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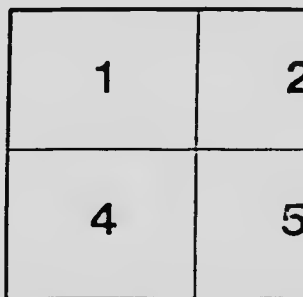
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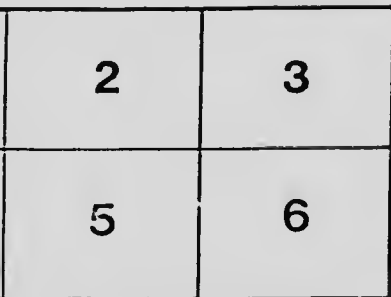
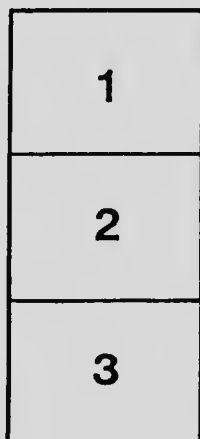
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DRY-LAND FARMING METHODS IN BRITISH COLUMBIA

As practised at the Experimental Dry Farms at Quilchena and
105-Mile House under the direction of Professor W. J. Elliott

HONOURABLE WILLIAM R. ROSS, K.C., Minister of Lands, VICTORIA, B.C.



HERE are vast areas in the northern central portion of America that receive limited rainfall, and are called, for the lack of a better name, dry-land areas. Generally speaking, the term applies to areas that receive less than 20 inches of precipitation. It is possible, however, to find areas with a precipitation of 20 inches where the evaporation is not excessive, and where, for this reason, very successful crops may be grown. On the other hand, it is possible to think of areas further south where the temperature is very high and where the evaporation is correspondingly great. Such a district might have more than 20 inches of precipitation, and still be regarded as a dry area. So that 20 inches of precipitation as a designation of a dry-land area will vary considerably with the location of that area. Generally speaking, however, in British Columbia less than 20 inches would indicate that the district is one in which dry-land methods might be followed.

CENTRAL BRITISH COLUMBIA.

There is a vast area of land in British Columbia lying between the main Rocky Mountains and the Cascade Range which parallels the Coast. On the western slope of the Cascades there is a very heavy precipitation, but these mountains seem to so elevate the moisture-laden clouds that they pass over the great central rolling plains and valleys, and only drop their moisture or snow when the main Rocky Mountains are reached.

Records kept on the Commonage south of Quilchena and at 105-Mile House, on the Cariboo Trail, give a precipitation as follows:—

| | 105-Mile House. | Quilchena. |
|---|-----------------|------------|
| | Inches. | Inches. |
| Precipitation from September 1st, 1913, to August 31st, 1914..... | 10.94 | 10.34 |
| Precipitation from September 1st, 1914, to August 31st, 1915..... | 15.05 | 15.203 |

105-Mile House is located in the central part of the Province and Quilchena in the southern part, yet the precipitation at each point for the corresponding time is surprisingly alike.

These figures indicate that both districts would come under the dry-land classification as given above, as both are considerably less than 20 inches in precipitation.

MOISTURE NEEDED FOR CROPS.

For the growing of farm crops the main question is not incidentally "How much precipitation do we receive?" but it is "How much of the precipitation which falls can we conserve for the use of the growing crop?" To answer this question successfully, we need to ask ourselves two additional questions, as follows: (1.) Is the soil of such a nature that it will naturally retain moisture? (2.) Can we so cultivate the soil as to put the surface in prime shape for the retention of moisture?

It is obvious that a soil might be so gravelly or porous that the storing-up of moisture in it would be impossible. On the other hand, a soil that is composed of clay, clay loam, loam, and their many variations, as a usual thing, lends itself admirably to suitable cultivation methods for the storing of moisture.

