MORNING SESSION.

The Institute met at 9 o'clock A. M., Thursday, March 19, 1903. Mr. D. B. FOSTER in the chair. Prayer by Rev. Mr. McKinnon.

EXPERIENCE WITH OAT SMUT.

W. C. BRADLEY, Hudson, Wis.

Smut in grain, like smutty stories, is not productive of any good, and the way to get rid of the bad effect is to clean up the seed or source of supply. There have been various ways of treating seed grain to prevent smut. The blue vitrol and the hot water treatment have each been successful when the work was done properly, but for the average farmer was too costly or complicated and neither method ever came into general use, although the loss some years ago was known to be great. A few years ago a new treatment, which is cheap, safe, simple and easy, was discovered which is now coming into general use. The new product, Formaldehyde, is obtained by evaporating wood alcohol into water, which is the strongest and most pungent disinfectant known today.

The Treatment.

For treating smut in grain, one pound or one pint of formaldehyde to thirty-six gallons of water can be used in a large barrel, or if there is a large amount of seed to treat, three pounds to 108 gallons of water in a tank that holds four or six barrels will facilitate the work, as four or five gunny sacks full of seed can be submerged at once and while these are soaking another lot can be filled ready to put in when the first lot is put on the drain board for a few minutes before emptying on the floor to dry. In this way seed can be treated at a cost of not more than two cents per bushel for material and labor.

We have used this treatment for the past two years with results that have been surprising and very satisfactory. Our oats in 1900 were very smutty, so we got our seed from my brother, whose crop seemed to be free from smut, but we decided to treat the seed as recommended by the Experiment Station, but instead of sprinkling on the floor we found it easier to submerge the sacks in a tank for a few minutes, then allow them to drain and spread on the floor eight or ten inches deep, turning with a shovel night and morning for two or three days, when they were dry enough to sow in drill or seeder.

Results of Formaldehyde Treatment for Smut.

Our oats that year were practically free from smut, as we examined the field very carefully and I don't believe there was one head in a thousand smutty, while the same oats not treated sown on my brother's farm were very bad, showing from fifteen to thirty per cent. smut. I had five sacks of the soaked seed left which my brother got, sowing in the same field with the untreated seed, and you could tell to the drill track where the treated seed began, but as he had not emptied his seeder there was some of the smutty oats mixed with the clean ones, so there was some smut at harvest time, but the difference was so marked that it convinced him and some of the neighbors who saw it and they used the treatment last year with good re-
sults. Last spring we urged its use by publishing our experiences in several of the papers in Polk, Barron and St. Croix counties and so far as I have been able to learn a great many tried it with satisfactory results, but there have been some partial failures.

A few, instead of submerging, sprinkled the seed and did not kill all the spores. In a few cases the druggists supplied an article they made themselves that was nearly worthless, so there are a few who have been disappointed. I find by asking the farmers at the Institutes that very few seem to think they have smut, but if there is a thresher present he will tell you that most of them have smut. While I know that some kinds of oats may be more subject to smut than others, the only safe way is to treat all seed sown, for we can’t afford to lose from five to fifteen bushels per acre when it costs so little to prevent this loss.

DISCUSSION.

The Chairman—How many farmers in the room treated their oats last year? Only a few. I wonder if you realize the immense tax you pay for not treating your seed?

Question—In submerging these oats, how long do you leave them in the water?

Mr. Bradley—About five minutes. We had fifteen gunny sacks. We would fill five sacks and put them into the tank, and when they had soaked five or six or seven minutes, we put them on the drain board and put another lot into the tank. We kept it up in that way. They must be left at least five minutes, and perhaps ten would be better, although five is sufficient if the solution is one part formaldehyde to thirty-six gallons of water. That will kill every particle of smut.

Mr. Jacobs—How long before sowing would you do this?

Mr. Bradley—I think last year it was a week or ten days. They dried off the third or fourth day, so that we could sow in a seeder, but they wouldn’t take any hurt on the floor if they staid there a month.

Question—Is formaldehyde a poison?

