

Soil Survey of the  
One Arrow Indian Reserve No. 95

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MAP LEGEND

Soils

Dominantly Black Chernozemic Soils

- Blaine Lake - Dominant Black Chernozemic soils developed on medium to moderately fine textured, moderately calcareous, silty, glacio-lacustrine deposits.
- B1 - Dominant\* Orthic Black.
- B6 - Dominant Orthic Black with significant\*\* Eluviated Gleysolics.
- Hamlin - Dominant Black Chernozemic soils developed on medium to moderately fine textured, sandy, glacio-lacustrine deposits.
- Hm1 - Dominant Orthic Black.
- Hm2 - Dominant Orthic Black with significant Calcareous Black.
- Hm6 - Dominant Orthic Black with significant Eluviated Gleysolics.
- Meota - Dominant Black Chernozemic soils developed on coarse to medium textured sandy glacio-fluvial and glacio-lacustrine deposits.
- Mel - Dominant Orthic Black.
- Me2 - Dominant Orthic Black with significant eroded Orthic Black.

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\*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%.

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 loams (gl) are recorded where present.

Landforms

Name	Symbol	Description
<u>Glacio-lacustrine Landforms</u>		
Glacial Lake Plain	La	Undulating plain of knolls and depressions without external drainage.
<u>Glacio-alluvial Landforms</u>		
Glacial Lake Delta	Aa	Roughly undulating to gently rolling plain with a knoll and depression pattern having no external drainage.

Topography

Description	Symbol	Percentage Slope
Gently sloping or roughly undulating	3	2-5%*
Moderately sloping or gently rolling	4	6-9%
Strongly sloping or moderately rolling	5	10-15%

\* A slope of 2% means a rise or fall of 2 feet for every 100 feet of horizontal distance.

Other Map Symbols



Slough or depressionally flooded area which is periodically flooded.



Soil boundary.



Township corner.

Tp

Township.

Rg

Range.



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.

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.

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 ONE ARROW INDIAN RESERVE NO. 95

Location

The One Arrow Reserve is located in the north central part of Saskatchewan about 2 miles east of Batoche. The reserve is approximately 9,950 acres in extent and includes all or portions of Sections 34 to 36 inclusive in Township 42, Range 1; Sections 1 to 3, 10 to 15 and 22 to 24 inclusive in Township 43, Range 1, all west of the 3rd Principal Meridian, and Sections 19, 30 and 31 in Township 43, Range 28; and Sections 6 and 7 in Township 44, Range 28, all west of the 2nd Principal Meridian.

INTERPRETATION OF THE SOIL MAP

A map and legend have been prepared and comprise the first portion of this report. 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"<sup>1</sup>, will familiarize the reader with the terms used to describe soils in this province. To properly interpret the legend it is essential that the above-mentioned booklet be used as a reference.

Interpretation of Soil Symbol Sequence

The sequence of the soil symbols is always arranged in the same order in each separate area. This order is as follows: Association Map Unit:Texture:Landform:Percentage Slope. An illustration of this is the symbol sequence Mel:ls-sl:Aa3 which occurs in Section 19, Township 43, Range 28.

By referring to the legend the symbols Mel:ls-sl:Aa3, are interpreted as follows. The letters Me represent the abbreviation for the Meota Association which is described in the legend as being "Dominant Black Chernozemic soils developed on coarse to medium textured, sandy, glacio-fluvial and glacio-

lacustrine deposits". Coarse to medium textures are described under the heading, "Textural Groupings and Classes". Loam and silt loam textures will not be encountered in the Meota Association, but the remainder of the textures in the three textural groupings under discussion could occur. The number 1 indicates the Map Unit in the Meota Association, namely Mel which is described as "Dominant Orthic Black". The letters ls-sl are the abbreviations for loamy sand and sandy loam respectively. All textural abbreviations are listed under the sub-heading "Textural Class". The letters Aa are described in the legend under the heading "Landforms" as "Roughly undulating to gently rolling plain with a knoll and depression pattern having no external drainage". The number 3 is the symbol for the Percentage Slope which is defined under the heading "Topography" as being between 2-5%.

It will be noted, for example, in Section 11, Township 43, Range 1, that the symbols Hm2:f1-Mel:ls-sl represent two 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 Soil Capability<sup>2</sup> Symbol Sequence

Each area separated on the map by a soil boundary contains not only the soil symbol sequence already described but also a soil capability sequence. In the area containing the symbols Mel:ls-sl:Aa3 (which have been described above) the symbols <sup>9</sup>3m <sup>1</sup>5w occur and are interpreted as follows. The lower numbers are the capability class, the small letters indicate the "limitation" or adverse soil 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  $3\overset{9}{m}5\overset{1}{w}$  means this is an area made up of 90% Class 3 soil which has moderately severe limitations due to insufficient soil moisture holding capacity (m) and 10% Class 5 soil which has serious limitations due to excess water (w) in the depressions. It can, therefore, be concluded that this area of roughly undulating Meota loamy sand to sandy loam, while it has some limitations, is still suited to the production of annual seeded crops.

