Selecting and Preparing Land for Spring Wheat

Factors Which Influence Yield as Suggested by Professor James Murray, Macdonald College

THE success of the wheat crop will depend largely upon suitable soil conditions being provided for it. Attention should be given first to choosing the most suitable soil and then to putting this land into proper tilth. Heavy soils, clays or clay loams are preferable to those of a sandy nature but even light soils if fertile and well prepared may be depended upon to grow a good crop of wheat. On account of wheat requiring to be sown early in the spring most of the work of preparing the land should, under ordinary circumstances, be done in the fall but many of those who will sow it next spring had no opportunity last fall to prepare land specially for it.

Hoed Crop Land is Best.

It will be necessary to choose land that is already in a good state of cultivation such as that which produced potatoes, roots, corn or beans last year. This on account of its fertility and cleanness from weeds would probably be in better condition for wheat than any other on the farm unless land that had been fallow is available. A well worked fallow would be ideal but such land is found on very few farms. If the root or potato land was plowed in the fall it would only require in the spring sufficient cultivation to prepare a good seed bed. At seeding time it should be fine and loose on top but well firmed below, as wheat of all crops delights in a firm soil. Root land could also be prepared by spring plowing. It would only be necessary to see that the work was done early and that the soil was well firmed either by repeated harrowing or by using a packer or roller.

Clover Sod or Pea Land.

If there was not available a sufficient acreage of hoed crop land, that which was plowed out of clover last year would be found to answer admirably. Clover sod is usually fairly fertile, reasonably clean and works down to a fine tilth with comparatively little difficulty. Pea land could be used with confidence provided it was reasonably clean. Spring plowed clover sod would probably rank next in order as land suitable for wheat. It should be plowed early, well surface worked and thoroughly firmed.

Good wheat crops are sometimes produced on land which grew oats or barley the year before, but such land should be used only when none of those already mentioned are available. If, however, it is in good heart and has been well plowed and particularly if it can be given a light dressing of manure it will frequently grow a good crop. It will usually need the manure and more care in preparation than any of the others mentioned.

Thorough preparation of the soil is one of the best means of insuring a crop. Even a fertile soil if indifferently prepared cannot give a satisfactory return. The seed bed should be fine on top and firm below to insure a supply of moisture for germination and to maintain growth. The time devoted to preparing the soil is well spent and will bring its reward at harvest time.

It is seldom if ever advisable to attempt to grow wheat on land plowed out of old sod in the spring. The grass and weeds cannot be subdued and they will often gain the upper hand of the wheat long before harvest time. It will pay better to put this land into roots, corn, potatoes or beans, as there is more time in which to prepare the soil before seeding is necessary.

Early Seeding is Essential.

The fall preparation of wheat land has been emphasized for the reason that the seed must be sown early to insure a good crop. Of all the farm crops, wheat should be sown first. An experiment to determine the effect of time of seeding on the yield of wheat has been carried on for a number of years in the Cereal Husbandry Department of Macdonald College. The first seeding each year has been made as soon as the soil was in good condition for seeding, the second one week later and the other seedings at intervals of one week. The results are presented in the following table:

DATES OF SEEDING WHEAT.
Cereal Husbandry Department, Macdonald College.

Average of six years.

First Seeding	35.83	bushels	per acre
Second Seeding	29.10	"	" "
Third Seeding	28.47	"	" "
Fourth Seeding	24.79	"	" "
Fifth Seeding	18.78	"	" "
Sixth Seeding	14.29	"	" "

These figures speak for themselves. Similar results have been obtained at the Experimental Stations in Quebec. They clearly show the necessity of sowing wheat as early in the spring as the land can be properly prepared.

In arranging the seed supply it is advisable to provide for about one and three quarter bushels per acre. When the seeding is done early on well prepared fertile land slightly less may be used, but it does not pay to skimp the seed. A full crop cannot be harvested unless a full stand of plants is secured. If the seed be sown broadcast, two bushels is not too heavy a seeding.

Seed Supply.

Seed should be secured well in advance of seeding time. In districts where wheat is now grown, considerable quantities of good seed will be available locally. This should be used when it is of good quality and should be well cleaned before sowing.

In many sections home-grown seed will not be available. To meet this condition, western grown seed wheat is being brought in by the Seed Branch of the Dominion Department of Agriculture. This seed will be practically all of the Marquis variety; it has been specially selected for seed and will be thoroughly cleaned before being sold. It will be sold only in car load lots at a price sufficient to cover the actual cost. This has been fixed at $2.50 per bushel in bulk,—sacks will be charged for extra. (In the event of freight rates being increased the price will be increased accordingly, but not more than two or three cents per bushel).

