one-half acre plot. It would be advisable, however, to carefully examine the plot before flowering time and remove at once every plant, roots and all, of wheat that shows a suspicion of smut. This removal of affected plants may safely be carried on before the spores are ripe, and this is the most correct time to remove them, else the very act of gathering ears with ripe spores will scatter them wholesale, and the walking through the plot with a handful of gathered smutty heads will be the worst method of infecting the flowering grain, which would otherwise have remained f from smut. This should be well borne in mind. As soon as the spores are ripe in tion has taken place to a large extent, and removing the plants carelessly will make it worse. It is advisable to provide paper bags and carefully draw the heads of an affected plant together, invert the bags over them, and then cut off the whole number of heads. The plant should then also be pulled up.

The yield of this seed plot should be quite free from smut. Under ordinary conditions it would yield 10–15 bushels of grain or sufficient to sow 6 to 10 acres in the next year, the yield of which would provide seed grain for a considerable area.

It is just as easy to treat five bushels of wheat as three-quarters of a bushel, and, where the experimental treatment has proved successful, the farmer might well start with five bushels of treated wheat.

The seed plot should be maintained each year; by paying additional attention to the quality of the strain in selecting one's wheat for the 'first seed plot' the benefit from the trouble—if the care exercised has any right to this name—would be largely increased.

Grain subjected to hot water treatment is free from all kinds of smut.—It may be pointed out here that any kind of grain treated with hot water requires no separate treatment for other kinds of smut, as the hot water will destroy the spores of all smut diseases. We do not consider it necessary to treat with hot water seed grain obtained from the seed plot or even that produced under field conditions under the circumstances described, unless, of course, loose smut has become re-established, when the hot water treatment should be resorted to again. We do recommend, however, to treat the wheat with bluestone or formalin for the other kinds of smut, if it has not been subjected to the hot water treatment.

Stinking smut, it should be borne in mind, may be introduced by a threshing machine which has been previously employed in threshing wheat infected by this kind of smut.

The hot water treatment for loose smut.—We have already referred to the great power of resistance to frost possessed by stinking smut spores; it is an established fact that resting or inactive organs or parts of plants like seeds, tubers, fungus spores, etc., are much less susceptible to external influences than the growing plant, hence the death of germinating spores on exposure to frost.

Reasons for the success of hot water treatment.—Dr. Appel, of the Imperial Biological Institute for Forestry and Agriculture, Berlin, Germany, who has largely contributed to our knowledge of the control of loose smut, points out that the spores of loose smut will germinate in artificial media after only four hours, when kept at a temperature of 77° F. He concluded that the myeelium resting in the wheat germ might be stimulated into activity in the same brief period of time by immersing the infected grains in water of this temperature. That is to say, the resting fungus may be awakened from its condition of rest before the wheat grain itself would be influenced in a like manner (i.e., start to germinate), which may be considered out of the question within four hours. Hence it was reasonable to believe that the action of water of a higher temperature would destroy the germ of disease, now in a more vulnerable state, without exerting too injurious an influence upon the life of the grain. We have already pointed out that injury is actually caused to a more or less large, but nevertheless negligible, extent, but we have also shown that loose smut is very satisfactorily controlled by these means, and that it is at present the only method known.