

## Government of the Province of Saskatchewan

### DEPARTMENT OF AGRICULTURE

# The Management of Saskatchewan Soils

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The production of paying crops is the main business of the farmer. In order that he conduct his business successfully he should know (1) the conditions that must be provided before plants can grow, (2) the factors that militate against satisfactory growth and (3) the means at man's disposal for controlling the factors that limit yields.

Seeds must have moisture, heat and air or they will not germinate. Given these things in proper amount, good seed will grow. The nourishment within the bran or outer covering supplies the young plant with the food necessary for early growth. Moisture, heat, light and plant food from both soil and air are necessary for later growth.

The factors that interfere with satisfactory growth vary in different climates and on different soils. In Saskatchewan, poor seed, rust, smut, hail, low temperatures, dry weather, weeds, drifting soil and alkali may be limiting factors in the production of crops.

Some of these factors are controllable while others cannot be controlled by man. Hail cannot be prevented, although the effect of its ravages may be lightened by insurance. The quality and purity of the seed a man sows is, however, within his own power to control absolutely. Low temperatures cannot be prevented nor even definitely forecasted over large areas, but tillage and cropping practices that tend to avoid frost or lessen its effect are now known. Neither can periods of drought be prevented, but tillage methods and crop management practices are now being followed that practically control the moisture content of the soil. Drifting soils and weeds are products of a too rapid and thoughtless development of immense areas, and affect the just with the unjust. Both can be controlled, although in some cases at great cost.

Some of the means at man's disposal for controlling these factors are: tillage, rotations, fertilisers, including manure, inoculation, irrigation, drainage, and the use of clean seed of suitable crops. The purpose of this article is to indicate briefly the relation of tillage to the control of the climatic and soil factors mentioned above.

By tillage is meant the manipulation of the soil by means of implements with a view to putting it in condition for the growth of crops. The subject deserves consideration from five points of view, tillage for native prairie, tillage for fallow, tillage for stubble land, tillage where water is a limiting factor (dry farm areas), and tillage where frost is a limiting