

ment is too rapid. In this investigation comparatively large quantities of seed were used in order more accurately to duplicate the methods of treatment used in general practice. The results of the work throughout make clear that a solution consisting of 1 lb. of formalin to 40 gallons, or 1 lb. of copper sulphate to 20 gallons of soft water is sufficiently strong to kill any smut spore that is wetted by it. A stronger solution could not be more effective in killing smut spores, and is especially undesirable because it does increased and unnecessary injury to the seed wheat by killing from ten to fifty per cent. of it and greatly weakening the rest of the seed.

### III. TO DETERMINE THE EFFECT OF TREATMENT ON THE VITALITY OF THE SEED.

Two sets of experiments were made, one with western grown No. 1 Northern, purchased from the Brown Milling Co., of Toronto, and said to be of this year's crop, and the second with wheat contributed by Mr. J. A. Mooney, of Valley River, Manitoba, from his seed plot, likewise from the harvest of 1906.

More than three hundred separate tests were made with the first set, and more than one hundred with the second. The germination tests were conducted by a Swiss seed specialist, and in standard seed germinators.

The following percentages of viable grains that germinated after treatment are worthy of study and comparison.

#### FORMALIN.

##### *No. 1 Northern purchased in Toronto:*

	1 hr.	2 hrs.	3 hrs.	6 hrs.
1 lb.—30 gal. ....	86%	45%	28%	13%
1 lb.—40 gal. ....	91%	80%	78%	48%
1 lb.—50 gal. ....	95%	86%	83%	79%

##### *Mooney's Wheat:*

	1 hr.	2 hrs.	3 hrs.	4 hrs.	6 hrs.
1 lb.—30 gal. ....	100%	No tests made			
1 lb.—40 gal. ....	100%	100%	100%	100%	100%
1 lb.—50 gal. ....	100%	100%	100%	100%	100%