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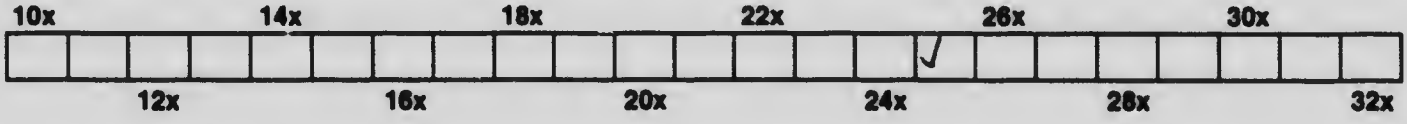

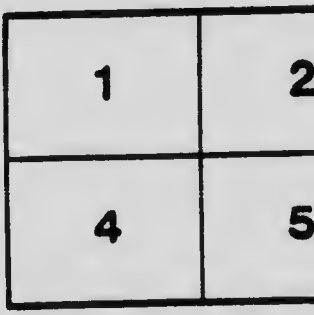

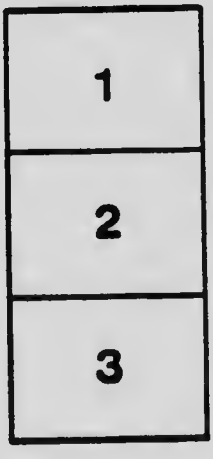

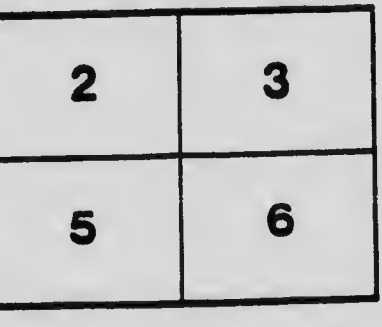

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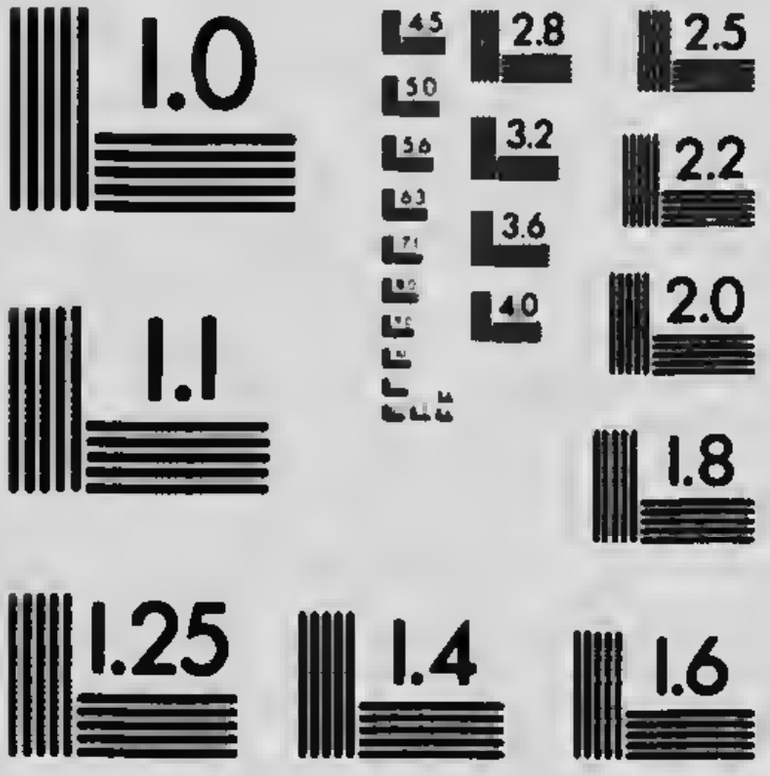

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CROP ROTATIONS FOR THE DRY FARMING DISTRICTS OF CANADA

BY

O. C. WHITE, B.S.A.

That certain crops do better when following after certain other crops, has long been known, but farm practices, especially in a country where the soil is very fertile, seldom keep pace with knowledge in these matters. Conditions on the prairies have been such as to obviate, in some measure, the need for careful agricultural methods, but as our country grows older it becomes demonstrated more and more that practices, profitable in the early days of settlement, are not going to prove profitable in the time to come. Attention for the past few years has therefore been turned to the introduction and study of methods of crop production that will not only give larger returns for the capital and labour involved but will at the same time conserve soil fertility in such a way as to establish a permanent system of agriculture.

