

Soil Survey of the
Wahpaton Indian Reserves Nos. 94A and 94B

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Location

Wahpaton Indian Reserve No. 94A is located about 7 miles northwest of the city of Prince Albert while Wahpaton Indian Reserve No. 94B is located about 4 miles northeast of the city of Prince Albert. Reserve No. 94A is approximately 3,680 acres in extent while No. 94B covers approximately 160 acres. (Reserve No. 94A includes all or portions of Sections 32 to 35 in Township 49, Range 27 and Sections 3 and 4 in Township 50, Range 27. Reserve No. 94B includes a portion of Section 23, Township 49, Range 26. All locations are west of the 2nd Principal Meridian).

MAP LEGEND

The series of symbols which appear within each area, separated on the map by a soil boundary, are interpreted by means of the map legend.

There may be some terms in the legend which are unfamiliar to the reader. The booklet, "A Guide to Understanding Saskatchewan Soils"¹, will familiarize the reader with the terms used. To properly interpret the legend it is essential that the above-mentioned booklet be used as a reference.

Soils

Dominantly Black Chernozemic Soils

- Meota - Dominant Black Chernozemic soils developed on coarse to medium textured sandy glacio-fluvial and glacio-lacustrine deposits.
- Me1 - Dominant* Orthic Black.
- Me5 - Dominant Orthic Black with a significant** occurrence of undifferentiated Gleysolic soils.

*Series which are Dominant occupy over 40% of the Map Unit.

**Series which are Significant occupy over 15% of the Map Unit but less than 40%.

- Hamlin - Dominant Black Chernozemic soils developed on medium to moderately fine textured sandy glacio-lacustrine deposits.
- Hm5 - Dominant Orthic Black with a significant occurrence of undifferentiated Gleysolic soils.
- Hm9 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils and a significant occurrence of undifferentiated Gleysolic soils.
- Blaine Lake - Dominant Black Chernozemic soils developed on medium to moderately fine textured, moderately calcareous, silty, glacio-lacustrine deposits.
- B9 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils and a significant occurrence of undifferentiated Gleysolic soils.

Miscellaneous Soils

- Dune Sand - Dominant Regosolic soils developed on coarse textured aeolian or wind worked fluvial-lacustrine deposits.
- DS1 - Dominant Orthic Regosol.
- Pine Sand - A group of Regosolic soils developed on coarse glacio-fluvial and fluvial lacustrine sands, some of which have been reworked by the wind.
- PS1 - A combination of Orthic Regosol and Arenic Podzo Regosol.
- Runway - Rw - A mapping complex of soils developed on variable deposits of glacial meltwater channels.

Textural Groupings and Classes

Textural Group	Textural Class
Coarse textured	Sands (s), loamy sands (ls)
Moderately coarse textured	Sandy loam (sl), fine sandy loam (fl)
Medium textured	Very fine sandy loam (vl), loam (l), silt loam (sil)
Moderately fine textured	Sandy clay loam (scl), clay loam (cl), silty clay loam (sicl)
Fine textured	Sandy clay (sc), clay (c), silty clay (sic), heavy clay (hc)

Gravelly sandy loam (gsl) and gravelly loam (gl) are recorded where present.

Landforms

Name	Symbol	Description
<u>Glacio-Lacustrine Landforms</u>		
Glacial Lake Plain	La	Roughly undulating to gently rolling glacial lake plain of knolls and depressions without external drainage.
<u>Glacio-Alluvial Landforms</u>		
Glacial Lake Delta and Post Glacial Alluvium Deposits	A	Roughly undulating, unpatterned alluvial plain having no external drainage.
	Aa	Roughly undulating to gently rolling alluvial plain with a knoll and depression pattern having no external drainage.
	Ae	Gently rolling aeolian plain having no external drainage.
	Ad	Gently to moderately sloping alluvial plain with a dissected pattern having external drainage.
<u>Glacio-Fluvial Landforms</u>		
Outwash Plain	Fd	Moderately sloping outwash plain with a dissected pattern having external drainage or a glacial drainage channel.

