

# Orchard Tour Highlights Nematode Control, Unique Trellis Systems

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— Orchard growers who want to replant certain areas of their fields should first consider possible nematode problems that can prove devastating to new plant populations, according to a Penn State nematologist.

Dr. John Halbrecht, Penn State associate professor of nematology, spoke to more than 75 fruit growers and agri-industry representatives Thursday evening during a Southeast Pennsylvania Fruit Growers twilight meeting and tour. The meeting, sponsored by Penn State, was conducted at Stoudt's Orchard in Shartlesville.

Halbrecht reviewed some evidence of nematode damage and resultant tree loss to plum and peach trees at the orchard, which encompasses 45 acres. Nematodes are parasitic worms that feed on the roots of trees — and allow diseases to take over.

Of all the pest problems orchards can face, the nematode problem is the "most neglected because they're invisible — they're microscopic," said Halbrecht. And what is most disconcerting, according to the Penn State nematode expert, is that "by the time you have the problem, it's usually too late to do anything about it," he said.

In plum trees and other types of stone fruit, the dagger nematode is usually the culprit. The nematode is a vector of the tomato ring spot virus, which is carried by broad-leaf weeds (including common dandelion). The dandelions and other weeds aren't affected by the virus, but stone fruit trees are.

The classic symptoms can be deceiving, according to Halbrecht. The tree can look like it has girdled roots. The leaves appear small and pale. Usually, a tree that's infected can last a couple of summers and then collapse and die, he said.

Many growers believe that girdled roots were the problem and simply plant another tree — only to see that tree infected.

Another syndrome that peach trees can exhibit, infected with another type of nematode, is peach tree short life. This disease is attributed to the ring nematode, which prefers sandier soil.

Peach tree short life can be found on also on apricot and plum trees.

Halbrecht cautioned growers that if a few trees show symptoms, it may not be worth worrying about. A few isolated, dead trees won't mean that the problem will spread. But the real concern is if whole orchards are in a replanting cycle, it's best early on to scout for nematodes and plan a couple of years ahead to fumigate, use green

manure crops, or simply rotate to a non-orchard type crop to solve the problem.

When growers start to plan the replanting could be the "perfect time to start thinking whether there's a nematode problem," he said.

Like a typical soil test, Penn State accepts soil samples obtained from nearby, healthy trees to determine if a nematode problem exists. The Biglerville laboratory can conduct an assay — but the form must be filled out completely. Also, many different samples, including about 20 subsamples, are needed. Batches must be extracted 8-10 inches from the soil within the canopy area of a living tree (using a soil probe) and mixed together. From this, a 1-pint (100 cc) extraction of soil will be analyzed by the lab.

The material should be immediately cooled down and kept cool until it is delivered to the lab.

"The more information you give me," said Halbrecht, "the better chance I can give you a better answer."

The lab submission sheet must include previous crops. Also, a soil fertility test will be conducted to see if a possible nutrient deficiency could mimic a nematode problem. And the "history of that site influences the nematode problem that could be there," said Halbrecht.

The suggestions provided by Penn State are merely a guide for the grower to determine his or her own plan of action.

But it's important to plan early. Submit the soil samples one or two years ahead of planning to replant. "You have to think of nematode control ahead of time," Halbrecht said.

For nematode control, the best time is the fall. The second best time, he said, is the spring.

The suggested soil fumigants include methyl bromide, which is legal to use until the year 2001. Also, another one to use is Telone or Telone-17 manufactured by Dow AgroSciences.

A good green manure crop is the Dwarf Essex variety of rapeseed. When the green manure decomposes, chemicals are released into the soil that kill the dagger nematodes. Growers should plant the rapeseed in the spring, allow it to grow to a good vegetative stage with a lot of biomass, and cut-pack it into the soil in September. The important thing, according to Halbrecht, is not to simply cut it and let it lay, but to turn it into the soil immediately.

