to the tour group is their hydroponic growing system.

The day promises to be full of opportunities to view other marketing techniques and talk over issues and ideas with other marketers.

"While bus tours like this offer marketers a day away from their own daily grind, they are also full of opportunity," said Joan Allen. "Every farm stand

has their own unique style of marketing their farm products. We can all learn from each other's experiences and ideas. And a bus tour like this brings us together and gives us that opportunity."

The tour of Wayne County's farm markets starts at Long Acre Farms in Macedon promptly at 9 a.m. and returns at approximately 5:30 p.m. The cost to NYS Farmers' Direct Marketing Association members is \$30 per person and \$35 for nonmembers.

For registration information, call Joan Allen at 315-986-7730 or Diane Eggert at 315-475-1101.

Junior Simmental Members Gear Up For Summer Season

BOZEMAN, Mont. — Members of the American Junior Simmental Association (AJSA) are looking forward to their usual busy menu of summer activities.

Four regional classics, followed by National Classic XX, are on the upcoming calendar of events.

Regional classics, patterned after the national classic, are planned at four wide-ranging locations. "The regional events are located so as to be reasonably available to most of our membership," said Eric Gerdes, the American Junior Simmental Association (AJSA) president from Danville, Iowa.

"Regional classics are a great way to meet people and to prepare for the national event," Gerdes explained. "We urge our members to get ready for the national classic by studying at home and by attending a regional classic if they possibly can."

Regional classics will be in all four regions: eastern, June 14-17, Lebanon, Ohio; south central, June 15-17, Shreveport, Louis.; western, June 21-25, Bozeman, Mont.; and north central, June 21-24, Hutchinson, Minn.

National Classic XX, traditionally the highlight of the AJSA year, will be in Stillwater, Okla., July 17-21. Hosted by the

Oklahoma Simmental/Simbrah Association (OSSA), the event will be headquartered at the Best Western-Stillwater. All cattle events will be centered at the Payne County Fairgrounds.

Up to 300 AJSA members from 30 states are expected to participate in junior and senior divisions. Competition is held in a variety of cattle-related categories, including a herdsman's quiz, sire summary quiz, beef bowl, public speaking, sales talk,

heifer exhibition, showmanship, advertising and promotion, and job interviewing.

Extracurricular activities on the schedule include a dance, volleyball tournament, cookout, and a festive awards banquet.

More information can be obtained by calling ASA at (406) 587-4531 or visit the web site at <http://www.simmgene.com>. Inquiries can also be emailed to simmental@simmgene.com.

