of the cylinders of each lot developed typical Fusarium wilt, which attacked 3.3 per cent. of the total of 667 plants. On the other hand, not a single plant developed wilt in the 723 plants which grew from seeds from normal plants of the "Gorham Lonestar" variety, planted in the same soil in 40 adjoining cylinders as checks.

Seed were planted also in large wooden boxes, each 5 feet wide and 15 feet long, and filled with soil material similar to that used for the cylinders. One box was planted with untreated seed from wilt-infected plants and another with the delinted seed. Typical wilt appeared in both boxes. Of 644 plants, 2.2 per cent. developed Fusarium wilt. The third box was planted with seed from normal plants, and not a single case of wilt appeared with the 238 plants.

Fusarium was recovered from all the wilted plants in the cylinders and boxes, and successfully reinoculated on cotton seedling grown in pots of steam-sterilized soil. Identification of the Fusaria isolated as *F. vasinfectum* was confirmed by Dr. C. D. Sherbakoff.

Isolation of Fusarium vasinfectum from Wilt-infected Cotton Plants

This work was carried on in 1929 and 1930 with wilt-infected cotton plants selected from a field near Edge, Brazos County, and in 1931 with plants selected in a wilt-infested plat at College Station, Texas. The plants were secured during early fall as soon as the bolls were matured and opened, and seeds from them were cultured the following spring and summer. Before culturing the seeds, tissue cultures were made with parts of the tap-roots, stems and peduncles, to ascertain actual wilt infection, and the few plants which failed to yield Fusarium were discarded. Seeds to be cultured were delinted with sulphuric acid, washed in running tap water, disinfected for one minute in 1–2000 solution of mercuric chloride in 25 per cent. alcohol, and finally rinsed three times in sterilized water. These surface-sterilized seeds were then planted in potato-dextrose agar in Petri dishes, usually placing 6 seeds per dish.

TABLE 1

Summary of Isolations of *Fusarium vasinfectum* from Seed from Wilt-infected Cotton Plants. The Plants were Brought in During the Early Fall, and Seeds were Cultured the Following Spring and Summer

Year plants were selected	Number of plants from which seeds were cultured	Number of plants from which seeds yielded *F. vasinfectum*	Total number of seeds cultured	Per cent. of seeds which yielded *F. vasinfectum*
1929 ...	9	1	464	2.2
1930 ...	45	9	4202	4.6
1931 ...	9	2	428	23.7
Total for 3 years	63	12	5094	5.9

As summarized in Table 1, *Fusarium vasinfectum* was recovered from only a small percentage of the seeds during 1929 and 1930. During 1931, a larger percentage of the seeds showed internal infection with *F. vasinfectum*. In 1930, *F. vasinfectum* was recovered from the tap-roots, main stems, peduncles and some seeds from every boll of 9 of the 45 plants from which cultures were made. With the remaining 36 plants, the fungus was obtained from the tap-roots, main stems and peduncles, but not from the seeds of any of the bolls. With the 8 infected cotton plants cultured during 1931, *F. vasinfectum* was recovered from the tap-roots, main stems, peduncles and from some of the seeds from all the bolls from two plants. The remaining 6 plants yielded Fusarium from the tap-roots, main stems, peduncles, but not from the seeds. This work has demonstrated that *Fusarium vasinfectum* may be carried inside the seeds of cotton plants infected with Fusarium wilt, although it is not necessarily present in seeds even from plants with infected tap-roots, stems and peduncles.

In culturing the seeds from wilt-infected plants, it was noticed that many of the seeds which yielded *F. vasinfectum* had failed to germinate. It is obvious that the disease could nevertheless be transmitted by such dead seeds as well as inside the viable seeds.

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