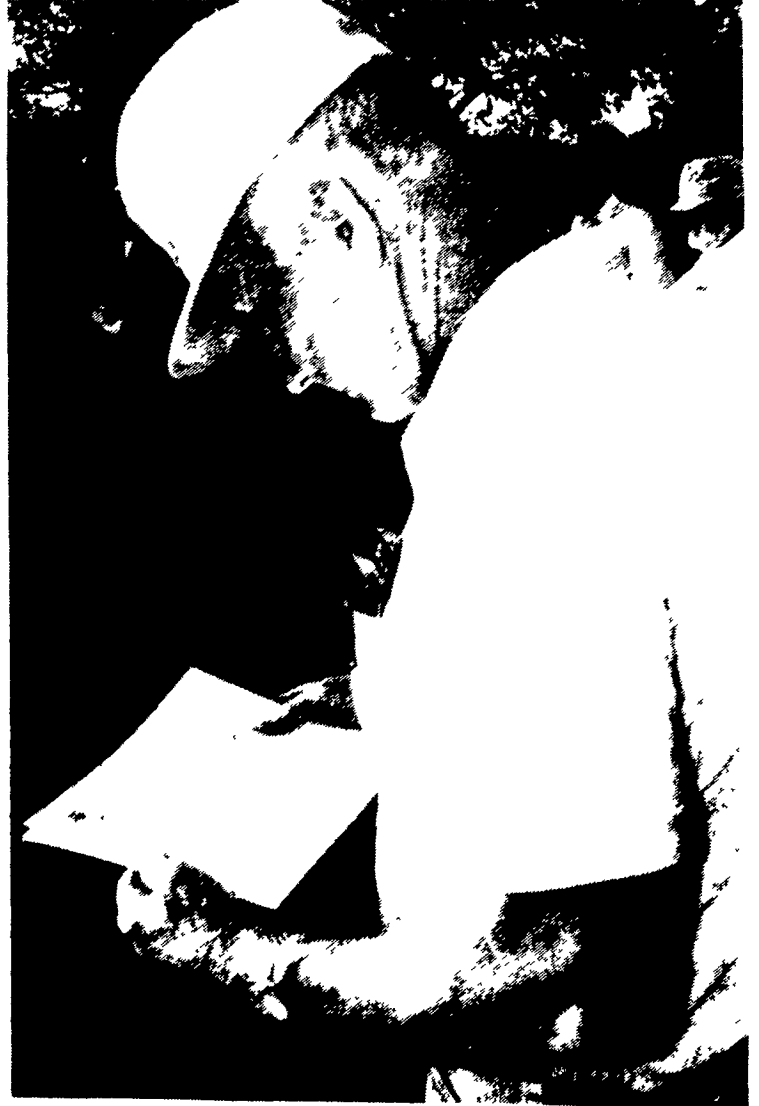
Growers should realize that rapeseed could become prevalent in the orchard, but is sensitive to 2,4-D herbicide.

The orchard includes about 15 different varieties of plums on five acres, according to Bob Stoudt. Also, sweet cherries were planted, with a few different varieties.

"It's great that he's trying new varieties of plums and cherries," said George Greene, associate professor of pomology at Penn State, who spoke at the tour. "Every orchard needs to be a little bit of an experiment station."

In all, the orchard is comprised of 45 acres, 30 of which are in stone fruit and 15 in apples. There are about 25 different varieties of apples, according to Dale Stoudt.

According to Bob Stoudt, who operates the orchard with brother Dale, of the 30 acres in stone fruit, 20 are in peaches, five in nectarines, and five are in plums. The Stoudt Orchard began about 40 years ago with Harvey and Ann



Elwood Moyer, Bernville, looks over a soil test form for nematodes at the twilight meeting.

Stoudt, parents of Bob and Dale. The Stoudts operate a retail stand at the intersection of Old Rt. 22 and the entrance ramp to I-78 in Shartlesville.

Only five percent of the fruit is sold wholesale, at Leesport, Renningers, Roots, and Green Dragon. The rest is sold retail.

Dr. Ken Hickey, plant pathologist, spoke about the various diseases that can infect the stone fruits, including brown rot, bacterial spots, and blossom blight. He also spoke about controlling fire blight in apples.

Dr. Carl Felland, extension entomologist, said that there weren't many harmful insects to be found at the orchard, which keeps clean canopy areas and rows. The region is about two weeks ahead of schedule because of the unseasonably warm weather, and nine days ahead of normal in insect populations. There has been plenty of insect pressure on many orchards, he noted, but there are a lot of natural insect enemies in the orchard.

