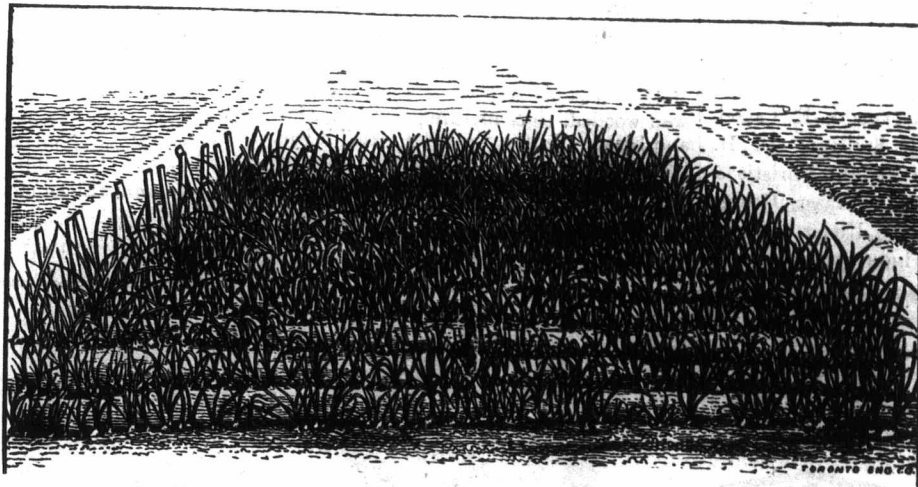


Growing Onions.

SOWING SEED IN DRILLS VS. TRANSPLANTED PLANTS.

When visiting the trial grounds of John S. Pearce & Co. last season, we were very favorably struck with the marked difference between the bulbs of a plot of onions, part of which had been sown in the ordinary way at the usual time in drills, and part transplanted. The difference was so marked that we had photographs taken, and cuts prepared from same for the ADVOCATE. Cut No. 1 shows the onions as grown in the ordinary way from seed sown in drills. Cut No. 2 shows the crop ready to harvest from plants transplanted from a hot bed into the drills. The seed was sown about the 1st of March in an ordinary hot-bed, and then transplanted about the 25th of April into the plot as shown in cut. Comment is unnecessary on this difference in the crop, and the method is well worthy of a trial by all onion growers, the only question being the cost and labor of transplanting. But this must be more than amply met by the very superior onions and early maturity and soundness of the bulbs, together with nearly if not twice the bushels per acre.



NO. 1.—ONION SEED SOWN IN THE ORDINARY WAY.

Treating Grain for Smut.

BY JAMES FLETCHER.

The constant enquiries which come to me from farmers as to the best way to treat grain for smut, make it advisable to draw attention through your columns so widely read to a well-known but effectual remedy. By the time your next issue appears farmers will be preparing to sow their seed grain. During the past season wheat, barley and oats in many parts of Canada were seriously attacked by the fungus diseases known under the general head of "smut." These diseases are all one to the attacks of parasitic plants, and are propagated by means of the minute grains of black powder of which the smut consists. These small grains, which are the fructification of the smut plant, are called spores, and are bodies analogous to the seeds of more highly organized plants. The diseases are transmitted by means of these spores or "seeds" which adhere to the grain, and are sown with it. They then begin to grow and penetrate the tissues of the growing plant, and in time destroy the seed. The above being the case, and the crop grown in 1891 having been badly infested by these enemies, there is every probability

that the crop of 1892 will also be largely destroyed unless measures are adopted to prevent it. There are several kinds of smuts, and botanists recognise those which attack the different small grains as different species. For practical purposes, however, they may be considered by farmers as identical, because they all can be overcome by the same remedy. There are several remedies recommended, and for this reason many farmers do not try any. I advise the following, which I believe, from all considerations, to be the best:—

1. Dissolve 1 lb. blue-stone (copper sulphate) in two gallons of water; place this in some

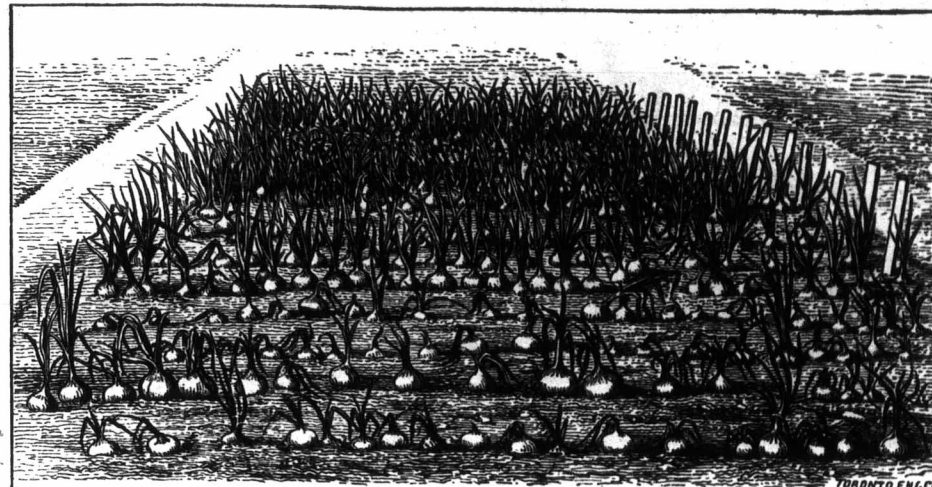
large receptacle and pour in grain until it almost reaches to the surface of the liquid, stir well and skim all "smut balls" and rubbish from the top. Leave the grain to soak for a quarter of an hour, then pour off the liquid and spread the grain out thinly to dry, and sift dry lime over it.

