INHERITANCE OF STRENGTH OF LINT IN UPLAND COTTON

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Research laboratories of the textile, tire, and belting industries and of the U. S. Dept. of Agriculture have recognized for some years the importance of strength of cotton lint in wearing apparel, sewing thread, industrial fabrics, belt ducks, and cords or cables for rubber tires. While tensile strength alone may not be as important as other lint properties contributing to appearance in wearing apparel and to fatigue resistance in industrial fabrics, this property must be present in all cotton textiles to the extent that manufacturing processes are not handicapped by undue yarn breakage and the slowing down of other operations dependent on the strength in the lint.

In the cultural standardization of existing cotton varieties and in breeding new varieties and strains due consideration therefore should be given to strength for all uses. Special consideration must be given to this property in those cottons that are to be used in the manufacture of most industrial goods and in all domestic goods requiring yarns of high strength. Soil moisture and other growth factors, when they vary in pronounced manner, greatly modify the inherent strength of the lint. These influences, however, tend to affect this property in all varieties and strains in the same direction and to somewhat the same extent. That is, under any reasonable condition of the environment, a genetically strong stock can be depended on in general to produce stronger lint than a genetically weak stock.

In making a preliminary report of spinning and fiber studies of a uniform variety test consisting of duplicate samples of 16 varieties grown for 3 years and at eight widely scattered locations in the rain belt portion of the cotton growing area of the United States, Campbell (2) pointed out from two of the three year results that strength of yarn and the strength, length, fineness, and maturity of lint are primarily dependent on the variety grown.

A final summary of the data of this series of experiments including the three years of 1935, 1936, and 1937 and consisting of 768 samples will be reported soon, but in brief it shows strength as among five other lint properties to be one of the most important single factors contributing to the skein strength of the yarn spun.

Since tensile strength of lint is an important factor in manufacture and has been shown to be a genetic or varietal characteristic in production, genetic study of the mode of inheritance of this property...