The Inheritance of Resistance to Rust in Sorgo

O. H. Coleman and Jack L. Dean

RUST, caused by Puccinia purpurea Cke., may be an important disease on sorgo (sweet sorghum), Sorghum vulgare Pers., in localized areas anywhere in the sirup-producing area of the United States in some years and is important in most years in the more humid areas in the Southeast. When this disease becomes very severe, it causes a serious reduction in the sugar content of the juice. At present, there are no highly resistant commercial varieties in the United States. Fortunately, however, resistance is found among varieties of sorghum imported from Africa in recent years. This paper summarizes a study of crosses between Planter, a susceptible domestic variety of sorgo, and MN960, a resistant importation from Africa.

Several investigators (2, 3, 4, 5, 6) have reported on the inheritance of seed color in sorghum. The consensus is that the allelic pair Bb controls the presence or the absence of a brown seed sub-coat with presence dominant. Chalky seed coat is controlled by the factor pair Ss with thin seed coat dominant. The terminology in the latter case is somewhat confused, but in this paper "S" will refer to a thin seed coat and "s" to a chalky seed coat. Ayyangar et al. (1) reported that purple pigmentation associated with damage to the leaf was a simple dominant over tannish brown discoloration. They assigned the symbols Pp to this allelic pair.

1 Cooperative investigations between the Crops Research Division, ARS, USDA, and the Mississippi Agricultural Experiment Station. Received June 27, 1960.
2 Research Agronomist and Plant Pathologist, Agricultural Research Service, USDA, Meridian, Mississippi.
3 Tests at Houma, Louisiana, were conducted in cooperation with L. P. Hebert, Research Agronomist, Crops Research Service, USDA.