

# The Resurgence of Soil Survey: Not a Lost Art



## Why are Soil Surveys Important?

Soil is an essential renewable natural resource for human life. Soil not only supports our agricultural needs but also acts as a drainage system to prevent floods, filters water, stores carbon and provides a foundation for our engineering accomplishments. In order to preserve the long-term productivity of our soil we must carefully manage it.

A soil survey collects valuable data about the landscape which can help determine its potential land use. Proper use of a soil survey report helps determine land value and its capability for agriculture, engineering uses and recreation. It can also aid in determining practices that help sustain the productivity of our soils, reducing erosion, nutrient runoff and leaching. Soil surveys also help us close the gaps of historical landscape forming events such as the advances and retreats of Glacial Lake Agassiz.

For example some crops like potatoes have specific requirements for optimum growth and quality yield. A soil survey provides valuable information to assist prospective land buyers understand the potentials and limitations of the soils' behaviour under different uses. Information from a soil survey could also be used to direct on-farm management practices such as precision farming, nutrient management planning and environmental farm planning.



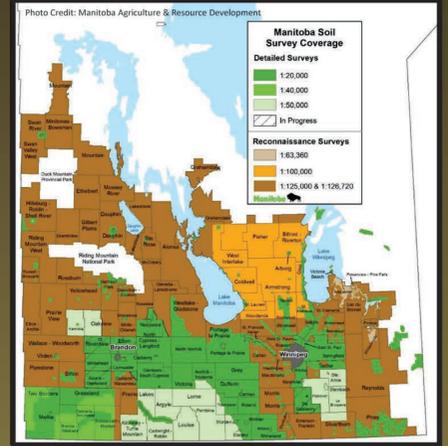
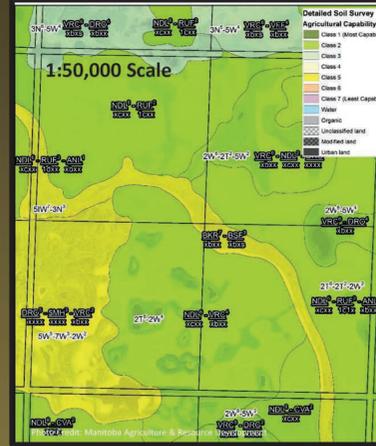
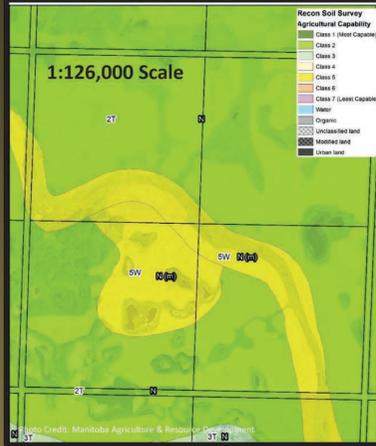
## How to Soil Survey:

**Ap**  
The scale at which the area will be surveyed is determined. The finer the scale, the greater the detail of the survey and the more soil pits will be classified (1:126,000 = ~ 6 pits / section and 1:20,000 = ~ 35 pits / section).

**Bm**  
Review background information of the area (i.e. geology, past soil reports, elevation maps, and aerial photos) and delineate landform boundaries.

**Cca**  
The field survey begins by soil sampling to 100cm at 10cm intervals along transects. Soils are then classified by determining soil horizons, texture, colour, presence of carbonates and mottles, type of parent material, drainage, vegetation and landscape position.

**Ck**  
A soil series name is then determined and then mapped into units. This particular profile is from the Ramada soil series.



## Differences in Scale:

When consulting a soil survey, taking note of what scale the survey was conducted in is important as differences in scale can provide more or less information. In Agro-Manitoba, all soils have been surveyed at a reconnaissance scale (1:126,000) starting in 1926. However, with advancement in our knowledge of soil over the years, much finer scales are needed when surveying soils to capture variabilities that exist within short distances, as they can be quite variable. A more detailed scale (1:50,000 or 1:20,000) is now in high demand for land use like precision farming, research trials, suitability for irrigation and drainage, and watershed management. The province of Manitoba is conducting soil surveys at a detailed scale and has covered approximately 30% of agro-Manitoba.

## Where to find a Soil Survey Report:

Go to one of the Government of Manitoba's soil survey unit websites or contact a soil survey specialist.

