Summary

This section describes the formulas, rules and principles for determining the assessed value of arable agricultural land.

Description

Arable agricultural land includes:

- land that is tilled with agricultural equipment such as discs, plows, and cultivators to allow seeding, harvesting, and other agronomic practices used in field crop or forage crop production, and
- land that is not tilled with agricultural equipment but with reasonable breaking costs is well suited for field crop or forage crop production.

Formulas, Rules and Principles

The formula for determining the assessed value of arable land using the schedule of rates method is:

LV = (C+OM+T+(P x PAF)) x A-dep x Phys x Econ x PF x U

where:	LV	=	assessed value of arable land
	C	=	climate rate
	OM	=	organic matter rate
	T	=	texture rate
	P	=	profile rate
	PAF	=	profile adjustment factor
	A-dep	=	A-depth factor
	Phys	=	physical factors
	Econ	=	economic factors
	PF	=	provincial factor
	U	=	number of land units

Where two climate, organic matter, texture, profile, profile adjustments or A-depths are used for an arable rating area, the rates shall be averaged.

Units of Comparison

The units of comparison for the valuation of arable agricultural land shall be acres.

Arable Land Ratings

Master Rating

The master rating (MR) is the base rate of the productive capacity method for arable land. The master rating is comprised of four components that have a direct effect on soil productivity: climate, organic matter, texture and profile. The master rating units are index points per acre. The maximum master rating is 100 index points with each component having a maximum number of index points.

Component Description	Abbreviation	Maximum Index Points
Climate	C	32
Organic Matter	OM	13
Texture	T	35
Profile	P	20
Total Index Points	MR	100

Productivity Rating

The productivity rating (PR) is the master rating adjusted for A-depth and physical factors. A-depth factors make adjustments for deeper than average and shallower than average A horizon. Physical factors are detrimental land features as specified in the manual that reduce the productivity of the soil. The productivity rating units are index points per acre.

Final Rating

The final rating (FR) is the productivity rating adjusted for economic factors that affect the average cost of production for specified features. The economic factors include stones, topography, natural hazards, man-made hazards, tree cover and miles to market. The final rating units are index points per acre.

Assessed Value Rating (AVR)

The Assessed Value Rating (AVR) is the final rating multiplied by the provincial factor. The provincial factor units are in dollars per acre.

Arable Land Use

Arable land use shall be classified as follows:

Land Use	Abbreviation
Occupied yard site	A
Cultivated	K
Pasture arable	PA
Cultivated grass	KG
Cultivated pasture	CP
Bush arable	BA
Cultivated and yard site	K-A
Pasture arable and yard site	PA-A
Cultivated grass and yard site	KG-A
Cultivated, pasture arable and yard site	KPA-A
Cultivated and cultivated grass	K-KG
Cultivated grass and pasture arable	KG-PA
Cultivated and pasture arable	K-PA
Bush cleared, not cultivated	BAK
Cultivated, cultivated grass and yard site	K-KGA
Vacant yard site	V
Cultivated and vacant yard site	K-V
Pasture arable and vacant yard site	PA-V
Cultivated grass and vacant yard site	KG-V
Cultivated, pasture arable and vacant yard site	KPA-V
Cultivated, cultivated grass and vacant yard site	K-KGV
Bush arable and yard site	BA-A
Bush arable and vacant yard site	BA-V
Bush cleared, not cultivated and yard site	BAK-A
Bush cleared, not cultivated and vacant yard site	BAK-V
Cultivated - scattered	K-S
Cultivated grass - scattered	KG-S

Soil Classification

Soils shall be classified in accordance with the classification criteria established by:

- The Canadian System of Soil Classification, 1987 2nd ed. (CSSC), Agricultural Canada Expert Committee on Soil Survey;
- The Manual for Describing Soils In The Field, 1978 (revised), Canada Soil Survey Committee; and
- Saskatchewan Soil Survey, Saskatchewan Institute of Pedology, University of Saskatchewan.

Soil Zones

Soil zones are general agricultural areas that are identified by soil surface colour. Soil surface colour is due to organic matter type and content which have developed over long term climatic and vegetation conditions. Soil productivity is influenced by soil zone.

There are five major soil zones in Saskatchewan: Brown, Dark Brown, Black, Dark Gray and Gray. The Brown, Dark Brown, Black and Dark Gray soil zones are based upon CSSC colour criteria for the great groups of the Chernozemic soil order. The Gray soil zone is based upon colour criteria for Orthic Gray Luvisol, a sub-group of the Luvisolic soil order.

Soil Order

Soil order is the most general taxonomic grouping of soils. Soil order is based on the properties of the soil pedon that reflects the nature of the soil environment and the effects of the dominant, soil-forming processes.

Soil Associations

Soil associations are categories of soils that have the same geologic deposit, same soil zone and are affected by similar soil forming processes. A soil association typically has a dominant diagnostic horizon.

The soil association is used as the standard unit for classifying, mapping and rating soils.

Luvisolic Soil Associations

Luvisolic soil associations include the Orthic Gray Luvisol and Dark Gray Luvisol subgroups. Subgroups within an association are designated by a “1" or “2" in the association name and abbreviated association name. As an example, Waiteville1 (WV1) describes Waiteville soils that fall in the Orthic Gray Luvisol subgroup. Waiteville2 (WV2) describes Waiteville soils that fall in the Dark Gray Luvisol subgroup.

Where a Luvisolic soil association does not have a number in the association name or abbreviated name, the soil falls within the Orthic Gray Luvisol subgroup unless the soil profile is DGM/Ae. Where the soil profile is DGM/Ae the soil falls within the Dark Gray Luvisol subgroup (i.e. WV2).

Soil Association Flow Chart

The flow chart is a list of soil associations and their abbreviations. The chart has the soil zone/soil order/great group/subgroup as the vertical axis and geological deposit on the horizontal axis. The flow chart is laid out as follows:

Fluvial, Lacustrine, Loess, Superglacial and Shallow Lacustrine Geological Deposits – Part 1 of 3

Soil Zone/ Order	Order/Great Group/ Subgroup	Gravelly Fluvial	Sandy Fluvial Lacustrine (<15% clay)	Sandy Lacustrine (>15% clay)	Silty Lacustrine
Brown	Chernozemic	Chaplin (CH)	Hatton (HT)	Birsay (BY)	Fox Valley (FX)
	Solonetzic			Gilroy (GY)	Kelstern (KN)
	Regosolic		Antelope (AP)		
	Vertisolic				
Dark Brown	Chernozemic	Biggar (BG)	Asquith (AQ)	Bradwell (BR)	Elstow (EW)
	Solonetzic		Grandora (GD)	Wingello (WG)	Hanley (HY)
	Regosolic		Vera (VR)		
	Vertisolic				
Black	Chernozemic	Whitesand (WS)	Meota (ME)	Hamlin (HM)	Blaine Lake (BB)
	Solonetzic				Speers (SS)
	Regosolic		Edam (EM)		
Thick Black	Chernozemic		Perley (PE)	Bredenbury (BU)	Hoey (HH)
	Solonetzic				
Dark Gray	Chernozemic	Glenbush (GB)	Nisbet (NT)	Shellbrook (SB)	Kamsack (KA)
	Gleyed Chernozemic		Carrot River (CR)	Gronlid (GO)	
	Solonetzic				
Luvisolic	Orthic Gray	Bodmin (BD1)	Sylvania (SY1) Waterhen River (WT1)	La Corne (LC1)	Porcupine Plain (PP1) Dorintosh1 (DO)
	Dark Gray	Bodmin (BD2)	Sylvania (SY2) Waterhen River (WT2)	La Corne (LC2)	Porcupine Plain (PP2) Dorintosh2 (DO)
Brunisolic	Eutric	Kewanoke (KK)	Pine (PN)		
Gleysolic					

Fluvial, Lacustrine, Loess, Superglacial and Shallow Lacustrine Geological Deposits – Part 2 of 3

Soil Zone/ Order	Order/Great Group/ Subgroup	Silty Lacustrine overlying glacial till	Silty Lacustrine (strongly calcareous)	Silty Lacustrine (strongly calc.) overlying glacial till	Variable Clayey Lacustrine	Uniform Clayey Lacustrine
Brown	Chernozemic	Valor (VA)			Willows (WW)	
	Solonetzic				Kindersley (KD)	
	Regosolic					
	Vertisolic					Sceptre (SC)
Dark Brown	Chernozemic	Scott (ST)			Sutherland (SU)	
	Solonetzic				Tuxford (TU)	
	Regosolic					
	Vertisolic					Regina (RA)
Black	Chernozemic	Cut Knife (CF)	Cudworth (CD) Arcola (AO)	Hoodoo (HD)	Balcarres (BA)	Indian Head (IH)
	Solonetzic					
	Regosolic					
Thick Black	Chernozemic		Canora (CA)	Naicam (NC)	Melfort (MR)	
	Solonetzic				Meadow Lake (MD)	
Dark Gray	Chernozemic	Tiger Hills (TG)			Tisdale (TI)	
	Gleyed Chernozemic		Weirdale (WE)			
	Solonetzic					Arborfield (AR1) Arborfield (AR2)
Luvisolic	Orthic Gray	Northern Light (NR1)				Eldersley (ED1)
	Dark Gray	Northern Light (NR2)				Eldersley (ED2)
Brunisolic	Eutric					
Gleysolic						Rouleau (RU)

Fluvial, Lacustrine, Loess, Superglacial and Shallow Lacustrine Geological Deposits – Part 3 of 3

Soil Zone/ Order	Order/Great Group/ Subgroup	Superglacial Silty Lacustrine	Superglacial Variable Clayey Lacustrine	Loess	Loess overlying Tertiary Materials
Brown	Chernozemic			Swinton (SN)	
	Solonetzic				
	Regosolic				
	Vertisolic				
Dark Brown	Chernozemic		Bear (BE) Allan (AN)	Wymark (WK)	Vesper (VP)
	Solonetzic			Instow (IW)	
	Regosolic				
	Vertisolic				
Black	Chernozemic	Krydor (KR)	Keatley (KT)		Bone Creek (BC)
	Solonetzic				
	Regosolic				
Thick Black	Chernozemic	Pheasant Rump (PH)			
	Solonetzic				
Dark Gray	Chernozemic	Punnichy (PU)	Touchwood (TW) Beaver River (BV) Maloneck (MN)		
	Gleyed Chernozemic				
	Solonetzic				
Luvisolic	Orthic Gray		Kelvington (KE1) Moose Mountain (MM1)		
	Dark Gray		Kelvington (KE2) Moose Mountain (MM2)		
Brunisolic	Eutric				
Gleysolic					

Undifferentiated and Resorted Glacial Till Geological Deposits – Part 1 of 3

Soil Zone	Great Group	Undiff. Med. to Moderately Fine Textured	Undiff. Medium to Moderately Fine Textured Weakly to Moderately Calcareous	Undiff. Medium to Moderately Fine Textured Strongly Calcareous	Undiff. Moderately Fine to Fine Textured	Undiff. Moderately Coarse to Coarse Textured
Brown	Chernozemic	Haverhill (HR)				
	Solonetzic	Flaxcombe (FC)				
Dark Brown	Chernozemic	Weyburn (WR)				
	Solonetzic	Rosemae (RM)				
Black	Chernozemic	Oxbow (OX)		Wadena (WD)	Mayfair (MF)	
Thick Black	Chernozemic	Yorkton (YK)				
Dark Gray	Chernozemic	Whitewood (WH)	Horsehead (HO)		Lorenzo (LZ)	
Thick Dark Gray	Chernozemic					
Luvisolic	Orthic Gray	Waitville (WV1)	Loon River (LN1)	Battle Heights (BH1)	Meeting Lake (MT1)	Bow River (BO1)
	Dark Gray	Waitville (WV2)	Loon River (LN2)	Battle Heights (BH2)	Meeting Lake (MT2)	Bow River (BO2)
Brunisolic	Eutric			O'Leary Lake (OY)		

Undifferentiated and Resorted Glacial Till Geological Deposits – Part 2 of 3

Soil Zone	Great Group	Undiff. Medium to Moderately Fine Textured with Coarse to Medium Overlay	Resorted Till Medium to Moderately Fine Textured	Resorted Till Medium to Moderately Fine Textured Strongly Calcareous	Resorted Till Fine Textured
Brown	Chernozemic				
	Solonetzic				
Dark Brown	Chernozemic				Wyandotte (WY)
	Solonetzic	North Portal (NO)			
Black	Chernozemic		Edgeley (EG)	Fremantle (FE)	
Thick Black	Chernozemic				
Dark Gray	Chernozemic		Danbury(DA) Kelsey (KY)	Paddockwood (PW)	
Thick Dark Gray	Chernozemic		Pelly (PY)		
Luvisolic	Orthic Gray	Bittern Lake (BT1) Piprell (PR1) Wapawekka (WP1)	Swan Plain (SW1) Garrick (GA1)		
	Dark Gray	Bittern Lake (BT2) Piprell (PR2) Wapawekka (WP2)	Swan Plain (SW2) Garrick (GA2)		
Brunisolic	Eutric				

Undifferentiated and Resorted Glacial Till Geological Deposits – Part 3 of 3

Soil Zone	Great Group	Highly Textured Till - Medium to Moderately Coarse Textured	Highly Resorted Till - Medium to Moderately Fine Textured	Eroded Undiff. Till	Eroded Till - Fluvial Sand and Gravel Complex
Brown	Chernozemic				
	Solonetzic				
Dark Brown	Chernozemic	Forget (FG) Alert (AT)	Keppel (KP)	Hillsborough (HB)	Roughbark (RB)
	Solonetzic				
Black	Chernozemic	Windthorst (WN) Sonningdale (SD)	Craigmore (CM)	Crooked Lake (CL)	Swift Creek (SF)
Thick Black	Chernozemic				
Dark Gray	Chernozemic		Makwa (MA) Lestock (LE)		
Thick Dark Gray	Chernozemic				
Luvisolic	Orthic Gray				
	Dark Gray				
Brunisolic	Eutric				Smeaton (SM1) Smeaton (SM2)

