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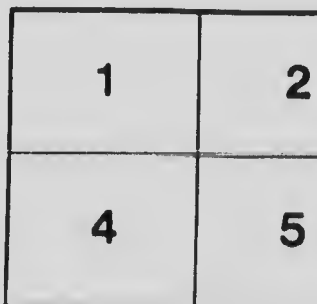
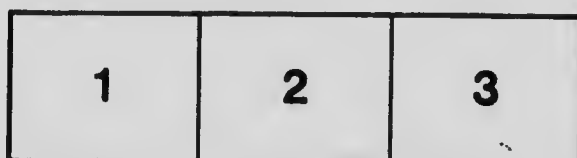
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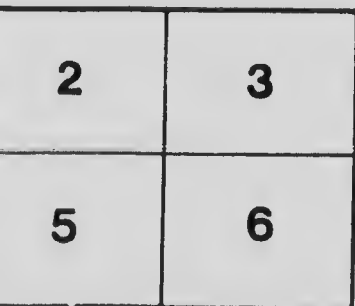
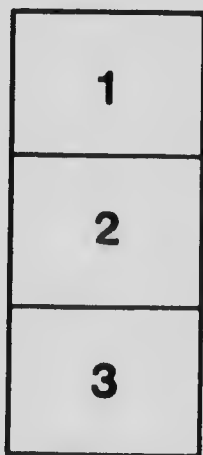
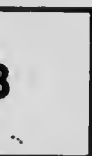
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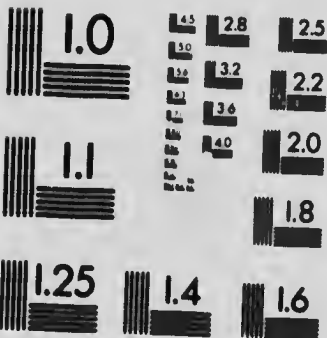
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DEPARTMENT OF AGRICULTURE.

EXPERIMENTAL FARMS.

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

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

DIVISION OF FIELD HUSBANDRY.

CROP ROTATIONS

FOR

CENTRAL AND EASTERN CANADA.

BY

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

CROP ROTATIONS FOR CENTRAL AND EASTERN CANADA.

What is meant by rotation of crops?

It is a certain regular succession of crops so arranged that, after each, the land is left in the best possible condition to receive the crop which follows.

Why does the order in which crops follow each other make a great difference in the yields from year to year?

1. Because different plants have different manurial requirements.
2. Because plants vary in their power to abstract certain foods from the soil.
3. Because all plants do not feed to the same depth in the soil.
4. Because all plants are not alike in the residues they leave behind.
5. Because some plants tend to produce better tilth than others.
6. Because plants vary in their resistance power to bacterial and fungus diseases and to insect enemies.

What are the requirements of any rotation before it may be considered suitable?

1. It must supply the crops needed in the proper proportions.
2. It must be so constituted that weeds can be kept under control.
3. It must yield a reasonable net profit.
4. It must, under properly regulated treatment, maintain soil fertility.

Why should every farmer place his farm under some definite system of cropping, or, in other words, adopt a rotation of crops?

1. Because it will increase crop yields and net profits.
2. Because the cost of fencing, on farms where live stock is kept, would be materially reduced, since it would be necessary to fence off only three, four or five fields instead of ten or twelve as is often done.

3. Because larger machinery could be used. Where fields are fewer they must be larger, and large fields lend themselves better than small ones to the use of large machinery which lowers cost of production.

4. Because all cultural operations of one kind would be in one field, thus lowering the cost by reducing the travelling necessary from one small field to another.

5. Because every field would receive, at regular intervals, its fair proportion of manure. No field would therefore be favoured to the disadvantage of the rest of the farm, and the whole farm would always be kept up to its highest producing possibilities.

The following rotations, designed to meet the needs of the mixed farmer, are likely to prove satisfactory. Choose the one that appears most suitable to your requirements, apply it to your farm, regulate your cultural operations as called for, and observe critically the results.

ROTATION "T" (*three years' duration*).

First year.—Hoed crop. For corn apply manure in winter or spring, at rate of 15 tons per acre and shallow plough shortly before planting time turning under both clover and manure. For roots plough land previous autumn.

Second year.—Grain. Seed down with 10 pounds red clover, 3 pounds alsike, 6 pounds alfalfa and 6 pounds timothy per acre.

Third year.—Clover hay or pasture. Second crop of hay might be used for seed.

This rotation is well suited for intensive dairy farming where soiling crops are used. It would be a most excellent rotation to put into practice where sufficient rough land was available to serve as pasturage. It is the rotation that would supply the greatest amount of forage of the best description for dairying or beef production. It is better suited for heavy than for light soils.

ROTATION "F" (*four years' duration*).

First year.—Hoed crop. Apply manure at rate of 20 tons per acre previous autumn, winter or spring.

Second year.—Grain. Seed down with 10 pounds red clover and 8 to 10 pounds timothy per acre.

