

SOUTHWESTERN COTTON RUST

R. B. Streets and
Bill B. Berkenkamp

Department of Plant Pathology

A rust causing orange yellow spots on the leaves of cotton has been known in Texas and Arizona for 40 years. While in certain years this southwestern cotton rust caused severe losses, it has been so sporadic until the last five years that it has not been a serious factor in cotton production.

It has caused severe losses about one year in 10, moderate losses about one year in five, and slight losses or none in other years. Severe losses have occurred in some districts in the Santa Cruz river drainage in Arizona in 1922, 1930, 1938, 1951, and the last five years (1952-56). Rust was severe in most cotton growing areas in Sonora and Lower California in Mexico in 1956.

In recent years cotton production has been expanded into new areas where grama grasses occur on the surrounding range lands. Under these conditions the spread of rust from cotton to grama grass and back to cotton has occurred regularly and we have seen rust in damaging amounts (not always in the same fields) during each of the past five years.

Cotton rust spores on cotton leaf.



Its Life Cycle

The rust overwinters as the black rust stage on grama grasses either adjacent to cotton fields or miles away on the ranges. The first rains of summer furnish moisture which causes the resting spores to germinate, each two-celled spore forming eight tiny transparent spores which are carried by the wind. Spore production requires, under favorable conditions, about 48 hours. The airborne spores which are deposited on cotton when the humidity is high, germinate and grow into the leaf.

About the seventh day after a rain, small orange to brown spots appear on the leaf. Two weeks later the spots are larger and cluster cups of spores appear on the under side of the cotton leaves.

These spores cannot again infect cotton but must reach the young growth of grama grass to continue the cycle. The rust on grama grass is rusty brown from masses of summer spores, which spread the rust in grama grass but cannot infect cotton. In the fall the rusted grama grass becomes covered with the black rust stage which lies dormant until the summer rains start the following year.

Difficult To Control

Cotton rust has been very difficult to control because it has been entirely unpredictable. Conditions necessary for a heavy infection are (1) plenty of rust in grama grass—adjacent to fields or far distant; (2) a soaking rain to germinate the overwintered spores which then form the air-borne spores; (3) a wind within 24 hours after the first rain, in the right direction to carry the spores to cotton fields; (4) a good rain to wet the cotton and germinate the air-borne rust spores. Fortunately this combination of conditions occurs only a few times in a summer, often only once.

The most logical control measure appears to be airplane dusting with sulfur between 24 and 48 hours after a general rain, to kill germinating rust spores before they invade the leaf.

As sulfur is often used in insecticide formulas to control mites and other insects, rust control can be accomplished without additional cost by using an insecticide containing sulfur. Because the sulfur content of some insecticides is too little to be effective in controlling southwestern cotton rust, additional sulfur should usually be added. Consult your county agent, getting his advice whether sulfur should be added to the insecticide, and how much.



Black spore masses on stems of grama grass, in overwintering stage.

New Animal Disease Lab

A new federal livestock and poultry disease laboratory will soon be constructed on a 318-acre tract near Ames, Iowa. The land was bought by the state of Iowa and transferred, without charge, to the U. S. Department of Agriculture. Funds exceeding 16 million dollars already have been appropriated for construction of the laboratory, which begins this summer. The new facilities will provide for simultaneous research on a number of different diseases of livestock and poultry. Space and equipment will be available for testing and diagnostic work as well as for research.

New Antibiotic

Hygromycin, a new antibiotic, is the first one known to have a broad spectrum effect against internal parasites of animals. Research has shown it to be highly effective against a number of parasites such as ascarids, nodular worms, whip worms, and possibly others.

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