Residual-Modified Glacial Till and Residual Geological Deposits – Part 1 of 3

Soil Zone	Great Group	Shale (Cretaceous) Modified Till	Shale (Cretaceous) Modified Resorted Till	Modified Till Dominated by Local Residual Shales	Tertiary and Cretaceous Modified Till
Brown	Chernozemic	Ardill (AD)	Climax (CX)	Frontier (FR)	Fife Lake (FA)
	Solonetzic	Kettlehut (KH)	Robsart (RO)	Echo (EC)	
Dark Brown	Chernozemic	Amulet (AM)			Scotsguard (SG)
	Solonetzic	Brooking (BK)	Estevan (ES)	Trossachs (TR)	
Black	Chernozemic				Klintonel (KL)
	Solonetzic	Waseca (WA)		Onion Lake (ON)	
Thick Black	Chernozemic				
	Solonetzic	Lloydminster (LY)			
Dark Gray	Chernozemic			Rocanville (RV)	
	Solonetzic				
Luvisolic	Orthic Gray			Bainbridge (BN1) Duck Mountain (DM1)	
	Dark Gray			Bainbridge (BN2) Duck Mountain (DM2)	
	Luvisolic-Brunisolic				
Azonal	Non-soil				

Residual-Modified Glacial Till and Residual Geological Deposits – Part 2 of 3

Soil Zone	Great Group	Clayey Tertiary & Cretaceous Modified Till	Highly Tertiary & Cretaceous Modified Till	Limestone Modified Till	Cretacaeous Shales	Glacial-Modified Tertiary Sediments
Brown	Chernozemic		Esme (EE)			Wood Mountain (WM)
	Solonetzic					
Dark Brown	Chernozemic	Belanger (BJ)	Jones Creek (JC)			Cypress (CY)
	Solonetzic					
Black	Chernozemic	Murraydale (MU)	Caton Creek (CC)			Fairwell (FW)
	Solonetzic					
Thick Black	Chernozemic					
	Solonetzic					
Dark Gray	Chernozemic			Etomami (ET)	Thunder Hill (TH)	
	Solonetzic				Tantallon (TA)	
Luvisolic	Orthic Gray			Kakwa (KW1)		Lodgepole (LP1)
	Dark Gray			Kakwa (KW2)		Lodgepole (LP2)
	Luvisolic-Brunisolic					
Azonal	Non-soil					

Residual-Modified Glacial Till and Residual Geological Deposits – Part 3 of 3

Soil Zone	Great Group	Limestone	Highly Tertiary & Cretaceous Modified Clayey Till	Loamy Till Overlaying Sand	Loamy Cobbly Material Overlaying Sand (Glaciated)	Loam Cobbly Material Overlaying Sand (Unglaciated)
Brown	Chernozemic		Buffalo Horn (BF)	Quantock (QK)		
	Solonetzic		Macworth (MO)			
Dark Brown	Chernozemic		Lonesome Butte (LB)		Canopus (CP)	Borderland (BZ)
	Solonetzic		Reliance (RN)			
Black	Chernozemic					
	Solonetzic					
Thick Black	Chernozemic					
	Solonetzic					
Dark Gray	Chernozemic					
	Solonetzic					
Luvisolic	Orthic Gray					
	Dark Gray					
	Luvisolic-Brunisolic					
Azonal	Non-soil	Limestone Lake (LX)				

Alluvial Geological Deposits and Thin Soil Deposits on Valley Sides

Soil Zone	Soil Order	Alluvial (Sandy)	Alluvial (Loamy and/or Silty)	Alluvial (Moderately Fine to Fine)	Alluvial (Variable)	Alluvial (General)	Hillwash	Exposure
Brown	Chernozemic	Cathkin6 (CT6)				Brown (BW)	Brown (HW6)	Brown (EX6)
	Gleysolic			Big Muddy (BM)				
Dark Brown	Chernozemic	Cathkin5 (CT5)		Lumsden (LM)		Dark Brown (DB)	Dark Brown (HW5)	Dark Brown (EX5)
	Gleysolic			Craven (CV)				
Black	Chernozemic	Cathkin4 (CT4)		Kipling Marsh (KG)		Black (BL)	Black (HW4)	Black (EX4)
Dark Gray	Chernozemic	Whitefox (WF) Cathkin3 (CT3)	Nipawin (NP)			Dark Gray (DG)	Dark Gray (HW3)	Dark Gray (EX3)
	Regosolic - Chernozemic				Sipanok (SK)			
Luvisolic	Gleysolic	Cathkin (CT1) & (CT2)		Cumberland (CB1) & (CB2)	Willow (WX1) & (WX2)	Gray Wooded (GW1) & (GW2)	Gray Wooded (HW2) & (HW1)	Gray Wooded (EX2 & EX1)
Azonal	Chernozemic - Regosolic		Wascana (WC)					
	Regosolic	Caron (CN)						
	Gleysolic		Flat Lake (FK)	Grill Lake (GR)	Marsh (MH)			
	All Orders			Runway (RW)				

Alluvial Geological Deposits (Continued)

Soil Zone	Soil Order	Alluvial Colluvial (Shaly)	Alluvial Colluvial (Loamy to Sandy)
Brown	Chernozemic		Horse Creek (HC)
	Solonetzic	Hellfire (HF)	McEachern (MC)
Dark Brown	Chernozemic		Lark Hill (LH)
	Solonetzic	Porcupine Creek (PK)	Morgan (MG)

Organic Soils

Type	Description
Bagwa Lake (BL)	Fen peat deposits.
Lavallee Lake (LL)	Forest peat, frequently overlain by shallow fibric sphagnum peat and underlain by fen peat.
Moss Peat (MP)	Wooded muskegs which are characterized by a cover of black spruce which have a slow growth rate, with an undergrowth of mosses, Labrador Tea and other hydrophilic vegetation. The mossy layers of the surface are often underlain by moderately decomposed materials of sedge peat origin.
Paquin Lake (PL)	Sphagnum peat.
Sedge Peat (SP)	Open, treeless area of organic soils, except for scattered willow, which have a surface cover of cattails, rushes, reeds, sedges, and grasses. The peat is derived from the remains of these plants.
Tibiska Lake (TL)	Fen peat overlain by shallow sphagnum peat.
Wasaw Lake (WL)	Forest peat deposits.

Miscellaneous Soil Complexes

Type	Description
Arbow Complex (AW)	Undifferentiated Gleysolic soils supporting tree cover of various species depending on the drainage conditions, developed on variable-texture and recent deposits.
Beach Complex (BX)	Regosolic, Podzolic, Brunisolic, and Luvisolic soils developed from variable textured, often stony, eroded till and sandy and gravelly deposits occurring as beach ridges and shorelines.
Claybank (CK)	A complex of Dark Brown Chernozemic and Solonetzic soils - listed in Willow Bunch report under "Dominantly Solonetzic Soils". Developed on modified till containing Tertiary and Upper Cretaceous sediments.
Colluvium (CO)	Chernozemic soils which have developed in variable deposits consisting of mixtures of glacial till and shale bedrock occurring as stabilized deposits at the base of the steeply sloping Qu'Appelle Valley sides.
Eastend (EA)	Regolsolic, Gleysolic and Solonetzic soils formed in a mixture of colluvial and fluvial materials derived from Tertiary, Cretaceous and glacial materials occurring as fans and aprons in valley bottoms and at the base of escarpments.
Elk Trail (EK1)(EK2)	Gray Luvisolic soils developed on medium to moderately fine textured, moderately calcareous glacial till overlain by shallow, moderately coarse textured, non-calcareous stony deposits.
Ellisboro (EB)	Black Chernozemic soils developed in variable textured, calcareous fluvial deposits associated with aprons and fans in large valleys.
Exposure (EX1-6)	Consists chiefly of bedrock exposures with minor amounts of variable textured Regosolic soils developed from various bedrock exposures. Exposed uniform clay material obvious signs of water erosion not solid rock, but called "bedrock" because they are much older than the glacial deposits that make up Saskatchewan landscape.
Flotten (FT1)(FT2)	Brunisolic Gray Luvisol soils developed on coarse to moderately coarse textured glacio-fluvial lacustrine deposits underlain by moderately fine to fine textured, weakly to moderately calcareous glacio-lacustrine deposits.
Gap View (GV)	Black Chernozemic soils developed from medium textured lacustrine deposits overlying gravelly alluvial fan deposits.

Type	Description
Glenavon Complex (GN)	Black Chernozemic soils developed in a mixture of moderately stony, loamy glacial till materials; non-stony, silty to clayey laustrine materials; and slightly stony, silty water-modified glacial till.
Hillwash Complex (HW1-6)	A complex of soils of numerous soil orders developed on variable deposits associated with valley slopes and escarpments.
Jan Lake Complex (JX1)(JX2)	A complex of Precambrian bedrock, luvisolic soils on clayey and silty lacustrine sediments and Brunisolic soils on coarse to moderately coarse textured glacial till.
Kistapiskaw (KS)	Luvisolic soils developed on fine textured, weakly calcareous, clayed lacustrine deposits.
Meadow Complex (MW)	Undifferentiated Gleysolic soils developed on variable deposits in intermittently flooded areas.
Neelby Complex (NE)	Black Chernozemic soils developed in a complex of medium to moderately fine textured glacial till, moderately coarse to fine textured, shallow lacustrine deposits overlying till, and coarse textured fluvial deposits.
Nistum (NM1)(NM2)	Luvisolic soils developed on fine to moderately fine textured, weakly to moderately calcareous, clayey lacustrine deposits.
Nitenai Complex (NN)	Regosolic, Brunisolic, Luvisolic and Gleysolic soils developed on variable textured colluvial sands, clays, and shales, intermixed with sandy and gravelly beach deposits.
Pathlow Complex (PA1)(PA2)	Luvisolic soils, with some Dark Gray Chernozemic soils, developed in a mixture of undifferentiated or eroded glacial till, and moderately fine to fine textured, shallow lacustrine material underlain by glacial till eroded glacial till or gravel.
Quill Lake Complex (QU)	A complex of salinized, carbonated and gleyed Chernozemic and weakly developed gleyed Solonetzic soils, and saline and carbonated Gleysolic soils. Developed on lacustrine, fluvial-lacustrine, and resorted till, all of which contain carbonates and salts. Has a local occurrence, representing the saline-alkali area left by the shrinking Quill Lake.
Runway Complex (RW)	A complex of soils developed on a variety of deposits in glacial, and recent meltwater channels.
Saline Complex (SA)	Gleyed and saline Regosolic soils developed on variable deposits in intermittently flooded areas.
Short Creek Complex (SX)	Rock outcrops, in eroded badlands and thin Regosolic soils developed on Ravenscrag bedrock exposures.
Sylvite Complex (SV)	Black (Dark Gray) Chernozemic soils developed in variable materials, consisting of shallow, coarse to moderately fine textured, fluvial and lacustrine deposits, often containing fragments of shale, overlying shale modified glacial till, or shale bedrock deposits, dense stone lag often occurs at the till contact.
Valley Complex (VV)	Luvisolic, Brunisolic, Regosolic, Gleysolic and Organic soils associated with valleys.
Welby (WB)	Black Chernozemic soils developed in coarse to moderately coarse textured, weakly to moderately calcareous gravelly fluvial deposits, modified by Cretaceous shales.
Source: Saskatchewan Soil Map Units, compiled by H.B. Stonehouse, revised in 1993, Saskatchewan Institute of Pedology, University of Saskatchewan, Saskatoon.	

Summary

This section describes the valuation procedures for determining the climate rate.

Description

Climate is the long term manifestation of weather in all its forms. Soil productivity and climate are closely related. The climate rate covers variations in climate association with geographical location and landscape features, and expresses the effect of zonal, sub-zonal and, to a lesser extent, local climates on soil productivity.

Due to the combined effect of latitude, longitude and elevation, Saskatchewan's climate progressively changes from the southwest to the northeast. The mean temperature decreases from southwest to northeast, while the amount of precipitation increases.

Application

The climate rate shall be determined on the basis of rural municipality and soil zone. Urban municipalities shall be assigned the same climate rates as the adjacent rural municipality.

Primary Climate

Each municipality has a primary climate rate for each of the soil zones that occur in the municipality. Where there is no secondary climate rate, the primary climate rate shall be used.

Secondary Climate

Municipalities in the Brown and Dark Brown soil zones may have a secondary climate rate. The secondary climate rate is used in locations of the municipality where the climate is significantly different than the primary climate rate and for soil zone transition areas. Factors used to determine whether the secondary climate rate should be used include rainfall patterns, evapo-transpiration rates, aspect, elevation, native vegetation patterns, soil colour and location with respect to other soil zones.

The climate rate range for each soil zone is as follows:

Type	Soil Zone			
	Dry Brown	**Moist Brown**	**Dark Brown**	**Black to Gray**
Range	5 - 9	10 - 15	16 - 25	26 - 32

Rates

This table contains the climate rates that shall be applied to each rural municipality in Saskatchewan.

