Valuable Soil Survey Data for Managing Soil Resource in RM of Ritchot

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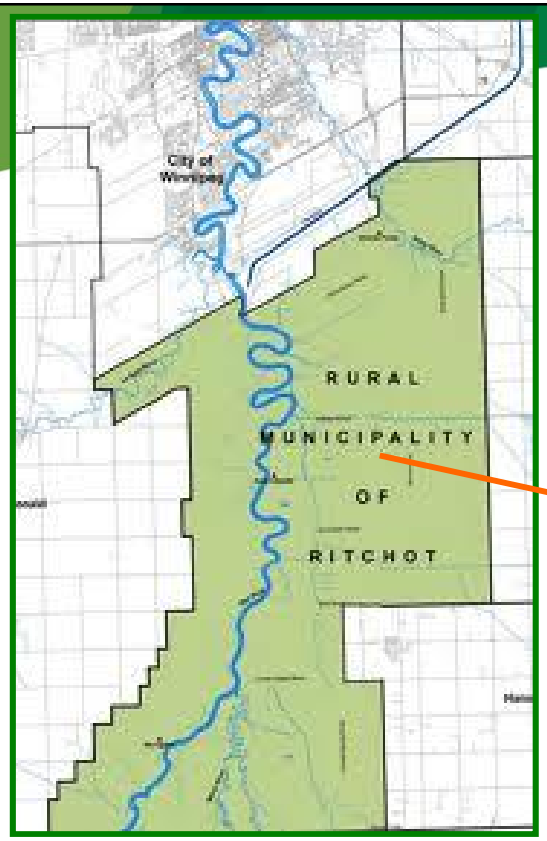
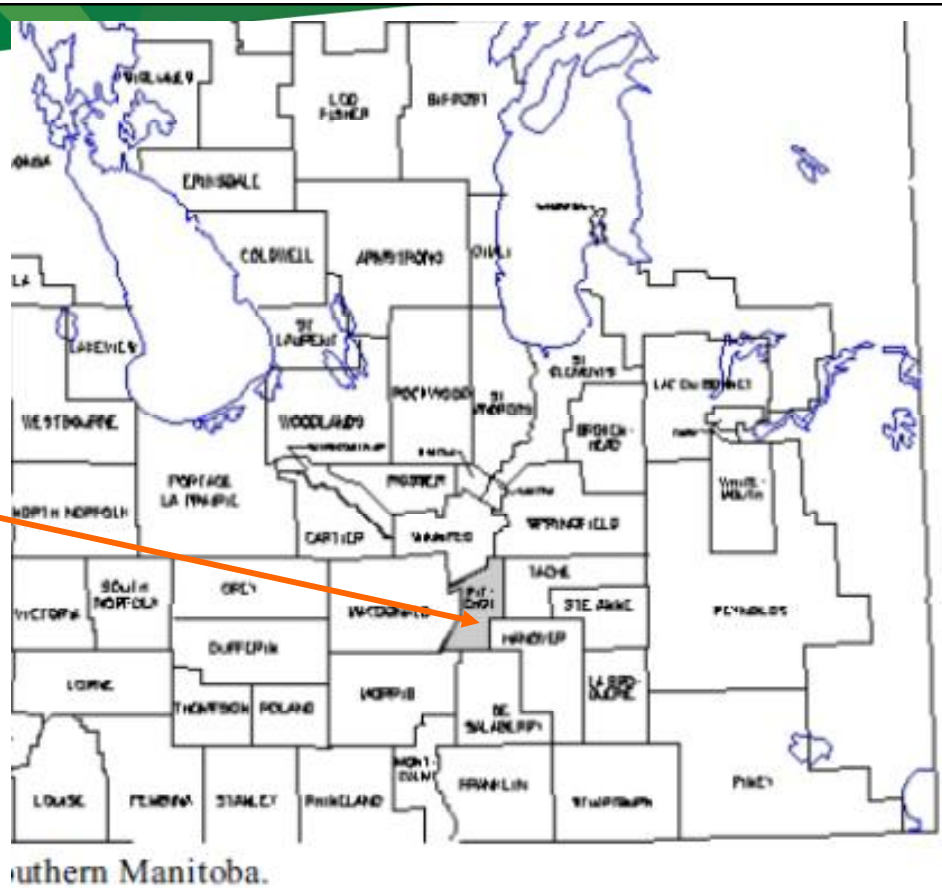




uthern Manitoba.