Third year.—Clover hay. Cut two crops if possible. Second crop might be used for seed.

Fourth year.—Timothy hay or pasture. Plough field shallow in August, top work at intervals and ridge up in autumn in preparation for hoed crop.

This rotation is most satisfactory from all standpoints, except that it supplies a rather smaller proportion of grain than is often desired. Where live stock is the mainstay of the farm this is, however, a very minor fault.

Where practically the whole farm consists of arable land under cultivation it will be found much more profitable to soil or feed cattle during summer, in part at least, rather than depend upon pasture exclusively.

Where possible to grow corn, the advantage, corn ensilage will be found to be the best forage for summer feeding. Where no silo is available or where green forage is preferred, a combination of the three and four-year rotations will be found satisfactory. The four-year rotation should include about three-fourths of the arable land and the three-year rotation the other fourth.

The four-year rotation land would then provide forage for winter and spring, and pasture for spring and summer. The three-year rotation land would supply feed for summer and autumn and a small amount of pasture. A glance at the following diagram will indicate what might be the arrangement of the fields and the crops thereon in the case of a 100-acre farm where in addition to orchards, gardens, etc., about 60 acres could be brought under the plough. Fields F1, F2, F3, and F4 would be under the four-year rotation and would be cropped as indicated. Fields T1, T2, and T3 would be under the three-year rotation and would be cropped as indicated.

ROTATION "A" (five years' duration).

First year.—Hoed crop. When corn is the hoed crop used apply manure at rate of 15 tons per acre and shallow plough shortly before planting time, turning under both clover and manure. For roots plough previous autumn.

Second year.—Grain. Seed down with 8 pounds red clover, 2 pounds alsike and 8 to 10 pounds timothy per acre.

Third year.—Clover hay. Cut two crops if possible. Top dress in autumn with barnyard manure at rate of 10 tons per acre.

Fourth year.—Timothy hay or pasture. Plough field shallow in August, top work at intervals and ridge up in autumn in preparation for grain.

Fifth year.—Grain. Seed down with 10 pounds red clover per acre, which allow to grow to be turned under following spring when the hoed crop is corn.

This rotation has proven an excellent one on the Central Experimental Farm, Ottawa. When carefully followed, and when cultural operations are well performed weeds have been kept under fair control, and crop yields have been maintained. One-fifth of the land is in hoed crop, two-fifths in grain, one fifth in clover hay and one-fifth in timothy hay or pasture. It supplies a relatively larger proportion of grain to roots and hay than the ordinary three or four-course rotation, and for that reason would be preferable where considerable grain is called for.

ROTATION "B" (five years' duration).

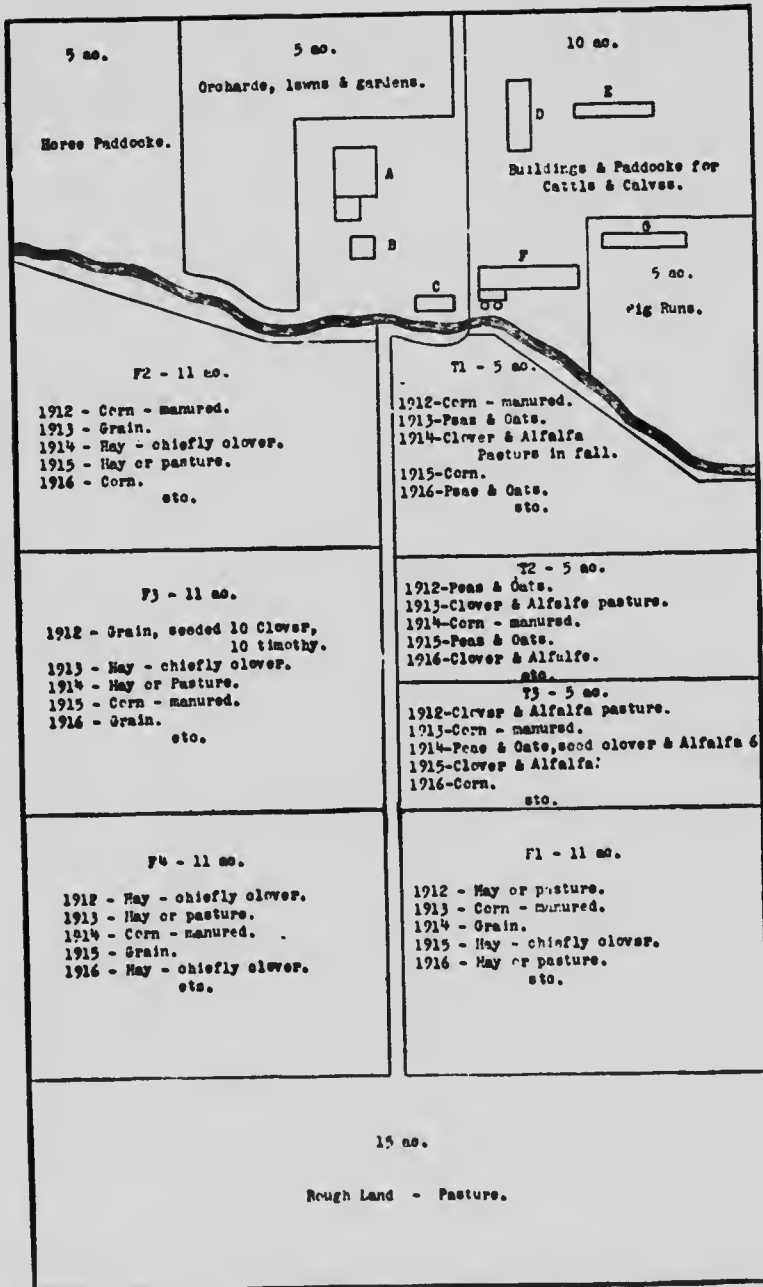
First year.—Hoed crop. When corn is the hoed crop used apply manure at rate of 15 tons per acre and shallow plough shortly before planting time turning under both clover and manure. For roots plough previous autumn.

