Alfalfa Pests Under Gun At Lancaster Crops Day

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LANCASTER (Lancaster Co.) — Last year, Pennsylvania alfalfa growers witnessed the heaviest potato leafhopper pressure in the past 10-15 years, according to Dr. Dennis Calvin, Penn State entomologist.

Calvin spoke to about 65 producers and agri-industry representatives last week at the Lancaster County Crops and Soils Day at the Farm and Home Center.

For the most part, the potato leafhopper was *the* insect in alfalfa. But even with improved resistant plant breeds, the pest is becoming more difficult to control in alfalfa fields, Calvin noted.

The leafhopper migrates up from the Gulf of Mexico and eastern Atlantic seaboard. It doesn't overwinter in Pennsylvania, but can overwinter as far north as southern Maryland. It's a big problem on second or third cuttings and on established stands.

The tiny insect does mechanical damage to the phloem cells of the plant. The phloem cells provide minerals and food to the plant. As the leafhopper saps this, a yellow color forms on the leaves. This leads to reductions in dry matter and especially the alfalfa plant's overall crude protein levels. Yield losses can exceed 1,500 pounds per acre in established stands.

The leafhopper's feeding results in a stunted appearance to the alfalfa plant and V-shaped yellow areas on the tips of leaves.

There is some hope for the alfalfa grower, however. There are several varieties that can fight the leafhopper:

• A glandular hair (GH) variety offers true resistance. The hairs on the plants prevent feeding and also release a chemical exudate that can kill the bugs.

• Non-yellowing varieties. This is not a true form of resistance, Calvin noted. These varieties still can see damage, it's just that they don't yellow.

Calvin related the results of Penn State studies in 1996 that looked at the relative yields of the two different varieties. The non-yellowing varieties yielded about 1.71 tons of alfalfa per acre. But the GH varieties showed promise, at 1.99 tons per acre.

Sweeps of the plants provided further evidence that GH varieties can be the way to go. In tests of sweeps in 1997, the GH variety registered only 1.5 leafhoppers per sweep, compared to 15-16 for other varieties.

"There is some economic advantage to using the material," Calvin noted, showing that the resultant improved tons per acre harvest can benefit growers.

But overall yield as a result of using the new varieties depends a lot on the insect pressure at the site, weather conditions, and other matters, if growers want to calculate the economic advantages of using the new varieties. The material looks good, Calvin noted, in years with heavy leafhopper pressure. But there is no yield improvement in years when leafhopper pressure is low. But those who use the GH varieties can benefit from additional chemical treatment for leafhopper when the insect pressure is higher.

Questions remain, however: do GH varieties extend the life of a stand? What percent of the fields have high leafhopper pressure? How do the GH varieties compare with traditional varieties? And how will they perform after the establishment year? He suggested that growers start small, experiment a little bit with variety selection, to determine what they think about it.

Calvin also reviewed other pests on fields, including the alfalfa weevil and other pests.

Dr. O. Elwood Hatley, Penn State agronomist, reviewed the use of alterative forage crops at the Crops Day. They include spring oats, spring barley, winter rye, triticale, wheat, and others. They work as a good source of continues year-round feed, as a hedge against drought, as a better, more efficient use of cover crops for feed (particularly rye), provide to growers a "window" for manure applications, and as nitrate retention sources.

For seeding, growers need to follow a planned program.

Depending on how the material will be harvested — seeding rate for silage should be 25 percent above the grain rate and growers should increase the application an additional 10 percent when broadcasting. Fertility programs should be in place.

Dr. Greg Roth, Penn State corn specialist, provided a summary of the growing year and making use of yield monitors in the field.

O. Elwood Hatley spoke about the use of soybeans in the field as a forage crop. The soybeans are grown for their vegetative aspects, not grain.

He examined a Beltsville, Md. breeding program looking at three different varieties of silage soybeans: Donegal (for the Mid-Atlantic region), Tyrone, and Derry. They are named after towns near Beltsville.

Using soybeans for silage depends what the grower's objective is and what previous crop was grown at the site. Using the right

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Speakers at the Lancaster County Crops and Soils Day included, from left, Dennis Calvin, O. Elwood Hatley, and Greg Roth.