The problems that confront the farmer in the dry-farming districts of Canada are, of course, quite different from those which require his attention in the East. While, in the Prairie Provinces the revenue from grain growing will for a time be the chief source of income to the great majority of settlers, the need for a greater diversity of crops is becoming more urgent year after year. Mixed farming must be the ultimate goal, but whether grain growing or the production of crops suitable for the maintenance of live stock be the aim, the first great essential in any system of agriculture that may be evolved is a suitable rotation of crops.

The Dominion Experimental Farms have for a number of years past been paying special attention to the value of rotations in crop production. To meet present needs in connection with the growing of cereals some purely grain production rotations are being tested, and in anticipation of the requirements of the future, forage crops for live stock are being introduced in various combinations and in gradually increasing proportions.

Below is a description of the rotations that are now being tested.

GRAIN FARMING ROTATIONS.

Rotation "A" (grain continuously).

Continuous cropping to grain may for a time produce very good profits. It is not a practice to be recommended, however, for yields show a gradual falling off, as the method is both exhaustive of fertility and moisture and ineffective in the control of noxious weeds.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr., Director.

O. C. WHITE, B.S.A., Assistant Dominion Field Husbandman.

EXHIBITION CIRCULAR No. 35.

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ROTATION "B" (TWO YEARS' DURATION).

First year—Summer-fallow.
Second year—Wheat.

This rotation is under trial at our Lethbridge Experimental Station only. Just half the land under experiment is in crop each year and as this must be debited with the cost of operating for two years, the net profits are likely to be low.

ROTATION "C" (THREE YEARS' DURATION).

First year—Summer-fallow.
Second year—Wheat.
Third year—Wheat or coarse grain.

This is the rotation more commonly followed throughout our dry-farming areas. While it is likely to prove satisfactory for a longer or shorter time, depending on the natural fertility of the soil at the outset, it cannot be given an unqualified recommendation, since soil impoverishment must result from its long continued use.

ROTATION "E" (FOUR YEARS' DURATION).

First year—Wheat. Plough stubble in autumn.
Second year—Wheat. Plough stubble in autumn or spring.
Third year—Oats.
Fourth year—Summer-fallow.

This is a grain growing rotation, frequently used by Manitoban farmers, but which from the standpoint of the upkeep of fertility cannot be regarded as economical. In common with all rotations which include merely grain crops and fallowing, this rotation must result in soil deterioration if practiced for a number of years.

MIXED FARMING ROTATIONS.

ROTATION "F" (FIVE YEARS' DURATION).

First year—Wheat. Plough stubble in autumn.
Second year—Wheat. Plough stubble in autumn or spring.
Third year—Corn or roots. Apply manure preceding autumn.
Fourth year—Oats or barley. Seed down with 3 pounds timothy, 5 pounds rye grass and 8 pounds red clover per acre.
Fifth year—Clover hay. Plough land after hay is cut, and top work for remainder of season.

This is a mixed farming rotation suitable for Manitoban conditions, where there is a sufficiency of permanent pasture outside the rotation. Mr. McKillican, Superintendent of the Experimental Farm, Brandon, says of it:—

"This rotation is proving a decided success on the Experimental Farm. In a country where summer-fallowing is generally considered essential it demonstrates the possibility of producing a profitable crop every year. The substitutes for the summer-fallow are, first, corn or roots and secondly, clover hay. While these crops do not show in themselves any very great profit, they more than pay for the operation they involve, and for the overhead charges counted against them, and they leave the land in such a condition that the following crops of grain are more profitable than any grown in the straight grain-growing rotations."

ROTATION "G" (SIX YEARS' DURATION).

First year—Wheat. Plough stubble in autumn.
Second year.—Wheat. Plough stubble in autumn
Third year.—Oats or barley. Seed down with 5 pounds timothy and 8 pounds western rye grass per acre.
Fourth year—Clover hay.
Fifth year—Pasture.
Sixth year—Corn or roots. Apply manure previous autumn.

This is a mixed farming rotation providing for wheat, coarse grains, hay, pasture and fodder corn. It has been giving excellent results at the Brandon Experimental Farm.

