

# Researchers Looking for Hardy, Resistant Alfalfas

New experimental varieties of alfalfa resistant to anthracnose have out yielded several commercial varieties by at least 1 ton acre in Maryland field tests. These results indicate a major breakthrough in incorporating disease-resistance in forage crops.

Anthracnose damages more than 4 million acres of alfalfa annually, accounting for losses of several million dollars in potential yields. Added to this loss is the cost of weed control in disease-weakened stands of alfalfa. Such losses could be significantly reduced by use of the resistant varieties. Environmental pollution problems would also be minimized because less herbicide would be needed to control weeds.

Plant geneticist Thomas E. Devine and agronomist Clarence H. Hanson, stationed at the Agricultural Research Center, Beltsville, Md., employed plant-breeding procedures that rapidly built up high resistance to an-

thrachnose. The scientists artificially inoculated tens of thousands of seedlings with anthracnose. They then selected a large number of resistant plants for intercrossing in breeding procedures designed to preserve genetic variation as well as develop high resistance to anthracnose. The new experimental varieties were developed from Glacier, Saranac, Team, and Vernal alfalfa.

The experimental varieties had 85 to 95 percent pure stands. In comparison, control plots of six commercial varieties were weakened by disease, and weeds occupied over 50 percent of the plot areas. Stands of susceptible strains were lost in 2 years or less. Stands of resistant strains were still good after 3 years.

The experimental varieties developed by Dr. Devine and Dr. Hanson yielded 7 to 8 tons of alfalfa hay per acre, annually, in field plots in two areas of Maryland. Such yields are ex-

cellent for the East, exceeding those of other varieties by a ton or more. Good management practices are partly responsible for the high experimental yields. Resistance to anthracnose, however, played the most critical role, because adjacent comparison plots of the same parent varieties received the same management.

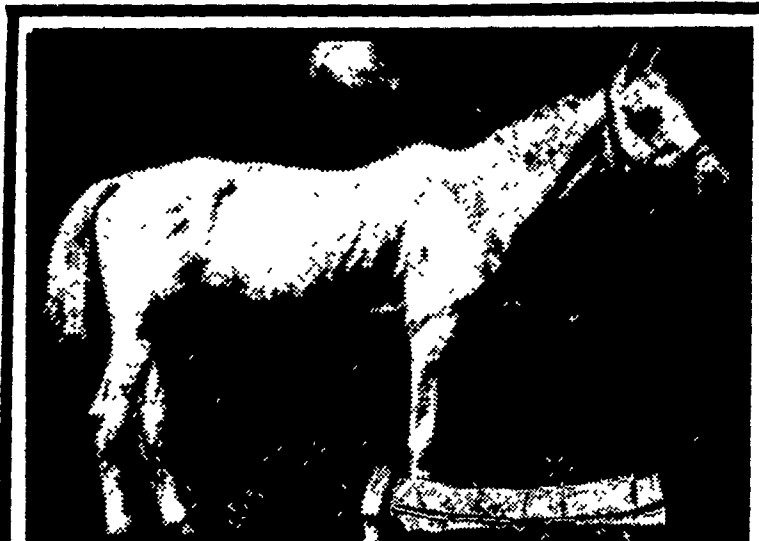
Seven of these experimental alfalfas were released to plant breeders for development of named varieties adapted to local conditions. Seed of varieties developed from the experimental strains may become available to growers within 2 to 4 years.

ARS agronomist Oliver J. Hunt, Reno, Nev., produced seed of the experimental strains for the Maryland tests. John A. Schillinger, plant breeder, and Lenat Hofmann, agronomist, Maryland Agricultural Experiment Station, College Park, cooperated with field evaluation of the resistant strains.

Anthracnose resistance is particularly important in the South and the southern parts of the Middle Atlantic and North Central States. This disease is

caused by the fungus *Colletotrichum trifolii*, which attacks the stems and crowns of alfalfa. Depending on the severity of the disease, plants may be killed or debilitated sufficiently to severely reduce their productivity.

