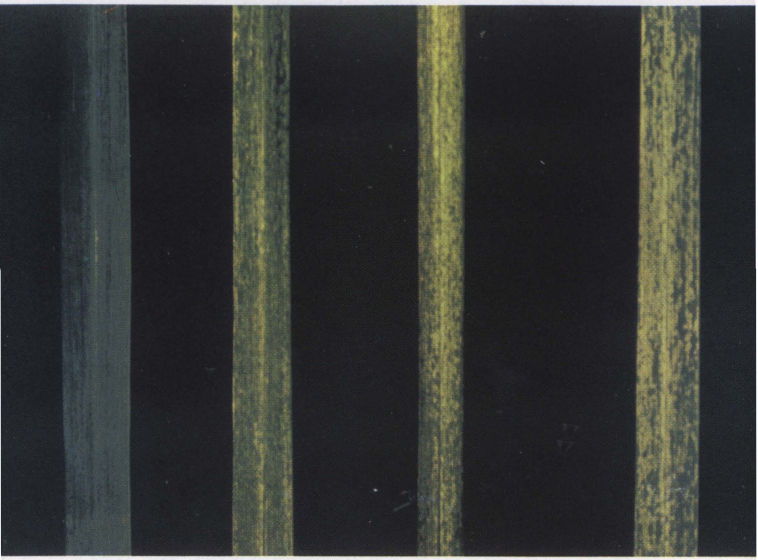
L-940



Progressive symptoms of SAD on St. Augustinegrass leaves

Rec'd 20,000 - 11- -70

ST. AUGUSTINE DECLINE (SAD)

Wendell Horne

(new)

A Virus Disease of St. Augustinegrass

TEXAS A&M UNIVERSITY
TEXAS AGRICULTURAL EXTENSION SERVICE
J. E. Hutchison, Director, College Station, Texas

ST. AUGUSTINE DECLINE (SAD)

A VIRUS DISEASE OF ST. AUGUSTINEGRASS

Norman L. McCoy,
Robert W. Toler and C. Wendell Horne*

St. Augustine Decline (SAD), a disease of St. Augustinegrass, is caused by virus particles so small that an electron microscope is needed to see them. Much has been learned about plant viruses since they were first purified in 1935. They require a living host, they alter the functional processes of plant cells and they establish themselves in almost all plant tissues.

Virus particles must enter plant tissue through natural openings, injured cells or be injected by vectors such as insects or nematodes. Once inside living cells, reproduction begins as a result of virus particle involvement in directing cell activities. In other words, a code given out by the virus particles directs certain cell contents to make more virus particles instead of proteins, carbohydrates and other compounds. In the case of SAD, the St. Augustinegrass shows symptoms of mottling, yellowing, stunting and sometimes death.

Symptoms of SAD were observed on St. Augustinegrass during 1966 in the Lower Rio Grande Valley of Texas and has been identified in Houston, San Antonio, Austin, Fort Worth and certain other Texas cities.

There are presently no known chemicals for controlling virus diseases in plants. Progress is being made through research and field testing to obtain St. Augustinegrass selections that are resistant or tolerant to the virus.

---

*Respectively, area Extension plant pathologist, associate professor, Department of Plant Sciences, and Extension plant pathologist, Texas A&M University.

Disease Description

In the early infection stages, leaves show a chlorotic mottling. The mottling or spotting becomes progressively more severe until a chlorotic appearance is observed. In the disease's late stages the grass becomes weakened, leaves and stolons begin to die and invading grasses and weeds crowd out the weakened St. Augustinegrass. This virus causes a mottling effect that is diagnostic and distinguishes it from chlorotic stripes caused by nutritional deficiencies or green islands caused by other viruses.

Grass infected with the virus will respond temporarily to increased chemical nutrition, with both macro and micro-elements (minor elements). However, the response will not be long lasting and the disease symptoms will remain. After infection, it generally takes about 3 years before the St. Augustinegrass becomes weakened to the extent that it dies out or is invaded by weed plants.

Grass that survives infection may have a degree of tolerance to the virus. In some experimental cases, lawns have been resprigged with tolerant selections and the turf reestablished with tolerant grass. Homeowners should

A healthy leaf on the left is shown along with a SAD virus-infected leaf in the center. The leaf on the right shows symptoms of iron chlorosis.

look for remaining healthy clumps of grass and increase these as a possible source of resistant grass type.

Transmission

The SAD Virus is mechanically transmissable. Juices extracted from diseased plants can be rubbed onto healthy plants and disease symptoms occur in 21 to 28 days. Lawn mowing trails conducted at Corpus Christi and Weslaco indicate the virus can be spread with contaminated mowers. Another transmission method is through the movement of diseased sprigs and possibly arthropod vectors. The virus is not believed to be soil borne. However, live roots and stolons could serve as a reservoir for virus particles in the soil.

Host Plants

No other turfgrasses are presently known to be affected by the SAD virus. Other host grasses include proso millet, pearl millet, german foxtail millet and crabgrass. Symptoms occur in approximately 7 days after inoculation on proso millet. It takes from 14 to 21 days before symptoms appear on the other hosts.

Precautionary and Preventative Measures

Virus particles can be inactivated by treating contaiminated equipment with a 10 percent chlorox solution or by steam cleaning. This will help prevent spread by equipment such as used by commercial lawn care services. Make a close inspection of all sod being purchased for new lawn establishment or renovation of an established lawn. Use only healthy grass.

Resistant Selections

Sources of resistance to the SAD Virus have been found. Fourteen strains of St. Augustinegrass from the world collection in Florida have been screened. Two of these selections were found to be resistant. Fourteen selections from Corpus Christi have been tested with nine showing resistance. One hundred and forty-five selections grown from seed at Texas A&M University have been tested with 16 possessing resistance.

Field testing of the resistant selections is underway to determine those that have the most desirable qualities for turf.

A strip of resistant St. Augustinegrass is shown growing in virus-infected sod.

Renovating Lawns Killed by SAD

If a lawn is to be reestablished with St. Augustinegrass after being killed out by the SAD virus, follow these practices:

- Remove all diseased roots and stolons to prevent reinfection of newly sodded grass. Kill remaining diseased grass sprigs by spraying with a herbicidal oil.
- Decontaminate infected equipment such as lawn mowers, edgers and roto-tillers by spraying with a 10 percent chlorox solution or steam cleaning.
- Maintain a barrier along property lines to prevent spreading through stolons or root grafts. Use a herbicidal oil for the purpose.
- Maintain a rigid insect control program to help eliminate possible insect vectors.
- Use *disease free* sod.

When shade is not a limiting factor, use grasses such as bermuda, zoysia or carpet. Ground covers such as English ivy, vinca, ajuga or pachysondra can be used in shaded areas *(Landscape Notes, May 1970 by Everett Janne, Extension landscape horticulturist).*

Cooperative Extension Work in Agriculture and Home Economics, Texas A&M University and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
20M—7-70 PP