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
001			25		27			
002			25		27			
003			25		27			
004			23					
005			21					
006			19					
007			18					
008	15		17					
009	13		16					
010	13		16					
011	13							
012	13		16					
017	7	11	16					
018	7	10						
019	7	5						
031			25		27			
032			25		27			
033			25		27			
034			25		27			
035			23		26			
036			21					
037			19					
038	15		18					
039	15		17					
040	13		16					
042	13							
043	12	9	16					
044	12	9	16					
045	12	9	16					
046	12	9	16					
049	11	8	16		27			
051	5	9/10	16		27			
061					28		28	
063			25		28		28	
064			25		27		27	

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
065			23		27			
066			21					
067			19					
068	15		18					
069	15		17					
070	14		17					
071	13		16					
072	13							
073	13							
074	13							
075	13							
076	13							
077	13		16					
078	13	9	16					
079	13		16					
091					29		29	
092					29		29	
093			25		29		29	29
094			25		27		27	
095			25		27			
096			23		26			
097			21		26			
098			19					
099			18					
100	15		17					
101	14		17					
102	13							
103	13							
104	13							
105	13							
106	13		16					
107	13		16					
108	15		16					
109	13		16	21				
110	12	9	16	21	27			
111	12	9	16	21	27			
121					30		30	

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
122					29		29	
123					28		28	28
124			25		27		27	
125			25		27		27	
126			25		27			
127			23		27			
128			21	23	27			
129			19					
130	15		17					
131	15		17					
132	14		17					
133	13		16					
134	13							
135	13							
136	14		16					
137	13		16					
138	13		16					
139	12							
141	7	10						
142	7	10						
151					31		31	31
152					32		32	32
153					30		30	30
154					29		29	29
155					29		29	29
156			25		29		29	
157			25		28		28	
158			25		27			
159			22	25	27			
160			20					
161	15		17					
162	15		17					
163	13		16					
164	12		16					
165	12							
166	12							
167	12							

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
168	12							
169	10	8						
171	7	10						
181					32		32	
183					31		31	
184					30		30	
185					30		30	
186					30		30	
187					29			
189			23	25	27			
190			21					
191			19					
193	15		17					
194	13		17					
211					32		32	
213					32		32	
214					31		31	
215					30		30	30
216					30		30	
217					29		29	
218			25		28		28	
219			25		27			
220			23	25	27		27	27
221			19					
222			18					
223	15		18					
224	14		17					
225	14							
226	14							
228	14		17					
229	12	9						
230	11	9						
231	10	8						
232	8	9						
241					31		30	30
243					32		30	30
244					31		31	31

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
245					30		30	30
246					30		30	30
247					30		30	30
248			25		29		29	29
250			23	25	27		27	27
251			20					
252			18					
253			17					
254	15		17					
255	15		17					
256	15		17					
257	15		17					
259	14		17					
260	13		16					
261	11	7						
271					30		28	28
273					31		29	29
274					32		32	32
275					31		31	31
276					31		31	31
277					30		30	30
279			25		29	27	29	29
280			23					
281			21					
282			21					
283			18					
284			18					
285	15		18					
286	15		19					
287	15		21	19				
288	15		19					
290	15	13	17					
292	12	7	16					
301					29		27	27
303					30		29	29
304					31		29	29
305					31		29	29

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
307					30		30	30
308			25		29		29	29
309			25		27			
310			25		27			
312			23					
313			21					
314			19					
315			19					
316			19					
317			21					
318	15		21					
319	15		19					
320	14							
321	13		17	21				
322	12	7	17	21				
331					29		27	27
333					29		27	27
334					29		27	27
335					29		27	27
336					31		29	29
337					31		31	31
338					30		30	30
339					29		29	
340			25		28			
341			25		27			
342			23					
343			21					
344			22	25	27			
345			20					
346			20					
347			22					
349	15		19					
350	14		17					
351	14		17					
352	14		17		26			
366					30		29	29
367					32		32	32

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
368					32		32	32
369					32		32	
370			25		30		30	
371			25		29		29	
372			25		28			
373			25		28			
376			23		27			
377			25		27		27	27
378			23	21	26			
379			21	23	26			
380			21	23				
381			19	22				
382	15		19		26			
394					28		26	26
395					29		27	27
397					31		31	31
398					32		32	32
399					32		32	32
400					31		31	31
401			25		32		32	32
402					32		32	32
403			25		31		31	
404					31		31	
405					29			
406					29			
409			25	23	27		27	
410			25	22	27			
411			25	22	27			
426					30		29	29
427					31		31	31
428					32		32	32
429					32		32	32
430					32		32	32
431					32		32	32
434					30		30	30
435					29		29	29
436					30		30	

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
437					30		30	
438			25		29		29	
439			25		29		29	
440			25		29		29	29
442			25		27		27	27
456					30		28	28
457					30		29	29
458					31		29	29
459					31		29	29
460					32		32	32
461					31		29	29
463					30		30	30
464					29		28	28
466					28		27	27
467					29		28	28
468					31		31	31
469					31		31	31
470					31		31	31
471					32		32	32
472			25		32		32	32
486					29		27	27
487					29		28	28
488					29		27	27
490					29		27	27
491					29		27	27
493					29		28	28
494					29		27	27
496					28		26	26
497					28		26	26
498					28		27	27
499					29		28	28
501					30		29	29
502					32		32	32
520					28		26	26
521					28		26	26
555					28		26	26
561					28		26	26

Municipality	Soil Zones							
	Brown		Dark Brown		Black		Dark Gray Chernozem & Luvisol	Orthic Gray Luvisol
	Primary	Secondary	Primary	Secondary	Primary	Secondary		
588					28		26	26
622					27		26	26
920					27		26	26
950					27		26	26

Summary

This section describes the valuation procedures for determining the organic matter rate.

Description

Organic matter is a soil component derived from the decomposition of plant and animal tissue. Most of the organic matter is found in the A-horizon (A-depth), and typically makes up one to nine percent of the soil material.

Application

The organic matter rate shall be determined on the basis of the soil association.

Luvisolic Association

Where a Luvisolic soil association does not have a number in the association name or the abbreviated name, the soil falls within the Orthic Gray Luvisol subgroup unless the soil profile is DGM/Ae. Where the soil profile is DGM/Ae the soil falls within the Dark Gray Luvisol subgroup (i.e. WV2).

This table contains the organic matter rates that shall be applied to each soil association.

Association Name	Abbreviation	Rate
Asquith	AQ	1
Ardill	AD	1
Amulet	AM	2
Allan	AN	4
Arcola	AO	9
Antelope	AP	0
Arborfield1	AR1	3
Arborfield2	AR2	6
Alert	AT	1
Blaine Lake	BB	9
Balcarres	BA	5
Bone Creek	BC	6
Bodmin1	BD1	0
Bodmin2	BD2	0
Bear	BE	4
Buffalo Horn	BF	1
Biggar	BG	0
Battle Heights1	BH1	1
Battle Heights2	BH2	4
Belanger	BJ	2
Brooking	BK	0
Black (Alluvium)	BL	5
Bainbridge1	BN1	1
Bainbridge2	BN2	4
Bow River1	BO1	0
Bow River2	BO2	1
Bradwell	BR	2
Bittern Lake1	BT1	1
Bittern Lake2	BT2	3

Association Name	Abbreviation	Rate
Bredenbury	BU	9
Beaver River	BV	8
Brown (Alluvium)	BW	0
Birsay	BY	1
Borderland	BZ	2
Canora	CA	12
Cumberland1	CB1	0
Cumberland2	CB2	5
Caton Creek	CC	4
Cudworth	CD	9
Crooked Lake	CL	4
Cutknife	CF	9
Chaplin	CH	0
Claybank	CK	2
Craigmore	CM	4
Caron	CN	1
Canopus	CP	2
Carrot River	CR	2
Cathkin1	CT1	0
Cathkin2	CT2	2
Cathkin3	CT3	5
Cathkin4	CT4	5
Cathkin5	CT5	2
Cathkin6	CT6	0
Climax	CX	1
Cypress	CY	2
Danbury	DA	8
Dark Brown (Alluvium)	DB	2
Dark Gray	DG	5
Duck Mountain1	DM1	1
Duck Mountain2	DM2	4
Dorintosh1	DO1	2
Dorintosh2	DO2	8
Eastend	EA	0
Elstow	EW	4
Ellisboro Complex	EB	4
Echo	EC	0
Eldersley1	ED1	2
Eldersley2	ED2	11
Esme	EE	1
Edgely	EG	6
Elk Trail1	EK1	1
Elk Trail2	EK2	3

Association Name	Abbreviation	Rate
Edam	EM	0
Estevan	ES	1
Etomami	ET	6
Exposure	EX (1-6)	0
Fife Lake	FA	1
Flaxcombe	FC	0
Freemantle	FE	5
Forget Complex	FG	2
Frontier	FR	1
Flotten1	FT1	0
Flotten2	FT2	2
Fairwell	FW	3
Fox Valley	FX	1
Garrick1	GA1	4
Garrick2	GA2	8
Glenbush	GB	0
Grandora	GD	0
Glanavon	GN	5
Gap View	GV	5
Gray Wooded (Alluvium)1	GW1	0
Gray Wooded (Alluvium)2	GW2	5
Gilroy	GY	0
Gronlid	GO	4
Hoey	HH	12
Hillsborough	HB	2
Horse Creek	HC	0
Hoodoo	HD	9
Hellfire	HF	0
Hamlin	HM	6
Horsehead	HO	4
Haverhill	HR	1
Hatton	HT	0
Hillwash	HW (1-6)	0
Hanley	HY	1
Indian Head	IH	5
Jones Creek	JC	2
Jan Lake Complex1	JX1	0
Jan Lake Complex2	JX2	1
Kamsack	KA	8
Kindersley	KD	1
Kelvington1	KE1	2
Kelvington2	KE2	8
Kettlehut	KH	0

Association Name	Abbreviation	Rate
Kewanoke	KK	0
Klintonel	KL	4
Kelstern	KN	0
Keppel	KP	3
Krydor	KR	9
Keatley	KT	8
Kakwa1	KW1	3
Kakwa2	KW2	6
Kelsey	KY	8
Lonesome Butte	LB	2
La Corne1	LC1	3
La Corne2	LC2	4
Lark Hill	LH	1
Lestock	LE	8
Lumsden	LM	3
Loon River1	LN1	1
Loon River2	LN2	4
Lodgepole1	LP1	0
Lodgepole2	LP2	0
Lloydminster	LY	10
Lorenzo	LZ	4
Melfort	MR	13
Makwa	MA	5
McEachern	MC	0
Meadow Lake	MD	10
Meota	ME	3
Mayfair	MF	5
Morgan	MG	0
Moose Mountain1	MM1	1
Moose Mountain2	MM2	8
Maloneck	MN	8
Macworth	MO	0
Meeting Lake1	MT1	2
Meeting Lake2	MT2	4
Murraydale	MU	5
Naicam	NC	12
Neelby Complex	NE	6
Nistum1	NM1	2
Nistum2	NM2	8
North Portal	NO	0
Nipawin	NP	9
Northern Light1	NR1	3
Northern Light2	NR2	8

Association Name	Abbreviation	Rate
Nisbet	NT	2
Oxbow	OX	5
Onion Lake	ON	6
O'Leary Lake	OY	0
Perley	PE	5
Pelly	PY	10
Pathlow1	PA1	2
Pathlow2	PA2	4
Pheasant Rump	PH	10
Porcupine Creek	PK	0
Pine	PN	0
Porcupine Plain1	PP1	3
Porcupine Plain2	PP2	8
Piprell1	PR1	1
Piprell2	PR2	4
Punnichy	PU	8
Paddockwood	PW	8
Quantlock	QK	0
Quill Lake Complex	QU	4
Regina	RA	4
Roughbark	RB	0
Rosemae	RM	0
Reliance	RN	1
Robsart	RO	0
Rapeard	RP	2
Rouleau	RU	0
Rocanville	RV	4
Shellbrook	SB	4
Sceptre	SC	2
Sonningdale	SD	2
Swift Creek	SF	1
Scotsguard	SG	2
Sipanok	SK	0
Smeaton Complex1	SM1	1
Smeaton Complex2	SM2	3
Swinton	SN	1
Speers	SS	7
Scott	ST	4
Sutherland	SU	4
Sylvite	SV	0
Swan Plain1	SW1	4
Swan Plain2	SW2	8
Sylvania1	SY1	0

Association Name	Abbreviation	Rate
Sylvania2	SY2	2
Trossachs	TR	1
Tantallon	TA	4
Tiger Hills	TG	8
Thunder Hill	TH	4
Tisdale	TI	11
Tuxford	TU	1
Touchwood	TW	8
Valor	VA	1
Vesper	VP	3
Vera	VR	0
Weyburn	WR	3
Waseca	WA	8
Welby	WB	0
Wascana	WC	2
Wadena	WD	5
Weirdale	WE	10
White Fox	WF	2
Wingello	WG	0
Whitewood	WH	4
Wymark	WK	3
Wood Mountain	WM	1
Windthorst	WN	2
Wapawekka1	WP1	1
Wapawekka2	WP2	4
Whitesand	WS	1
Waterhen River1	WT1	0
Waterhen River2	WT2	2
Waitville1	WV1	1
Waitville2	WV2	4
Willows	WW	2
Willow1	WX1	0
Willow2	WX2	2
Wyandotte	WY	3
Yorkton	YK	9

Summary

This section describes the valuation procedures for determining the texture rate.

Description

Soil texture is the proportion of sand, silt and clay particles in a soil.

Texture is an important soil factor. Texture controls soil water holding capacity, the availability of plant nutrients and the ease with which soil can be cultivated. Saskatchewan soils range in texture from sand (coarse textured) to heavy clay (fine textured).

Sand

Sandy soils have a low water holding and nutrient holding capacity. Sandy soils typically have a loose/weakly developed soil structure. Sandy soils are referred to as "light" soils, as they are easy to cultivate.

Clay

Most arable clay textured soils in Saskatchewan have high shrink-swell properties. Clay soils such as those found on the Regina plains have about 10,000 times the surface area per unit weight than a sand soil which results in a high water holding capacity and high nutrient holding capacity. Clay soils are referred to as "heavy" as they are more difficult to cultivate. Soils with a high percentage of shrink-swell clays are assigned the "heavy clay" texture description.

Silt

Silty soils are finer textured than sandy soils, but do not have the desirable shrink-swell properties of clays. Silt soils with significant amounts of clay typically have very good water holding capacity, nutrient holding capacity and a well developed soil structure.

Loam

The typical soil texture is a loam, which consists of a mixture of sand, silt and clay. This texture typically has good water holding and nutrient holding capacity properties. The soil structure is typically well developed.

Classifications

Texture	Abbreviation	Description
Heavy Clay	HC	> 60% clay.
Silty Clay	SIC	≥ 40% clay and ≥ 40% silt.
Clay	C	≥ 40% clay, < 45% sand and < 40% silt.
Silty Clay Loam	SICL	27-40% clay and < 20% sand.
Clay Loam	CL	27-40% clay and 20-45% sand.
Sandy Clay Loam	SCL	20-35% clay, < 28% silt and ≥ 45% sand.
Silt Loam	SIL	≥ 50% silt and 12-27% clay, or 50-80% silt and < 12% clay.
Loam	L	7-27% clay, 28-50% silt and < 52% sand.
Very Fine Sandy Loam	VL	a) ≤ 20% clay, with the percentage of silt plus twice the percentage of clay exceeding 30%, and ≥ 52% sand, or < 7% clay, < 50% silt and 43-52% sand; and b) of the sand component ≥ 30% very fine sand, or > 40% fine and very fine sand, at least half of which is very fine sand, and < 15% very coarse, coarse, and medium sand.
Light Loam	LL	15-20% clay and > 50% sand.