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Henry Clay, American statesman who was instrumental in preparing the Missouri Compromise (1820) and the Compromise of 1850, retorted; "I had rather be right than be president," after a U.S. senator declared support of the Missouri Compromise would ruin Clay's chances for president.



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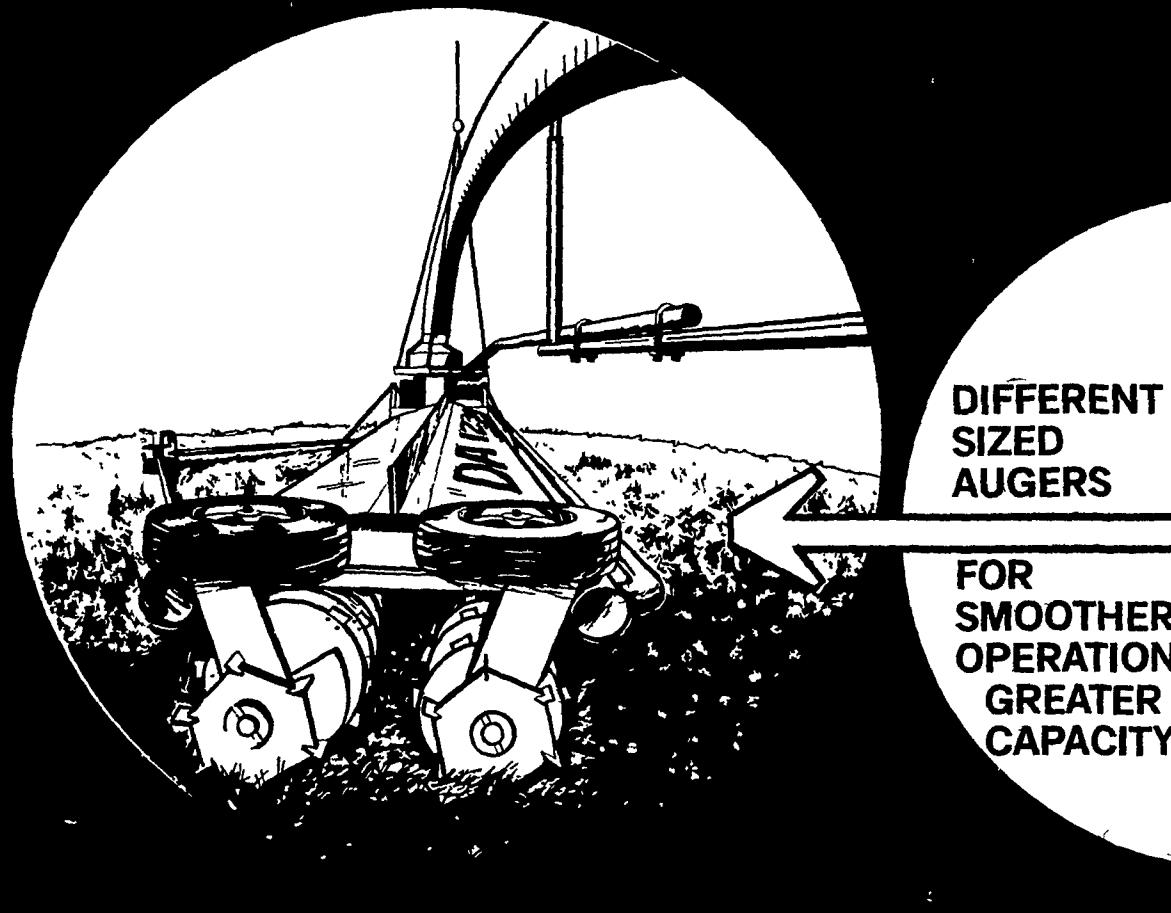
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