RM of Ritchot

- ✓South edge of Wpg
- ✓3.7 twp ~ 85,000 acres
- ✓4 rivers ~ Red, Rat, LaSalle, Seine Rrs

Detailed soil survey

~ 1:20,000 scale

~ 3.2 inches to 1 mile

Landscape Parent Mat.

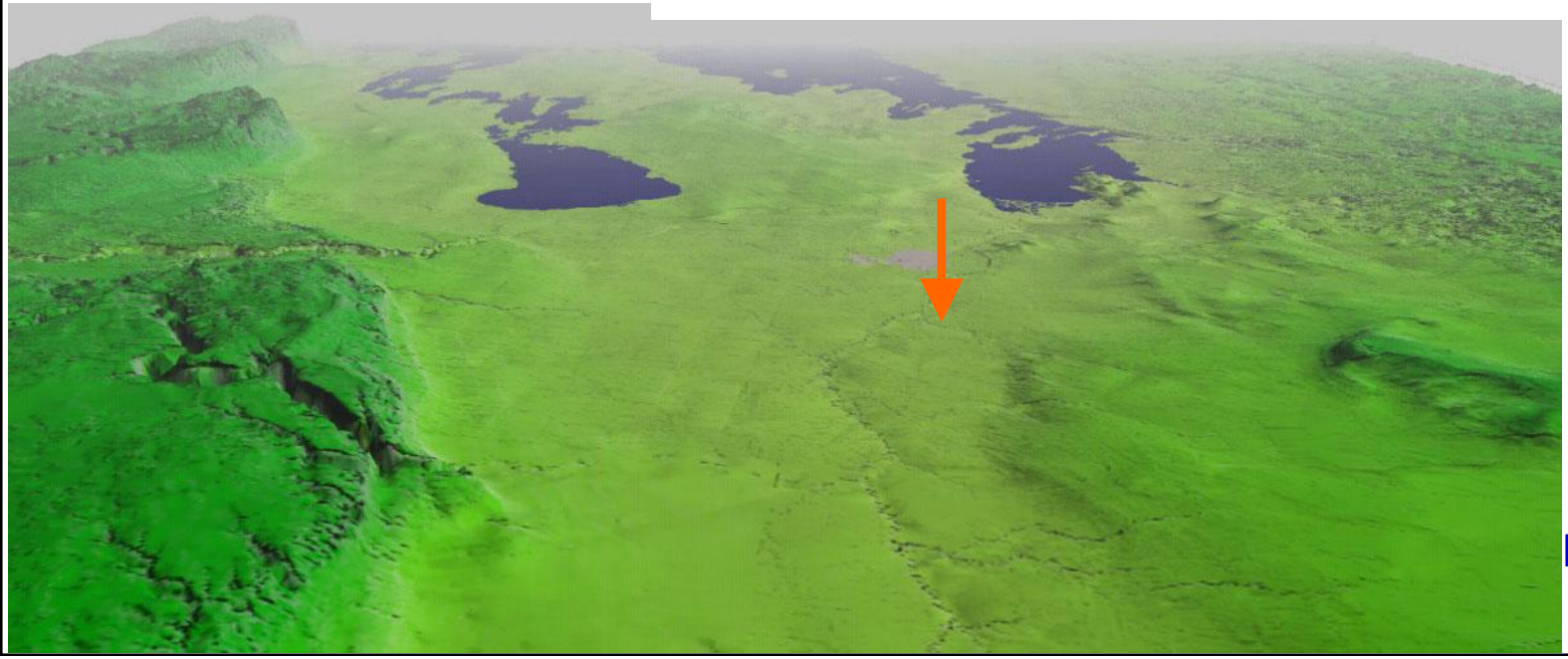
Very flat landscape

~ Glacial Lake Agassiz's bottom

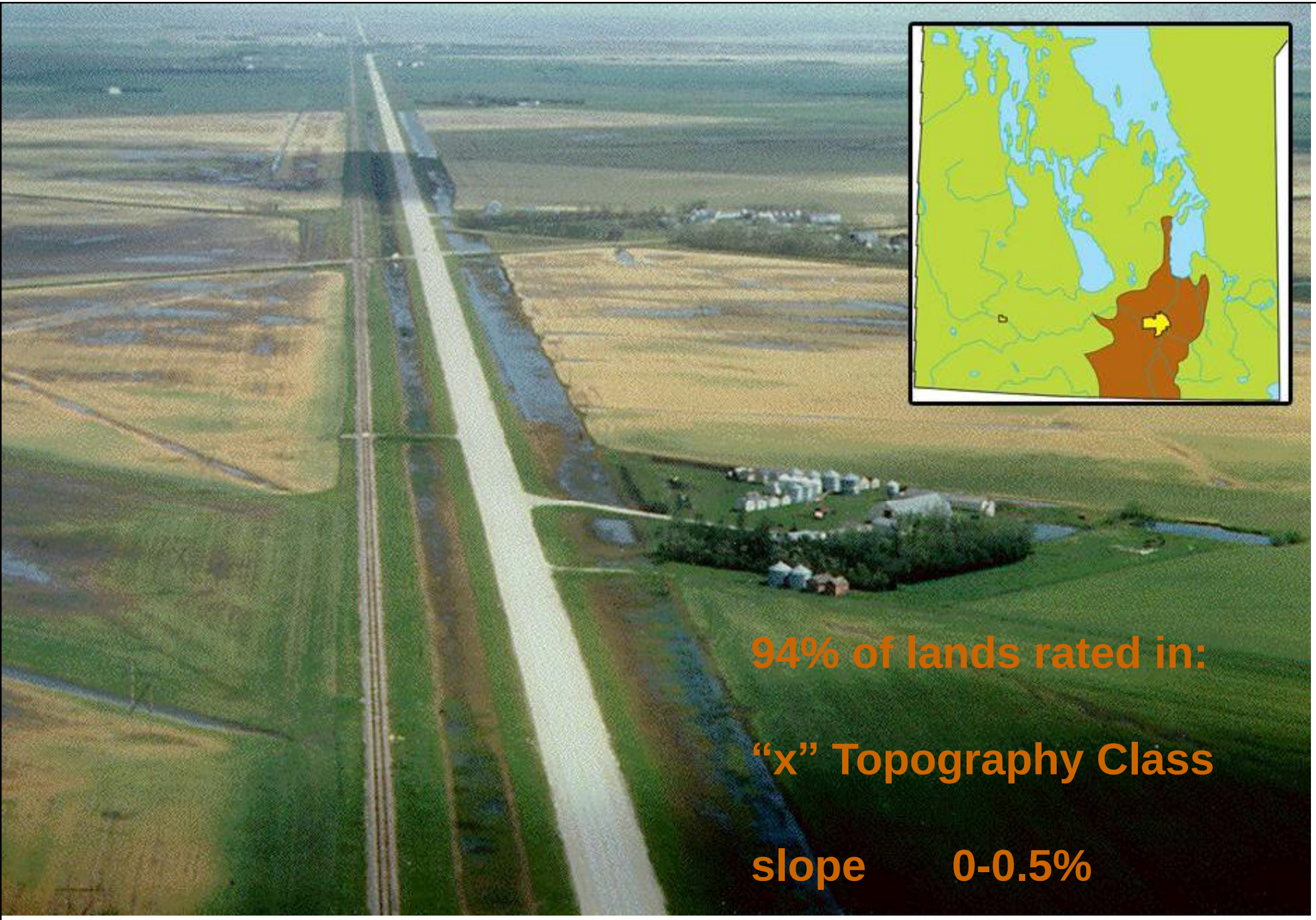
Soil mat.