Texture	Abbreviation	Description
Fine Sandy Loam	FL	a) ≤ 20% clay, with the percentage of silt plus twice the percentage of clay exceeding 30%, and ≥ 52% sand, or b) of the sand component ≥ 30% fine sand and < 30% very fine sand; or 15-30% very coarse, coarse, or medium sand.
Gravelly Loam	GL	A loam texture with 20-50% gravel.
Sandy Loam	SL	a) ≤ 20% clay, with the percentage of silt plus twice the percentage of clay exceeding 30%, and ≥ 52% sand; or b) of the sand component ≥ 30% very coarse, coarse, and medium sand, < 25% very coarse sand, and < 30% very fine or fine sand.
Gravelly Sandy Loam	GSL	A sandy loam texture with 20-50% gravel.
Loamy Sand	LS	a) at the upper limit 85-90% sand, with the percentage of silt plus 1.5 times the percentage of clay ≥ 15%; and b) at the lower limit ≥ 70-85% sand, and the percentage of silt plus twice the percentage of clay ≥ 30%; and c) of the sand component, ≥ 25% very coarse, coarse and medium sand, and < 50% fine or very fine sand.
Very Fine Sand	VFS	a) ≥ 85% sand with the percentage of silt plus 1.5 times the percentage of clay ≤ 15; and b) of the sand component, ≥ 50% very fine sand.
Sand	S	a) ≥ 85% sand with the percentage of silt plus 1.5 times the percentage of clay ≤ 15; and b) of the sand component, ≥ 25% very coarse, coarse, and medium sand, and 50% fine or very fine sand.
Dune Sand	DS	a) ≥ 85% sand with the percentage of silt plus 1.5 times the percentage of clay, ≤ 15%; and b) of the sand component, ≥ 25% very coarse and coarse sand, and < 50% any other one grade of sand.
Gravel	G	A sand texture that contains greater than 50% gravel.

Subsurface Texture

Subsurface texture adjustment shall be applied where the texture below the surface horizon is more than two textural grades lighter or heavier than the surface texture, except where soil forming processes have caused clay particles to leach from the surface horizon into the lower soil horizons (i.e. Luvisolic Soils, Solonetzic Soils).

Where the surface texture is a loam or lighter, the adjusted texture rate is calculated as follows:

1. Determine the average texture at one foot intervals to a maximum of four feet and assign the appropriate texture rate as found in the texture rating tables.
2. Calculate the adjusted texture rate by applying the following formula:

$$ATR = \frac{(TR_1 \times 2) + (TR_2 \times 1) + (TR_3 \times 0.5) + TR_4 \times 0.5)}{4}$$

where: ATR = adjusted texture rate
TR_1 = texture rate of 0-1 feet
TR_2 = texture rate of 1-2 feet
TR_3 = texture rate of 2-3 feet
TR_4 = texture rate of 3-4 feet

Where the surface texture is heavier than a loam, the subsurface texture physical factor adjustment is calculated as follows:

1. Determine the average texture at one foot intervals to a maximum of four feet and assign the appropriate texture rate as found in the texture rating tables.
2. Calculate the adjusted texture rate by applying the following formula:

$$ATR = \frac{(TR_1 \times 2) + (TR_2 \times 1) + (TR_3 \times 0.5) + TR_4 \times 0.5)}{4}$$

where: ATR = adjusted texture rate
TR_1 = texture rate of 0-1 feet
TR_2 = texture rate of 1-2 feet
TR_3 = texture rate of 2-3 feet
TR_4 = texture rate of 3-4 feet

3. Calculate the subsurface texture physical factor adjustment using the following formula:

$$Phys_{sst} = 1 - \left(\frac{TR_1 - ATR}{MR} \right)$$

where: $Phys_{sst}$ = subsurface texture physical factor adjustment
TR_1 = texture rate of 0-1 feet
ATR = adjusted texture rate
MR = master rating

4. Apply the physical factor as a subsurface texture (SST) physical factor as described in Chapter 2 - Agricultural Land, Section 2.1.8 - Physical Factors, General.

Rates

This table contains the texture rates by soil zone that shall be applied to each soil texture.

Soil Texture	Abbreviation	Rates by Soil Zone				
		Brown	Dark Brown	Black	Dark Gray Luvisol & Chernozem	Orthic Gray Luvisol
Heavy Clay	HVC/HC	35	35	35	30	26
Silty Clay	SIC	33	33	35	32	28
Clay	C	32	32	35	34	28
Silty Clay Loam	SICL	30	30	35	34	30
Clay Loam	CL	26	26	30	29	28
Sandy Clay Loam	SCL	18	18	21	21	21
Silt Loam	SIL	24	24	28	27	26
Loam +5	L5	26	26	29	29	29
Loam +4	L4	25	25	28	28	28
Loam +2	L2	23	23	26	26	26
Loam	L	21	21	24	24	24
Loam -5	L-5	16	16	19	19	19
Loam -9	L-9	12	12	15	15	15
Very Fine Sandy Loam +8	VL8	23	23	25	25	25
Very Fine Sandy Loam +4	VL4	19	19	21	21	21
Very Fine Sandy Loam	VL	15	15	17	17	17
Very Fine Sandy Loam -3	VL-3	12	12	14	14	14
Very Fine Sandy Loam -6	VL-6	9	9	11	11	11
Very Fine Sandy Loam -8	VL-8	7	7	9	9	9
Light Loam +6	LL6	23	23	25	25	25
Light Loam +3	LL3	20	20	22	22	22
Light Loam	LL	17	17	19	19	19
Light Loam -3	LL-3	14	14	16	16	16
Light Loam -7	LL-7	10	10	12	12	12
Fine Sandy Loam +8	FL8	22	22	24	24	24
Fine Sandy Loam +4	FL4	18	18	20	20	20
Fine Sandy Loam	FL	14	14	16	16	16
Fine Sandy Loam -3	FL-3	11	11	13	13	13
Fine Sandy Loam -6	FL-6	8	8	10	10	10
Gravelly Loam +8	GL8	21	21	23	23	23
Gravelly Loam +4	GL4	17	17	19	19	19
Gravelly Loam	GL	13	13	15	15	15
Gravelly Loam -3	GL-3	10	10	12	12	12
Gravelly Loam -5	GL-5	8	8	10	10	10
Sandy Loam +9	SL9	21	21	23	23	23
Sandy Loam +8	SL8	20	20	22	22	22

Soil Texture	Abbreviation	Rates by Soil Zone				
		Brown	Dark Brown	Black	Dark Gray Luvisol & Chernozem	Orthic Gray Luvisol
Sandy Loam +4	SL4	16	16	18	18	18
Sandy Loam	SL	12	12	14	14	14
Sandy Loam -2	SL-2	10	10	12	12	12
Sandy Loam -4	SL-4	8	8	10	10	10
Sandy Loam -8	SL-8	4	4	6	6	6
Gravelly Sandy Loam +9	GSL9	20	20	21	21	21
Gravelly Sandy Loam +4	GSL4	15	15	16	16	16
Gravelly Sandy Loam	GSL	11	11	12	12	12
Gravelly Sandy Loam -2	GSL-2	9	9	10	10	10
Gravelly Sandy Loam -4	GSL-4	7	7	8	8	8
Loamy Sand +11	LS11	19	19	20	20	20
Loamy Sand +6	LS6	14	14	15	15	15
Loamy Sand +5	LS5	13	13	14	14	14
Loamy Sand	LS	8	8	9	9	9
Loamy Sand -1	LS-1	7	7	8	8	8
Loamy Sand -2	LS-2	6	6	7	7	7
Very Fine Sand	VFS	5	5	5	5	5
Sand	S	5	5	5	5	5
Dune Sand	DS	3	3	3	3	3
Gravel	G	3	3	3	3	3

Summary

This section describes the valuation procedures for determining the profile rating.

Description

A soil profile is a vertical section of the soil through the horizons extending to the parent material. A soil horizon is a horizontal layer of soil or soil material. A soil horizon is differentiated from adjacent horizons by characteristics that can be seen or measured such as colour, organic matter, structure, texture and the presence or absence of carbonates.

Parent material is the unconsolidated and chemically weathered mineral and organic matter from which the upper horizons of a soil have developed. The parent material can be observed in the "C" horizon.

Soil Catena

A soil catena is defined as a topography-drainage sequence. The terms: well drained, moderately well drained, imperfectly drained, and poorly drained are frequently used to describe soil association in a toposequence. The location of a particular profile in relation to its position in the landscape is known as a catenary sequence.

Profiles develop at a specific location on the landscape because of interactions occurring between micro-climate, water-table, vegetation, erosion and deposition.

The following soil properties are topography related:

- depth of profile development
- thickness and organic content of the A-horizon
- wetness of the profile
- colour of the profile
- the degree of soil horizon differentiation
- soil reaction
- soluble salt content
- temperature
- character of the initial parent material

Application

Factors to consider when determining soil profile include soil order, depth of profile, profile development, and other characteristics of the profile that have an impact on productivity.

Chernozemic Soil Order

The highest profile rates are assigned to Chernozemic soils with moderate to good drainage. Lower profile rates are assigned to Chernozemic soils that have profiles with high lime (calcareous), massive structure and/or gleyed, have slight to moderate eluviation, and have a shallow profile depth. For highly productive heavy textured soils see the Vertisolic Soil Order.

Vertisolic Soil Order

Soils of the Vertisolic order occur on heavy textured materials >60% clay content. At least half of this clay is smectite. Characteristics of clay are its' shrink and swell capability and lack of significant soil horizon development. Vertisolic soils are highly productive and are assigned the "Vert" soil profile description, which has the maximum rate of 20 points.

Solonetzic Soil Order

Solonetzic soils have undesirable soil profiles such as Solod, Solonetz, Solodized Solonetz, burn-outs and Saline Solonetz. Rates are based upon profile development, strength of the solonetzic "B" horizon and the closeness of the solonetzic "B" to the soil surface.

Luvisolic Soil Order

The degree of degradation of Luvisolic soils has a direct effect on productivity. Highly degraded profiles (Orthic Gray Luvisols) have a low rate while the less degraded profiles with a dark A horizon and a thinner Ae horizon (Dark Gray Luvisols) have a higher rate that is closer to Dark Gray Chernozems.

Brunisolic Soil Order

Brunisolic soils tend to occur on light textured soils with forest vegetation. Brunisolic profiles are rated very low due to their sandy, weakly developed profile.

Gleysolic Soil Order

Gleysolic soils suffer from being saturated with water for long periods of time. Depending upon the soil forming processes that have occurred, soils with gleyed profiles have a variable effect on productivity.

Regosolic Soil Order

Regosolic soils are typically weakly developed soils with no B horizon. Most Rego sands are not suitable for cultivation and are generally classed in the non-arable model. When cultivated the main profile description is assigned a low rate. An additional rate is available for Regosolic soils that are productive.

Rates

Chernozemic Order

Subgroup	Abbreviation	Description	Rate
Orthic	OR12	Ah or Ahe or Ap, Bm or Bt < 2" thick Cca or Ck or C is 12" below the surface	20
	OR10	Ah or Ahe or Ap, Bm or Bt < 2" thick Cca, Ck or C is 9"-12" below the surface	18
	OR8	Ah or Ahe or Ap, Bm or Bt < 2" thick Cca, Ck or C is 7"-9" below the surface	14
Vert	Vert	Lacustrine Plains, Ah or Ahe or Ap Cca or Ck or C	20
Calcareous	CAL12	Ah or Ahe or Ap, Bmk Cca or Ck is 12" below the surface	18
	CAL10	Ah or Ahe or Ap, Bmk Cca of Ck is 9"-12" below the surface	14
	CAL8	Ah or Ahe or Ap, Bmk Cca or Ck is 7"-9" below the surface	10

Subgroup	Abbreviation	Description	Rate
Dark Gray	DG12	Ahe, Ae < 2" thick, Bm or Btj or Bt Cca or Ck is 12" below the surface Colour value: 3.5-< 5.0 for Ap (dry)	18
	DG10	Ahe, Ae < 2" thick, Bm or Btj or Bt Cca or Ck is 9"-12" below the surface Colour Value: 3.5-< 5.0 for Ap (dry)	16
	DG8	Ahe, Ae < 2" thick, Bm or Btj or Bt Cca or Ck is 7"-9" below the surface Colour Value: 3.5-< 5.0 for Ap (dry)	12
Eluviated	E-SL	Ah, Ae, Btj or Btj Cca or Ck is 12" below the surface	18
	E-M	Ah, Ae, Btj or Bt Cca or Ck is 9"-12" below the surface	14

Vertisolic Order

Subgroup	Abbreviation	Description	Rate
Vert	Vert	Lacustrine Plains, Ah, Bv or Bvk, Bvg, Bss or Bssk or Ckss, Ck	20
	MC-M	LFH or 0, Ah < 4", Bg, Cg Massive clay, moderately developed, hard	12
	MC-STR	LFH or 0, Ah < 4", Bg, Cg Massive clay, strongly developed, very hard	7

Solonetzic Order

Subgroup	Abbreviation	Description	Rate
Solonetz	Z-S1 (Slight)	Ah or Ahe or Ap Bn or Bntj, typically > 5" from the surface Ck or Csk	18
	Z-M (Moderate)	Ah or Ahe or Ap Bn or Bnt, no round tops, typically > 5" from the surface	14
	Z (Strong)	Ah or Ahe or Ap Bn or Bnt, no round tops, typically < 5" from the surface. Ck or Csk	10
	Z-SA (Saline)	Ah, Bn, Ck or Csk	2

Subgroup	Abbreviation	Description	Rate
Solodized Solonetz	SOL-Z (Strong)	Ah or Ahe or Ap, Ae Bn or Bnt - round tops present. Ae and round tops may have been worked into the Ap. B is typically > 5" from the surface. Ck or Csk	10
	SOL-Z+ (Severe)	Ah or Ahe or Ap, Ae Bn or Bnt - round tops present. Ae and round tops may have been worked into the Ap. B is typically < 5" from the surface. Ck or Csk	5
Solod	SOL-SL (Slight)	Ah or Ahe, Ae > 1" thick (weakly developed) Ab > 2" thick (weakly developed) Bnt (weakly developed) Ck or Csk	18
	SOL-M (Moderate)	Ah or Ahe, Ae > 1" thick (moderately developed) Ab > 2" thick (moderately developed) Bnt (moderately developed) Ck or Csk	14

Luvisolic Order

Subgroup	Abbreviation	Description	Rate
Dark Gray Luvisol[1]	DGL	LFH, Ah or Ahe > 2" thick, Ae Bt, C or Ck Colour Value: 3.5-5.0 for Ap (Dry)	16
Dark Gray Luvisol[2]	DGM/AE	Dark Gray (Moderately degraded/Ae)	10
Orthic Gray	OGL, GW	LFH, Ah or Ahe < 2" thick, Ae Bt, C or Ck Colour Value: > 5.0 for Ap (Dry)	7
Brunisolic Gray	BGL	LFH, Bm, Bf or Ae and Bt, C	3
NOTES: 1. Municipalities where a reinspection was implemented on the 1996 or a subsequent assessment roll. 2. Municipalities where the reinspection was implemented prior to the 1996 assessment roll.			