Topography

Description	Symbol	Percentage Slope
Gently sloping or roughly undulating	3	2-5%*
Moderately sloping or gently rolling	4	5-9%

* A 5% slope means a rise or fall of 5 feet for every 100 feet of horizontal distance.

Other Map Symbols



Drainage way indicating direction of flow.

Soil boundary.

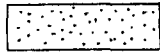
Tp Township.

Rg Range.

34 Section number.



Not suitable for grain production.



Marginal for grain production.

SOIL CAPABILITY FOR AGRICULTURE

Class	Soil Capability for Agriculture
1	No significant limitations.
2	Moderate limitations.
3	Moderately severe limitations.
4	Severe limitations.
5	Serious limitations - not suitable for annual crops but suitable for improved pasture.
6	Very serious limitations - suited only for permanent pasture.

Kind of Limitations

Soil limitations - caused by unfavorable soil characteristics.

- m - insufficient soil moisture holding capacity.
- f - low soil fertility.
- s - unfavorable soil characteristics. This subclass is used in a collective sense in place of subclasses m (insufficient soil moisture holding capacity), d (poor structure), f (low soil fertility) and n (excessive soil salinity), where more than two of them are present or where two of these limitations are present in addition to some other limitation.

Landscape limitations

- t - unfavorable topography.
- w - excess water - applies to soils where excess water, apart from inundation, is a limitation in their use for agriculture.
- e - erosion damage.
- i - inundation - applies to soils subjected to flooding due to overflow.

Guiding Criteria for Capability Classes in Saskatchewan

Class	Degree of Limitations	Range of Adaptability	Productivity*	Other Characteristics
1	No significant limitations.	Wide range of field crops.	Moderately high to high, 20-25 bu/acre (30.0 to 35.0 bu/acre)**	Deep, well drained, good water holding capacity. Natural high fertility.
2	Moderate limitations due to climate, soil or landscape.	Fairly wide range of field crops.	Moderately high to high, 15.5-20 bu/acre (24.0 to 30.0 bu/acre)**	Good water holding capacity. Natural high fertility or highly responsive to fertilizer.
3	Moderately severe limitations due to climate, soil or landscape.	Moderate range of field crops.	Medium to moderately high, 11.0-15.5 bu/acre (19-24 bu/acre)**	Limitations adversely affect the timing and ease of tillage, planting, harvesting, and application of conservation practices.
4	Severe limitations due to climate, soil or landscape.	Narrow range of field crops.	Low to medium 9.0-11.0 bu/acre (13-15 bu/acre)**	The high incidence of low yields or disastrous failures suggests that some of these soils be removed from continued cultivation.
5	Serious soil or landscape limitations make them unsuitable for the production of annual crops.	Suited for the production of adapted grasses and legumes.		Soils within this class are responsive to improvement practices through the use of farm machinery. Improvement of 25% of an area can double the carrying capacity.
6	Very serious soil or landscape limitations restrict their use to native grazing.	Suited only to native pasture.		Soils in this class are not responsive to improvement practice.
7	Prevent agricultural use.	Unsuited for agricultural use.		Bodies of water, townsites, parks, airports, railroads.

* Estimated productivity of arable Classes 1-4 is expressed in terms of long-time (1932-1961) average wheat yields in bu/acre.

** Estimated potential productivity.

THE SOILS OF THE WAHPATON INDIAN RESERVES NOS. 94A AND 94B

Interpretation of the Soil Symbol Sequence

One report only is being presented for both Reserve No. 94A and Reserve No. 94B, inasmuch as Reserve No. 94B is too small to warrant a separate report. The ability to interpret the symbols on the map of one reserve will enable the reader to do the same for the other reserve.

