Verticillium wilt status highlights York alfalfa update

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BY JOYCE BUPP
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YORK — "It's the best perennial forage crop we have. No other crop we can grow will even touch its quality and yield in protein potential, plus it's a good energy producing crop."

That's what John Baylor, Penn State's grassland specialist, has to say about alfalfa.

Baylor, one of the area's foremost authorities on alfalfa production, updated farmers attending the York Dairy Day on results of continuing research on alfalfa in cooperation with the Pennsylvania Alfalfa Growers Council.

As if alfalfa growers didn't have enough worries, what with May haymaking rains, and August droughty spells, now another threat may move in on them — a disease known as verticillium wilt.

Caused by a fungus, verticillium wilt has been a problem of alfalfa production for many years in other parts of the world. It prefers cool summers, with temperatures ranging from 60 degrees to 70 degrees. And, while some European alfalfa varieties have built in resistance to the fungus, they are less resistant to some of our domestic diseases.

Early symptoms of the wilt include a yellow blotchiness of leaflets on a single alfalfa stem. Yellow segments in a 'V'-shape form at the tips of the leaflets, often turning pinkish-brown. Younger leaflets may curl upward, or inward, from the tip or twist along midrib to form a loose spiral. Leaves may die, turning a light-tan, while stems remain green and erect. One less reliable symptom is a yellow-orange root. Diseased plants will get progressively weaker and die.

In-bred resistance to verticillium wilt, according to Baylor, is the only feasible long term control of the fungus. A crop rotation plan, with a minimum of two years between alfalfa crops, is suggested to help decrease the available fungal inoculum, but other plants, including red clover, Canada thistle, shepherds purse and yellow rocket can harbor the fungus pathogens.

One partial preventative is the use of Thiram-treated seed. Thiram, when applied correctly and at proper dosage levels, will not interfere with the plants nodulation, should kill most fungi in a lot of seed, and may delay the fungus' introduction into a new field.

Seed treated with the non-sytemic fungicide Thiram will be available to Pennsylvania farmers this year. Of prime importance in evaluating the need for treatment, says Baylor, is knowing where that alfalfa seed was produced.

Verticillium wilt is known to be present in seed fields in the states of Washington, Idaho and Oregon, where it was first found in the continental U.S. five years ago. However, the fungus is not present in California and Nevada, where a large percentage of Pennsylvania-marketed seed is grown.

"Check seed labels," warns Baylor, adding that a farmer would be wise to use treated seed if he does not already have the disease on his farm and if his seed was not produced in a verticillium wilt free area.

To date, the wilt has been positively identified only in central Pennsylvania valleys.

Alfalfa growers also are warned to be on the alert for leaf miners, a tiny, sucking, migrating insect. Baylor warned that the miners may move in later this year, and growers should be on the alert and "ready for them." Weevils, a devastating pest of past years, is not expected to pose a major problem this growing season.

Baylor also highlighted yield increases seen in four years of on-farm research trials run by the Alfalfa Growers Council. Intense studies on research plots have broadened previous knowledge of alfalfa cropping through measuring yields, protein and energy per acre, nutrient uptakes, and more firm data on actual costs of production.

Yields on research fields are taken from six samples per acre, each sample the size of one-thousandth of an acre. Plant growth from each tiny sample plot was tested for moisture and nutrient content. Further analysis of samples returned data on crude protein levels, acid detergent fiber, total dependable nutrients in the forage, and mineral uptake from the soil.

Since 1977, average yields on the top-producing trials climbed, from 5.5 ton per acre to a 1981 average of 6.7 ton per acre. And the top yield in 1981 came out at a whopping 10.7 tons to the acre.

But Baylor and his research associates have found that these bumper yields of alfalfa draw considerable quantities of nutrients out of the soils, especially phosphorus and potash.

Tests showed that averages of 70-91 pounds of phosphorus per acre is taken from the soils, and between 350 to 400 pounds of potash.

But that's just the average.

"The top producing acres took in excess of 700 pounds of potash," adds Baylor, "and at least 400 pounds is needed to get a job done on others."

Trace mineral needs, while relatively small in comparison to the major nutrients, are nevertheless critical to high alfalfa output. Boron is a key one that should be applied annually, since the level of this vital trace element seems to be generally on the low side.

Another important trace mineral is sulfur. While data has not yet shown that to be greatly deficient, Baylor still suggests many Pennsylvania fields may need a sulfur boost for the greatest yields.

Keeping pace with yield increases has been the cost of production, climbing at the rate of some 14 percent annually. In 1977, average cost on an acre came to $174, but has mushroomed to an estimated $262 for 1982.

"Only three percent of that cost is for seed," notes the agronomist. "So seed's a poor place to cut costs. Get the best seed you can."

Top alfalfa growers in the 4-year testing period used 11 different varieties, somewhat dependent on the soils with which they were working. Most soils in the trials were of limestone origin, although a few were shale. Fertilizer went on according to soil test recommendations. Since most of the trials were run on livestock-oriented predominately dairy farms, ample quantities of manure went on the acreage while in corn rotation.

The top producer in 1981 double-cropped his alfalfa planting in oats, but most used spring-seeding alone with chemical weed control. Insect control at planting hinged largely on the use of Furadan.

Four cuttings is a must for harvesting the greatest alfalfa potential, with a handful of the growers wedging in a fifth harvest. First cut came at bud stage, with successive cuts at intervals of 36, 39 and 45 days.

Potato processors need license

Washington, D.C. -As of Jan. 1, processing firms that buy potatoes grown within the state in which the firms are located must obtain a license under the Perishable Agricultural Commodities Act, a federal law administered by the U.S. Department of Agriculture.

Charles Brader, a marketing official with USDA's Agricultural Marketing Service, said an amendment approved by Congress in November 1978 requires all processing firms that purchase potatoes-regardless of where they obtain their supplies-to be licensed under the act. Previously, some of these firms were not required to be licensed under PACA.

The PAC Act establishes a code of good business conduct for the produce industry, Brader said. It provides for damages to be paid by those who fail to meet their contractual obligations in buying and selling fresh and frozen fruits and vegetables.

License applications may be obtained from Regulatory Branch, Fruit and Vegetable Division, AMS, USDA, Washington, D.C. 20250.