

grew rapidly as soon as germination has occurred under such conditions, thus giving the crop a quick start in the spring. The quick start, and the rapid, continuous growth until July are absolute requirements of successful seed-growing in this Eastern part of Canada. The crop that is retarded either through too much moisture or too little moisture during the month of June seldom amounts to anything.

PREPARING FOR CORN.

Taking the different hoed crops which may precede grain, the one grown most extensively at the Central Experimental Farm is corn for ensilage, and this crop is really about as good a preparation for grain-growing as can be given. Corn-stubble land, as commonly handled, is plowed in the fall. We have, however, tried plowing in the fall, plowing in the spring, and not plowing at all, but merely tearing up the roots with a spring-tooth harrow, a disk harrow or a cut-away disk; and we find that, under average conditions, in a pervious soil—that is, in a rather coarse soil—we get the best results where the soil is not plowed, but merely gone over, the roots ripped out by means of one of the implements I have mentioned, the seed sown after the land is in a proper state of cultivation, then packed or rolled firmly, and left. Of course, if the season is dry, we also scarify or scratch the surface after packing, but the packing, with either a soil-packer or a roller, is essential for the best results, even where the soil has not been plowed after the crop of corn.

In the case of root land, the crop grown in many parts of Ontario, and almost exclusively in the Maritime Provinces, in preparation for grain-growing—it is impossible to handle it in the same way as after corn. The roots have to be pulled and topped, and root tops interfere with the grain crop if not plowed in. In the case of light soils that have been under roots the previous year, it is absolutely essential that thorough packing be performed, either before the grain is grown or immediately afterward. I prefer to do part of this packing before the grain is sown; that is, get the soil which has been loosened up in the necessary preparation for the sowing of the grain, back again into nearly as solid a mass as possible.

ROLLING AND PACKING.

Where the soil is particularly light, our method is to roll about twice before seeding, and then once after seeding, finishing off after the roller with a light harrow. This is a method that we have been following for five or six years, and it has in every case shown itself to be superior to the common practice of the farmer, of merely plowing the land, harrowing it fairly well, then seeding and finishing off with a roller. The getting of light, loose soils into fairly compact masses is exceedingly important. To the man who has not given it any attention, or who has not made a study of the thing, it might seem ridiculous to think of rolling land two or three times, but our experience goes to show that it is advantageous not only for the crop of grain that we are likely to harvest, but also for the seeding down. Although we are interested in grain production, it is really with forage plants that I personally have been in the past particularly concerned, and that was the one most important point kept in view in the study of methods of seeding. Our aim has been to work out such methods as would insure under all conditions good stands of grain and good catches of grass and clover. This method that I have mentioned, of repeated rolling or repeated packing of the soil, is especially useful in peaty or black soils and in very light, sandy soils, but it will also give good returns in light loams.

Over a Billion Pounds of Maple Sugar.

The annual production of maple sugar in Canada for the past sixty years has reached from ten to twenty-five million pounds, averaging about eighteen and a half million, and aggregating one billion one hundred and ten million pounds, according to Archibald Blue, L.L.D., Chief Officer Census and Statistics Branch, Ottawa. In the Maritime Provinces the yearly output has rarely exceed half a million pounds. But in Quebec and Ontario there are records of 25,000,000 pounds. Last year alone it was 21,000,000 pounds, reckoning syrup at its equivalent in sugar.

In round numbers, the aggregate of the years 1851-61 is 135,000,000 pounds, with a share of 77,000,000 for Quebec and of 52,000,000 for Ontario. In the years 1861-71, with an aggregate of 175,000,000 pounds, Quebec's portion is estimated at 100,000,000, and Ontario's at 65,000,000. In the next decade, 1871-81, the aggregate rose to 190,000,000 pounds, with 132,000,000 for Quebec, and 52,000,000 for Ontario. The ten years, 1881-91, show an aggregate of 225,000,000 pounds, with 175,000,000 for Quebec, and 48,000,000 in Ontario. For the forty decades, 1891-1901, the aggregate is 212,000,000 pounds,

with 160,000,000 in Quebec, and 48,000,000 in Ontario. Lastly, for the decade ending with the census of 1911, the aggregate production is 196,000,000 pounds, giving Quebec a portion of 143,000,000, and Ontario 50,000,000.

The average selling price of maple sugar during this period of sixty years has been about ten cents per pound, which would give a value for the whole period of more than \$110,000,000, representing, after fuel and operative expenses are deducted, the labor of a few weeks in the spring of each year, when it can best be spared from service on the farm. The conservation of maple groves will, therefore, appeal to every forester and farmer in the country.

Awned and Awnless Oats.

Editor "The Farmer's Advocate":

In the report of the seventh annual meeting of the Canadian Seed-growers' Association, a member from New Brunswick is reported as saying that, in selecting oats for improvement, he tries to secure heads as free from awns as possible, and that, as a result of such selection for a few years, the per cent. of awned kernels has decreased to a noticeable extent. This raises the question as to the wisdom of such a selection, as there is evidence to show that there is apparently a distinct relation between the presence of awns and quality. Of late years, Prof. C. A. Zavitz has frequently called attention to the rather remarkable fact that certain varieties of oats showing a heavy weight per bushel are of poor quality, as shown by the high per cent. of hull. A still more remarkable fact is that, at least under the conditions prevalent at the Ontario Agricultural College, the close relation between thick hulls and heavy weight per bushel, and its antithesis, is a characteristic that is common rather than exceptional. If this be true, what is the explanation of the phenomenon? In the address given at the meeting of the C.S.G.A. by its Secretary, L. H. Newman, B.S.A., on "Plant breeding in Sweden," the statement is made that "weight per bushel is influenced most by shape of kernel." This is certainly a potent factor, and the statement may be correct in regard to the oats grown at Svalof by the Swedish Seed Association. I believe, however, that in more southern localities the factor having the controlling influence is the per cent. of awns.