Brunisolic Order

Subgroup	Abbreviation	Description	Rate
Orthic Eutric	BRUN	LFH, no Ah or this Ah < 4" thick Bm > 2" thick, C or Ck pH > 5.5	3
Orthic Dystric	BRUN	LFH, no Ah or thin Ah < 4" thick Bm > 2" thick, C or Ck pH < 5.5	3

Gleysolic Order

Poorly drained grassland and forest soils.

Subgroup	Abbreviation	Description	Rate
Orthic & Vert	MC-M	LFH or 0, Ah < 4", Bg, Cg Massive clay, moderately developed, hard	12
	MC-STR	LFH or 0, Ah < 4", Bg, Cg Massive clay, strongly developed, very hard	7
	GLEY	LFH or 0, Ah < 4", Bg, Cg Variable texture, non-productive	2
Orthic & Vert Humic	HG	LFH or 0, Ah > 4" or AP > 6", Bg, Cg	20
Humic Luvic	HLG	LFH or 0, Ah > 4" or Ap > 6", Aeg, Btg, Cg	16
Orthic Luvic	OLG	LFH or 0, Ah < 4" or Ap < 6", Aeg, Btg, Cg	7
Organic	ORG/MB	Peat or bog meadow	2

Regosolic Order

Weakly developed profiles.

Subgroup	Abbreviation	Description	Rate
Orthic	ER, RS, OR	Ah < 4", B, absent or < 2", C Immature and eroded profiles.	3
Cumulic	CR	C, Ahb, C eg. flood plains (recent accumulation, not massive or saline)	20
Single Grain	SG	Loose, structureless	2

Summary

This section describes the valuation procedures for determining the profile adjustment factor.

Description

The profile adjustment factor is an adjustment to the profile rate to reflect that lighter textured soils tend to develop deeper profiles than heavier textured soils without a corresponding increase in productivity.

Application

Textures with a subsurface texture modifier shall have the same profile adjustment factor as the texture without a subsurface texture modifier.

This table contains the profile adjustment factor that shall be applied to each soil texture.

Texture Description	Abbreviation	Profile Adjustment Factor (PAF)
Heavy clay	HC	1.00
Silty clay	SIC	1.00
Clay	C	1.00
Silty Clay Loam	SICL	1.00
Clay Loam	CL	1.00
Sandy Clay Loam	SCL	0.86
Silt Loam	SIL	1.00
Loam	L	1.00
Light Loam	LL	0.79
Very Fine Sandy Loam	VL	0.71
Fine Sandy Loam	FL	0.64
Gravelly Loam	GL	0.61
Sandy Loam	SL	0.57
Gravelly Sandy Loam	GSL	0.50
Loamy Sand	LS	0.36
Very Fine Sand	VFS	0.29
Sand	S	0.21
Dune Sand	DS	0.21
Gravel	G	0.21
Note: For textures with modifier used to adjust for subsurface texture use the same profile adjustment as assigned to the original texture. Example: SL4 = 0.57 SL = 0.57		

Summary

This section describes the valuation procedures for determining the A-depth factor.

Description

A-depth is the thickness of the dark coloured soil surface layer or top soil. The dark colour is due to accumulation of organic matter. Where land is uncultivated, the A-depth is the Ah or the Ahe horizon. Where land is cultivated, the A-depth is the Ap and, if present, the Ah or Ahe horizons.

The A-depth factor accounts for the detrimental effect of erosion, poor A-depth development, or superior A-depth development on soil productivity.

A-Depth Descriptions

5+, 6+

"5+" is used in the brown and dark brown soil zones. "6+" is used in the black and dark gray soil zones.

These deep A-depths occur on well-developed soils with the Ah being clearly deeper than the plough layer. There are few uniform deposits of this nature in the brown soil zone. The moister dark brown climate and, particularly the black and dark gray soil zone, have greater potential for these soil depths to occur.

Vert

"Vert" applies to heavy clay soils with shrink-swell properties (i.e. Sceptre and Regina soils) that typically fall into the Vertisolic soil order. Due to the "churning" that occurs in these soils, significant A-depths can rarely be measured other than the plough layer. Must have both a slickenside horizon and a vertic horizon within the control selection. The soils are highly productive.

3-5, 4-6

"3-5" is applied in the brown and dark brown soil zones. "4-6" is applied in the Black and Dark Gray soil zones. These descriptions reflect the typical plough layer found in these soil zones and in the majority of cases will be the A-depth description applied. This category has a well-developed A-horizon and profile with little or no observed erosion. Up to 25% of the A-horizon may have been removed by erosion. For most soils this does not have an impact on productivity considering current farming practices (page 127 CSSC - Class W1 description).

"3-5" and "4-6" represent the "W0" (unaffected) and "W1" (weak) classes of erosion used by Soil Survey (page 4-12 SIP Publ. SM278).

ER10

This category indicates that the plough layer for an area is moderately effected by erosion and/or has poorly developed soils. Poorly developed soils refer to areas that, under native vegetation, have had little profile and A-depth development (i.e. Rego and calcareous profiles on knolls) and undesirable profile development (Solonetzic soils).

1. Description for rolling glacial till topography.

   Key factor: 10-25% of the area is moderately eroded, typically limited to the upper slopes position. "Moderately eroded knolls" infers the Ap consists of various combinations of A, B and C horizon (i.e. some A and B still in the Ap).

   Supplementary points:
   - About 50% of the area (mid and lower slopes) has a reasonable plough layer. Deeper topsoils may be measured at the bottom slopes, but the area is limited in size. There may be evidence of topsoil accumulation on the lower slopes.
   - Remaining areas (upper mid-slopes) will have significant amounts of the B and/or lesser amounts of C horizon worked into the Ap such that it cannot be considered a reasonably good plough layer.

2. Description for landscapes affected by wind erosion (sandy soils):

   Key factor: 10-25% of the area will have exposed B and/or lesser amounts of C horizon.

   Supplementary points:
   - About 50% of the area will have a reasonably good plough layer.
   - Remaining areas will have significant amounts of Bm cultivated into the Ap such that it cannot be considered a reasonably good plough layer.

3. Description for Solontezic soils:

   Key factor: 10-25% of the area has an exposed Bnt (i.e. burnouts) or if no exposed Bnt is present but 25-50% of the area has an Ap composed primarily of Ae with a Bnt found below the plough layer.

   Supplementary points:
   - About 50% of the area has a typical plough layer with only small amounts of Ae and/or Bnt present in the Ap.
   - Remaining areas will have significant amounts of Ae and/or Bnt cultivated into the Ap such that it cannot be considered a reasonably good plough layer.

ER25

This category indicates that the plough layer for an area has been strongly affected by erosion and/or has poorly developed soils. Poorly developed soils refer to areas that, under native vegetation, have had little profile and A-depth development (i.e. Rego and calcareous profiles on knolls) and undesirable profile development (Solonetzic soils).

1. Description for rolling till landscapes:

   Key factor: 25-50% of area is strongly eroded, typically going down to the upper mid-slope position. "Strongly eroded knolls" means the Ap consists mainly of C and some B horizon.

   Supplementary points:
   - About 35% of the area (lower slopes) will have a reasonable plough layer. Deep topsoils may be measured at the bottom slopes with evidence of topsoil accumulation. Topsoil accumulation may have been deposited into sloughs.
   - Remaining areas (mid-slopes) will have significant amounts of the B and/or lesser amounts of C horizon worked into the Ap such that it cannot be considered a reasonably good plough layer.

2. Description for landscapes affected by wind erosion (sandy soils):

   Key factor: 25-50% of the area will have an Ap comprised mainly of C and/or B horizon.

   Supplementary points:
   - About 35% of the area will have a reasonably good plough layer with some areas of accumulation such as along fence lines and windbreaks.
   - Remaining areas will have significant amounts of B and/or lesser amounts of C horizon worked into the Ap such that it cannot be considered a reasonably good plough layer.

3. Description for Solonetzic soils:

   Key factor: 25-50% of the area has an exposed Bnt or if no exposed Bnt is present but more than 50% of the area has an Ap composed primarily of Ae with a Bnt found below the plough layer.

   Supplementary points:
   - About 35% of the area has a reasonably good plough layer with only small amounts of Ae and/or Bnt present in the Ap.
   - Remaining areas will have significant amounts of Ae and/or Bnt worked into the Ap such that it cannot be considered a reasonably good plough layer.

4. Description for Orthic Gray Luvisols:

   Key factor: 25-50% of the area has an exposed Bt.

   Supplementary points:
   - About 35% of the area will have an A-depth that falls in the 2/4 category.
   - Remaining areas will have significant amounts of Bt worked into the Ap.

ER50

This category indicates that the plough layer for an area has been severely effected by erosion and/or has poorly developed soils. Poorly developed soils refer to areas that, under native vegetation, have had little profile and A-depth development (i.e. Rego and calcareous profiles on knolls) and undesirable profile development (solonetzic soils).

1. Description for rolling glacial till landscape:

   Key factor: More than 50% of the area is strongly eroded, typically with the eroded area being as far down as mid-slope. "Severely eroded knolls" infers the Ap consists mainly of C horizon.

   Supplementary points:
   - Less than 25% of the area (lower slopes) would have a reasonable plough layer with evidence of extensive topsoil accumulation. Topsoil accumulation may have been deposited into sloughs.
   - Remaining areas will have significant amounts of the B and/or lesser amounts of C horizon worked into the Ap such that it cannot be considered a reasonably good plough layer.

2. Description for landscape affected by wind erosion (sandy soils):

   Key factor: More than 50% of the area will have an Ap comprised mainly of C and/or B horizon.

   Supplementary points:
   - Less than 25% of the area will have a typical plough layer for the soil zone.
   - Remaining areas will have significant amounts of B and/or lesser amounts of C horizon worked into the Ap such that it cannot be considered a reasonably good plough layer.

3. Description for Solonetzic soils:

   Key factor: More than 50% of the area has exposed Bnt.

   Supplementary points:
   - Less than 25% of the area has a reasonably good plough layer with only small amounts of Ae and/or Bnt present in the Ap.
   - Remaining areas will have significant amounts of Ae and/or Bnt worked into the Ap such that it cannot be considered a reasonably good plough layer.

4. Description for Orthic Gray Luvisols:

   Key factor: More than 50% of the area is exposed Bt.

   Supplementary points:
   - Less than 25% of the area will have an A-depth that falls in the 2/4 category.
   - Remaining areas will have significant amounts of Bt worked into the Ap.

2/4

To be used for typical Orthic Gray Luvisols (OGL). Most OGLs will fall into this category. In the native state, the A-horizon consists of an Ah or Ahe less than 5 cm thick followed by a distinct Ae at least 5 cm thick but less than 15 cm (6") thick.

In the ploughed state, the Ap will generally be 4 to 6 inches thick with a dry soil colour >5.0 on the 10YR colour chart. There may or may not be an Ae below the Ap, which is followed by a Bt. If there is an Ae, it is distinct, with the combined Ap and Ae thickness not exceeding 8 inches.

2/8+

To be used for Orthic Gray Luvisols that have a very deep Ae. These soils typically occur near the northern forest fringe. They tend to be marginal for field crop production and are more suited to grass production.

A-depth characteristics in the native state are similar to the 2/4 category, except that the Ae is deeper than 6 inches thick. In the ploughed state, the combined depth of Ap and Ae is greater than 8 inches thick, followed by a Bt.

Rates

Brown Soil Zone A-Depth Factors - All Soil Orders

Surface colour based upon chernozem order criteria.

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
4.5 to 5.5 (10 yr) (moist to dry)	Vert	VERT	heavy, Lacustrine “Vert A” (Vertisol)	1.05
	Ap & Ah > 5"	5+	little to no erosion	1.05
	Ap 3 - 5"	3-5	little to no erosion	1.00
	Ap 3 - 5"	ER10	moderate erosion and/or poorly developed A	0.95
	Ap 3 - 5"	ER25	strong erosion and/or poorly developed A	0.85
	Ap 3 - 5"	ER50	severe erosion and/or poorly developed A	0.65

Dark Brown Soil Zone A-Depth Factors - All Soil Orders

Surface colour based upon chernozem order criteria.

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
3.5 to 4.5	Vert	VERT	heavy, Lacustrine "Vert A" (Vertisol)	1.05
(10 yr)	Ap & Ah > 5"	5+	little to no erosion	1.05
(moist to dry)	Ap 3 - 5"	3-5	little to no erosion	1.00
	Ap 3 - 5"	ER10	moderate erosion and/or poorly developed A	0.95
	Ap 3 - 5"	ER25	strong erosion and/or poorly developed A	0.85
	Ap 3 - 5"	ER50	severe erosion and/or poorly developed A	0.65

Black Soil Zone A-Depth Factors - All Soil Orders

Surface colour based upon chernozem order criteria.

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
< 3.5	Vert	VERT	heavy, Lacustrine "Vert A" (Vertisol)	1.00
(10 yr)	Ap & Ah > 6"	6+	little to no erosion	1.05
(dry & moist)	Ap 4 - 6"	4-6	little to no erosion	1.00
	Ap 4 - 6"	ER10	moderate erosion and/or poorly developed A	0.95
	Ap 4 - 6"	ER25	strong erosion and/or poorly developed A	0.85
	Ap 4 - 6"	ER50	severe erosion and/or poorly developed A	0.60
Peat	1 - 3" peat	2"PT	Peat over Black Chernozem profile	0.90
	3 - 5" peat	4"PT		0.70
	5 - 9" peat	7"PT		0.50
	9"+ peat	9"PT		0.30

Dark Gray Soil Zone A-Depth Factors

1. Dark Gray Chernozems

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
3.5 to < 5.0	Ap & Ah > 6"	6+	little to no erosion	1.05
(10 yr)	Ap 4 - 6"	4-6	little to no erosion	1.00
(dry)	Ap 4 - 6"	ER10	moderate erosion and/or poorly developed A	0.95
	Ap 4 - 6"	ER25	strong erosion and/or poorly developed A	0.85
	Ap 4 - 6"	ER50	severe erosion and/or poorly developed A	0.60
Peat	1 - 3" peat	2"PT	Peat over Dark Gray Chernozem profile	0.90
	3 - 5" peat	4"PT		0.70
	5 - 9" peat	7"PT		0.50
	9"+ peat	9"PT		0.30

2. Dark Gray Luvisols

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
3.5 to < 5.0	Ap & Ah > 6"	6+	little to no erosion	1.05
(10 yr)	Ap 4 - 6"	4-6	little to no erosion	1.00
(dry)	Ap 4 - 6"	ER10	moderate erosion and/or poorly developed A	0.95
	Ap 4 - 6"	ER25	strong erosion and/or poorly developed A	0.85
	Ap 4 - 6"	ER50	severe erosion and/or poorly developed A	0.60
Peat	1 - 3" peat	2"PT	Peat over Dark Gray Luvisol profile	0.90
	3 - 5" peat	4"PT		0.70
	5 - 9" peat	7"PT		0.50
	9"+ peat	9"PT		0.30

Gray Soil Zone A-Depth Factor - Orthic Gray Luvisols

Surface Colour	**A-Depth**	**Abbreviation**	**Profile Description**	**Factor**
> 5.0		2/4	1-3" Ahe/2-6" Ae	0.90
(10 yr)		ER25	1-3" Ahe/2-6" Ae, with strong erosion	0.85
(dry)		2/8+	1-3" Ahe/6"+ Ae	0.80
		ER50	1-3" Ahe/2-6" Ae, with severe erosion	0.60
Peat	1 - 3" peat	2"PT	Peat over Orthic Gray Luvisol profile	0.90
	3 - 5" peat	4"PT		0.70
	5 - 9" peat	7"PT		0.50
	9"+ peat	9"PT		0.30

Summary

This section describes the valuation procedures for determining the physical factors.

