The symptoms of this trouble are very striking. Affected roots turn yellowish, then pink and dry up. The disease is confined to the roots only and not to the bulb. As fast as the old roots are affected new ones are produced, these in turn becoming diseased. In the end, the bulb spends all its energies in producing new roots which in turn become affected, thus failing to attain the commercial standard. Diseased bulbs remain dwarfed and small to the end of the season, although apparently sound in every other way. The average annual loss from this disease in Webb County may be estimated at forty per cent.

Careful investigations in the laboratory of the Texas Experiment Station revealed the fact that the disease was caused by an apparently new pathogenic organism, the name of which is proposed to be *Fusarium malli,* n. sp. Over one thousand plate cultures were made from diseased material and in nearly every case a pure culture of the above organism was obtained. Moreover in planting healthy onion sets in both sterilized sand or soil in which a pure culture of the *Fusarium* fungus was worked in, the disease in each case could readily be reproduced. The symptoms on the artificially infected plants were in every respect identical with those of infected plants naturally found in the field. The checks remained free, proving that *Fusarium malli* Taub. is the cause of pink root.

Numerous laboratory experiments, which were duplicated in the field have yielded results which are briefly summarized as follows:

1. The disease is carried with infected sets.

2. The disease is carried over from year to year in the soil. Short term rotations with other crops than onions on pink root lands do not starve out the pink root fungus.

3. Pink root attacks not only the onions but also the garlic and the shallot. It does not seem to attack any other of the liliaceous plants.

4 Steam sterilizing will kill the fungus in the soil. Formaldehyde at the rate of one pint to twenty gallons of water, per square foot will also rid the soil of the causal organism.

5. Applications of lime will not rid the soil from pink root.

6. In infected soils liberally fertilized, especially where quickly available plant food is applied, together with proper cultural management, the crop can be nursed to produce fairly normal yields. In this case the proper fertilizer merely stimulates the bulbs in producing new roots faster than the disease can destroy them.

7. Fertilizers rich in nitrogen and organic matter are especially valuable for use in soils infected with the pink root.

8. Healthy sets when planted on diseased soils will contract the disease. Likewise, diseased sets planted on healthy soils will also yield diseased bulbs.

Numerous experiments both in the field and in the laboratory are still in progress and as soon as these are completed a bulletin will be published by the Texas Experiment Station giving a full description of the causal organism and results of the experiments.

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A CHROMOSOME DIFFERENCE BETWEEN THE SEXES OF SPHÆROCARPOS TEXANUS

The chromosome group in the cells of the female gametophyte of *Sphærocarpos texanus* is characterized by one large element greater in length and in thickness than any of the other chromosomes in the group. This large element does not appear in the chromosome group of the male gametophyte, but instead there is a small chromosome commonly nearly spherical in form, and unlike anything found in the female. The other chromosomes in the cells of both sexes vary in length. They have the form of rods, usually curved. The chromosome number for each sex seems to be eight. In the cells of the female, seven of the eight are similar respectively to seven of the male. The eighth chromosome of the female (the largest one) seems to correspond to the small chromosome of the male. The condition as to the chromosomes of the gametophytes in

this species is thus similar to that described by Allen[1] for *S. Donnellii.*

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THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE —SECTION M—AGRICULTURE

THE program of the Baltimore meeting of the Section of Agriculture was considerably interfered with by sickness and absence in Europe on war service. A single session was held on the afternoon of December 27, 1918. The retiring vice-president, Dr. H. J. Waters, was prevented by sickness from attending the meeting and delivering his address, the subject of which as announced was "The Farmers' Gain from the War."

In the absence of the vice-president, Dr. H. P. Armsby, who is with the Interallied Food Commission in Europe, Dr. A. F. Woods presided over the session. This was devoted to the agricultural situation in Europe as viewed by members of the American Agricultural Commission which spent several months in Great Britain, France and Italy in the early fall.

Describing "Some Impressions of the Effect of War on Agriculture in England and France," Dr. W. A. Taylor reviewed the highly successful efforts in England to stimulate production resulting in 1918 in an increased area in cereals of 32 per cent. and in potatoes of 45 per cent. over the ten-year pre-war average. This increase was not due to the existence of an actual shortage, for apparently at no time was there less than three months supply of wheat in sight, or to the expectation of large profits on the part of farmers, but rather to apprehension that conditions might grow worse and to the necessity of saving tonnage. The organization through which the increase was accomplished and the measures put in force under the Defense of the Realm Act were effective and often revolutionary. Local production campaigns were in the hands of agricultural executive committees, who were authorized when persuasion failed to take drastic action, even to dispossessing tenants and breaking up and operating idle land at the expense of the owners. Restrictions on the crops to be grown, their sale and use were extensive and far exceeded anything hinted at in this country. A reform of much importance was the putting into operation of a seed control measure similar to that maintained in several of the states in this country, which yielded such beneficial results that it is expected to be permanent. The government also controlled the price of certain seeds, as seed potatoes, and to avoid local shortages purchased nearly a million dollars' worth of seed potatoes for sale to commercial growers and allotment holders.

While tenant farmers profited by good prices and reduced competition, land owners were prevented by law from raising their rents during the war despite increased taxes and other expenses. In consequence the sales of land exceed those for a generation, and include not only large holdings but relatively small farms, mostly land not operated by the owners. Purchasers are mainly of the tenant farmer class, and no marked movement of population from the city to the land was noted. There was much evidence of greatly aroused interest in agricultural research, instruction and extension teaching which is expected to bear fruit in increased facilities.

In sharp contrast to Great Britain, France showed abundant evidence of decreased crop production, as was to be expected. In 1917 the production of cereals fell to 53 per cent. of the pre-war average. A return to nearly 75 per cent. in 1918 was "accomplished through most strenuous and exhausting effort and to a considerable extent at the expense of future crops through the breaking up of the best crop rotation practise."

The reconstruction problems in France were described as complicated, one of the most difficult being the remanning of the land. Of the 250,000 farmers of the devastated region it is estimated that perhaps 100,000 may return to their holdings. Much of the land consists of small parcels, the holdings of an

[1] Allen, C. E., "A Chromosome Difference Correlated with Sex Differences in *Sphærocarpos*," SCIENCE, N. S., 46: 466–467, 1917.