THE PLANT DISEASE SITUATION.

A radio talk by R. J. Haskell, Extension Service, delivered through WRC and 40 other radio stations associated with the National Broadcasting Company, March 19, 1931.

The plant disease situation is too large a subject to be covered adequately in the short space of 10 minutes and so I will confine my remarks to a few topics that have recently come to my attention and in which I think you may be interested.

On the 2nd of March I returned from a trip through Minnesota, the Dakotas and Montana where I took part in a series of meetings at which the prevention of wheat smut was discussed. This stinking smut, or bunt, of wheat causes an enormous loss. It reduces the yield and lowers the grade of the wheat. We estimate that the loss from reduction in yield on account of smut in spring wheat alone was about $4,000,000 last year, and that the loss from discounts on the market was another million dollars, making the total loss of $5,000,000. In most parts of the country, with the exception of the dry-land area of the Northwest, this smut can be entirely prevented by disinfection or treatment of the seed with chemicals before it is planted. Either copper carbonate dust or formaldehyde is best suited for this purpose. The meetings that I attended were for the purpose of encouraging wheat growers to treat their seed, which they can do for a few cents per bushel, and especially to encourage them to treat it in the most effective way using the best methods and following directions closely. It is surprising to find how many farmers are not getting results with seed treatment. They do not use approved methods or do not give enough attention to details. One of the most important points that many of them are overlooking is thorough cleaning of the seed previous to treatment to remove all smut balls from the seed wheat. Furthermore we find that many of them are applying copper carbonate dust and formaldehyde solution to the wheat by sprinkle and shovel methods which are ineffective. The control of this smut is one of the ways that wheat growers can decrease their cost of production and at the same time improve the quality of their product. They recognize this and during this month and the first part of April there will be a lot of seed treatment in the spring wheat area.

During recent years trouble has been experienced in many parts of the country in securing and maintaining stands of alfalfa, that valuable forage crop which enriches the soil as well as the farmer. Although this is in some degree due to unsuitable soil and lack of inoculation it is in many instances due to lack of winter hardiness of the varieties planted and to the presence of a disease known as bacterial wilt. This wilt is destructive in many States. During the past season it was found for the first time in Massachusetts by O. C. Boyd, our extension plant pathologist in that State. For the years 1924 - 29 there was a falling off of one quarter of a million acres of alfalfa in Nebraska and this bacterial wilt was thought to have been partially responsible for it. In Iowa in 1927 it was estimated that bacterial wilt and winter

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injury together caused a loss of one fourth of the acreage, while in Missouri the loss was said to have been even greater. In view of the seriousness of these troubles it is a satisfaction to note that very substantial progress is being made in developing varieties or strains of alfalfa that will withstand both winter injury and bacterial wilt. A bulletin by G. L. Peltier of the Nebraska Experiment Station and H. M. Tysdal of the U. S. Bureau of Plant Industry has just come to my desk. In this I see that strains of alfalfa have been found which are quite resistant to both wilt and cold. All of our common domestic alfalfas so far tested are quite susceptible to wilt, and the Grimm alfalfa, although resistant to low temperatures is also quite susceptible to wilt. The new strains, however, some of which came from Turkestan and were introduced by H. L. Westover of this Department early last year, seem very promising from the standpoint of both the wilt disease and winter injury. These promising varieties are being increased and further improved by selection, and before long some of them should be available for general planting.

A few days ago I asked Dr. Charles Brooks of the Office of Horticultural Crops and Diseases if there was anything of recent interest in his field of apple disease investigations. He mentioned the fact that some of the apples we have been sending abroad this season have shown a large amount of scald. Scald is a discoloration and breakdown of apples that have been in storage. It is caused by an accumulation of the vapors given off by apples during the storage period. Adequate aeration reduces the amount of scald. Apples packed in tight barrels show more of it than apples in open bushel boxes or baskets. Furthermore, Dr. Brooks and his associates have found that wrapping the fruit in oiled paper or packing it in shredded oiled paper prevents most of the scald. Apples packed in oiled paper have been arriving abroad in good condition while those not so packed have been badly scalded. All growers who are packing apples for export this coming season will do well to take this into account if they want their apples to compare favorably with others on the European market.

Now just a word to potato growers in some of the early potato sections who have planted, or will plant, seed from some of our northeastern seed potato growing localities. The drought of last season did not affect those sections to a great extent, in fact some of them had considerable wet weather with the result that late blight tuber rot developed. It has been my observation that when seed potatoes carry much late blight rot the disease is likely to be bad in the resulting crop provided wet weather conditions favorable to blight prevail. Therefore those in the early potato sections along the coast from Florida northward, and in fact those in late potato sections, who are planting seed from the more northern seed growing localities, would do well to be on the watch for late blight and spray frequently with Bordeaux mixture, or at least be prepared to do so in case the disease puts in an appearance.

Reference to last year's drought reminds me that we have not as yet seen the full effect of the dry weather of last year and will not for some time. Many perennial plants, especially trees and shrubs, were injured and in some cases killed by the dry weather but did not show the effect at the time of

leaf fall. It remains to be seen how many fail to send out leaves this year. Some may start out all right this spring but show ill effects later in the season. Many of them will be weakened and are likely to fall prey to disease and insects. So all through the summer and even later we may expect to be receiving complaints of sick or dying trees, the causes tracing back to the drought of 1930.

Speaking of trees I am reminded that last week I had the pleasure of listening to a lecture by Mr. R. Kent Beattie of the Office of Forest Pathology, this Department, who has just returned from a two year's trip to Japan and Korea, where he went in search of chestnuts that will withstand attacks of the chestnut blight which has just about destroyed all of our native chestnuts. The original home of this disease is the Orient and so it was thought that Japan and Korea would be the best places to find resistant sorts. Mr. Beattie carefully disinfected, packed and sent back to this country in cold storage some 250 bushels of seed and between 90 and 100 lots of cuttings taken from horticultural varieties of Japanese chestnuts. These were collected in widely scattered parts of the Empire from the northern-most to the southernmost islands. From these seeds about one quarter of a million young trees have developed. Therefore, it begins to look as though some time in the not too distant future chestnut trees may be plentiful again, and the merry whistle of the chestnut roaster will again be heard on the streets of our American cities.

In assisting you to solve your plant disease problems, you will find your county agent, your State college of agriculture and the United States Department of Agriculture ever ready to be of service to you.