Description

Physical factors are detrimental soil features that reduce crop productivity but are not, or only partially, accounted for in the master rate and/or A-depth.

Physical factors for which an adjustment shall be made are:

- bedrock
- flooding
- frost
- loose top
- luvic gleysols (bluff podzols)
- peat
- poor internal drainage
- salinity
- sand and gravel pockets
- solodization and burnouts
- subsurface texture

Application

The physical factor table shall be used to determine physical factors and the adjustment amount for arable land rating areas, except where the detrimental soil features are accounted for in the master rate or A-depth. The adjustment applied for a physical factor shall be determined taking into consideration the yield reduction of the affected area.

When detrimental soil features result in the land not being suitable for crop production, the land shall be valued as pasture land or waste land in accordance with the valuation procedures in Chapter 2 - Agricultural Land, Section 2.2 - Non-Arable Land.

The physical factors for land in municipalities shall be determined in accordance with the physical factor rating guide classifications.

The physical factors for land in municipalities shall be determined in accordance with the physical factor rate schedule.

Rating Guide

Description	Yield Reduction Range (%)	Factor
Very Slight*	< 2	0.98
Slight	2 - 7	0.95
Moderate	8 - 17	0.90
Strong	18 - 29	0.75
Very Strong	30 - 42	0.65
Severe	43 - 59	0.50
Excessive	60 - 69	0.30
Excessive	≥ 70	Pasture or Waste

***salinity only**

Type Classifications

Bedrock (BE)

In parts of the province, bedrock is found close enough to the surface to interfere with soil productivity. The impact of bedrock on yield depends upon its nearness to the surface and the texture and structure of the surface material. Light textured soils are influenced at deeper depths to bedrock than are the heavier textured soils.

Flooding (F)

Areas of arable land that are subject to periodic flooding are assigned a flooding factor based on frequency of flooding. The following table is a guide that shows the relationship between flooding and relative impact on yield. Care must be taken that duplicate adjustments are not made with the poor drainage physical factor.

Years of Flooding	Relative Impact on Yield
Occasional	Slight
1 out of 6 crop years	Moderate
1 out of 4 crop years	Strong
1 out of 3 crop years	Very strong
1 out of 2 crop years	Severe
2 out of 3 crop years	Excessive

Frost (FR)

Certain areas are subject to late spring and early fall frosts due to topography. Low lying drainage ways and higher elevation (wooded areas) are subject to frost that significantly restricts the variety of crops that can be grown.

If frost is a hazard to cropping, the adjustment applied shall be restricted to the actual areas that are affected. The climate and texture ratings incorporate allowances for the overall effect of frost in the black, dark gray and gray soil zones. The blanket use of the frost factor over large areas shall not be done unless supported by evidence related to major elevation changes that cannot be addressed with climate rates.

Luvic Gleysols (LG)

Local areas of grayish coloured soils are often encountered in small upland depressions in the Black and Dark Gray soil zones and, occasionally, in the Black - Dark Brown transition zone. These gray soil areas usually develop under aspen and willow trees under poorly drained conditions. They are inferior to the adjacent Black and Dark Gray soil types since they have undesirable structural features and are lower in fertility. In the past, this condition has been referred to as “bluff podzols”, and were accounted for with a “Pod” deduction. The Canadian System of Soil Classification, 1987 2nd Ed. identifies these soils as Orthic Luvic Gleysol.

The process of eluviation may be described as the downward movement of the clay particles and organic matter in the soil solution from near the soil surface and deposition of the clay at a depth where downward movement ceases or becomes very slow. This eluviation process results in a gray, ashy layer near the surface. When cultivation occurs, this ashy layer determines the dominant surface colour of the soil area when it becomes mixed in with Ah to become the plough layer.

Loose Top (LT)

Loose top is a structure found in heavy lacustrine soils in areas of the Brown and Dark Brown soil zones. It occurs mainly when saline cretaceous parent material is covered with only a shallow lacustrine deposit. The soil is loose on the surface and very tough and hard underneath.

Peat (PT)
Local areas of peaty and organic soils are encountered in the wetter regions of the province. The productive capacity of these soils is affected by the nature and depth of the organic material and upon the nature of the underlying mineral soil.

Poor Internal Drainage (PD)
Poorly drained soils are usually found in low lying areas that have been subject to prolonged flooding. Care must be taken that this physical factor is not already addressed in the master rate and A-depth or flooding physical factor.

Salinity (SA)
Soils affected by salinity contain such high concentrations of soluble salts that plant growth is affected. Care must be taken that this physical factor is not already addressed in the master rate and A-depth. Salinity may occur in combination with other physical factors such as flooding, poor internal drainage, solodization and burnouts.

The conductivity of the saturation extract is greater than 4 "mmhos" per centimetre. The exchangeable sodium percentage is less than 15. The pH is less than 8.5.

Sand (SD) and Gravel (G)
Sand and gravel pockets occur in areas of glacial till or medium textured lacustrine deposits where the deposit is grading into glacial out-wash or aeolian (wind worked) deposits. The sand and gravel physical factor should not be used in general deposits of light textured soils where the productivity is adjusted in the master rate and A-depth. Where the surface horizon is more or less uniformly underlain by sand or gravel, the adjustment for loss in productivity should be made with subsurface texture.

Subsurface Texture (SST)
The subsurface texture physical factor is applied when the surface horizon is heavier than a loam and is more or less uniformly underlain by a texture that is more than two textural grades lighter than the surface texture.

When the surface texture is a loam or lighter, and is more or less uniformly underlain by a texture that is more than two textural grades lighter or heavier than the surface texture, adjust for soil productivity using soil texture.

The subsurface texture factor shall be determined in accordance with the calculation procedures in Chapter 2 - Agricultural Land, Section 2.1.4 - Arable Land, Texture.

Solodization (SOL) and Burn-Outs (BO)
The structure of Solonetzic soils results in scattered areas having an ashy (solodization) A-depth and/or areas where the ashy A-horizon has been eroded to the B-horizon (burn-outs or blow-outs). These ashy and eroded areas are low in productivity and may be addressed with a solodization or burn-out physical factor. Care must be taken that these physical factors are not already addressed in the master rate and/or A-depth.

Calculation Procedure

Where the detrimental feature affects the entire land area, the actual percentage yield reduction shall be used to determine the physical factor rate.

Where the detrimental feature is scattered over a general area such that separate areas are difficult to identify, the percentage yield reduction used to determine the physical factor rate shall be determined by application of the formula:

$YLDR_O$ = Area x YLDR

where: $YLDR_O$ = overall percentage yield reduction
Area = percentage of total area affected
YLDR = percentage yield reduction for the area affected

Rates

Physical Factor	Symbol		Classification (1)						Rate Schedule (2)
		Very Slight	Slight	Moderate	Strong	Very Strong	Severe	Excessive	
Bedrock	BE		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Burn-out	BO		0.95	0.90	0.75	N/A	N/A	N/A	70 - 98
Flooding	F		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Frost	FR		0.95	0.90	0.75	N/A	N/A	N/A	75 - 98
Gravel Pockets	G		0.95	0.90	0.75	N/A	N/A	N/A	70 - 98
Loose Top	LT		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Luvic Gleysol	LG		0.95	0.90	N/A	N/A	N/A	N/A	90 - 98
Peat	PT		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Poor Internal Drainage	PD		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Poor Drainage Salinity	PSA		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Poor Drainage Peat	PDT		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Salinity	SA	0.98	0.95	0.90	0.75	0.65	0.50	0.30	30 - 98
Sand Pockets	SD		0.95	0.90	0.75	N/A	N/A	N/A	70 - 98
Solodization	SOL		0.95	0.90	N/A	N/A	N/A	N/A	90 - 98
Subsurface Texture	SST		0.95	0.90	0.75	0.65	0.50	0.30	30 - 98

Summary

This section describes the valuation procedures for determining the economic factors.

Description

Economic factors are features that cause the operational costs of farming to increase.

Factors for which economic adjustments shall be made are:

- topography
- stones
- natural hazards
- man-made hazards
- tree cover
- trucking
- freight

Topography

Topography relates to the physical feature of a landscape, especially to its relief and slope. Costs of production such as power requirements for cultivation will increase as the slope increases.

Formulas, Rules and Principles

The topography table shall be used to determine topography categories and the factor for each category.

All arable land rating areas shall be assigned a topography description and factor. The topography description assigned to a rating area will reflect the average slope for the rating area. Slope classes T6 and T7 shall be used in the rating of pasture land.

Rates

Classification	Description	Slope Range (%)	Factor
T1	Level to nearly level	0 - 2.5	1.00
T2	Gentle slopes	3 - 5	0.96
T3	Moderate slopes	6 - 9	0.92
T3.5	Moderate to strong slopes	6 - 15	0.88
T4	Strong slopes	10 - 15	0.84
T4.5	Strong to very strong slopes	10 - 20	0.80
T5	Very strong slopes	16 - 20	0.74
T6	Severe slopes	21 - 30	N/A
T7	Excessive slopes	> 30	N/A

Stones

Stoniness is an inherent characteristic of all soils developed on glacial till moraines and plains. The degree of stoniness varies with the geological nature of the parent material. The presence of stones on agricultural land interferes with cultivation thereby increasing the cost of farming operations.

Formulas, Rules and Principles

The stones table shall be used to determine the classification and the factor for each category. All arable land rating areas shall be assigned a stone description and factor.

Stone descriptions and factors for a rating area shall be based upon average annual removal (cubic yards per acre) of the rating area as of the present condition of the land. The ST7 category shall be used to describe land that is non-arable due to stones.

Rates

Classification	Description	Abbreviation	Annual Removal (cu.yd./acre)	Factor
ST1	None to few	1.00	0.05	1.00
ST2	Slight	2.00	0.10 - 0.15	0.96
ST3	Moderate	3.00	0.20 - 0.25	0.92
ST3.5	Moderate to strong	3.50	0.20 - 0.40	0.88
ST4	Strong	4.00	0.30 - 0.40	0.82
ST4.5	Strong to very strong	4.50	0.30 - 0.60	0.76
ST5	Very strong	5.00	0.45 - 0.60	0.68
ST5.5	Very strong to severe	5.50	0.45 - 2.00	0.54
ST6	Severe	6.00	0.65 - 2.00	0.40
ST7	Excessive	n/a	> 2.0	n/a

Natural Hazards

Natural hazards are draws, ravines, creeks, rivers, sloughs, bogs, knolls and ridges that divide cultivated areas into irregularly shaped fields. In some cases, natural hazards may sever small areas from the main parcel.

Formulas, Rules and Principles

The natural hazard deduction shall be applied as a factor to the productivity rating. The deduction for natural hazards shall be based upon how severely the hazard(s) impact average farm operation costs.

Small Parcels

Small parcels that are severed from the main parcel by a natural hazard and have no reasonably direct access shall be assigned a severance deduction in addition to the natural hazard deduction. The severance deduction shall be based upon the additional farming operation costs.

Factors

Factors that shall be used in the application of the natural hazard deduction are specified in the following table. When a natural hazard deduction is not warranted, no factor shall be applied.

Classification (NH)	Factor	Classification (NH)	Factor
25	0.50	6	0.88
20	0.60	5	0.90
15	0.70	4	0.92
10	0.80	3	0.94
9	0.82	2	0.96
8	0.84	1	0.98
7	0.86		

Natural hazard descriptions and abbreviations are specified in the following table.

Description	Abbreviation
Bush	B
Creek	CK
Deep draw	DDW
Deep draw and creek	DWC
Meadow bog	MB
Ravine	RV
Ridge	RDG
River	RI
Shallow draw	DW
Waste knoll	WN
Waste knoll and creek	NCK
Waste knoll and deep draw	NDW
Waste knoll and ravine	NRV
Waste knoll and river	NRI
Waste slough	WS
Waste slough and creek	WCK
Waste slough and deep draw	WDW
Waste slough and river	WRI
Waste slough and waste knoll	WSN
Waste slough bush	WSB
Waste slough cult	WSK
Waste slough hay	WSH
Waste slough ravine	WRV

Man-Made Hazards

Man-made hazards are railroads, roads, ditches, power poles, bush windrows and bush piles that divide cultivated areas into irregularly shaped fields. In some cases, man-made hazards may sever small areas from the main parcel.

Formulas, Rules and Principles

The man-made hazard deduction shall be applied as a factor to the productivity rating. The deduction for man-made hazards shall be based upon how severely the hazard(s) impact average farm operation costs.

Small Parcels

Small parcels that are severed from the main parcel by a man-made hazard and have no reasonably direct access shall be assigned a severance deduction in addition to the man-made hazard deduction. The severance deduction shall be based upon the additional operation costs.

Factors

Factors that shall be used in the application of the man-made hazard deduction are specified in the following table. When a man-made hazard deduction is not warranted, no factor shall be applied.

Classification (MMH)	Factor	Classification (MMH)	Factor
25	0.50	6	0.88
20	0.60	5	0.90
15	0.70	4	0.92
10	0.80	3	0.94
9	0.82	2	0.96
8	0.84	1	0.98
7	0.86		

Man-made hazard descriptions and abbreviations are specified in the following table.