- ✓**deposited by glacial Lake Agassiz**
- ✓**Mainly ~ deep, clayey lacustrine sediments**

- ✓**some areas ~ clay soils underlain by silty sediments**
- ✓**variable textured, stratified alluvial deposits occur in Red River floodplain**



Red River Valley DEM,
MB Mineral Resources



“Clays” area - Red River Valley

Soil Survey Results ~

16 series are classified and mapped in 3.7 twp

Clay soils ~ imperfectly drained Black Chernozems

➔ Scanterbury, Red River, Morris

~ poorly drained Rego Humic Gleysols

➔ Osborne

Clay soils ~ Well drained Dark Gray Chernozems

➔ St. Norbert

➔ developed in wooded areas along Rr channels

Soil Survey Results ~

Clay soils underlain by silty deposits

~ well drained Black Chernozems

➔ Fort Garry

~ imperfectly drained Gleyed Chernozems

➔ Hoddinott, Dencross

~ poorly drained Gleysols

➔ Glenmoor

Regosolic soils

~ Developed in alluvial mat.
~ occur on terrace and floodplain deposits
~ along rivers and streams

~ Well drained

➔ Hodgson, Black Lake

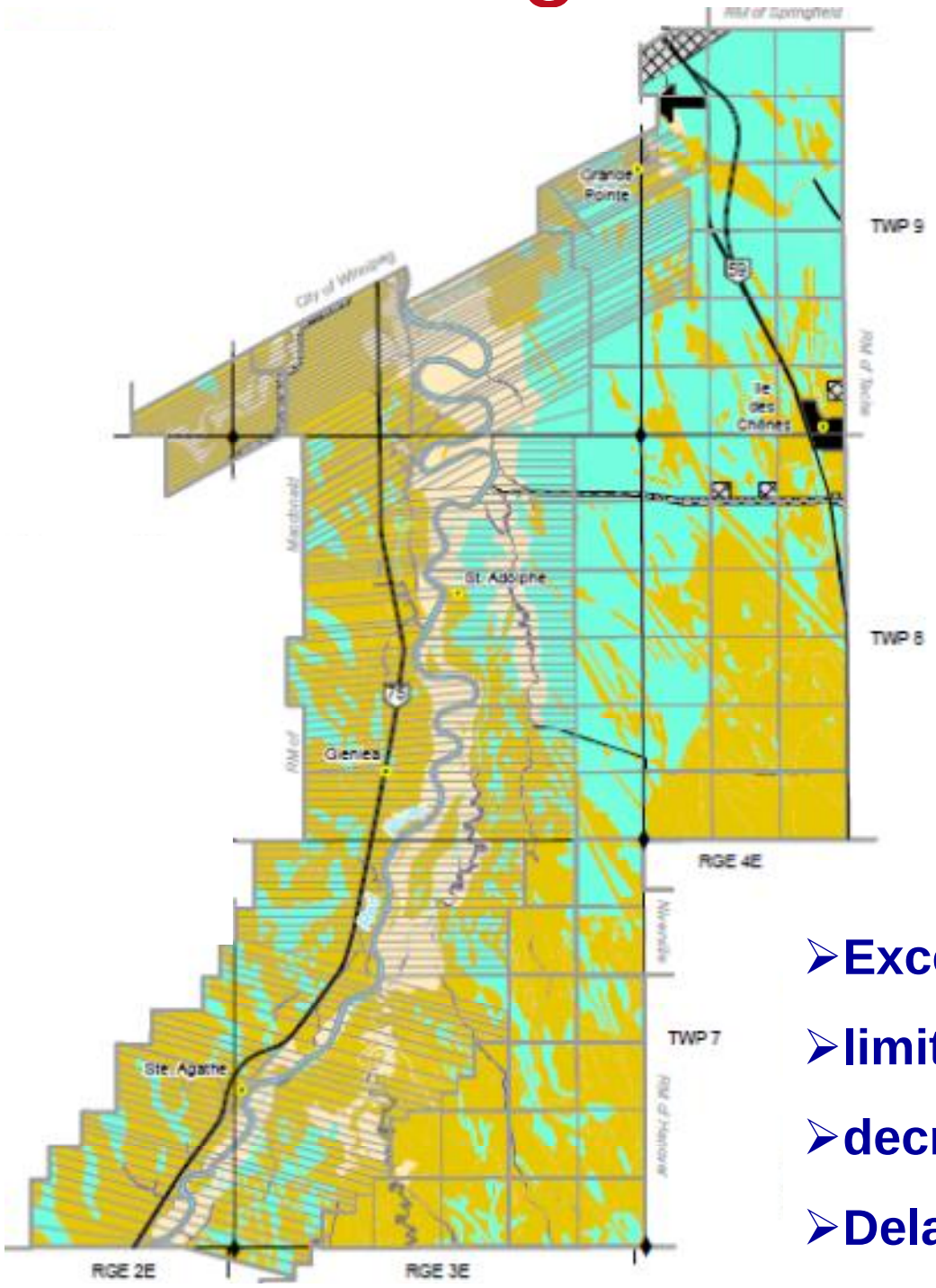
~ Imperfectly drained

➔ Fisher, Seine River

Six main soil series ~

	%	Drainage	Mat. & Surface texture	Ag Cap
Scanterbury	25.7	imperfect	**Deep clay**	**2W**
Osborne	25.4	Poor	**Deep clay**	**3W, 6W**
Red River	19.0	imperfect	**Deep clay**	**2W**
Dencross	10.7	Imperfect	**Clay w/ strongly calca. Silty strata**	**2W**
St. Norbert	5.3	Well	**Deep clay**	**2D**
Glenmoor	4.0	poor	**Clay w/ strongly calca. Silty strata**	**3W**
	90.1	**85%** **Poor, imperfect**	**Fine 95 %** **Mod. fine 1.6 %**	**~ 90%**

Soil Drainage



Most lands in RM

- ✓**Imperfect** **58%**
- ✓**Poor** **28.2%**

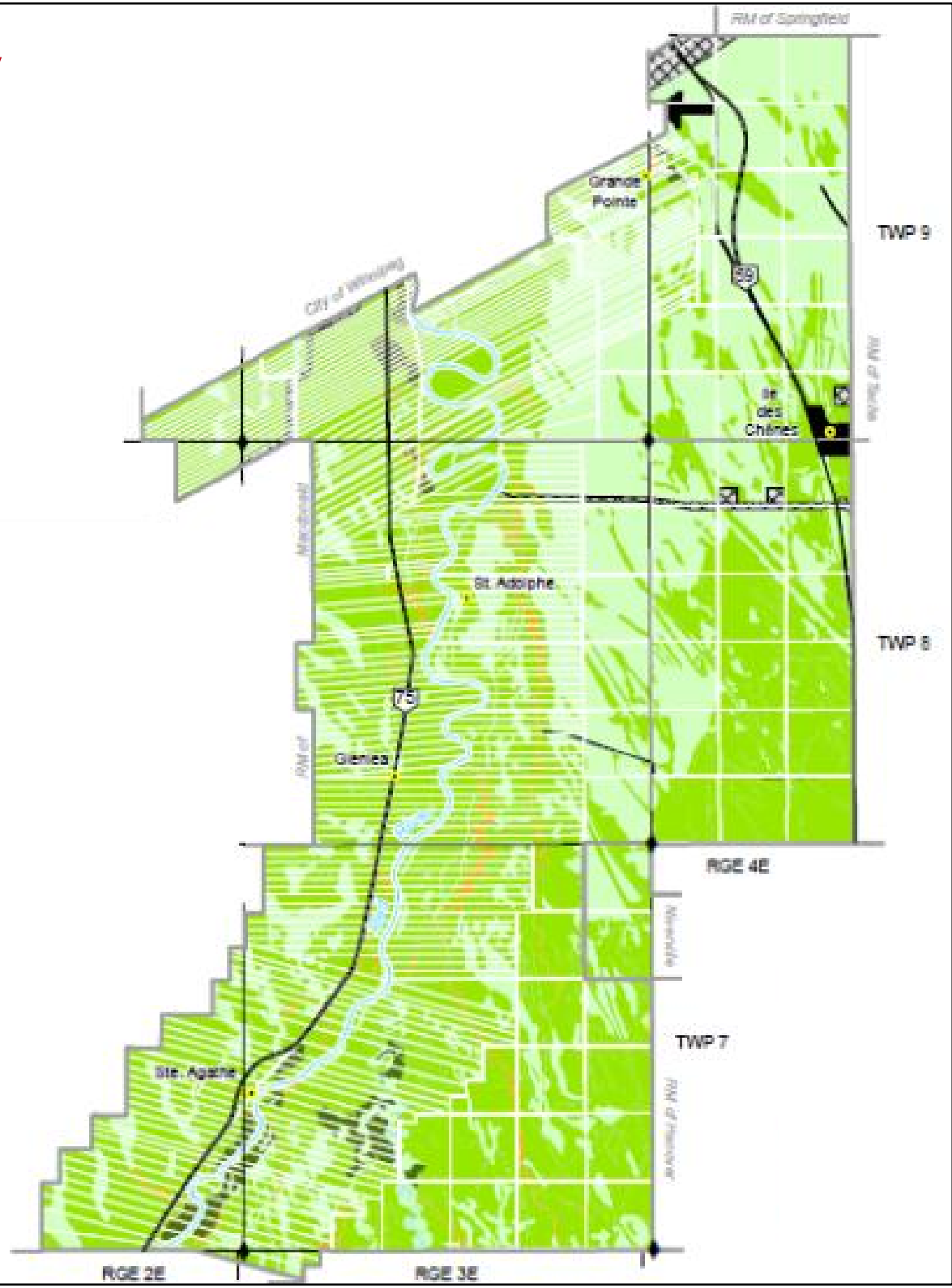
- ➢**Excessive water content in soil**
- ➢**limiting O2 supply**
- ➢**decreasing efficiency of nutrient uptake**
- ➢**Delaying spring seeding**

