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to be more care exercised, but in this country we have so much light during the early part of the season, especially strong sun, the plants are much tougher and harder than in other countries therefore much less in danger of injury, and I would in the case of oats and barley be sure not to start work too early in the morning and to select a bright, hot, sunny day for such work, as the plants will then be wilted and consequently tougher; and it might be well to examine your plants before commencing and see that they are tough enough for such treatment. Also it would be well not to undertake such treatment on land that was very lumpy with buried large clods, as they will be liable to be raked up or drawn out from the lower part and thereby expose the roots of the plants. Of course with wheat there is really no danger, as wheat, as you know, is a double rooter at any rate, having a top and base root according to its depth of sowing and grows from both or either of them; therefore, if you should happen to injure the top root the lower one will continue to supply nutriment until such time as the top root will have an opportunity of reasserting itself. This treatment is more especially beneficial to weedy soil and I would commence on weedy soil immediately I saw the weeds showing themselves and continue it on every occasion that the soil was fit after rain, until the crop had advanced to a considerable stage, in which you could see that it was injuring the crop. This stage would have to be entirely regulated by the opinion of the operator or farmer, because of the fact of the toughness of the grain having to be taken into account as to the amount of injury likely to be done. I would recommend too, that you have a competent driver for this work, so as not to be crossing the drills instead of running parallel with them with either weeder or harrow.

Man.

J. J. GOLDEN,
Deputy Minister, Agriculture.

Barley Culture and Weed Growth.

EDITOR FARMER'S ADVOCATE:

Barley has until quite recently been a very secondary crop with the farmers of the West; and it is surprising how many farmers throughout the country do not grow it at all. This has been due no doubt, to the poor market and low prices that have prevailed for this cereal until very recently.

Barley is one of the oldest of our cereal crops and for many years in European countries it was a very close rival of wheat as a human food. The Anglo-Saxon, however, chose wheat for his food and oats for the food of his beasts, leaving barley to the maltsters. But of late years barley has become more appreciated as a stock food, and at the present time our markets give a premium of only one cent per bushel for malt barley over feed barley. In feeding tests, too, barley has proven itself a superior stock food. With this small premium, and considering the opportunity a barley crop gives of ridding our fields of noxious weeds, it is plainly more profitable for a farmer to grow it as a cleaning crop, even if it only produces feed barley. It is from this standpoint that we wish to consider the cultivation of barley.

Barley will do well on almost any arable soil, though it does better on a loamy, well-drained soil than on the heavier clay soils. Its roots are short and grow near the surface of the soil. For this reason it is necessary to have a good firm seed-bed for barley, to prevent it from lodging and to allow the moisture and soluble plant food to come up to the roots. Its short surface roots, and the short period of growth, make it necessary to have a fair amount of available plant food in a good barley soil. There is far less danger of over-stimulating the growth of straw in barley than in oats or wheat, by manuring, and it is the most suitable of these crops for the application of manure. The manure should be evenly spread on the land during the winter or spring and should be well worked in with the soil before planting. In this way the land will be in good condition for a succeeding crop of wheat.

It has been claimed for barley that it will mature quicker than wild oats and hence that a crop of barley will destroy the wild oats by allowing them to be cut before they are mature. This is not effective. Wild oats, though they appear green, will mature enough to reproduce vigorously during the life of a crop of barley. The value of a crop of barley in the struggle with noxious weeds lies in the fact that its short period of growth gives plenty of time for germin-

ating and killing the weed seeds by cultivation, both before seeding and after harvesting the crop.

In order to get the best results for cleaning a field with this crop, it is necessary to disc it lightly as early as possible the fall previous to seeding the barley. This will allow a large number of the weed seeds to germinate, either in the fall or early in the spring. A good "burn" will also help to clean up some of the weeds and make conditions better for germinating those remaining. When a good growth of weeds have started in spring (towards the end of May) the land should be plowed shallow, and harrowed at once to retain the moisture and to germinate more weed seeds. In about ten days (first week in June; the date will vary with the season) it should be harrowed again and seeded to barley. This treatment will germinate most of the weed seed in the surface soil and give a good, firm seed-bed for the barley crop. The shallow roots of barley will not allow of harrowing after the crop is up without considerable loss to the crop, as will wheat. Barley land that has been manured during the winter may be treated in the same way, only the manure should be well worked in to the soil with the disc.

After harvesting the crop, the land should be plowed and harrowed as soon as possible. This plowing should be two inches deeper than the spring plowing to bring up some of the weed seeds lower down and get them germinated and killed in the fall.

This process, carefully carried out, will give (1) a paying crop of barley; (2) clean the soil of many of its noxious weeds; and (3) put the soil in splendid condition for a succeeding crop of wheat—three purposes we should have in view with a crop of barley. Of course, when the soil is badly "possessed," it may be necessary to repeat the treatment, or to summer-fallow. But the above treatment will usually be effective.

C. T. S.

Cost of Growing a Wheat Crop.

Many people ask the question "What does it cost to grow a crop of wheat?" when told about the profits to be made from buying and farming the virgin prairie. Data is not very plentiful in the West on this topic. At Brandon experimental farm the following figures were arrived at:

The experimental acre on which the test was made gave a yield of twenty-nine bushels at a cost of \$7.76. This included every possible item of expense and also two years rent, or interest at six per cent. on land valued at \$15 per acre. The items were: Plowing once, \$1.25; harrowing twice, 20 cents; cultivating twice, 40 cents; seed (one and a half bushels), 75 cents; drilling, 22 cents; binding 33 cents; twine, 10 cents; stooking, 16 cents; stacking, 60 cents; threshing, \$1.46; teaming to market, four miles, 29 cents; rent or interest, \$1.80; wear and tear of implements, 20 cents.