Description	Abbreviation
Bush piles	BP
Bush windrows	WR
Drainage ditch	DD
Irrigation farmer's ditch	IFD
Irrigation main ditch	ID
Irregularity of area	IA
Lagoons and sanitary landfills	LSL
Railroad	RR
Railroad and irrigation farmer's ditch	IDR
Railroad and road	RRD
Railroad or road and drainage area	DDR
Road	RD
Other	O

Tree Cover

Tree cover describes the type of tree vegetation that covers land that is best suited as arable and the economic cost to bring the land into crop production.

Formulas, Rules and Principles

The tree cover table shall be used to determine the tree cover descriptions and factors. The tree cover factor is determined by the tree cover description used. A rating area with tree cover should be valued as arable land when the final rating is 50 points or greater, with the tree cover rate included.

Descriptions

Light scrub: Scattered poplar and/or willow/wolf willow. Poplar typically has a trunk diameter of less than three inches. Windrowing of trees may not be required. A small bulldozer or a tractor with a blade can clear off the trees. A heavy-duty disc may be used without clearing the trees.

Light bush: May be a dense stand of young poplar (less than three inches in diameter) to a maturing/mature stand where trunk diameter is typically in the 3 to 8 inch range. The area rated may have small areas that are non-treed as well as small areas of willow/wolf willow. Windrowing of trees required in the clearing process. A large bulldozer (D7, D8 equivalent) is required to clear the land efficiently.

Medium bush: A typical mature stand of poplar. Trunk diameter typically ranges from 6 to 18 inches. The area may have small areas that are non-treed as well as the occasional conifer and/or small areas of willow/wolf willow. Windrowing of trees required in the clearing process. A large bulldozer (D7, D8 equivalent) is required to clear the land efficiently.

Heavy bush: Mature stand of large poplar and/or conifers with trunk diameters typically 18 inches and greater. The area may have small areas that are non-treed as well as the occasional area of willow/wolf willow. Windrowing of trees required in the clearing process. Large to very large bulldozers (D8 equivalent and larger) required to clear land efficiently.

Rates

Description	Abbreviation	Index Point
Light scrub	LS	0.75
Light bush	LB	0.60
Medium bush	MB	0.50
Heavy bush	HB	0.45

Trucking

The trucking cost factor adjusts for the increased cost to transport grain to the closest high capacity grain elevator. Properties that are a greater distance from a high capacity elevator have higher costs when compared to properties that are closer.

Formulas, Rules and Principles

A high capacity grain elevator is a grain elevator with a railway siding that can hold at least 50-grain cars.

The distance in miles shall be measured in a direct line from a high capacity grain elevator to the center of the section on which the property being valued is located.

Rates

The trucking cost adjustment shall be determined using the following table:

Distance (Miles)	Factor
0 to 39	1.00
40 to 64	0.99
65 to 84	0.98
85 to 99	0.97
100 or more	0.96

Freight

The freight factor adjusts for the increased cost to transport grain from the grain elevator to port.

Formulas, Rules and Principles

The following table contains the freight factors that shall be applied to each rural municipality.

Municipality	Factor	Municipality	Factor	Municipality	Factor	Municipality	Factor
001	0.97	043	0.98	093	0.97	128	0.99
002	0.97	044	0.98	094	0.97	129	0.99
003	0.97	045	0.98	095	0.97	130	1.00
004	0.98	046	0.98	096	0.98	131	1.00
005	0.99	049	0.97	097	0.99	132	1.00
006	0.99	051	0.98	098	0.99	133	0.99
007	0.99	061	0.96	099	0.99	134	0.99
008	0.99	063	0.96	100	0.99	135	0.99
009	0.99	064	0.96	101	0.99	136	1.00
010	0.99	065	0.98	102	0.99	137	1.00
011	0.99	066	0.99	103	0.99	138	1.00
012	0.98	067	0.99	104	0.99	139	1.00
017	0.96	068	0.99	105	0.99	141	0.98
018	0.96	069	0.99	106	0.99	142	0.97
019	0.96	070	0.99	107	0.99	151	0.97
031	0.97	071	0.99	108	0.99	152	0.97
032	0.97	072	0.99	109	1.00	153	0.97
033	0.97	073	0.99	110	1.00	154	0.97
034	0.97	074	0.99	111	1.00	155	0.97
035	0.99	075	0.99	121	0.97	156	0.98
036	0.99	076	0.98	122	0.97	157	0.99
037	0.99	077	0.98	123	0.97	158	0.99
038	0.99	078	0.98	124	0.97	159	0.99
039	0.99	079	0.98	125	0.98	160	1.00
040	0.99	091	0.96	126	0.98	161	1.00
042	0.99	092	0.96	127	0.99	162	1.00

Municipality	Factor	Municipality	Factor	Municipality	Factor	Municipality	Factor
163	0.99	243	0.96	308	0.96	372	0.97
164	0.99	244	0.96	309	0.97	373	0.97
165	0.99	245	0.96	310	0.97	376	0.98
166	1.00	246	0.96	312	0.98	377	0.98
167	1.00	247	0.96	313	0.98	378	0.99
168	1.00	248	0.97	314	0.98	379	0.99
169	1.00	250	0.97	315	0.98	380	0.99
171	0.98	251	0.98	316	0.98	381	0.99
181	0.96	252	0.98	317	0.99	382	0.99
183	0.96	253	0.98	318	0.99	394	0.95
184	0.96	254	0.98	319	0.99	395	0.95
185	0.97	255	0.98	320	0.98	397	0.96
186	0.98	256	0.98	321	0.98	398	0.96
187	0.98	257	0.98	322	0.98	399	0.97
189	0.99	259	0.98	331	0.95	400	0.97
190	0.99	260	0.98	333	0.95	401	0.97
191	0.99	261	0.98	334	0.96	402	0.97
193	0.99	271	0.96	335	0.96	403	0.97
194	0.99	273	0.96	336	0.96	404	0.98
211	0.96	274	0.96	337	0.96	405	0.98
213	0.96	275	0.96	338	0.96	406	0.98
214	0.96	276	0.96	339	0.97	409	0.99
215	0.96	277	0.96	340	0.97	410	0.99
216	0.97	279	0.97	341	0.98	411	1.00
217	0.97	280	0.97	342	0.98	426	0.95
218	0.97	281	0.98	343	0.98	427	0.95
219	0.97	282	0.98	344	0.98	428	0.96
220	0.97	283	0.98	345	0.98	429	0.96
221	0.98	284	0.98	346	0.98	430	0.97
222	0.98	285	0.98	347	0.98	431	0.97
223	0.98	286	0.98	349	0.99	434	0.98
224	0.98	287	0.99	350	0.99	435	0.98
225	0.99	288	0.98	351	0.99	436	0.98
226	0.99	290	0.98	352	0.99	437	0.98
228	0.98	292	0.98	366	0.95	438	0.99
229	1.00	301	0.96	367	0.96	439	0.99
230	0.99	303	0.96	368	0.96	440	1.00
231	0.98	304	0.96	369	0.97	442	1.00
232	0.98	305	0.96	370	0.97	456	0.95
241	0.96	307	0.96	371	0.97	457	0.95

Municipality	Factor	Municipality	Factor	Municipality	Factor	Municipality	Factor
458	0.96	469	0.98	493	0.97	520	0.96
459	0.96	470	0.99	494	0.97	521	0.96
460	0.97	471	0.99	496	0.97	555	0.96
461	0.96	472	1.00	497	0.97	561	0.95
463	0.97	486	0.95	498	0.97	588	0.95
464	0.97	487	0.95	499	0.98	622	0.95
466	0.98	488	0.96	501	0.98	920	0.95
467	0.98	490	0.96	502	0.99	950	0.96
468	0.98	491	0.97				

Provincial Factor (PF)

The Provincial Factor is 21.49 dollars per acre per final rating point ($/FR).

Calculation Procedure

Description	Document No.	Page No.
a) Master Rating = (a_1 + a_2 + a_3 + a_4)		
a_1. Climate Rate	2.1.2	1-10
a_2. Organic Matter Rate	2.1.3	1-6
a_3. Texture Rate	2.1.4	1-5
a_4. Profile Rate = ($a_{4.1}$ x $a_{4.2}$)		
$a_{4.1}$. Profile Rate	2.1.5	1-5
$a_{4.2}$. Profile Adjustment Factor	2.1.6	1
b) Physical Factors:-		
b_1. A-depth Factor	2.1.7	1-6
b_2. Physical Factors	2.1.8	1-4
c) Productivity Rating = (a x b_1 x b_2)		
d) Economic Factors:		
d_1. Topography Factor	2.1.9	1
d_2. Stones Factor	2.1.9	2
d_3. Natural Hazard Factor	2.1.9	2-3
d_4. Man-Made Hazard Factor	2.1.9	4
d_5. Tree Cover Factor	2.1.9	5
d_6. Trucking Factor	2.1.9	5-6
d_7. Freight Factor	2.1.9	6-8
e) Final Rating = (c x d_1 x d_2 x d_3 x d_4 x d_5 x d_6 x d_7)		
f)Assessed Value Rating (e x f_1)		
f_1. Provincial Factor	2.1.9	8
g) Arable Land Area		
h) Assessed Value = (f x g)		

Summary

This section describes the formulas, rules and principles for determining the assessed value of non-arable agricultural land.

Description

Non-arable agricultural land includes:

- pasture land; and
- waste land

Formulas, Rules and Principles

Pasture land is non-arable agricultural land where the productive potential is best suited to the grazing of cattle and other livestock.

Waste land is non-arable agricultural land with no productive potential as arable land or pasture land.

The formula for determining the assessed value of pasture land is:

$$LV = R \times PF \times U$$

where: LV = assessed value of land
R = rating
PF = provincial factor
U = number of land units

The formula for determining the assessed value of waste land is:

$$LV = R \times U$$

where: LV = assessed value of waste land
R = base land rate
U = number of land units

Units of Comparison

The units of comparison for the valuation of non-arable agricultural land shall be acres.

Summary

This section describes the valuation procedures for determining the assessed value of pasture land.

Description

Pasture land is non-arable agricultural land where the productive potential is best suited to the grazing of cattle and other livestock.

Pasture Land Use

Pasture land use shall be classified as follows:

Land Use	Abbreviation
Native grass	NG
Cultivated grass / Improved Pasture	KG
Cultivated grass / Improved Pasture - 5 or less years since seeded	KG/5
Cultivated grass / Improved Pasture - 6-10 years since seeded	KG/10
Cultivated grass / Improved Pasture - 11-15 years since seeded	KG/15
Cultivated grass / Improved Pasture - 16-20 years since seeded	KG/20
Reverted - improved pasture reverted back to native pasture productivity levels; usually greater than 15 years since originally seeded	KG/R
Aspen forest	ASP
Coniferous Forest	CF
Aspen and coniferous forest	ASP/C
Hay – dryland	HAY
Hay – irrigated	HAY/I
Hay – high water table	HAY/T
Hay – saline	HAY/S

Carrying Capacity

The potential productivity of pasture land is measured by carrying capacity (CC). Carrying capacity is a measure of a pasture's ability to graze livestock without degrading the pasture's long-term potential. Carrying capacity is dependent on range site, vegetation type and tree cover.

The carrying capacity of pasture land is determined using the formula:

CC = Range x Veg x Tree

where: CC = carrying capacity per quarter section
Range = range site carrying capacity
Veg = vegetation type adjustment
Tree = tree cover adjustment

The carrying capacity is rounded to 4 AUM increments.

Animal Unit

One 1,000-pound cow with or without a calf, or the equivalent.

Animal Type	Animal Unit Equivalent
Cattle, mature cow	1.00
Cattle, mature cow with calf	1.00
Cattle, weaned calves	0.50
Cattle, yearlings	0.70
Cattle, bull	1.50
Horse, at least 3 years old	1.50
Horse, 2-year olds	1.00
Horse, yearlings	0.75
Sheep, ewes	0.20
Sheep, rams	0.26
Sheep, one year or younger	0.15
Deer	0.20
Antelope	0.10
Bison	1.25
Elk	0.85

Animal Unit Month (AUM)

A term used to describe the carrying capacity of pastures. Based on the forage requirements of a 1,000-pound cow, with or without calf, for one month. Forage requirement estimated at 780 pounds of dry forage per month.

Range Site

Range sites are ecological subdivisions for the classification of pasture for the purpose of determining carrying capacity. Major factors determining range sites are:

- soil moisture
- soil nutrients
- soil salinity

Available soil moisture is dependent on the soil depth, texture and organic matter, topography and the climate of the area. The amount of available soil nutrients is dependent on the soil organic matter, textures and type of parent material. These factors influence vegetation growth and the potential productivity of the pasture.

Range Site Classification

Range sites are classified as follows:

- Zonal: Sites which reflect the average climate for the region (i.e. soil zone). These are normal upland sites.
- Drier or Moist: Sites which reflect a drier or wetter condition than the normal climate for the region (i.e. soil zone) due to topography, drainage, parent material type.
- Saline: Sites which reflect salt accumulation.
- Intergrades: Where two range sites occur in a 50%/50% combination, an intergrade range site description may be used, eg. L/BO area is 50% loamy range site and 50% burnout range site.

Group	Range Site	Description
ZONAL	Sands (Regosolic)	Stable well-drained, upland range sites with coarse textured soils, but without dune sand topography. Includes loamy sand (LS) very fine sand (VFS) and sand (S) textures. The soils are characterized by a dark A-horizon and none of the features of Solonetzic or Gleysolic soils. Some of the coarser Chernozemic soils with loamy sand textures can fit into this range site. The sands range site is generally found on sand plains deposited by melt water from glaciers. Sands range sites may appear on level grassland patches within or adjacent to sand dunes or without any neighbouring dunes. Soils corresponding to sands range sites include: Antelope, Vera, Edam, or Dune sand with low relief and slopes of less than 5%.
	Sandy/ Sandy Loam (Medium Textured Sands)	Moderately coarse-textured soils characterized by a dark A-horizon and none of the features of Solonetzic or Gleysolic soils. Textures include fine sandy loam (FSL) and sandy loam (SL) textures. The soils are found on glacio-fluvial deposits (i.e. plains of sandy material deposited by streams of water from melting glaciers.) These are well-drained uplands. Soils corresponding to the sandy/sandy loam range site include Hatton, Asquith, Meota, Nisbet, Perley, Sylvania, and Waterhen River. In some cases these soils can have a loamy-textured surface, but the parent material is usually sandy loam and should be classified as sandy range site.
	Loamy	Soils are Chernozemic characterized by a dark A-horizon and none of the features of Solonetzic or Gleysolic soils. The loamy range site includes the very fine sandy loam (VL), light loam, (LL), loam, (L), silt loam (SIL), sandy clay loam (SCL), clay loam (CL), and silty clay loam (SICL) textures. This range site is found on glacial moraines that are deposits of glacial till and a mix of rocks, sand, silt and clay deposited from melting ice. Glacial till with "Knob-and-Kettle" topography containing numerous rocks with fine material between is classified as loamy range site. Soil associations that correspond to this description include Amulet, Haverhill, Weyburn, Cypress, Jones Creek, Birsay, Bradwell, Fox Valley, Hoey, and Swinton. In some cases these soils may have surface textures of sandy loam. However the parent material of these soils is loam to clay loam and the loamy range site should be used.
	Clayey	Fine to very fine-textured soils (clay, heavy clay). Soils are Chernozemic or Vertisolic. Much of the clayey range sites are found on flat glacial lakebed deposits like the Regina Plain. Examples include Allan, Balcarres, Bear, Indian Head, Keatley, Meadow Lake, Melfort, Regina, Sceptre, Sutherland, Tisdale, Touchwood and Willows.