Soil Ag Capability

Most of the soils:

Class 2 64%
Class 3 29%

→ moderate to mod. severe limitations



Agricultural drainage

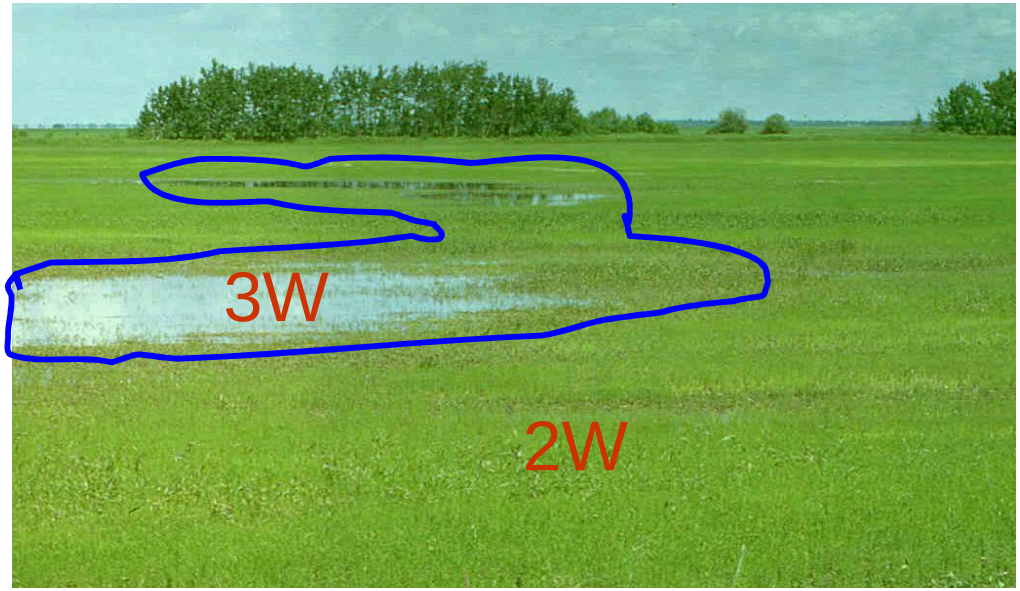
Excessive rainfalls adversely affect agricultural production in Manitoba