Several years ago Supt. S. A. Bedford stated that a yield of twenty bushels of wheat per acre for which fifty cents per bushel was obtained would pay expenses. In recent years, despite some crop reports, the yield has not been over 13 to 17 bushels per acre on the older worked lands, the deficiency being made up partially by the higher prices obtained for wheat. Some farmers do not hesitate to assert that as a paying crop, either barley or oats are superior to wheat, and when yields and prices are compared their contention seems to be borne out. The figures given above are like those of immigration literature, rather under the mark we believe, and it would seem as if the cost of growing a wheat crop is well over eight dollars per acre. What do our readers think?

Favors Grass and Manure.

EDITOR FARMER'S ADVOCATE:

I have tried different methods of seeding to grass, and I think brome grass seed the more profitable to sow on our heavy clay loam land. In 1901 I had a piece of land that required cleaning and I adopted the Brandon Experimental Farm plan, which has proved satisfactory in every particular. I disced the land in the fall as early as possible and many seeds germinated before cold weather set in, and again toward the end of May the following spring, with the result that practically all the surface seeds grew. I then plowed the land and sowed about twelve lbs. brome seed to the acre on rough plowing, after which I harrowed well. I had a beautiful catch and the heavy mat afforded good pasture for horses and cattle that fall and each fall since. I cut about three tons per acre of hay the first year,

a little less each succeeding year until last year only one and one-half tons per acre were realized. I intend to disc this sod and harrow it this spring as it has become too thick, hoping it will revive it for another crop.

In 1905 I mixed red top clover and timothy seed together and sowed it with one and one-half bushels of oats per acre on land prepared in the same way as for brome and sowed with a press drill about two inches deep. The result was a long heavy crop of oat straw and only a few stems of clover appeared. In 1906 I tried the same mixture again on the same piece of land and results were the same. The tests were made with the intention of taking off one or two crops of clover and plowing immediately after and seeding to wheat, but I find the tests were expensive and shall resort to summer-fallowing as a means of cleaning land.

In the fall of 1897 I drew an old manure pile out and covered about twenty acres as evenly as possible and plowed and harrowed as I spread it on the land. In 1898 I sowed wheat, with the result that a heavy crop of weeds smothered out the wheat and had to be plowed down. This was our very dry year. This piece of land has had very heavy crops of wheat each year since, producing a strong stiff straw with a massive head and always stands up where the manure is, but on the ordinary summer-fallow the straw is sure to be soft and lodge badly. My experience is (costs etc., considered), use manure on summer-fallow and work it well and you can reap twice as many crops of wheat with greater yields per acre and a better sample than on ordinary fallow. Besides, land holds moisture better prepared in this way and keeps humus in the soil.

With regard to rotation of crops, my method is to divide the quarter section into 40 acre lots, if land can be arranged this way, and take two crops of wheat off each quarter; follow with oats and barley and then summer-fallow, except where land is manured. Then more crops of wheat may be taken off before oats is sowed. In this way every fourth or fifth year the quarter section may all be sown with wheat and oats. In this way I do without the capricious hired help at \$35 per month, except in harvest time. Besides, the land will produce a large yield per acre of good, clean, heavy grain.

Rosedale Municipality, Man. W. A. A. ROWE.

Too Much Incompetence in Threshermen.

EDITOR FARMER'S ADVOCATE:

The following are my views on the question of threshing, as concisely as I can express them:

For myself, I may say I am decidedly in favor of the small outfit for the average conditions. When I say small, I do not mean a toy machine, but a separator of say 28" to 32" cylinder, with 18 to 20 h.-p. engine, so as to have plenty of power, as I believe a great many outfits to-day have not sufficient power. To my mind, an outfit of this size, owned jointly by from two to four farmers, depending upon the amount of crop each man grows, is the most satisfactory way of handling the vexed threshing question. One man of the company should be a good mechanic and possess sufficient executive ability to thoroughly handle the men connected with the outfit, and he should be given full active control. Then a business manager should be appointed who would attend to all business, such as collections and payments, keep books, and act as secretary-treasurer. I think the reason that the threshing business is looked upon with disfavor by so many people in the West to-day is because of the fact that so many rigs have fallen into inexperienced and incompetent hands, and when the machinery fails to come up to expectations of the purchaser, it is condemned, together with the manufacturer, as being no good. From what I have seen of the threshing business, I believe it would be a step in advance to institute compulsory examinations for separator men, as well as engineers. Such, in my opinion, would save a lot of trouble and reputations, and a certificate of such nature would be a guarantee to the owner of the machine that he was not being imposed upon by unscrupulous men looking for a job at high wages.

I am in favor of the small outfit for more than one reason. First, it does not cost nearly so much to run it, and when any breakage or stops occur, the expense is not nearly so great while the machine is idle; second, it is handier to move, and can be taken to places where the larger rigs would be stalled; and third, the first cost is not nearly so great in proportion to the amount of work each will do.

The large outfit is all right for the man who has had plenty of experience, and intends to make a business of threshing, but for any farmer buying an outfit, or a share in one, for the sake of getting his threshing done early and when he wants it, I say get the small rig and your threshing troubles will even then be found manifold, and requiring a high degree of mechanical and