SPECIAL PAMPHLET *No. 1*

FLAXSEED

CANADA needs another million bushels of flaxseed to supply her home consumption.

The present price of flaxseed in relation to other grains makes its production more attractive than in some years past.

The high quality of Canadian flaxseed continues to attract buyers, and there appears to be no danger of over-production.

Districts which produce low quality wheat can grow flaxseed of highest market quality.

Success in the production of flax depends upon the use of good seed of suitable varieties, sown on clean land, well prepared to produce a good seed bed, coupled with favourable growing conditions.

Present Situation and Outlook

Canada has been importing flaxseed for the past ten years, domestic production being far short of demand. An average of over 800,000 bushels of seed and 36,000 hundredweights of linseed oil, equivalent to another 180,000 bushels of seed, were imported annually during 1934 to 1939. Flaxseed is consumed chiefly by the linseed oil industry which crushes an average of more than 1,800,000 bushels annually.

In 1939 the acreage of flax increased 49 per cent over that of the previous two years, producing 2,500,000 bushels. However, the 1939 crop while above that of any year since 1932, was not large enough to satisfy normal requirements. Our surplus stocks have always found a ready outlet in the United States where production annually falls short of consumption by about 15,000,000

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bushels. During the last war, Canada produced 6,000,000 to 8,000,000 bushels, of which a large volume was exported. The high tariff of 65 cents against flax entering the United States has done much to reduce our exports to that country in recent years. However, due to the higher quality of our northern flax, any surplus for export will likely find its way into that market.

Crop Value a Factor

In viewing the market prospects for flax, Western farmers naturally study the relative prices of wheat and flax. The normal yield of flaxseed is less than half that of wheat and about one-third that of barley. Assuming that an acre of flax can be handled as cheaply as an acre of wheat and considering the average yield of each, the price of flax should be twice that of wheat in order to make it attractive. Such a relationship exists at time of writing and has maintained for some time.

Advantages of Flaxseed Production

Aside from prospective crop value there are other obvious advantages in producing flax. A second cash crop provides insurance against either over-production or failure of other crops. Flax fits into the rotation in exactly the same way as wheat or other small grains, and is sown, harvested and threshed with the same machinery, therefore requiring practically no extra cost to produce. Some farmers find that since flax has the ability to stand long without shattering, they are able to extend the use of their equipment. Surveys conducted for a number of years indicate that in general, the northern areas of the Prairie Provinces which produce wheat of lower baking strength than the most southerly districts are most suitable for the production of high quality flax. Earlier maturing varieties such as Redwing are pushing the flax acreage northward.

Points of Importance in Production

In the past, the practice on breaking new land was to seed flax the first year to be followed by wheat. This practice is not so rigidly followed to-day as virgin prairie may be more profitably used for the production of registered seed of other grains than flax. Data from Dominion Experimental Stations indicate that yields of wheat following flax are as good as, and in some cases better than, those following wheat, oats or peas. A good practice is to sow flax after brome grass or other sod. This has a number of advantages but one of the most important is that wire worms are likely to be abundant in such sod land, and they attack flax much less readily than wheat and oats. The place of flax in the rotation should be so arranged as to give the crop the best protection against its greatest weakness, inability to compete against weeds. Only land relatively free from weeds should be sown to this crop.

Seed and Seeding

Cultivation prior to seeding may be a means of reducing weed competition and is necessary to the preparation of an even, clean and firm bed. It is important that the land should be in a good state of tilth and that sowing

be at an even depth, and no deeper than is necessary to cover the seed well. The rate of seeding appears to be dependent on the moisture supply and nothing is gained by the increase of the stand beyond the capacity of the soil. The amount of seed required will vary from 28 to 40 pounds per acre depending partly on the size of the seed. The seed should be carefully cleaned. Experiments conducted on Dominion Experimental Farms indicate that early seeding is preferable, and generally produces the highest yields per acre. The best period for seeding is about two weeks after the season opens.

