

Drought Brings Out Tobacco Black Shank Disease

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severely damaged and black in color. When the stalk of the plant is cut in half, the pith or center part of the stem is black and will usually separate into discs similar to those found in a bamboo plant.

Black shank is very difficult to treat after an infestation is found in the field.

If an infestation is found, is it

suggested that the affected plants — including the roots and soil attached to the roots — be removed and destroyed in a non-crop area.

This treatment is not very practical and is of unknown effectiveness in stopping the spread of the disease.

The best control suggestions include long rotations and planting

resistant tobacco varieties.

None of the Pennsylvania type 41 varieties are resistant and only one Maryland variety, Maryland 609, is resistant. In periods of heavy rain, Maryland 609 may also show black shank symptoms and die.

Even a long rotation may have limited effect. One field where the disease has been identified this year



Bob Anderson, Lancaster County extension agent, checks this tobacco field for a resurgence of a tobacco disease which began showing itself again in area fields. The wilted diseased plants Anderson kneels beside are obvious, compared to the healthy plants surrounding him.



The Tobacco Black Shank fungus is apparently more active and better able to penetrate into tobacco plants during drought conditions. The core of the stem, or the pith, shown here on a cut-away of a diseased plant, becomes black and separates into discs. The outside edge of the root also becomes black and the root hairs are severely damaged.

has not been planted to tobacco for 7 years or more.

The soil applied fungicide, Ridomil is registered for suppression of the disease, however, the application rate is high and it works best with a resistant variety.

In Pennsylvania, research has shown that by growing a resistant variety alone, black shank can be

avoided without the addition of Ridomil.

Black shank activity seems to be accelerated in hot weather. In early stages of the disease, the wilted plant recovers in the cool of the evening. The best time to check fields is during the heat of the day, suspected plants should be pulled and the roots and stems checked for symptoms described above.

MILK. IT'S FITNESS YOU CAN DRINK.

Farmers Observe Effects Of Bay Contaminants

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He sees himself as the agricultural conscience that brings perspective. On the farm, the Bay Foundation learns to understand farm problems on the field scale rather than on the big picture scale.

"In the past, the environmentalists identified the problem and saw it as tons of nitrogen floating into the bay and pounds of phosphorus, and millions of pesticides, and never looked at the other side as to what farmers need to do on a daily basis to make a living," Heller said.

To get a balanced perspective, Heller said, people must look at the bay's problems from both the farmer's and the environmentalist's end.

The Clagget Farm is good place for environmentalists to learn the farmer's problems. For example, the farm has a plot of corn growing that has been planted with no-till methods without using herbicides. The weeds are so tall that you can't find the corn. During student tours Heller sends the students into the corn to find a well that is located in it. The idea is to show the students the problems farmers face without the use of pesticides.

"It teaches visitors that farmers do the things they do because they need to get food on the table and sneakers on the kids and there is no mean or nastiness there," Heller said. "If we (the Bay Foundation) want things to change, we must provide farmers with tools that are more sensibly and economically sound."

One experimental plot shows corn planted on hills with a container to capture amounts of runoff and sediments from contour strips,

convention, and no-till corn plots.

About 4,500 visitors tour the farm annually. In addition to the research and demonstration acreage, the farm has a 150-acre commercial operation where they use farming methods they have experimented with on their test plots.

Research done on the Clagget Farm is done in cooperation with the University of Maryland (grants pay for graduate students), the United States Department of Agriculture, and the Environmental Protection Agency. "We take ideas that farmers and other research centers have found to be effective and we try them."

For three years the farm has focused on developing a no-till system without the use of any chemicals. "That would be the ideal," Heller said.

After three years of working with it, Heller is not comfortable with the results, but the University said that it has enough to publish a paper on the project and they want to try something new.

One of the ways that they have tried to control weeds is to plant corn into legumes. They have had success and problems. The experiment showed that crops planted into legumes when it is half in flowers will kill the legumes.

Heller and his workers have also tried overseeding soybeans into wheat. Heller said, "The advantages are reduction in use of herbicides and full-season bean and wheat, but then you lose straw."

Many of the experiments have different results dependent upon the weather. This spring, soybeans came up beautifully, but there was not enough moisture for both soy-

beans and wheat, and the soybeans dried up.

With methods like these, Heller said that it takes more management on the part of farmers and the results tend to be riskier at this point."

One Amish farmer said of these projects, "We can't afford to take a chance when experimenting. We'd go down the tube in one year if we'd get weeds in our corn like they did in the test plot."

Heller agreed. "You guys face problems that we don't have answers for at this point. We must work together. We can't solve problems overnight. We hope that eventually we can find good alternatives that are economically sound. "We only ask that you examine them instead of automatically writing it off."

The research and demonstration plots are experimenting with ridge tillage, growing corn on ridges that are permanent ridges.

"The ridges are never plowed up after they are established," Heller said. The wheel traffic goes in valleys so ridge areas do not become compacted. Ridge tillage allows reduction of herbicides and gives better yields. Ridges warm up and dry out 3 to 14 days earlier than in no till methods.

In ridge tillage, a ridge-till cultivator is needed to build and break down ridges. It directs soil movement, not destroys. The planter sweeps off top 2-inches of ridge to give weed free area to plant. The cultivator pulls weeds off the sides of ridges and throws them into valleys. During the second cultivation, soil from the valleys are

thrown to the crops.

Heller displayed charts that show pattern from 1988 until the present that show that ridge tillage is the least expensive method with cost of equipment and labor included. Although labor costs are cheaper with no till, herbicide costs are much higher. The conventional method adds high labor costs.

Ridge tillage is popular in the Midwest where the majority of farmers are changing from conventional tillage to ridge tillage. It has advantages and benefits for the Eastern Shore, which is relatively flat and has shallow ground water.

"Although quite successful, it has limitations. It doesn't work in certain farm situations," Heller said. It would be difficult on hilly farmland.

"Is this farm operated at a profit?" the group asked Heller.

He responded, "It is like a part-time operation. You can't send your kids to college on it."

The farm community is concerned about environment but can only take it so far on farm. Finances need to be the bottom line for changing farming practices. While the group agreed that the test farm was the ideal place to experiment, they maintain that the methods have a long way to go before they can be successfully implemented into Lancaster County farming. Ridge till planting, although impressive on flat fields, is impractical on hilly ground.

While environmentalists have been critical of many farming methods, Heller said he sees the environmentalists maturing and developing a deeper understanding of the farmer's plight.

"They see the loss of farmland and know that they were better off with farms than development. We tell them, "If you eat food, you're involved in ag."

Heller said that he often tries to bridge the gap between the agricultural and the environmental community. He serves on the governor's pesticide council.

"Pesticides is a volatile issue. There are so many gray areas where we don't have adequate information. Too much information is based on emotion. We don't get a lot of agreement and it's very frustrating," Heller said.

"About 2% of the population are farmers and 65% are environmentalists. We got more leverage and political clout and it seems disproportionate. But we must have mutual respect. We are each trying to achieve the same result, but are going about it in different ways."

The Chesapeake Bay Foundation is a private, non-profit conservation organization, founded in 1966 to promote responsible and appropriate management of the Bay's resources.

The skipjack tour and the Clagget Farm are only two of the CBF's educational programs that teach more than 35,000 students each year.

CBF now preserves and manages 4,000 acres of Bay land. The land is held in its natural state and used for educational purposes. The Foundation has offices in Annapolis, Md., Richmond, Va., and Harrisburg.

