INHERITANCE OF GREEN AND BROWN LINT IN UPLAND COTTON

T. R. Richmond

The normal color of the lint of cultivated upland cotton, *Gossypium hirsutum* L., is white or creamy white. Upland cottons with several shades of brown lint and one or possibly two shades of green lint have been reported. These manifestations of lint color could be the results of recent mutations from the normal white, but as the cotton of antiquity is usually described as having colored fibers, the various colors in the lint may have been carried as mixtures in cultivated stocks for many years. This paper gives the results of genetic studies with three types of brown lint and a green lint cotton.

LITERATURE

According to Watt (11), "All truly wild species have a red coloured woolly coating to the seed, which may or may not be referable to two layers, an inner, or fuzz, and an outer, or floss." He states also that, "the presence of a white fleece may accordingly be regarded as a condition brought about by cultivation."

Ware (8, 10) and Brown (2) have shown that the $F_1$ generation of a cross of Nankeen brown lint $\times$ white lint was intermediate in color and the $F_2$ segregated in ratio of 1 brown: 2 intermediate: 1 white. Ware (9) has reported on four strains of cotton carrying rust, dingy brown, yellowish brown, and green lint, respectively. Each type when crossed with its white allelomorph was "an intergrade between that of the respective colored parents and the white parent," and in the $F_2$ generation the crosses segregated into three classes in the ratio of 1 colored parental type: 2 intermediate: 1 white parental type.

MATERIALS AND METHODS

One inbred line of upland cotton with green lint and three inbred lines of brown lint cotton were used in this study. The records of the parentage of the green lint strain are not clear, but it is presumed to be a selection from an old stock known as Texas Green Lint. The brown lint strains, Nankeen, Texas Rust, and Higginbotham, were obtained from stocks at the Texas Agricultural Experiment Station. Nankeen lint is dark brown and when in homozygous condition gives a distinct contrast to the light brown or buff color of Texas Rust. The color of the lint of Higginbotham is only slightly lighter than that of Texas Rust, and until recently both were thought to be expressions of the same gene. Most of the material reported in this paper involves crosses of Texas Green Lint, Nankeen, and Texas Rust. Hutchinson and Silow (5) have given symbols for several genes which condition color in cotton lint, but as the stocks used in this study have not been checked with their types, symbols will not be assigned to our types until

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2Associate Agronomist.
3Numbers in parenthesis refer to "Literature Cited", p. 974.