Late Seeding Detrimental

The common practice has been to seed flax when it is too late for wheat. With some farmers, fear of spring frosts has been responsible; with others, moisture has been a determining factor. If moisture came late, flax would be seeded instead of and later than wheat. Late sowing, and therefore, late ripening frequently are responsible for difficulties in harvesting and threshing. Weed growth may be stimulated by late rains and may smother the crop or at best delay the harvest. Fall ploughing may thus be delayed and fall cultivation hindered. Flax appears to have been damaged more by fall frosts because of late sowing than by spring frosts on new seedlings.

Varieties Recommended

The situation with regard to flax varieties has changed appreciably during recent years. Previous to 1934 more than 75 per cent of the crop consisted of the variety called Crown. This variety has a very serious defect in that it is very susceptible to the disease known as Flax Wilt. Though some producers are still growing Crown, the spread of Bison has been so remarkable that it has become the most widely grown variety in both Canada and the United States.

The popularity of Bison rests on many favourable characteristics chief among which are resistance to flax wilt, a large, bold plump seed, and a growth that is vigorous and productive. A recent survey has shown an increase in the Redwing variety, especially in Manitoba and Alberta. Redwing is wilt resistant and is earlier maturing than Bison. It is recommended for those districts where frosts are likely to be a hazard or in any area where, because of early maturity, it might fit in more satisfactorily with general farm operations.

In the spring of 1939, a wilt resistant type selected from Crown at the University of Saskatchewan, was licensed and distributed. This selection, named Royal, while yielding well, appears slightly later in maturity and weaker in straw than Bison.

The Weed Problem

Flax seedlings are rather slow in making growth, produce little shade and are therefore poor competitors with weeds. This is an added reason for early seeding. Late seeding with the consequent late harvesting, allows many weeds to reach maturity and thus in the meantime choke out the flax and rob it of moisture and fertility.

Generally, light soil is not well adapted to the successful growing of flax. In the main soils which are well suited to the growth of cereal grains and other farm crops, and having good moisture retention properties will produce a good crop of flax. The areas of the most extensive production are therefore, our fairly heavy loams, these having greater ability to retain moisture than have the lighter soils.

It is the general experience of producers that grasshoppers may do more damage to flax than to other grain crops, owing to the succulency of the stem of the flax plant which is generally quickly cut off for that reason. It may be considered a heavy risk to seed flax where a grasshopper infestation is to be feared. If seeding is to be undertaken however, early seeding, which provides early maturity, may tend to reduce the damage from drought. Late seeding finds the flax still green when other grains have become almost mature.

Harvesting Methods

Flax is usually cut with the ordinary binder when the bolls are ripe and the stems yellow. Flax should be cut when dry as otherwise it is very difficult to handle. If free from weeds, it makes a good combine crop since it does not shatter easily and may be left standing longer than other grains. To combine well it should be fully ripe and thoroughly dry. No attempt should be made to thresh under unfavourable weather conditions owing to the fibrous nature of the plant. There should be no end play in the cylinder as the cracking of the seed caused thereby will lower the grade. A careful examination of the flaxseed before cleaning will indicate which weed screen to use. For small varieties a $\frac{1}{14}$-inch or a $\frac{1}{15}$-inch round hole sieve for a bottom sieve and one $\frac{1}{16}$ inch by $\frac{1}{4}$ inch for a top sieve are satisfactory. In the case of large varieties a $\frac{1}{12}$-inch round hole sieve may be used in the bottom. Flaxseed should be stored only in a dry place.

Handling Flax Seed

Extra precautions are necessary to prevent leakage and loss when handling the crop during and after threshing. The threshing machines should be put in first class condition, and bins and wagons should be carefully gone over for leaks. Owing to the nature of the flax seed very considerable quantities may be lost through faulty machinery, bins and wagons.

Flax cannot be handled when it is damp, and in some districts farmers may have only a few hours in the day when the crop may be dry enough to thresh. This makes the problem of threshing rather difficult but where farmers own their own threshing outfit these drawbacks are greatly reduced.

It would seem that most of the difficulties encountered with the production of a flax crop may be avoided or at least very greatly reduced if an early variety is used, sown at the proper time, on land free from weeds.

Conditions indicate a good market for flax seed and as has been pointed out in the introduction, an additional million bushels can easily be handled in the domestic market.

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