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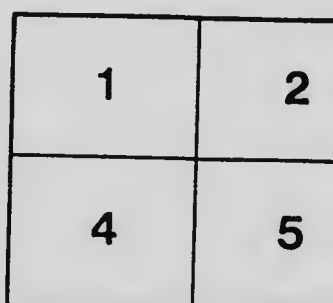
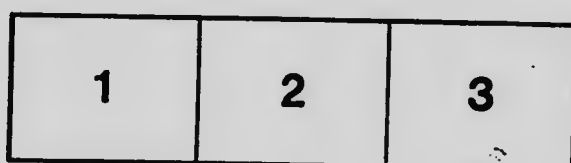
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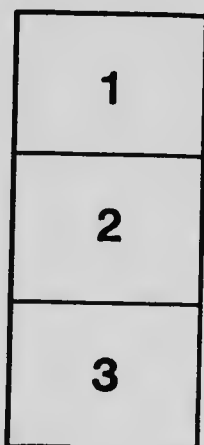
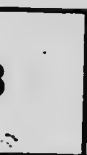
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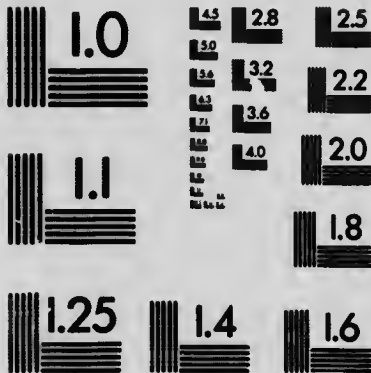
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CIRCULAR No. 7

SPRING WHEAT

DR. C. A. ZAVITZ, Professor of Field Husbandry,
Agricultural College, Guelph

The world is calling loudly for food. Essential food materials in concentrated form should be increased as quickly as possible. Just previous to the war Canada produced, per unit of population, more food materials obtainable from farm crops than any of the other leading agricultural countries of the world. In this respect, she was followed in order by Argentina, the United States, Australia, Germany, Austria-Hungary, France, and Russia. It requires only from one-sixth to one-half the time to transport food materials from Canada to Great Britain as it does either from Australia or from the Argentine Republic. These facts point directly to the duty and to the opportunity of Canada in the performance of a great service to the world at this critical time.

WHEAT AS A FOOD MATERIAL.

Wheat is used more extensively as human food than any other cereal. It is particularly rich in nutritive materials and, with the exception of rye, no other grain contains a gluten which is capable of expanding and forming light, porous bread. Wheat differs in composition from all other cereals in that its gluten is composed of two proteids—gliadin and glutenin. This gives flour its bread-making value. Bread can be made from wheat flour alone or in combination with flour from other grains. Wheat is easily grown, readily transported and conveniently stored when necessary.

SPRING WHEAT IN ONTARIO.

The area of spring wheat grown in Ontario in 1917 was 182,957 acres, or 21 per cent. greater than that of the year previous. Owing to unfavorable weather conditions, the amount of winter wheat sown in this Province in the autumn of 1917 was considerably below the average. There should be a large area of land in Ontario well suited to the production of spring wheat for 1918. This crop requires about the same amount of labor as oats, barley, rye or buckwheat, and considerably less labor than any of the cultivated crops.

KINDS OF SOIL.

Spring wheat can be grown successfully on a variety of soils. It thrives particularly well, however, on well drained, rich loam containing a fair amount of decaying vegetable matter. Fertile clay soils when well drained usually give satisfactory results in spring wheat production.

PREPARATION OF SOIL.

In crop rotations such as those followed in Ontario, spring wheat fits in very nicely. In experiments conducted at the Ontario Agricultural College it has given good results when sown after corn, potatoes, swede turnips, fall turnips, carrots and rape. It usually gives satisfactory results when sown on sod land ploughed in the autumn or on land which has grown beans or peas, and which has had thorough autumn preparation so as to permit of early seeding in the spring. Spring wheat forms one of the very best nurse crops with which to seed grasses and clovers, either singly or in combination.

THE VALUE OF GOOD SEED.

Not only is it important to use the best kind of spring wheat, but if the highest returns are to be secured seed of high quality should be sown. The best spring wheat for sowing is that which is clean, uniform, plump, sound, well matured and of strong vitality. The Marquis is a comparatively new variety, and with favorable weather conditions it should give satisfactory results in Ontario, whether the seed has been locally grown or whether it has been secured from the Western Provinces, where it has been grown for the last few years.

IMPORTANCE OF EARLY SOWING.

For five years in succession an experiment was conducted at the Ontario Agricultural College in sowing spring wheat at six different dates in the spring, commencing as early as the land could be worked satisfactorily, and allowing one week between each two dates of sowing. In each year the experiment was conducted in duplicate by sowing one plot at each date of seeding with the tube drill and another plot broadcast by hand. The average results of the ten separate tests are as follows:

Seedings.	Yield of Straw per acre (tons).	Weight of Grain per measured bushel (pounds).	Yield of Grain per acre (bushels).
1st	1.2	60.1	21.9
2nd	1.1	59.6	19.2
3rd	1.0	59.0	15.4
4th	.9	58.9	13.0
5th	.6	56.5	8.4
6th	.8	54.0	6.7

The earliest seeding gave the best results throughout. It is interesting to note that there was a gradual decrease in crop production as the dates advanced from the beginning to the end of the test. According to the results of the experiment, there was an average decrease in yield of spring wheat per acre of 26.1 pounds for each day's delay after the first seeding took place. Of all spring cereals grown in Ontario, wheat should be sown earliest. It is essential, if the best results are to be obtained, to sow spring wheat as early in the spring as the season will permit.

