

# Michigan Agricultural College EXPERIMENT STATION.

## PRESS BULLETIN NO. 15.

### Remedy for Smut in Wheat.

**Formalin Treatment.**—Take one pound or pint of Formalin—the druggists may call it 40 per cent Formaldehyde—and stir it into 50 gallons of water. This quantity will treat 50 or 60 bushels of wheat. If a smaller quantity is required less amounts may be used, by keeping the same proportions, which are practically an ounce of formalin to three gallons of water. The cost of formalin in small quantities is about five cents an ounce.

Sweep clean a place on the barn floor and sprinkle well with the formalin solution. Put the seed wheat on this sprinkled area and sprinkle or spray the wheat with the formalin solution and shovel it over until every kernel is thoroughly wet. Do not be satisfied with simply dampening the grain but apply the solution until every kernel is visibly coated with water. Allowing it to stand in a compact pile a couple of hours will insure the more complete action of the formalin. If the grain is to be sown broadcast by hand at once it need not be thoroughly dried before sowing. But if it is to be kept long before sowing, or is to be sown with a grain drill, a certain degree of caution which every farmer will understand must be exercised to dry it thoroughly so that it will not sprout and spoil nor be too wet to work well in the grain drill. In drying the grain and handling it afterward care should be taken to wet the floor, utensils, bags, etc., with formalin solution so as to kill every trace of the smut on the things with which the treated seed is to come in contact.

The above treatment is inexpensive and simple to apply. We have never heard of a case where it has failed to work.

**Hot Water Treatment.**—The following treatment has been used for years, and if carefully applied is practically sure. It is, however, more cumbersome and laborious than the formalin method though the expense for material may be a little less.

Soak the seed wheat for ten minutes in water at 133 degrees F. Use a tested thermometer only. Provide two vessels large enough to hold twenty gallons each, if possible. One should contain warm water at about 120 degrees F., the other scalding water at 133 degrees. Into the first vessel plunge the seed wheat in a burlaps sack or wire basket. Keep it there until warm, then plunge into the second vessel, lifting it out occasionally and shifting it about in the scalding water until every kernel has been exposed to the temperature. Remove from the second vessel, at the end of ten minutes, and cool immediately, either by spreading on a clean floor in a thin layer or plunging into a barrel of cold water. Dry and sow, or sow broadcast at once.

Seed once treated successfully by either of the above methods will grow smut-free grain for a number of years. In fact, if every farmer in the state would treat his seed wheat carefully

this fall and keep smutted wheat from coming into the state there is no reason why we should ever be troubled again with this pest.

### VARIETY TESTS.

The table below gives the results of our field trials of varieties for 1900 and the average for 1899 and 1900 of those varieties which were grown both years. The 1899 yields were obtained from plots of nearly an acre or more. The 1900 yields are from one-tenth acre plots of summer fallow liberally treated with a commercial fertilizer. The seeding of all the varieties, except Marshall's Triumph, was done Sept. 29 and 30. The Marshall's Triumph was not sown until Oct. 5.

None of the varieties entirely escaped the attacks of the Hessian Fly although the Dawson Golden Chaff stood up the best of all at the time of harvest, the other varieties being about equally affected. The Winter Fife seemed to be the least affected by the fly, but this variety was not sown until Oct. 7.

Names of Varieties.	Yield in 1900, per acre.	‡ Average 1899 and 1900, per acre.	Color of wheat.	Description.
*Dawson Golden Chaff..	32.73	32.64	White	Bald Red Chaff.
Gold Coin.....	30.75	31.42	"	"
International, No. 6.....	29.29	30.00	"	"
Jones Longberry.....	27.50	26	"	Bearded Red Chaff.
White Clauston.....	27.92	24.10	"	Bald " "
Long Amber.....	24.17	21.10	"	" White " "
Jones Square Head.....	32.25	29.58	"	" " " "
Harvest Queen.....	30.50	29.54	"	Bearded Red " "
Early Genesee Giant.....	26.25	26.25	Red	Bald " " "
Hybrid Beechwood.....	32.33	26.42	"	" " " "
Poolé.....	26.42	26.42	"	" " " "
Harvest King.....	27.75	28.95	"	" White " "
Russian.....	28.00	25.59	"	Bearded " " "
Fultz-Mediterranean.....	29.66	23.72	"	Bald " " "
Buda Pesth.....	19.42	22	White	" " " "
Fulcaster.....	19.42		"	" " " "
† Marshall's Triumph.....	22		"	" " " "

\* Average of four plots. † Sown Oct. 5. ‡ Yields in 1899 are found in Bulletin 151.

In addition to the above varieties Early Arcadian, Earle's Velvet Chaff, Plymouth Rock, Red Clauston, Rudy Currell, Winter Fife and a new Russian variety were grown. The first three named made very satisfactory growth but the area was too small to give reliable figures of yields for acre areas. A portion of the plots of the other varieties was winter killed, though the Rudy, Red Clauston and Russian varieties made growths on the higher portions of the plots that would compare favorably with the best yielding varieties. The Winter Fife is a new red bearded variety, donated by Northrup, King & Co. of Minneapolis, Minn., but was received so late that a satisfactory crop was impossible. All the above varieties will be tested again the present year.