

♦ FARM CALENDAR ♦

Saturday, July 3
 Sullivan County Rodeo and Truck Pulls, Sullivan County Fairgrounds, Forksville, thru July 4.
Sunday, July 4
 Independence Day

Monday, July 5
 Lancaster Farming office closed.
 3d Annual Natural Colored Wool Growers Association (NCWGA) Wool and Sheep Show at Derry Agricultural Fair, New Derry, Pa., thru July 10.

Tuesday, July 6
 Derry Township Ag Fair, Derry Township, thru July 10.
Wednesday, July 7
 Southeast Regional 4-H Livestock Judging Contest, Lebanon Fairgrounds.

Thursday, July 8
 1999 Young Cooperative Leaders Conference, Allenberry Resort, Boiling Springs, thru July 9.
 Southeast 4-H Regional Meats Judging Contest, Stoltzfus Meats, Intercourse.

Friday, July 9
 Northeast Dairy Compact Commission Meeting, Eastern States Exposition Gate 2, West

Springfield, Mass., 1 p.m., public hearing, White Church Meeting House, 7 p.m.

Centre/Clinton County Holstein Club Barbecue and Twilight Meeting, Mammoth Springs Farm, Bellefonte, 6:30 p.m.

Thursday, July 8
 Empire State Potato Growers Summer Field Tour and Family Get-Together, coffee and donuts at the Vegetable Crop Research Farm, Freeville, and Bus Tour begins at 10 a.m.-3:30 p.m. Barbecue at Stewart Lake Park, Ithaca, 4:30 p.m.-7 p.m.

Friday, July 9
 Northeast Boer Goat Show and Seminar, Jackson's Mill, Weston, W.Va., thru July 10.

Adams County Holstein and DHIA Associations Summer Twilight Meeting, Jeff King Farm, York Springs, 7 p.m.
 Annual Keystone Stud Ram Show and Sale, Harrisburg, thru July 10.

10th Annual Fawn Grove Olde Tyme Days, Fawn Grove, thru July 11.

Saturday, July 10
 Tioga County Annual Farm-City Day, Wilbur "John" and Sandy Odgen's Farm, Lawrenceville,

11 a.m.-4 p.m.
 Roth Farm Festival, Roth Farm of DelVal College, North Wales, 10 a.m.-5 p.m.

Sunday, July 11
 1999 National Limousin Show and Congress, Great Plains Coliseum and Fairgrounds, Lawton, Okla., thru July 17.

Monday, July 12
 Mason Dixon Fair, Delta, thru July 17.

Nutrient Management for Part-time Farmers, Elkton Library, 7:30-9:30 p.m.

Tuesday, July 13
 Southeast Capital Region 4-H Leadership Conference, Albright College, Reading, thru July 16.

Penn State Weed Tour, PSU Agronomy Farm, Rock Spring.
 Franklin County Holstein Association Field Day, Marcus and Chester Martin Farm, Mercersburg, 10 a.m.

Jacktown Fair, Wind Ridge, thru July 17.

Living Mulch Research and Demonstration Tour, Russell E. Larson Agricultural Research Center, Rock Springs, Noon-3:30 p.m.

Wednesday, July 14
 Butler County Holstein Association Twilight Meeting, Georhe and Stephen Hoartzell Farm, Slippery Rock, 7 p.m.

Somerset County Holstein Show, Meyersdale Fairgrounds, Meyersdale, 7 p.m.

Pa. Vegetable Growers' Association Field Tour to South Jersey, departs 7 a.m. from Home

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The Two-Sided Sword Of Biotechnology

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simple response curve — lots of high school science students do those in their science fair projects.

What ecology and biology questions does this lab study raise? It is possible that in most corn fields a sublethal rate of the Bt pollen may be present. Couple that with the fact that most cornfields have good to excellent weed control so that milkweed, is not found right in corn fields. What is factor of distance from the corn field and the pollen spread to the milkweed site? What do in-field studies show about the mortality of Monarchs? How much of an increase is there from the Bt pollen mortality compared to other sources of caterpillar pathogens and predators (the background mortality)? Are there any other important lepidoterans being affected? How old do the monarch caterpillars in the field have to be to be sensitive? Remember that the larger the caterpillar is, the less sensitive it is to the Bt toxin in the pollen. To paraphrase another sage called Paracelsus — "the dose makes the poison." What about the timing of milkweed emergence, the caterpillar's life cycle and the time of pollen shed? When, where and for how long do these three points overlap to give us a window? Lots of questions — no answers (yet). Milkweed was out in my fields for the past week but I am a long ways away from corn tasselling. Besides I did not plant Bt corn — not a problem. Corn in our area will not be knee high by the 4th of July due to the lack of rainfall we have had. But it will in Lancaster County. So there are obvious location effects and differences.

Then there are a whole separate group of questions that relate solely to the biochemistry of the Bt toxin. I'll only pose a single one. How long does the toxin actually remain viable in the pollen? Farmers know that the pollen itself is viable for only 12 - 36 hours after being shed from the tassel. Its viability depends on the temperature and humidity. Remember that the BT toxins are proteins that denature or break down — something every high school biology student also learns about.

In summary, we cannot relate Losey's lab results to the more intricate field questions. John Losey was the first researcher to publish data on the no-target effects of Bt corn technology. That makes him a pioneer in his field. (There is a pun I couldn't resist.) However, rest assured that he will not be the last. Like many lab studies, his work raises more questions than it answers, especially about what happens out in nature. Remember, Bt corn sales have not been overwhelmingly successful in our state. Only 8 percent of the seed sold is Bt corn because corn borer is not as big a pest problem here like it is down south. So even when the field data on monarchs comes in you will not be able to compare Kansas or Georgia to Pennsylvania.

P.S. This information didn't come as any surprise. Extension agent Chuck Gale and I discussed the pros and cons of biotechnology usage and the question of non-target effects with over 500 farmers this past winter during Penn State's series of pesticide training sessions. It is an example of how farmers who are licensed to apply restricted use chemicals and use other related biotechnology methods are required to keep ahead of the learning curve, thanks to the land grant university system. (I am sure you will hear a lot about it from the seed salesmen next winter.) The second issue of trade sanctions by the Europeans against the genetically engineered herbicide resistant crops we also predicted at that time — remember jokes about the banana wars? With that I am two for two, making my crystal ball predictions from last March — that makes it a good time to quit.

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