Mr. Bradley—Yes, wood alcohol is a poison and formaldehyde is simply a product of wood alcohol. Water will take up forty per cent. of the fumes of wood alcohol.

A Member—We had some left last year that we didn’t need for seed, we fed it to the chickens, and it didn’t harm them in the least.

Mr. Imrie—We sprinkled our oats, we had them on a cement floor and there was very little water which escaped; as the water ran out of the pile we threw it back, and they never dried at all before seeding; they were all swelled up and full of water, but it made no trouble in the drill. We had a few heads of smut, but very little, and, as Mr. Bradley said, by treating one year you prevent it the next year to a great extent. I sold a great deal of seed last year, because I had treated it the year before, and those that used that seed said it was practically free from smut.

Mr. Jacobs—One of my neighbors, who is a better farmer than I am, treated his oats and sowed them the next day. He said all he had to do was to open his seeder a little bit more, and it took a little bit more seed also.

Mr. Imrie—I knew just how many I sowed, because of having it in the sacks.

Question—Do you sow more to the acre of those wet oats?

Mr. Bradley—Yes, just a little, but not a great deal. A good many farmers have hesitated in trying this, because they think it is so much bother to dry them. As Mr. Imrie says, it isn’t much work to dry them and you can sow them without being really dry.

Mr. Goodrich—I have a neighbor who practices a different method. He
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has two or three kerosene barrels with a hole bored near the center, so that they can draw off the water. They put the solution into the barrel with the oats, draw off the water and put it into another barrel, which is filled with oats, and he thinks he saves time. I asked if it did not take more of the solution, and he said it might take a little bit more, but it is cheap stuff and time is worth more than the extra stuff. He says that by opening his seeder wider, there is no trouble in sowing.

Mr. Convey—Is formaldehyde known by any other name?

Mr. Bradley—Formaldehyde and formalin.

Question—Can you treat barley the same way?

Mr. Bradley—Yes, we have done it, and it certainly killed the smut.

A Member—I treated about four bushels of oats and about ten bushels of barley with that solution, the same strength, and I couldn’t see that it killed a particle of the smut in the barley, but in the oats it did.

Mr. Bradley—I think the barley might take more soaking to kill it than the oats.

A Member—I had a great deal of smut in my barley last year, and I asked Professor Moore about the treatment of it, and he said that this solution would fix the barley all right, but it will have to be stronger, instead of having it one to fifty he recommended one to twenty-five.

Mr. Johnson—isn’t it a fact that a good deal of the smut spores are retained in the ground from one year to another, so they will produce smut in the crop?

Mr. Bradley—I don’t know about that.

Mr. Johnson—I have had experience for a number of years. We raise oats on one piece of ground and then put it into corn, turning under the oat stubble in the spring, the suckers in the oat field would start to grow again, and during the working of that corn, these suckers would come up and have smut on them, universally what came up had life enough to throw off smut.

Prof. Carlyle—I think you will find that Professor Moore has carried on experiments along this line. Professor Moore treated several hundred bushels of oats last fall, then scattered it on a platform, and dried it thoroughly in a few days, although we had very rainy weather. There is no difficulty in treating it in the fall, thoroughly drying it again, and having it germinate perfectly in the spring.

Question—Will this same treatment prevent smut in corn?

Mr. Bradley—I think not, from what I have heard.

Mr. Foster—Seedsmen are trying to sell us every year treated seed at twenty-five or forty or fifty cents a bushel more than ordinary prices, and I see no necessity of paying that as long as we can treat our own seed at an expense of about two cents a bushel. Now, I hope that very many in this audience are sufficiently impressed with the importance of this subject to treat their seed oats this spring. If they do not, they must either pay an extra price to some seedsman, or pay the penalty in another way. I hope you will all supply yourselves with the bulletins which have been issued on this subject.

Mr. Bradley—When you go out into your fields about the time your oats are nearly ripe and if you just look over the field and do not see any smut, do not take it for granted that there is none there. Look down close to the ground, the smut only runs up a foot or eighteen inches high, you will find it near the bottom if it is there at all, in two-thirds of the cases, and some seasons it is all low, perhaps only six or eight inches from the ground.