The sequence of the soil symbols given for each area separated on the map is always arranged in the following order: Soil Association and Map Unit:Texture:Landform:Percentage Slope. An illustration of this is the symbol sequence Hm5:fl-1:La4 which occurs on Reserve No. 94A in Section 3, Township 50, Range 27.

The letters Hm represent the abbreviation for the Hamlin Association described in the legend as, "Dominant Black Chernozemic soils developed on medium to moderately fine textured sandy glacio-lacustrine deposits". Medium to moderately fine textural groups are dominantly loam and clay loam textural classes. The number 5 indicates the Map Unit of the Hamlin Association, namely Hm5, which is described as "Dominant Orthic Black with a significant occurrence of undifferentiated Gleysolic soils". The letters fl-1 represent the textural class range of the surface soil namely fine sandy loam to loam. The letters La described under the heading "Landforms", signifies "A roughly undulating to gently rolling glacial lake plain of knolls and depressions without external drainage". The topography in the area is indicated by the symbol 4 defined in the legend as slopes ranging from 5-9%.

It will be noted that the soil symbol sequence in many areas contains two or more Associations and their Map Units, as in Section 34, Township 49, Range 27 on Reserve No. 94A, where the symbols Hm9:fl-B9:1 represent Hamlin and Blaine Lake Associations and their Map Units. Where two or more Associations and their Map Units occur in the one sequence, the first mentioned Association is dominant. The reason that some areas are indicated as a complex, such as the one above, is

that at the present scale of mapping and the expected land use it was not considered practical to separate these soils.

Interpretation of the Soil Capability² Symbol Sequence

Each area separated on the map (by a soil boundary), contains not only the soil symbol sequence already described but also a capability sequence. In the area containing the symbols Hm5:f1-1:La4 the symbols $3\overset{8}{m}5\overset{2}{t}_w$ occur and are interpreted as follows. The lower numbers are the capability classes. The small letters indicate the "limitations" or adverse soil or landscape features which relegate the soil area to its particular capability class. The upper numbers indicate the percentage of the soil area designated to a specific capability class. By referring to the heading in the legend designated as "Soil Capability for Agriculture", it can be seen that $3\overset{8}{m}5\overset{2}{t}_w$ describes an area of 80% Class 3 soil which has moderately severe limitations due to insufficient soil moisture holding capacity (m) and unfavorable topography (t), and 20% Class 5 soil which has serious limitations due to excess water (w). It can, therefore, be concluded that while the limitations on this area of gently rolling Hamlin fine sandy loam are considerable, it is still suited to the production of annual crops.

EVALUATION OF THE AGRICULTURAL POTENTIAL OF THE WAHPATON RESERVES

An evaluation of the agricultural potential may be made of any portion of the map area by interpreting the map symbols by means of the legend.

The entire area of Reserve No. 94B is rated as Class 5 and 6 soil, due to the very sandy nature of the soil. These areas should not be considered for grain production as they are suited only to improvable or permanent pasture.

The areas with the best potential on Reserve No. 94A are all the areas which are not shaded on the Soil Survey Map. These areas cover approximately 2,800 acres and are rated as dominantly Class 3 soils, which, while they have certain

limitations, are suitable for the production of annual crops. The area of Meota (Me5) in Sections 33 and 34, Township 49, Range 27 is rated as a Class 4 soil which is marginal for crop production. This area should not be considered for grain production as Class 4 soils are better utilized as areas for forage production. The areas of Pine Sand (PS) in Section 32, Township 49, Range 27 are rated as Class 5 soils because of the very sandy nature of the soil. These soils are suited only to improvable pasture.

