

5. *Cultivate sufficiently during the season to maintain a mulch and to control native plants.*—Crops sown on spring breaking the year the work is done seldom produce satisfactory yields. The reason lies in the lack of moisture in the soil. The native grasses pump out the water almost as fast as the soil absorbs it. This explains why it is advisable in dry climates to cultivate prairie land for nearly a year before sowing a crop on it.

If, however, prairie land is broken and the surface left uncultivated, a large amount of moisture will be lost. The use of the discs and harrows often enough to maintain a mulch is essential after the sod has decayed sufficiently to permit these implements to do good work.

6. *If the grass and small shrubs are not killed, backset after the sod has decayed.*—It has been pointed out that one of the functions of tilling prairie land is to kill the native vegetation, and another to store moisture. It has been shown that early breaking results in the storage of more moisture but does not kill the grass as well as later breaking. To get a large supply of moisture without the grass should be our aim. This can be accomplished by early shallow breaking and by backsetting after the sod has rotted. The first ploughing gives opportunity for the storage and conservation of more moisture, and the last kills any grass that may have escaped the first ploughing.

The first crop after breaking and backsetting is often not much larger than the first crop after deep breaking that has been surface cultivated, but the second and later crops are invariably better. In the year 1913, the second crop of wheat on land that was broken and back set yielded 14 bushels 36 pounds of wheat per acre, while the second crop on adjoining land that had been broken deep and surface cultivated was but 4 bushels 11 pounds per acre. The difference was due altogether to the presence of grass in the once ploughed breaking. In fairness to the breaking that was not backset it should be pointed out that for the second crop the land in this experiment was double disced and double harrowed but not ploughed.

7. *Don't backset if sod has not rotted.*—In very dry summers it is very difficult to backset and less difficult to kill the prairie grasses than in wet summers. In 1914 in the Saskatoon district it was physically impossible to backset any breaking except that which had been done early and well packed down. In addition to this difficulty, it was noticed that even where backsetting was done the unrotted sod produced a very unsuitable seed bed and one that required an unreasonable amount of surface tillage before it was considered satisfactory.

8. *Land intended to be backset should be broken shallow, that not to be backset, deeper.*—Deep breaking cannot be backset satisfactorily, but it controls native plants better than shallow breaking. Under these circumstances it is generally advisable in farm practice to plough shallow in the early part of the breaking season and deeper at the later end. The early breaking can then be backset after the breaking season is over. "Shallow" and "deep" as used here are relative terms. A depth of 2 to 4 inches is generally considered shallow breaking and 4 to 6 inches deep breaking. "Backsetting" is done usually about 2 inches deeper than the "breaking."