HYBRID CORN

The extensive use of hybrid corn in Canada is of such recent date that census data regarding its production are not yet available. The first extensive tests with hybrid corn were made in southwestern Ontario in 1938. The results of those tests were most encouraging and there followed a rapid expansion in the acreage devoted to hybrid corn in the husking-corn area. In 1942 it was estimated that almost 85 per cent of the commercial-corn acreage in southwestern Ontario was sown to hybrid corn. The same period recorded a marked increase in the use of hybrid corn for ensilage throughout Ontario.

Yield tests, conducted by both federal and provincial agricultural institutions in Ontario, have adequately demonstrated the superiority of adapted hybrids over the better, commonly-grown varieties. Comparatively high yield is only one of the factors which have tended to popularize hybrid corn in Ontario. The stronger stalk tends to resist lodging and the fact that the ears are borne approximately at the same level and position on the stalk tends to simplify the harvesting process by permitting more satisfactory use of mechanical corn pickers. It is noteworthy too that the better hybrids have suffered less damage from corn borer attack than the commonly-grown varieties. From a silage standpoint the fact that with many of the better hybrids the stalks remain green after the ears have matured is of considerable importance. It is a well-established fact that the best corn silage is made from corn in which the ears are reasonably well matured while the stalks are still green.

Not All Hybrids are Superior

Corn hybrids vary greatly in yield, strength of stalk and other characters. Only those hybrids which have been tested and found to be productive and highly adapted to specified areas should be grown in those areas.

The importance of adaptation cannot be emphasized too strongly. The tendency to grow late-maturing hybrids, because of the slightly higher yields sometimes secured, is a dangerous practice. Not only is the grower likely to experience heavy losses during years of abnormal climatic conditions, but the quality of the grain produced may be seriously affected, during many years, because of a relatively high moisture content. Growers planting hybrid corn for grain production should be sure that the hybrid they purchase will ripen in their area and produce good yields of high quality grain. Hybrids grown for ensilage may be somewhat later in maturity provided they become sufficiently mature to make silage of high quality.

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Recommended Hybrids for Ontario

On the basis of experimental data secured to date, the following hybrids are recommended for production in Ontario.

Very early		*Early*		*Medium*		*Late*	
Canada	275	Minhybrid	301	DeKalb	240	Funks	G 15
Wisconsin	275	Pioneer	355	Canada	606	Pioneer	322
Canada	279	Kingscrost	M	Wisconsin	606	DeKalb	404A
Wisconsin	279	Canada	531	Canada	645	Canada	696
Canada	355	Wisconsin	531	Wisconsin	645	Wisconsin	696
Wisconsin	355			Canada	625	Iowa	939
				Wisconsin	645	Kingscrost	F B
				Ohio M	15	Iowa	942

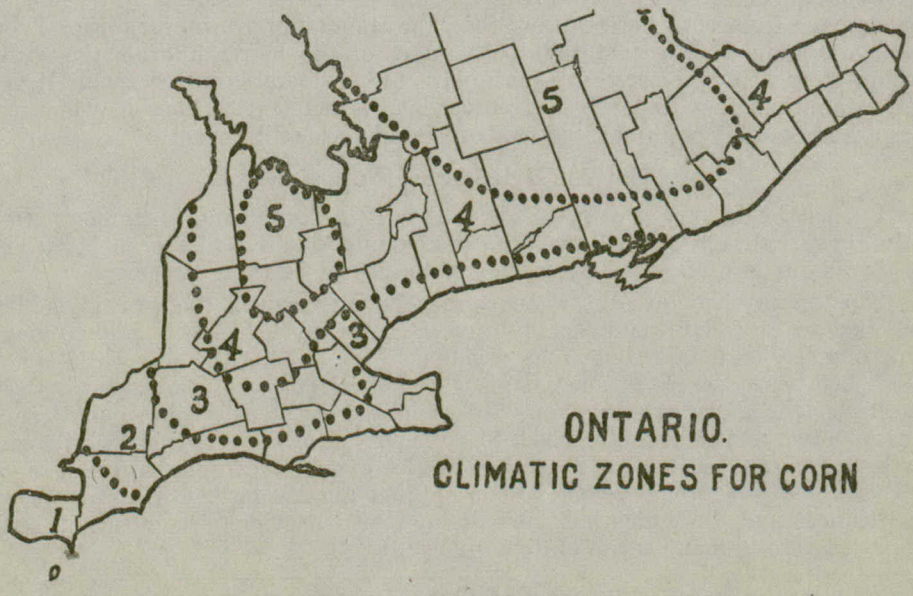
NOTE.—Hybrids designated "Canada" have the same parentage as "Wisconsin" hybrids of the same numbers. They are produced in Canada from breeding stocks now maintained in Canada but which originated in Wisconsin.

The hybrids are grouped according to maturity. Within each group the individual hybrids are also in order of maturity, the earlier-maturing hybrids being placed at the top in each case.

The hybrids have been selected to meet a fairly wide range of conditions. All of them have demonstrated high yielding ability and possess strong stalks and large root systems. They have shown considerable resistance to lodging, and to damage resulting from corn borer attacks. All have shown themselves to be superior to the commonly-grown varieties of similar maturity.

Zones of Production

The zones outlined on the following map are based upon the average number of frost-free days and the total number of heat units (1) registered during the growing season. In drawing the zone boundaries the fact that there are many local areas within each zone, that differ somewhat from the average of the zone regarding soil and climate, is fully recognized. Nevertheless the zone boundaries will provide a useful guide for the inexperienced grower who wishes to choose a corn hybrid suitable for production in his particular area.



