The Present Status of Southern Oat Improvement

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The breeding and distribution of improved disease-resistant varieties of oats have been largely responsible for the increases in acreage and yield of this cereal in many sections of the South during recent years. These improved varieties have contributed substantially to the value of oats for grain, pasture, hay, rotation practices, and cover cropping, and also for the development of a better balanced agriculture in this region. Furthermore, they have made oat production feasible in several sections—Florida and southern Louisiana, for example, where heretofore oat production was extremely precarious owing to the hazards of disease, especially crown or leaf rust.

Rather suddenly, but not unexpectedly, the new victoria blight, Helminthosporium victoriae, (3,4,5) widely prevalent in the north central oat region by 1946, appeared in epidemic proportions in the lower South in 1947. Its incidence and destructiveness will necessitate decided alterations in current oat-breeding programs for the South. Suggestive objectives for the control of this disease through breeding comprise the major topic of this paper.

NEARLY ALL IMPROVED VARIETIES SUSCEPTIBLE

All of the varieties with resistance to crown rust and smut derived from crosses of Victoria oats since its introduction from South America in 1927 are susceptible to the victoria blight. These include the widely grown varieties Victorgrain, Fulgrain, and Stanton, and the locally important varieties Quincy Red (Quincy 1), Quincy Gray (Quincy 2), Florilee, Lega, DeSoto, Letoria, Traveler, Fultex, Ranger, and Rustler, as well as the less important varieties Lelina, Lenoir, Levic, Lelate, and Rangler.

The only two available southern varieties resistant to victoria blight and crown rust are Camellia and Florida 167, both of which were derived from crosses on Bond. The potential value of these varieties for many sections of the red oat belt is not yet determined, and to date they appear to be rather limited in their adaptation.

The various strains of the old Red Rustproof (Red Texas) and Fulghum types are resistant to victoria blight. As a result, there was a marked reversion in the fall of 1947 to the sowing of the old Red Rustproof strains, such as Appler, Bancroft, Delta Red, Tifton Red Rustproof No. 14, Ferguson 922, Nortex, and New Nortex in several sections of the lower South. This, in the opinion of some breeders, is a step backward in oat production because of the late maturity, susceptibility to rusts, and the unsatisfactory grain characters of the

1Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Dept. of Agriculture. Also presented at the annual meeting of the Association of Southern Agricultural Workers, held at Washington, D. C., Feb. 12-14, 1948. Received for publication February 20, 1948.

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3Figures in parenthesis refer to "Literature Cited", p. 757.