Second year.—Grain. Seed down with 10 pounds red clover, 2 pounds alsike and 5 pounds timothy per acre. Top dress in autumn with barnyard manure at rate of 10 tons per acre.

Third year.—Clover hay. Cut two crops if possible. Second crop might be used for seed. Plough late autumn.

Fourth year.—Grain. Seed down with 10 pounds red clover, 2 pounds alsike and 5 pounds timothy per acre.

Fifth year.—Clover hay. Cut two crops if possible. Second crop might be used for seed.



Explanation of Signs on Diagram.—A.—Dwelling house. B.—Shed. C.—Poultry house. D.—Horse stable. E.—Implement shed. F.—Cow barn, feed room and allow. G.—Pig pens.

Though the arrangement is different, this rotation is very similar to "A" in the relative amounts of the different crops it supplies. In "A" both clover and timothy hay are provided whereas in "B" clover hay only is grown. "B" has maintained crop yields, and has given profits equal to "A" in the tests so far conducted, but, as indicated does not answer the purpose where a certain proportion of timothy hay is called for. It can, however, be very easily extended into a six or seven-year rotation to include timothy hay or pasture.

ROTATION "L" (*six years' duration*).

- First year.—Hoed crop. Apply manure at rate of 12 tons per acre previous autumn, winter or spring.
- Second year.—Grain. Seed down with 10 pounds red clover, 2 pounds alsike and 5 pounds timothy per acre.
- Third year.—Clover hay. Cut two crops if possible. Second crop might be used for seed, or for pasture if needed. Plough late autumn.
- Fourth year.—Grain. Seed down with 8 pounds red clover, 2 pounds alsike and 8 to 10 pounds timothy per acre. Top dress in autumn with barnyard manure at rate of 12 tons per acre.
- Fifth year.—Clover hay. Cut two crops if possible. Second crop might be used for seed or for pasture if needed.
- Sixth year.—Timothy hay or pasture. Plough field shallow in August, top work at intervals and ridge up in autumn in preparation for hoed crop.

This rotation differs from "B" in that land is left in hay for two years instead of one after seeding down with 'Fourth year.—Grain.' It is not likely to prove as profitable as the shorter ones mentioned above, but would serve very well the farmer who wished to change gradually from no particular rotation to a short one of proved merit.

ROTATION "K" (*six years' duration*)

- First year.—Hoed crop. Apply manure previous autumn, winter or spring at rate of 24 tons per acre.
- Second year.—Grain. Seed down with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy per acre.
- Third year.—Clover hay. Cut two crops if possible. Second crop might be used for seed.
- Fourth year.—Timothy hay or pasture.
- Fifth year.—Pasture.
- Sixth year.—Pasture.

This rotation is left too many consecutive years in hay and pasture to compare favourably with such rotations as "T," "F," "A" and "B," in terms of crops produced per acre, but might do fairly well where manual labour is so scarce as to preclude the adoption of a shorter and better one.

ROTATION "M" (seven years' duration).

- First year.—Hoed crop. Apply manure previous autumn, winter or spring at rate of 16 tons per acre.
- Second year.—Grain. Seed down with 8 pounds red clover, 2 pounds alsike and 8 to 10 pounds timothy per acre.
- Third year.—Clover hay. Cut two crops if possible. Second crop might be used for seed.
- Fourth year.—Timothy hay or pasture. Plough field shallow in August, top work at intervals and ridge up late autumn in preparation for grain.
- Fifth year.—Grain. Seed down with 8 pounds red clover, 2 pounds alsike and 8 to 10 pounds timothy per acre. Top dress in autumn with barnyard manure at rate of 12 tons per acre.
- Sixth year.—Clover hay. Cut two crops if possible. Second crop might be used for seed.
- Seventh year.—Timothy hay or pasture. Plough field shallow in August, top work at intervals and ridge up late autumn in preparation for hoed crop.