METHOD OF SOWING.

It was mentioned under the last heading that spring wheat had been sown with a tube drill and broadcast by hand on each of six dates and over a period of five years. The average results show that for the earliest date of seeding the grain which was broadcasted gave a little higher yield than that which was sown with the tube drill, but in the average of the five later dates of seeding the drilled grain gave the highest returns.

SEED PER ACRE.

The quantity of seed per acre for best results depends upon the condition and the quality of the soil, the variety used, etc. On comparatively rich soils, six pecks per acre is usually a sufficient amount of seed when either the Marquis or the Red Fife variety is used. When land is not very fertile and is not in the best mechanical condition seven and, in some instances, even eight, pecks of seed per acre should be sown. The Wild Goose variety, being a light stooler, usually requires from one to two pecks of seed per acre more than either the Red Fife or the Marquis.

TREATMENT OF SPRING WHEAT FOR STINKING SMUT.

The fungus disease known as Stinking Smut frequently reduces the yield and impairs the quality of wheat.

As the result of rather extensive experimental work conducted at the College, we have obtained very satisfactory returns from immersing wheat for twenty minutes in a solution made by mixing one pint of formalin with forty-two gallons of water. This treatment is easily applied and is comparatively cheap. It has been effectual in completely killing all of the smut spores in producing the largest average yield of grain per acre of all the treatments used.

The formalin process is used by some farmers, but unless great care is taken this method is not complete in destroying all of the smut, and as a result it is frequently necessary to treat the grain every year. One of the best methods is to carefully moisten twenty-five bushels of wheat by shovelling it over on a barn floor when it is being sprinkled with a mixture of one-half pint of formalin and fifteen gallons of water. When the grain is uniformly moistened it should be covered with bags or blankets for three or four hours, and then spread out to dry. Varying quantities should be treated proportionately.

Not only is it necessary to treat the grain, but the formalin solution should be used to kill the smut spores which are lodged in the bins, on the barn floor, on the bags, in the grain drills or wherever the living spores have an opportunity of re-infesting the grain. The formalin treatment is not effectual in killing the Loose Smut in wheat.

MAY BE GROWN IN EVERY COUNTY.

Spring wheat is grown in every county and district of Ontario, varying from 52 acres in Elgin County, which has the smallest, to 33,239 acres in Renfrew, which has the largest area in 1917.

Scores of Ontario farmers had limited quantities of spring wheat grown in 1917 which they offered for sale. It was only in exceptional cases, however, where individual farmers had more than two or three hundred bushels to spare. Practically all of this seed has been sold already. It will be necessary, therefore, to secure further supplies of seed wheat, and particularly of the Marquis variety, from the Western Provinces.

WHERE TO GET YOUR SEED.

In view of the fact that Marquis variety is specially recommended for general cultivation in Ontario at the present time, and in view of the fact that there is no supply of seed available locally, the Ontario Department of Agriculture has arranged to bring in 50,000 bushels, and will purchase more if found necessary, from Western Canada. This grain was purchased under the supervision of the Seed Commissioner of the Federal Department of Agriculture, the most suitable grain offering at various elevators being selected. It has been recleaned, and the supply for Ontario is put up in two-bushel bags. It is being brought to Ontario in carload lots, and placed at the following distribution points: Hamilton, Woodstock, St. Mary's, London, Chatham, Toronto, Brampton, Newmarket, Barrie, Orillia, Brantford, Simcoe, Welland, Orangeville, Alliston, Listowel, Durham, Palgrave, Stouffville, Lindsay, Oshawa, Peterborough, Port Perry, Port Hope, Kemptville.

Carload lots may be shipped direct to other points on order.

Purchases may be made at any of the following places:—

Warehouse at distributing point.

Offices of the District Representatives.

Markets Branch, Department of Agriculture, Toronto.

In all cases, without exception, *cash must accompany order*. The price is \$2.74 per bushel. This price simply covers the original cost of the grain, cost of cleaning, bagging and transportation. It does not cover any profit. In Ontario the grain men at distributing points have offered the use of their warehouses, free of charge, in order to facilitate the distribution at the lowest possible price.

AS TO THE FUTURE MARKET.

Aside from the strong patriotic appeal on behalf of wheat, attention may be directed to the market outlook. For the 1918 wheat crop in the United States a minimum price of \$2.00 per bushel has been fixed by law. And the President has recommended that this be increased to \$2.28 per bushel. While, therefore, no fixed price has yet been set in Canada, the action taken across the line practically stabilizes prices on the continent. This fact may well be kept in mind in making comparisons with other grain crops, which are free to fluctuate much more freely, regardless of their present quotations.

Put in a few acres of spring wheat.

For fuller information the reader is referred to Bulletin No. 261 on "Wheat and Rye," copies of which may be obtained from the Department of Agriculture, Parliament Buildings, Toronto.