Early Seeding of Spring Wheat Insures Increased Returns.
The plot on the left yielded 36 bushels. That on the right, sown five weeks later, but 14¼ bushels per acre. Photo in experimental plots at Macdonald College, Quebec.

Since this seed is being sold by the Seed Branch only in car load lots it will have to be handled locally by Seed Merchants, Agricultural Societies or Farmers' Clubs. It is important that they make arrangements for their supply at an early date so that it may be in the farmers' hands well in advance of seeding time.—The Journal of Agriculture.

Field Beans in Ontario

They Approach Animal Foods in Value

By Dr. C. A. Zavitz.

ACCORDING to the Bureau of Industries for Ontario for 1916 the market value per acre of some of the grain crops of Ontario are given as follows: Beans, $58.95; corn for husking, $36.57; wheat, $34.19; peas, $27.41; spring wheat, $24.89; barley, $23.91; rye, $18.81; oats, $17.50; and buckwheat, $15.51. Beans occupy a high place in value per acre among the grain crops of Ontario.

Field beans approach animal foods in nutritive value. They contain a high percentage of protein and in this respect surpass the other grain crops frequently used as food. There is a higher percentage of protein in beans than in the best cuts of meat, but it is not quite so completely digested. Protein is a nutrient which serves to build and repair body tissues as well as to furnish energy. It performs essentially the same part in nutrition whether it is from beans, peas, wheat, meat, milk or cheese.

The Province of Ontario, and the States of Michigan and of New York have produced about one-half of the beans of the North American continent within the last few years. In 1916, 83 per cent. of the acreage of beans in Canada was in Ontario. The number of acres of beans in this province was 53,999 in 1918, and 114,785 in 1917. Beans are one of the most valuable crops which can be grown in Ontario for export. They can be transported readily and when well matured can be stored without much danger of injury. It seems proper for Ontario to produce as large an acreage of beans in 1918 as the limited amount of labor will permit.

Wintering Farm Stock Outside

With Special Reference to Young Horse

WITH the prevailing high cost of building material and labor, many farmers are deterred from going very extensively into live stock raising, under the impression that a heavy outlay for buildings is necessary.

Such is not the case. While work horses and milking cows require warm stabling, sheep and poultry, in order to be profitable, must be kept away from warm quarters; brood sows do excellently in small individual cabins; young cattle thrive when running outside with only a shed for shelter. Even dry cows and idle work horses can be wintered under cheap shelters.

The reason these classes of live stock do so well wintered outside is that they get what is hard to obtain when kept inside, namely, fresh air and exercise, and are, as a result, in good health and fit for profitable breeding operations.

During five years, fifteen different young horses were wintered outside, at Cap Rouge Experimental Station, with only single board sheds as shelters. Though the temperature went down as low as thirty-one degrees Fahrenheit below zero, not a single one has ever been known to shiver. Moreover, as a rule, they commence to shed their hair earlier in the spring than others kept in the barn. During an outbreak of influenza, all the animals inside were sick, whilst not one of those in the open was affected.

Shelters.

Any shed which is free of draughts, and with an opening to the south, will answer the purpose. It is it is placed on a slight elevation, so that water may not run in, there is no need of a floor; ground floors are best. Shingles or paper may be used for the roof, which must be perfectly rain-proof, for metal will get the place too warm during the summer. As only one thickness of lumber forms the sides, it should be grooved and tongued.

The main objection to keeping stock in cold shelters during winter has been that more feed is required. That the contention is correct cannot be disputed, if the conditions were always perfect in warm stables. But, as a matter of fact, there are very few well ventilated barns in the country, and it is a question whether there is not as much loss of feed through bad digestion, due to the foul air breathed inside such buildings, as through the extra amount given outside.

Root Seed Production in Canada

Suggestions by Dr. C. A. Zavitz.

IN each of the past ten years experiments have been conducted in the production of home grown seed of mangels, turnips and carrots. The results with turnips and carrots have been fairly satisfactory, and with mangels they have been very successful in eight out of the ten years. In 1916, however, the home grown mangel seed was practically a failure owing to lack of germination. It was a hot, dry time when the mangel plants were in blossom which caused injury to the plants, and particularly to the seed. In 1917, on slightly less than one acre of land, we produced fully 1,350 pounds of thoroughly dried, carefully cleaned seed having an average germination of clusters of about 94 per cent., and of plants from the clusters of 216 per cent. This stock seed is being used for the production of stecklinge this year for transplanting in 1919 for seed production.

As nearly all root seeds were imported from European countries previous to the war, and as there are practically no importations at the present time, the supply of seed is in a rather critical condition. The Dominion Government is taking measures to increase root seed production as much as possible in differeat parts of the Dominion. I would suggest to the farmers that they secure from their root cellars or from their pits in the spring a number of choice mangels and plant these in well-cultivated ground early in May.