There is no evidence of white apple leafhopper. "There are real good examples of integrated pest

management here," he said.

One of those is the presence of the big orange ladybird beetles, which are natural aphid predators.

Dale Stoudt reviewed some of the unique trellis systems designed on the orchard. One system, which replaced a whole row of old Red Delicious apple trees, included new JonaMac seedlings planted in April using pre-installed 6-foot wooden posts. The posts hold a retractable 12-gauge high-tensile wire system separated at one-foot intervals. The wires were installed in the spring.

The wire trellis system works best on about 14-foot row spacings. The trellis system allows the limbs to be tied down horizontally to allow more sunlight, more fruit, and better fruit size, in addition to ease of harvest.

Dale Stoudt also showed a "bed" system of staggered Mutso (Crispen), similar to a Golden Delicious but with a huge (1 pound of fruit or better) size. Also, Stoudt provided information on an old Summer Treat (Red Delicious-type) rootstock, more than 13 years old, that two years ago was grafted with the Mutso variety.

## State Crop Survey

HARRISBURG (Dauphin Co.) — State Agriculture Secretary Samuel E. Hayes Jr. today announced that representatives of the Pennsylvania Agricultural Statistics Service (PASS) are to be contacting approximately 1,500 Pennsylvania farmers early this month as part of a nationwide agriculture survey.

"I encourage producers to cooperate by providing survey information," Hayes said. "Accurate answers about the 1998 crop season can reduce uncertainty in the marketplace and provide a benchmark for the crop year."

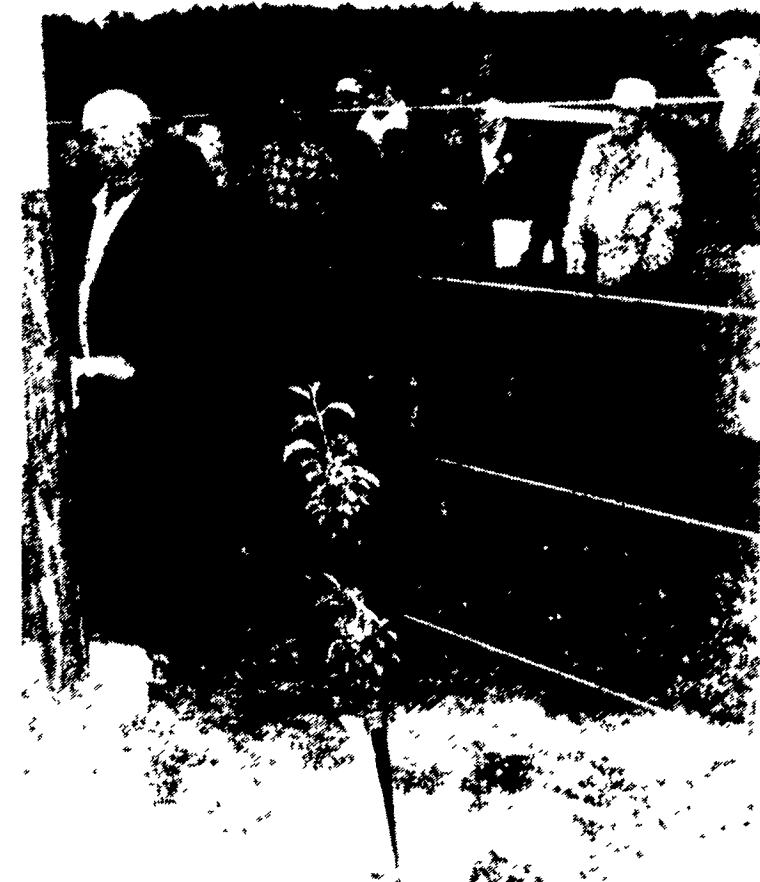
This survey provides the basis for estimates of this season's crop production and is one of the largest and most important conducted annually by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS).

Producers rely on the data to reach valid production, marketing and investment decisions. Industry analysts, extension agents, farm organizations and lenders use the information to better serve the needs of farmers.

For more information, contact WC Evans at (800) 498-1518.



The Stoudts at the orchard tour Thursday evening. From left, Dale, and Rachel and Bob Stoudt.



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