2. Dissolve 1 lb. blue-stone (copper sulphate) in 20 gallons of water, stir the grain well and leave to soak for twelve hours, then soak in lime water (lime slaked in ten times its weight of water) for ten minutes.

3. Should the above be inconvenient the following may be substituted:—1 lb. sulphate of copper is dissolved in a pailful of hot water,

which is then sprinkled by one person over ten bushels of wheat placed in a wagon box, whilst some one else keeps the grain well stirred. Should a large amount of smut be detected in grain required for seed, the solution is made stronger, double the quantity of blue-stone being used.

To your own subscribers, I would recommend them to refer to your number for January, 1891, where the subject is treated fully by Prof. Pantan. It was also exhaustively treated in Bulletin 3 of the Central Experimental Farm, Bulletin 56, Ontario Department of Agriculture, and Bulletin 32, Manitoba Department of Agriculture.



NO. 2.—ONION SEED SOWN IN HOT-BED AND TRANSPLANTED.

There is no question as to the efficacy of the copper sulphate treatment, and the small percentage of injury to the vitality of some of the grain, is not worth considering, when compared with the crop of good, clean grain reaped. Wheat, oats and barley may be treated in the same way; but oats should be submerged, not sprinkled. Prof. Dellerman, one of the highest authorities on this continent, says (Bull. 12, 1891; Kansas Agric. College, p. 30):—"Since the early part of this century the almost universal method of preventing smut has been to soak the seed, before planting, in a solution of blue vitriol (sulphate of copper). Of the many forms

of the treatment in use, perhaps the best, is to immerse the seed twelve or fifteen hours in a one-half per cent. solution of sulphate of copper, that is, 1 lb. in 20 gallons of water, and then put the seed for five or ten minutes in lime water, made by slacking lime in ten times its weight of water. This, if properly carried out, will prevent the smut, with but little injury to the crop."

Cooke & Berkeley, the highest English authorities say: "Since dressing the seed wheat has been so widely adopted in this country, this pest has been of comparatively little trouble."

Oat Culture, Seeding and Smut.

This question has been under experiment at the Ohio station for four years. In 1888 the largest yield came from plots seeded at the rate of five and six pecks to the acre. In 1889 the yield from the plots seeded to the rate of five, six, seven and eight pecks was practically the same. In 1890 the results were very irregular, owing to the disease of oats so prevalent that year. The plots receiving five, ten and twelve pecks gave the largest yields. In 1891 the experiment was duplicated, two varieties of oats being used. The work the season was favorable. The results are given in the following table:—

Seed per acre.	Yield per acre.	
	Wideawake.	Clydesdale.
4 pecks.	44.1 bushels.	39.1 bushels.
5 "	45.6 "	41.1 "
6 "	49.7 "	40.1 "
7 "	50.9 "	45.2 "
8 "	50.3 "	43.4 "
9 "	45.9 "	39.5 "

It will be seen that with both varieties the largest yield came from seeding at the rate of seven and eight pecks per acre. The Wideawake weighed 28½ to 30½ pounds per bushel, and the Clydesdale 35½ to 37. In both cases the lightest oats came from the four-peck rate of seeding, and the heaviest from the seven-peck rate.

PREVENTION OF SMUT IN OATS.

Repeated experiments, made at the Ohio Experimental Station and elsewhere, prove beyond doubt that the loose smut of oats may be almost completely prevented by dipping the seed in hot water. To do this, have two vessels, in one of which water is kept heated to about 120 degrees, and in the other to about 135 degrees. Have a loosely made basket, with a wire or cloth cover, and considerably smaller than the vessel containing the hot water. Fill the basket with oats, fasten down the cover and set it in the vessel in which the water is heated to 120 degrees. Let stand ten minutes or more, shaking occasionally, so as to get the oats warmed up to this point, then take out and dip quickly into the water heated to 135 degrees, shake or stir vigorously for five minutes, then remove and spread out to dry.

The farm yields the farmer a great many luxuries that are not credited.