[www.https://www.gov.mb.ca/agriculture/soil/soil-survey/](https://www.gov.mb.ca/agriculture/soil/soil-survey/)

- Click on reconnaissance soil survey in MB or detailed soil survey maps and reports. The map on this poster will help determine what scale the area of interest has been surveyed. Click on the desired area and open the report.

[www. https://agrimaps.gov.mb.ca/agrimaps/](https://agrimaps.gov.mb.ca/agrimaps/)

- AgriMaps is an online interactive map that provides soil survey data and related interpretations.
- Zoom into the desired area or search using a legal lad description.
- Click on the "Layer list" in the top right corner.
- Click on the test "Manitoba AgriMaps" to reveal different layers and select the soil survey data of interest and check the box beside.
- Click anywhere on the map to show the description of that area.

## Simple Map Unit:

### Degree of Erosion

- x = non-eroded / minimal
- 1 = slightly eroded
- 2 = moderately eroded
- 3 = severely eroded
- o = overblown

### Topography (Slope %):

- x = level (0-0.5%)
- b = nearly level (0.5 - 2%)
- c = very gently sloping (2-5%)
- d = gently sloping (6-9%)
- e = moderately sloping (10-15%)
- f = strongly sloping (16-30%)
- g = very strongly sloping (31-45%)
- h = extremely sloping (46-70%)

### Degree of Salinity:

- x = non-saline
- s = weakly saline
- t = moderately saline
- u = strongly saline

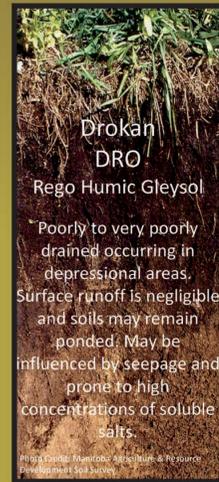
### Degree of Stoniness:

- x = non-stony
- 1 = slightly stony
- 2 = moderately stony
- 3 = very stony
- 4 = exceedingly stony
- 5 = excessively stony



**Newdale ND1**  
Orthic Black Chernozem

Moderately well to well drained. Surface runoff may be rapid with slow permeability. These soils have formed under grassland and aspen grove vegetation.



**Drokan DRO**  
Rego Humic Gleysol

Poorly to very poorly drained occurring in depressional areas. Surface runoff is negligible and soils may remain ponded. May be influenced by seepage and prone to high concentrations of soluble salts.

## Compound Map Unit:

When multiple soil types occur in the same polygon

% of soil series found in map polygon.

$$\frac{NDL^8 - DRO^2}{1c1x \quad xx1s}$$

This soil polygon has glacial till parent material and consists of 80% of soils in the Newdale series that is slightly eroded, very gently sloping, slightly stony and non-saline and 20% Drokan series that is non-eroded, level, slightly stony, and weakly saline.



JANUARY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
		MSSS Soil Fertility Refresher Course				
19	20	21	22	23	24	25
		AG Days				
26	27	28	29	30	31	
		Manitoba Potato Production Days				
		* Getting it Right Production Meeting (Portage)				

FEBRUARY						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
				MSSS AGM		
9	10	11	12	13	14	15
		Crop Connect Conference				
16	17	18	19	20	21	22
23	24	25	26	27	28	29

MARCH						
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				
	Royal Manitoba Winter Fair					

APRIL							
S	M	T	W	T	F	S	
			1	2	3	4	
			Royal Manitoba Winter Fair				
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
		National Soil Conservation Week					
26	27	28	29	30			

MAY						
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24/31	25	26	27	28	29	30

JUNE						
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	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
	CSSS Meetings					
28	29	30				

JULY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
	Crop Diagnostic School					
12	13	14	15	16	17	18
	Crop Diagnostic School					
19	20	21	22	23	24	25
26	27	28	29	30	31	

AUGUST						
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	MSSS Field Trip					
23/30	24/31	25	26	27	28	29

SEPTEMBER						
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27	28	29	30			

OCTOBER						
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25	26	27	28	29	30	31

NOVEMBER						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
	ASA-CSSA-SSSA Meetings					
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

DECEMBER						
S	M	T	W	T	F	S
		1	2	3	4	5
		World Soil Day				
6	7	8	9	10	11	12
	Manitoba Agronomists Conference					
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Manitoba Soil Science Society

[www.mbsoils.ca](http://www.mbsoils.ca)

\*Prairie Oat Growers Association AGM (Location: Banff, AB)