CULTIVATION METHODS

Many farmers have gone on to dry-land areas, both in this country and in the United States, and notwithstanding earnest application and hard work have made miserable failures. The State of Kansas presents perhaps the most vivid example of this. At the time that Kansas was opened up for settlement little was known of dry-land methods of cultivation, and during a series of dry years many farmers lost their all and were literally starved off the land. However, proper methods of handling dry-land areas were found out by their experiment station, and to-day, by a systematic application of these methods, there is no more progressive or successful State than Kansas.

Success or failure in the handling of dry-land areas depends very materially upon the farmer's knowledge of the proper methods of cultivating his land so as to preserve the greater portion of the moisture that falls for the growing crop. There are a few simple rules to be observed, and if the farmer observes these rules and cultivates his land exactly as prescribed by these rules, success is almost assured. Trouble, however, will invariably come to the one who does not observe the rules implicitly.

THESE RULES SPELL SUCCESS.

On the two British Columbia Dry-land Farms referred to above we have laid down a set of rules for the handling of the land from the breaking of the sod until the harvesting of the crop. These rules were followed implicitly. With the limited rainfall as reported above at 105-Mile House, wheat yields range from 18 to 40 bushels per acre, oats from 87 to 96 bushels per acre, barley from 50 to 59 bushels per acre. At Quilchewan, wheat yields range from 29 bushels to 48 bushels per acre, oats from 64 to 91 bushels per acre, barley from 70 to 87 bushels per acre, and field-peas approximately 27 bushels per acre. Every crop grown would be regarded as a commercially profitable crop; and some of the crops would certainly be regarded as extraordinary.

These results were obtained, as has been pointed out above, because we followed certain rules and principles in our cultivation, seedling, and harvesting work.

RULES TO BE OBSERVED.

The following rules were issued to our two foremen at the beginning of the experimental work, and have also been followed in all of our subsequent cultivation since 1913. The rules are:—

1. If possible, break at least 6 inches deep.
2. Never leave the field without working down thoroughly with packer, disk, and harrow the land broken during the day.
3. Pack the furrows as the first operation after breaking, running lengthwise of the furrows. With the furrows lying compactly on the ground, the disks have a much greater cutting effect.
4. Follow the packer with the disks, running lengthwise of the furrows for the first two operations.
5. Follow the two strokes of the disk with two strokes of the harrow, also lengthwise of the furrow.
6. After each and every rain give the cultivated land a stroke with the harrow.
7. If the breaking has been done in the early summer, a few spears of grass may spring up after sufficient moisture has been conserved and when the heat of summer is on.
8. If this is so, back-set the land during the latter part of August or first part of September. After the back-setting a single stroke with the harrow may be sufficient to bring the furrows back to very excellent tilth.
9. Again follow each and every shower with a stroke of the harrow.
10. In districts where a heavy winter snowfall has to be depended upon for a considerable portion of the moisture, it will be found to be beneficial to ridge the land crosswise of the slopes. By this means the melting snow in the spring is caught by the ridges instead of running directly down the slope and off the cultivated field.
11. In the spring, as soon as the frost is out of the ground a few inches, and if the surface of the ground will admit the team and harrows without "puddling," it will be well to give the area a stroke with the harrows.
12. If the snow has been heavy and if the surface of the ground is packed, it may be found advisable to disk the land once, so that the seeder may put the seed in to the proper depth.
13. Press the seeder-levers well down so as to drop the seed deeply into the soil.



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14. Pack after seeding to ensure rapid germination.
15. Harrow after packing to restore the earth mulch.
16. Harrow after each shower until the grain is above ground, and even after the grain is above ground the harrows should be run over the surface (with the teeth slanting well backward) to break up any crust that might have a tendency to form after a heavy rain.
17. Continue the use of the harrow until the grain is high enough to shelter the land between the drill rows.
18. If the above points have been followed faithfully, the results should be satisfactory.

W. J. ELLIOTT,
Adviser in Charge of Dry-land Farms.

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