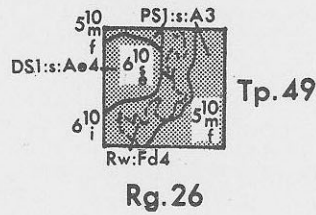
Acknowledgments

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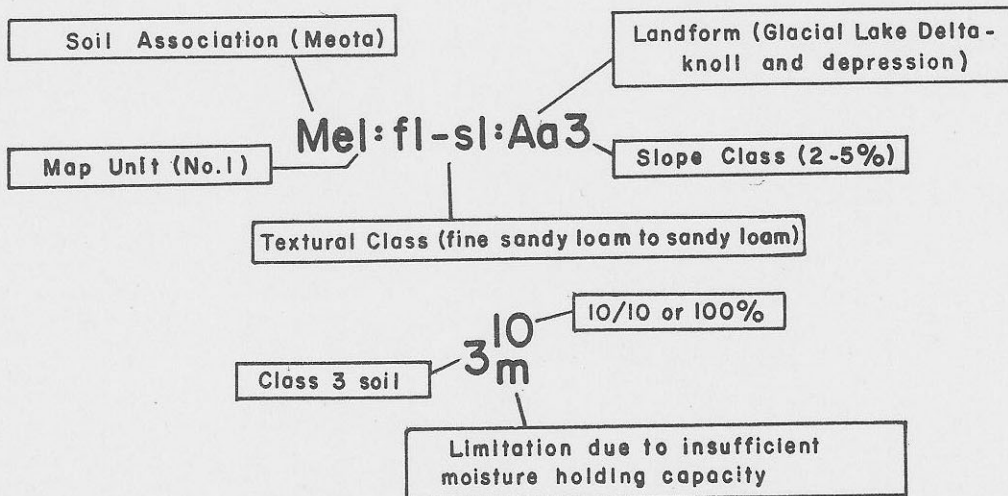
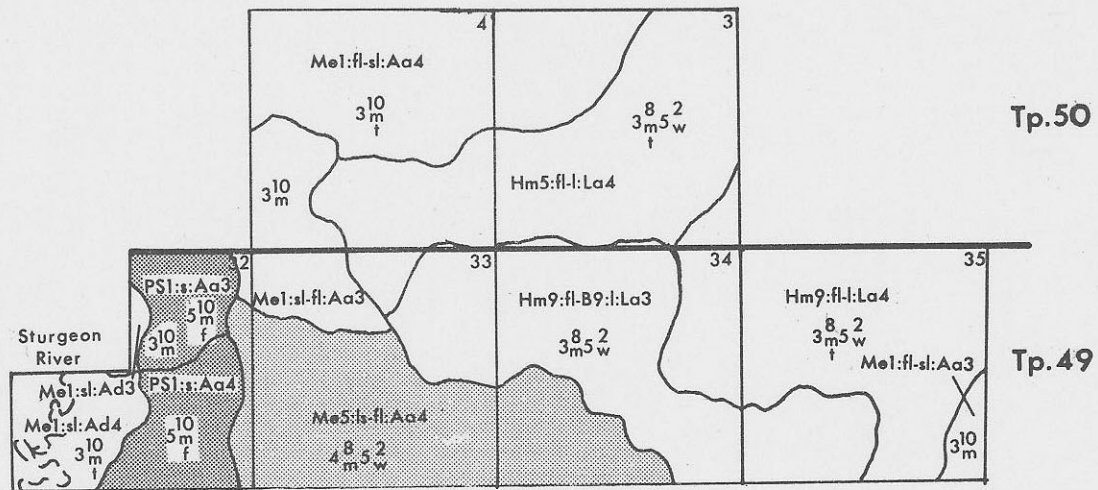
References

1. A Guide to Understanding Saskatchewan Soils. H.C. Moss. 1965. Saskatchewan Institute of Pedology Publication M1. Extension Publication 175. Distributed by Extension Division, University of Saskatchewan, Saskatoon.
2. A Guide to Soil Capability and Land Inventory Maps in Saskatchewan. Saskatchewan Institute of Pedology Publication M8. Department of Soil Science, University of Saskatchewan, Saskatoon. 1968.

WAHPATON INDIAN RESERVE NO. 94B



WAHPATON INDIAN RESERVE NO. 94A



Scale - 125 inches to 1 mile or 1:50,000

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