(1) These meteorological data were kindly supplied by the Ontario Research Foundation.

Recommendations Based on Zones

ZONE 1—
Fodder.....Late group adapted to whole area.
Grain.....Medium group adapted to whole area. Late group may be used in many areas.

ZONE 2—
Fodder.....Medium group adapted to whole area.
Grain.....Early group adapted to whole area. Medium group may be used in favoured areas.

ZONE 3—
Fodder.....Medium group adapted to whole area.
Grain.....Very early group adapted to whole area. Early group may be used in favoured areas.

ZONE 4—
Fodder.....Medium or early group adapted to whole area.
Grain.....Very early or early group adapted to favoured areas.

ZONE 5—
Fodder.....Early to very early group adapted to whole area.
Grain.....Very early group adapted to favoured areas.

Seed Production

All of the recommended strains of hybrid corn, listed in this publication, are of the type known as double-cross or commercial hybrids. Four inbred or true-breeding lines are combined in a certain order to produce each of these hybrids. The inbred lines are first crossed in pairs to make single-cross hybrids, and two of these single-cross hybrids are in turn crossed to produce the double-cross hybrid. This may be illustrated as follows, using inbred lines A. B. C and D.

A x B = single cross (X)
C x D = single cross (Y)
X x Y = double-cross or commercial hybrid

Hence three different classes of seed must be produced to develop, maintain and place in production each double-cross hybrid. The production of inbred-line seed and single-crossed seed is a specialized business which requires a great deal of care and attention. It is a much more costly and time-consuming business than the average grower is justified in undertaking. Some individuals and private companies who have the necessary time and facilities may be interested in producing enough of these classes of seed for their own use. However, except for those hybrids which have been developed by private companies, and the pedigrees of which are trade secrets, the production of inbred and single-crossed seed has been left largely to the agricultural institutions.

The grower of commercial hybrid corn seed purchases the single-crossed seed necessary to produce the hybrid which he wishes to grow. In the case of the Canada hybrids recommended for production in Ontario, single-crossed seed is being produced through a co-operative arrangement between the Dominion Experimental Station, Harrow, Ont., and the Western Ontario Experimental Farm, Ridgetown, Ontario. Applications for single-crossed seed of these hybrids must be made to the Superintendent, Western Experimental Farm, Ridgetown, Ont., not later than the month of April in the year preceding that in which the seed will be planted. Hence seed for planting in the spring of 1944 should be ordered not later than April, 1943.

The Canadian Seed Growers Association is responsible for the registration of all commercial hybrid seed corn grown in Ontario. Regulations governing the production of hybrid corn seed, procedure regarding isolation, detasselling, etc., are given in Canadian Seed Growers' Association bulletin No. 16, Revised edition 1942. Seed growers are urged to study those rules and regulations in detail.

Grades of Commercial Hybrid Seed Corn

Seed is offered to farmers by grades as defined by the Seeds Act. Hybrid seed corn is designated with a name or number, and processed into size or class, including:—

Large Flats	Large Rounds
Medium Flats	Medium Rounds
Small Flats	Small Rounds

Each hybrid seed container will bear one of these descriptive terms, together with the name and number of the hybrid; e.g., Canada 645, Medium Flats.

Seeding

Because of the variation in the size and shape of the seed of the six different grades of hybrid corn, the machinery for planting requires to be adjusted to suit the particular grade of seed used. Planting in hills three and a half feet apart each way, with an average drop of three to four kernels per hill, one bushel of seed should plant from six to eight acres. Where the grain drill is used to plant in rows spaced around three and a half feet apart, it should be regulated to drop one to two seeds per foot, if the crop is to be used for grain production, and two to three seeds per foot if the crop is to be used for ensilage. At these rates one bushel of seed should be sufficient to sow on the average around five and four acres respectively.

Experience may show that a somewhat thinner seeding than the rates suggested may result in a better quality of either grain or ensilage with no decrease in yield. A good objective in hill planting is to have three plants per hill, and in row planting one plant per foot of row as the final average stand.

Importation and Sale of Hybrid Seed Corn

The following regulations governing the importation and sale of hybrid seed corn of Field Varieties are set forth in the Dominion Seeds Act.

Hybrid strains of field corn shall be designated with a name or number. The use of the term " hybrid " shall be restricted to first generation stock of a cross, the parentage of which involves two or more inbred lines or their combinations. Such hybrids shall not be eligible for importation or sale in Canada under the provisions of this Act until certified by an accredited certifying agency. Further, the official certification tag must indicate the hybrid designation and its approximate maturity in the state or country where developed.

Vendors of hybrid seed corn of field varieties shall file with the Production Service, Plant Products Division, Department of Agriculture, Ottawa, a statement giving the pedigree of the hybrid and the name of the accredited certifying agency.

The following statement or its equivalent shall appear on the tag attached to each bag of hybrid seed corn of field variety that is offered for sale in Canada:—

CAUTION

Do Not Save Seed From This Corn

The superiority of this corn rests on the fact that it is a Hybrid between selected inbred strains. Hybridity is an unstable condition and holds for only one generation. *After the first hybrid generation* the stock " breaks up " and gives a decreased yield.

For information regarding sources of hybrid corn seed, strains eligible for importation into Canada, etc., apply to the Plant Products Division, Production Service, Ottawa.

Further information regarding suitable strains of hybrid corn for growing in your area may be secured from your Agricultural Representative, or from your nearest Agricultural Experimental Station.

Prepared by the Ontario Corn Committee.

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