#### EVALUATION OF THE AGRICULTURAL POTENTIAL OF THE ONE ARROW RESERVE

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 area with the best potential is the area of ~~Blaine Lake~~-Hamlin (B-Hm) in Sections 10 to 15 in Township 43, Range 1. This is an area of approximately 620 acres of 90% Class 2 soils which are well suited to the production of annual seeded crops. Other areas which are good but which have a slightly lower percentage of arable acres, are the areas of Hamlin (Hm) in Sections 13, 23 and 24 in Township 43, Range 1; Sections 6 and 7 in Township 44, Range 28 and Sections 19, 30 and 31 in Township 43, Range 28, and the areas of Blaine Lake in Sections 30 and 31 in Township 43, Range 28 and Section 6 in Township 44, Range 28. These areas represent a total area of about 1,090 acres of 80% Class 2 soils which are well suited to the production of annual seeded crops. Areas which are not as good but which are still suitable for cultivation are the areas of Meota (Me) on Class 3 topography, the areas of Hamlin-Meota (Hm-Me) and the area of Meota-Hamlin (Me-Hm), all in Townships 42 and 43, Range 1, as well as the areas of Meota (Me) on Class 3 topography in Township 43, Range 28. These areas represent a total area of approximately 5,400 acres of 90% Class 3 soils which have moderately severe limitations to cropping.



The remainder of the reserve is made up of Class 4 and 5 soils. None of these soils should be considered for cultivation. The Class 4 soils are marginal for grain production and a forage and livestock type of farming operation is recommended in areas which are classified as marginal for continuous crop production. The Class 5 soils have serious limitations and should remain as permanent pasture.

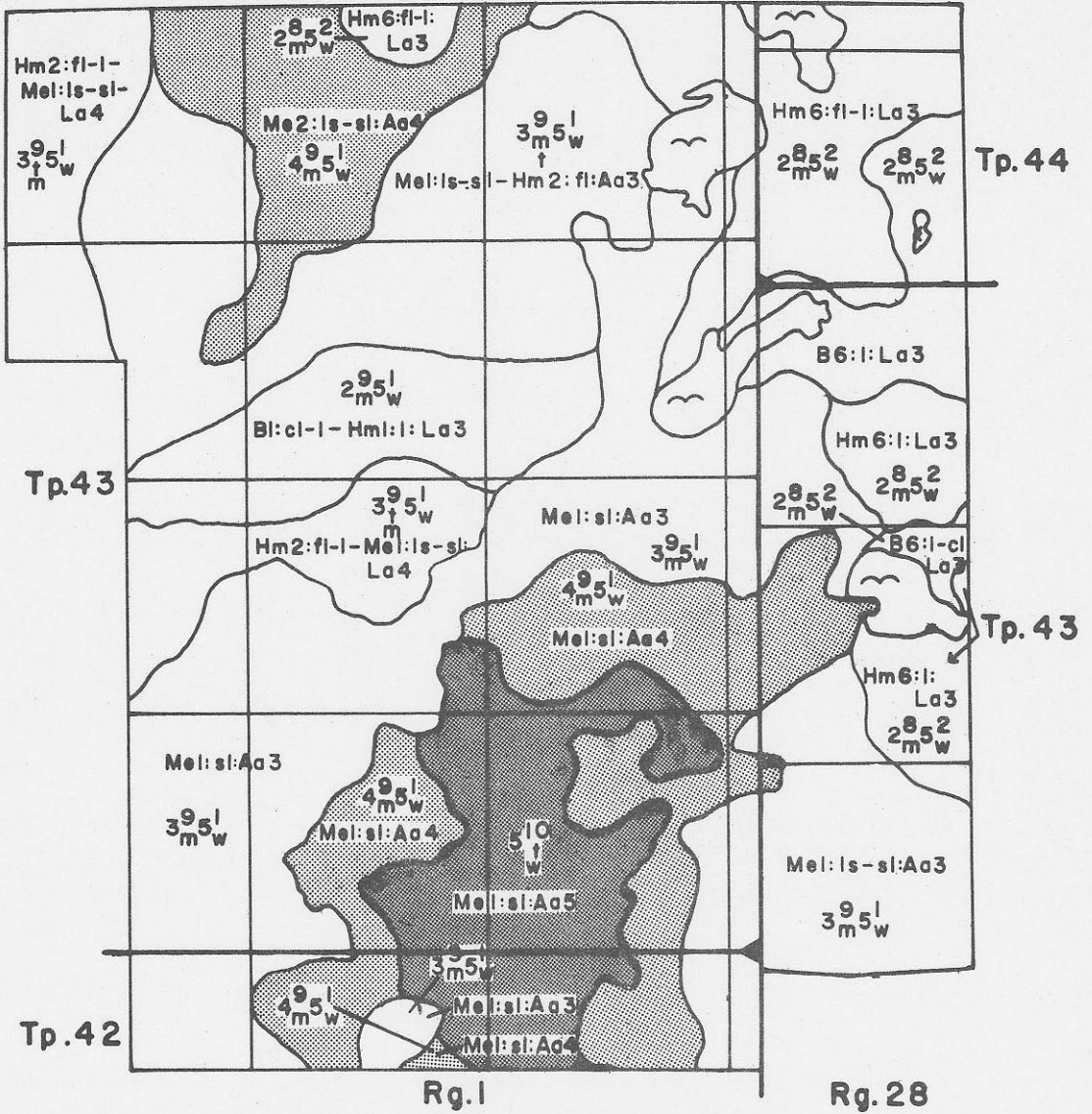
#### Acknowledgments

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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 M2. Department of Soil Science, University of Saskatchewan, Saskatoon. 1966.

# ONE ARROW I.R. NO.95



Scale—1.25 inches to 1 mile or 1:50,000

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