ROTATION "H" (SIX YEARS' DURATION).

First year—Wheat.
Second year—Wheat.
Third year—Summer-fallow.
Fourth year—Oats. Seed down with a mixture of western rye grass, red clover and alsike.
Fifth year—Clover hay.
Sixth year—Pasture. Apply manure.

This rotation is suitable for a farm where grain is still the principal crop, but where hay and pasture are desired for stock. It has no hoed crop and is therefore suited to the farmer who considers a hoed crop impracticable under present labour conditions. It is being operated at the Brandon Experimental Farm only.

ROTATION "J" (SIX YEARS' DURATION).

First year—Summer-fallow.
Second year—Wheat.
Third year—Wheat or coarse grain.
Fourth year—Oats. Seed down with western rye grass, red clover and alfalfa.
Fifth year—Clover hay.
Sixth year—Pasture.

This rotation is giving good satisfaction at Indian Head, Rosthern and Scott. Combining, as it does, three grain crops, two grass or hay crops and one fallow in six years, it is well adapted to conditions where it is desired to keep a small quantity of live stock. In particularly dry seasons it will probably be difficult to get a good stand of grass where a nurse crop is used.

ROTATION "R" (NINE YEARS' DURATION).

First year—Summer-fallow.
Second year—Hoed crop or peas. Manure at rate of 15 tons per acre.
Third year—Wheat.
Fourth year—Oats.
Fifth year—Summer-fallow.
Sixth year—Wheat.
Seventh year—Oats. Seed down with western rye grass, red clover and alfalfa.
Eighth year—Hay.
Ninth year—Pasture.

Because of the relatively small proportion of wheat it supplies, this rotation may not find immediate favour among farmers, but results so far point to it as a valuable rotation where mixed farming is being adopted. It is being tested at Indian Head, Rosthern and Scott.

ROTATION "M" (SIX YEARS' DURATION).

First year—Summer-fallow.
Second year—Wheat.
Third year—Coarse grain. Apply manure on stubble in autumn.
Fourth year—Summer-fallow.
Fifth year—Peas and oats for hay.
Sixth year—Barley or oats.

This rotation is being operated at Lethbridge, and is proving profitable. The peas and oats, cut for hay, have given good returns. When it is not desired to grow hoed crops this rotation will prove useful.

ROTATION "S" (NINE YEARS' DURATION).

First year—Summer-fallow. Apply manure in preparation for hoed crop.
Second year—Corn.
Third year—Wheat.
Fourth year—Summer-fallow.
Fifth year—Wheat.
Sixth year—Coarse grain.
Seventh year—Summer-fallow.
Eighth year—Peas and oats for hay. Seed in autumn to rye.
Ninth year—Rye pasture.

At Lethbridge this rotation has proven satisfactory so far. The forage crops have yielded fairly well. The pasture years have not been profitable, but have served to firm the soil and add fibre.

ROTATION "T" (TEN YEARS' DURATION).

First year—Summer-fallow.
Second year—Wheat.
Third year—Oats or barley.
Fourth year—Summer-fallow early part of season. Seed to alfalfa late June in rows twenty-eight inches apart.
Fifth year—Alfalfa hay or seed.
Sixth year—Alfalfa hay or seed.
Seventh year—Alfalfa hay or pasture.
Eighth year—Summer-fallow.
Ninth year—Hoed crop.
Tenth year—Wheat. Apply manure on stubble.

This rotation is in operation at Lethbridge only, where it is proving highly profitable. The crops of roots have been excellent, and good profits have been obtained from alfalfa seed when the crop was planted in rows and intertilled.

ROTATION "L" (SIX YEARS' DURATION).

First year—Hay.
Second year—Pasture. Apply manure in autumn at rate of 12 tons per acre.
Third year—Pasture. Break in July for winter wheat.
Fourth year—Winter wheat, or in case of failure to stand, spring wheat.
Fifth year—Oats.
Sixth year—Barley. Seed down with 4 pounds timothy, 4 pounds alsike clover and 4 pounds red clover per acre.

This is a purely live stock rotation adapted to conditions such as obtain in the central and northern parts of Alberta.

Published by authority of Hon. MARTIN BURRELL, Minister of Agriculture, Ottawa, Ont.