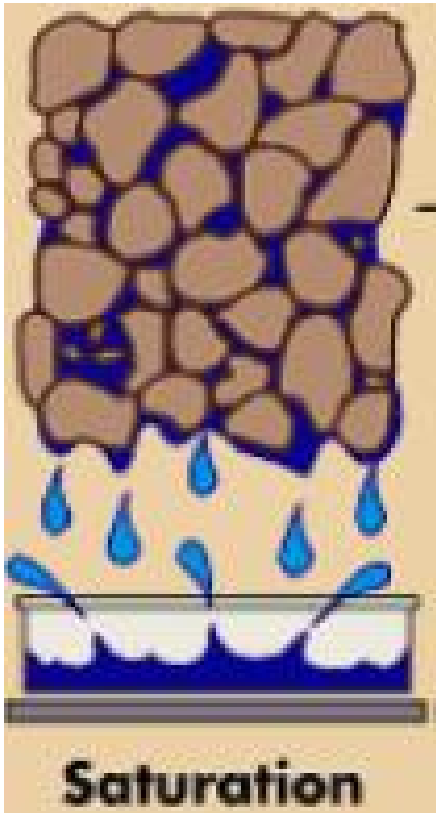
http://lizettedeklerk.wordpress.com/2011/05/

House near St. Agathe, RM of Ritchot

Ag drainage needs systematic soil data

Wetness in clay soils





2011 ~ spring flooding ➔ summer dryness

Red River Valley area

Apr 28, 2011

- ✓Landform
- ✓Flooding
- ✓Dryness

in Red River Valley area

Most important mgt considerations ~

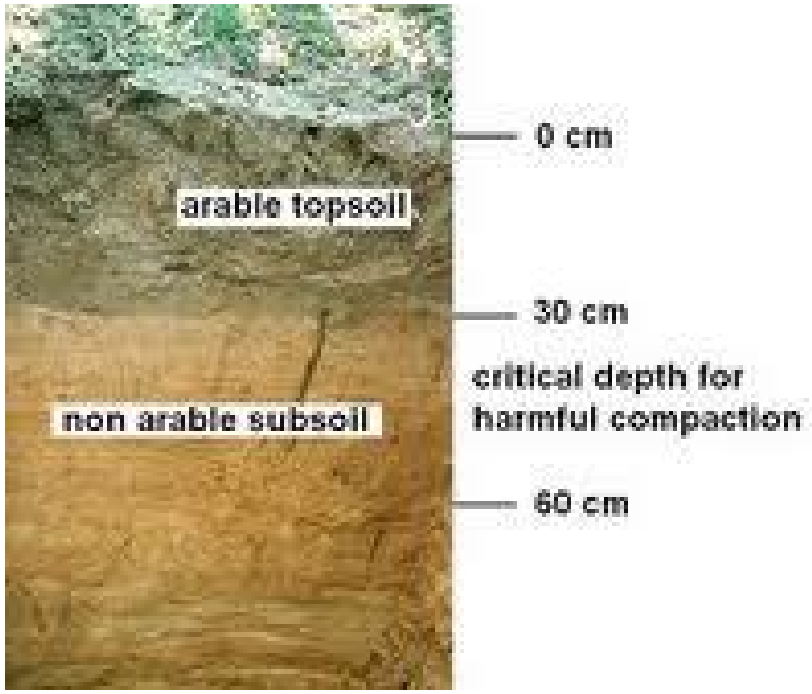
➔ **Soil compaction mgt**

➔ **Moisture mgt**

➔ **Fertilizer Mgt**

Soil Compaction

➔ **an increasing problem on the Prairies**



✓create a less desirable root environ.
✓restrict root growth
✓reduce yield potential
✓Increase surface runoff on compacted soil
✓accelerate topsoil erosion

➔ Traffic Compaction Affects Productivity

Factors Influencing Compaction

- ➔ ***wtr %*** ~ most susceptible at nearing field capacity
- ➔ ***applied load*** ~ Heavier, larger machines

➔ Reduce tillage operations
➔ Avoiding wet fields in operation

Moisture Management

➔using extensive surface drainage
to remove excess water from land

➔ Increase crop production

➔ Improve field access

➔ timely spring seeding

Fertilizer Management

➔ timing, rate, method

- ✓More spring fertilization → less fall application
- ✓Spring midrow band w/ NH3
- ✓Increased dry or liquid at time of seeding
- ✓Trend ~ eliminate broadcast dry or liquid in fall
  ~ less banded dry fertilizer, less NH3 in fall

- ✓**Sustainability**
- ✓**Profitability**
- ✓**Environ. quality**

Thank you !

Questions and Comments ?