

VARIETIES OF COTTON RESISTANT TO WILT.

The Only Known Way of Fighting This Disease, Aside From Rotation of Crops, is by the Planting of Resistant Strains—How These May Be Bred Up.

By Prof. J. F. Duggar.

WILT OR BLACK ROOT in cotton is the most troublesome disease to which cotton is subject. It is not so wide-spread in its occurrence as is boll rot, or anthracnose, but on the farms where it occurs and has become widely disseminated it is a pest which for that particular farm is almost as disastrous as the boll weevil.

The best method of dealing with this disease consists in so rotating the crops that cotton will not be grown on the land more frequently than one year in every three or four and in such a way as to exclude from the land any succulent-rooted crop subject to the disease known as root-knot.

The worms causing the root-knot disease of cotton and of many other plants are not the cause of cowpea wilt, but they may be indirectly the means of increasing it. This is because where these worms are numerous in the soil the roots of the next crop of cotton are more generally injured by these worms, and through these mechanical injuries it is now thought that the germs of black root much more readily gain access to the cotton plant than would be possible if the roots of cotton were uninjured. This implies that it is only injurious as regards cotton wilt to grow crops susceptible to root-knot when there are present in the soil both the root-knot worms and the germs that cause cotton wilt.

The writer has recently examined a number of diseased cotton plants, grown on stiff lime prairie soil. These had many of the resemblances to wilt or black root and were believed in the locality where found, to be this disease. However, an examination of the cut made across the stem showed the absence of the symptoms that characterize black root; namely, (1) the darkening of the layer immediately below the bark, and (2) black specks or blackened threads throughout the central part of the stem. The plants examined, if dead or dying, showed some discoloration near the center of the stem, but this dark layer was not in the position where it is usually found in cotton affected with black root. Moreover, in the case of these suspected plants, the young bud leaves in the top of the plants had not died. Every indication pointed to this being an unusually severe form of rust.

It should be remembered that these remarks apply only to stiff prairie soil where the writer believes cotton wilt has not generally been disseminated, but which soils are very susceptible to rust.

In sandy regions in the southern part of Georgia, Alabama, and the Carolinas, where black root is well known, there is less danger that even the severest form of the so-called black rust or scald could be mistaken for wilt.

In combatting cotton wilt, not only should a rotation be followed of the kind indicated in the first paragraph, but as soon as practicable farmers owning such land should procure, or breed up, a resistant strain of cotton. At present there are two varieties known to be decidedly, though not completely, resistant to black root. These are the Dillon and Dixie. Both were originated through selection by the U. S. Department of Agriculture. Dillon is a selection from the Jackson and most of its plants have the Jackson characteristic, notably tall, slender, cluster plant, and bolls somewhat difficult to pick. Dixie is a limbed variety with rather

small bolls. Recent selections of the latter variety are quite promising in productiveness. Unfortunately neither of these resistant varieties is early, and doubtless early resistant strains must be bred for use in the presence of the boll weevil. Parties growing these varieties this year should save every seed for planting on desirable land next year.

Recently it has been found in Georgia that a strain of Excelsior is quite resistant to cotton wilt. Experiments are in progress at the Alabama Station, and doubtless at other Stations, to discover and improve still other resistant kinds.

The main purpose of this article is to urge farmers to do some work along similar lines. Wherever a thoroughly healthy and productive plant is found growing in the midst of diseased plants, its seed should be saved and planted next year on wilt infected land, with the hope that it may be able to transmit to its offspring this resistant quality.

The policy to be pursued in selecting cotton to avoid this disease is exactly the opposite of that suitable for reducing the injury from boll rot. In the former case selections must be made on diseased land, while in the case of boll rot care should be taken that none of the seed for planting should come from a badly diseased field and none from plants on which much boll rot occurs.

THE SELECTION OF SEED FROM BEST STALKS.

Messrs. Editors: Perhaps there has not been a year since cotton has been cultivated in the South that stalks in favorable places have not made a phenomenal yield. The question naturally arises: "Why not every stalk in the field as good as the best one?"

There is no effect without a cause. Either the seed is not as good, or the soil on which they grow is wanting in depth and plant food. It can not altogether be the latter; for many stalks, just as favorably situated, fail to yield satisfactory returns. This forces us to charge it to the seed;

hence the necessity of planting the best seeds obtainable.


How they are to be had is a vital question.

By actual test, during the past year, there was a slight difference in the yield and size of bolls from seed, all out of the same boll. This led me to conclude that seed in certain part of a lock of cotton were better than in a different part. I submit this thought for your comment.

H. P. D.

Editorial Comment: In cotton, corn, and other such farm plants the individual is the result of male and female parents. The male and female elements may originate in the same plant, but intermingling of the male and female elements of different plants is common.

Difference in seed can not be held responsible for all the differences in plants, even when grown near each other and on land exactly similar, so far as the human eye can detect.



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