Before giving my reasons for this belief, let me quote a few sentences from Mr. Newman's address, which give added emphasis to the fact that we cannot intelligently judge of the quality of oats by their weight per bushel. The statements are as follows: "The weight per bushel, while important, is liable to be misleading." "That no definite relation exists between weight per bushel and per cent. hull seems clearly proven." "In describing the different sorts offered the public, the Swedish Seed Co. never makes use of the weight per bushel."

In an article in "The Farmer's Advocate" of February 11th, 1909, I expressed similar views, with my reasons therefor, and will here quote a few of the figures used in connection with the subject. In the O.A.C. report for 1898, 91 varieties of oats were listed as having been under test. Five of these varieties, which averaged 37 per cent. of hull, gave an average weight per bushel of 37.55 pounds, while five of the best quality, with an average of only 26.6 per cent. of hull, gave an average weight per bushel of only 32.23 pounds. I am firmly convinced that nothing but the difference in the per cent. of awns could cause such a seeming paradox as the heaviest oats being of the poorest quality to such a marked degree as is shown by these figures. If we consider ten cases in each extreme group, we still find a difference of nearly three-quarters of a pound per bushel in favor of those with the thickest hulls, while there is a difference of nearly seven in the per cent. of hulls.

In a list of 13 varieties tabulated by the Swedish Seed Association, six with an average per cent. of hull of 31.1 gave .59 of a pound greater weight per bushel than other six with an average of only 26.35 per cent. of hull. This difference in weight in favor of the oats with the thickest hulls is much less than in the case of those grown at the O. A. C., and, as previously suggested, may have been influenced more largely by the difference in the shape and size of the respective kernels, rather than by any probable difference in the per cent. of awns which would be present. This would seem to be indicated to a certain extent by the comparatively low weights per bushel shown, ranging from 31.47 pounds to 40.02 pounds, with an

average for the thirteen of 38.66 pounds, a somewhat rare weight for oats with any large per cent. of awns. On the other hand, we find the standard weight for at least some of the States of the Union to be 32 pounds per bushel. Is it not possible that, in the growing of awns or beards, nature is in some way trying to counteract some possible detriment to the growing of certain varieties of grain in the warmer climates?

I would suggest that the experimental stations, and others who may have the time and facilities for it, should make two distinct selections, with the general characteristics as nearly alike as possible, but aiming for the production of two distinct types, awned and awnless. When the two types have become sufficiently distinct in this respect, comparison could then be made for quality, and the results should be both interesting and instructive. If this system were duplicated in widely-separated northern and southern localities, the results should be still more interesting. In the meantime, some light might be thrown on the matter by comparing the per cent. of hull for awned and awnless kernels, respectively, selected from the same crop in each case; more especially if the test were conducted on a rather large scale, or duplicated a number of times with different crops and varieties. Although not quite sure in the matter, I have a strong impression that the American Banner oats procured by me a few years ago from the C.E.F. at Ottawa had a smaller per cent. of awns than in the case of the crops since grown from them. Perhaps some of your readers may have made some observations in this regard.

Brant Co., Ont.

Cement Anchor Posts.

Editor "The Farmer's Advocate":

Re inquiries as to making cement posts, I might give you my experience. I have never made any small ones, but have made a number of anchor posts for wire fence which have now stood two winters very satisfactorily to me.

I may tell you how I did it. I built them just where I intended them for use. I first dug a square hole in the ground two feet and three feet deep; I then mixed some cement, 5 to 1, into a very thin mixture and put in about 18 inches of it, then I took an old small cedar post, which was about 4 inches through (which had been in the ground over twenty years), stood it up in the center of the hole and then filled the hole with cement even with the top of the ground and let it stand one-half day.

Next I took a mould, which is used for making cement tile, set it over what I had already done, and filled it full and let it set for one-half day, and then raised the mould up again and filled it again, but sawed the post off six inches below the top. The reason I put the old post in was it was not worth anything and would save cement and cost and would never rot, and if it did the post would be strong enough with the space. I did not use any wire for reinforcement.

The posts I have made were round, and their diameter is twenty inches. As I had never seen any cement posts or seen them made, I made them large and strong with cement, to make sure, but I have been told since that I could have made them 7 to 1 and it would have been strong enough, but I am satisfied with 5, to 1, as these posts that I have mentioned only cost me 75 cents already set, which, if I had bought cedar posts that size they would have cost me \$1.00, and then I would have had to set them. If I had had a mould the full length of the post it would have been better, but I had no trouble in making the joint. I may say that the material that I used would have made six posts the size mentioned in your last issue. I intend to make some small ones. I will make a box the size I want the post, lay it on a level and pour it full of thin cement, let it set for a day and take it out of the box to season, but water it twice a day for a week.

I may say regarding the large posts, that it did not cost me anything for gravel, as I had it on my farm, neither did I charge for my own labor, for the experience well paid me. Some of my neighbors were there when I was making them, and said they would be no good, and I would have all my work for nothing, as they set, and the same man who made this remark has since said to me, that I have erected my own monument, as they will be there for all time.

CHAS. A. DUNKIN.
[Note:—Thanks for the information, which is very acceptable. As to the matter of cost, if Mr. Dunkin wishes to make any more posts for the same wages, we can give him a summer's work at Weldwood. Editor.]