Group	Range Site	Description
DRY	Badland	Areas where bedrock material is exposed, with very little vegetation cover. Consists of clay deposits. Not solid rock. Exposed bedrock clays erode very rapidly, forming steep slopes with many water channels where vegetation is slow to establish. If there is at least 10% bedrock exposure this range site should be used. Areas mapped as badland range site may include vegetated islands that are two small to be mapped separately. Soils corresponding to badland range site include Exposure and Short Creek.
	Thin	These are shallow soils that do not build up a normal A-horizon because the surface material is continually being removed from the surface. Thin range site should be classified in any area where the A-horizon is very thin as a result of high natural areas of erosion, whether or not there are steep slopes. The slope percentage that applies to thin range site is 21 to 30 percent. A soil that corresponds to thin range site is Hillwash Complex. Other soils with steep slopes can be classified to different range sites: steep slopes with exposed bedrock are classified as badland range site, while steep slopes of wind blown sand are classified as dune sand range site.
	Thin Upland/ Topography Limitation	An intergrade between the thin range site and waste. To be used on sites with average slopes ranging from 30% to 60%. Up to 50% of the site may have slopes greater than 60%. The reduced carrying capacity reflects reduced productivity and utilization by livestock. Can be used when it is difficult to map out waste from the range site.
	Gravelly	Gravel at the surface >50% gravel, or with a thin surface layer of finer material over a gravel substrate. Found on glacio-fluvial plains, where gravel and sand have been deposited by streams flowing out of melting glaciers. Soils corresponding to gravelly range site include Chaplin, Biggar, Whitesand, Glenbush and Welby. Can be found on soil series with gravel substrates or gravelly surface.
	Shallow-to-Gravel	This is the phase of the gravelly range site where the surface is underlain by gravel that is less than 40 centimetres (16 inches) from the surface.
	Dune Sand	These are coarse sand deposits that have been acted on by the wind to create ridges and hills. Sand dunes usually have more wooded cover than other landscapes in the dune sand range site is found on slopes ranging from 5% to 60%. The soils are Regosols with little or no soil profile development. These soils erode easily and often have active sand dunes with no vegetation that make up a significant area that should be considered as waste within the dune sand range site. Soils that correspond to dune sand range site are Antelope, Vera, Edam and Dune Sand.
	Burnout/ Solonetzic	Occur on Solonetzic soils, characterized by a hard, impermeable B-horizon, which is high in sodium. Often with scattered depressions (“burnouts” or "blowouts") where the soil has been eroded down to the B-horizon. Corresponding soil examples are Echo, Estevan, Onion Lake, Robsart, Trossachs, Tuxford, Waseca and Wingello.
	Burnout/ Waste	An intergrade between the burnout/Solonetzic range site and waste. Can be used when it is difficult to map out waste from the range site. In cases such as solonetzic overflow, there are frequent bare patches and overall productivity is low. Soil examples include Solonetzic soils, Runway solonetzic, Hellfire, Morgan and Porcupine Creek.

Group	Range Site	Description
MOIST	Wetland (Shallow and Deep Marsh)	Slough areas with surface water remaining for part of the growing season and soils that are poorly drained and too wet to cultivate will use one of the following three intergrades: • WET1: Refers to normal wetland sites/Shallow Marsh • WET2: Low-lying land that is moist but rarely flooded. Referred to as Dry Meadows. Imperfectly drained soils are similar to upland soils, but show signs of occasional saturation when site floods 1 in 3 years to 2 in 4 years are moister than overflow sites • WET3: When site floods more than 2 in 4 years, and up to 3 in 4 years, or has 51% to 75% waste. 20% of normal carrying capacity rate.
	Closed Depression	Low-lying wetlands that are normally flooded for three to four weeks in spring. Referred to as Wet Meadows. Poorly drained soils show signs of prolonged saturation, such as dull colors or prominent mottles (Gleysolic soils). Tall willows may be scattered through the grassland, especially in the aspen parkland ecoregion. Soils corresponding to this range site include Alluvium Gleysolic soils, Meadow Complex, Big Muddy, or Gleysolic series of a variety of other soil associations.
SALINE	Saline Upland	Drier transitional or upland sites where the soil is saline. Salt may appear on the surface in dry periods. Vegetation includes both salt tolerant plants and normal upland plants. Soils supporting saline upland range site include a Saline Series of Chernozemic or Solonetzic soils. Corresponding soil examples include Flat Lake saline, Neelby, Quill Lake Complex, Onion Lake saline.
	Saline L/SA, SY/SA	Referred to as saline dry meadow soils that are moist but are rarely flooded. There is high salinity present indicated by white soil crusts and/or the presence of salt tolerant plants. Soils corresponding to saline may include: Alluvium, Saline Gleysols, Meadow Saline Gleysols, and saline complexes of Saline and Gleysolic Soil Series of a wide variety of other soil associations.
	Saline Upland/ Waste	An inter-grade between saline upland and waste. Can be used when it is difficult to map out waste from the range site.
	Saline Lowland	Referred to as saline wet meadow. Saline wet meadows are flooded in the spring but are dry by the fall. High-salinity is present indicated by white salt crusts on the soil and/or by the presence of salt tolerant plants. Corresponding soils are Saline Gleysol or Saline Gleyed Regosolic soils such as: Alluvium, Catkin, Roleau Saline, Meadow Saline, Grill Lake Saline. Soils corresponding to saline lowland include: Alluvium saline soils, Grill Lake Complex, and Saline Series of other soils on alluvial landforms (Runway, Eastend, Ellisboro, Gap View, and Horse Creek, Lark Hill, Rock Creek, Tantallon, Val Marie, Wascana and Whitefox)

Topography

Excessive steep slopes hamper plant productivity and hence the carrying capacity of the range. Topography is accounted for when average slopes on the range site exceed 15%.

Range sites for which the rates account for topography include:

- Dune Sand (DS) 5% - 60% average slopes
- Thin (TH) to normal upland range site intergrades. L/TH, C/TH, etc. 16% - 20% average slopes
- Thin (TH) 21% - 30% average slopes
- Thin (TH)/topography limitation (TX) intergrade. 31% - 60% average slopes
- Significant areas with average slopes greater than 60% are to be rated as waste.

Description	Abbreviation	Slope (%)	Assigned Range Rate
Level to nearly level	T1	0 - 2.5	Normal
Gentle slopes	T2	3 - 5	
Moderate slopes	T3	6 - 9	
Strong slopes	T4	10 - 15	
Very strong slopes	T5	16 - 20	Normal/thin
Severe slopes	T6	21 - 30	Thin
Excessive slopes	T7	31 - 60	Thin/TX

Range Site Abbreviations

Description	Abbreviation
Badland	BD
Burnout	BO
Burnout/saline upland	BO/SA
Burnout/waste	BO/W
Clayey	C
Clayey/burnout	C/BO
Clayey/loamy	C/L
Clayey/saline upland	C/SA
Clayey/thin	C/TH
Closed depression	CD
Dune sand	DS
Gravelly	G
Gravelly/sands	G/SD
Gravelly/sandy	G/SY
Gravelly/thin	G/TH
Loamy	L
Loamy/burnout	L/BO
Loamy/gravelly	L/G
Loamy/saline upland	L/SA
Loamy/sands	L/SD
Loamy/sandy	L/SY
Loamy/shallow-to-gravel	L/SG
Loamy/thin	L/TH
Saline lowland	SAL
Saline upland	SAU
Saline upland/waste	SAU/W
Sands	SD
Sands/dune sand	SD/DS
Sands/saline upland	SD/SA
Sands/thin	SD/TH
Sandy	SY
Sandy/saline upland	SY/SA
Sandy/sands	SY/SD
Sandy/thin	SY/TH
Shallow-to-gravel	SG
Shallow-to-gravel/sands	SG/SD
Thin	TH
Thin/topo limitation	TH/TX
Wetland 1	WET1
Wetland 2	WET2
Wetland 3	WET3

Carrying Capacity Rates

Range Site	Carrying Capacity (AUM/qtr)					
	Brown Dry (5-9)	Brown Moist (10-15)	Dark Brown (16-25)	Black (26-32)	Dark Gray (26-32)	Gray Non-wooded (26-32)
C	40	56	72	88	76	64
L	40	56	72	88	76	64
SY	32	48	64	72	68	64
SD	32	48	64	72	68	64
DS	24	32	48	48	56	64
G	24	32	40	48	40	32
SG	24	32	40	48	40	32
CD	64	80	96	112	88	64
WET1	96	112	128	144	104	64
WET2	48	56	64	72	52	32
WET3	19	22	26	29	21	13
SAL	40	56	72	88	n/a	n/a
SAU	24	32	40	48	40	n/a
BO	24	32	40	48	40	n/a
TH	24	32	40	48	40	32
BD	13	16	32	n/a	n/a	n/a
C/TH	32	44	56	68	58	48
L/TH	32	44	56	68	58	48
SY/TH	28	40	52	60	54	48
SD/TH	28	40	52	60	54	48
G/TH	24	32	40	48	40	32
TH/TX	12	16	20	24	20	16
C/L	40	56	72	88	76	64
L/SD	36	52	68	80	72	64
L/SY	36	52	68	80	72	64
SY/SD	32	48	64	72	68	64
SD/DS	28	40	56	60	62	64
L/G	32	44	56	68	58	48
G/SY	28	40	52	60	54	48
G/SD	28	40	52	60	54	48
C/BO	32	44	56	68	58	n/a
BO/W	13	16	21	24	n/a	n/a
L/BO	32	44	56	68	58	n/a
BO/SA	24	32	40	48	n/a	n/a
C/SA	32	44	56	68	58	n/a

Range Site	Carrying Capacity (AUM/qtr)					
	Brown Dry (5-9)	Brown Moist (10-15)	Dark Brown (16-25)	Black (26-32)	Dark Gray (26-32)	Gray Non-wooded (26-32)
L/SA	32	44	56	68	58	n/a
SY/SA	28	40	52	60	54	n/a
SD/SA	28	40	52	60	54	n/a
SAU/W	13	16	21	24	20	n/a
L/SG	32	44	56	68	58	48
SG/SD	28	40	52	60	54	48
NOTE: Gray non-wooded includes natural openings as well as cleared (non-seeded) and burned areas. Numbers in brackets refer to climate range.						

Vegetation Type

Pasture productivity increases when a pasture is seeded to non-native species grasses (improved). This increased productivity is considered in the productive capacity model. Without continued management and re-establishment of the improved grass stand, productivity will revert back native pasture productivity levels.

Improved stands that are not maintained become equivalent in productivity to native pasture. Improved stands that are not maintained for more than 15 years shall be rated as reverted.

Vegetation Adjustment Factors

Description	Factor
Native	1.00
Improved	1.30
Improved/reverting	1.00
Reverted	1.00

Tree Cover

Tree cover reduces the production of desirable forage for livestock. An adjustment is given for the aspen, conifer and dense stands of undesirable shrubs.

Tree Cover Type	Description
Aspen	Aspen tree cover includes aspen, poplar, birch, oak, cottonwood and willow. The adjustment is applied when the presence of aspen reduces grass production significantly. This would include dense stands of young aspen (or mature willow) and more open stands of mature aspen.
Conifer	Conifer tree cover includes all tall conifer tree types including spruce, pine, fir and tamarack. The adjustment is applied to mature stands of conifer type trees.
Aspen/Conifer	Aspen/conifer describes an area that is a mix of aspen and conifer type trees.
Shrubs	Dense stands of undesirable shrubs including creeping juniper, bear berry, silver sagebrush, rose, wolf willow, saskatoon berry, chokecherry, pin cherry and western snowberry.

The tree cover adjustment for undesirable shrubs shall be applied where:

- the area affected is greater than or equal to 15 acres, and
- the undesirable shrubs cover the affected area with an average ground density of at least 50 percent.

Where undesirable shrubs are present as an understory to aspen or conifer, the area shall be rated with aspen or conifer tree cover.

Tree Cover Adjustment Rate

Range Site	Soil Zone	Pasture Tree Cover Description			
		Aspen (ASP)	Coniferous Forest/Heavy Aspen (CF/HA)	Coniferous Forest (CF)	Shrubs (SH)
C, L, C/L, SAL	BW-dry	0.48	n/a	n/a	0.48
	BW-moist	0.34	n/a	n/a	0.34
	DB	0.27	n/a	n/a	0.27
	BL	0.36	0.18	0.09	0.36
	DG	0.42	0.21	0.11	0.42
	GW	0.50	0.25	0.13	0.50
SY, SD, SY/SD	BW-dry	0.59	n/a	n/a	0.59
	BW-moist	0.40	n/a	n/a	0.40
	DB	0.30	n/a	n/a	0.30
	BL	0.44	0.22	0.11	0.44
	DG	0.47	0.24	0.12	0.47
	GW	0.50	0.25	0.13	0.50
DS	BW-dry	0.79	n/a	n/a	0.79
	BW-moist	0.60	n/a	n/a	0.60
	DB	0.40	n/a	n/a	0.40
	BL	0.67	0.33	0.17	0.67
	DG	0.57	0.29	0.14	0.57
	GW	0.50	0.25	0.13	0.50
G, SAU, BO, BO/SA, SG	BW-dry	0.79	n/a	n/a	0.79
	BW-moist	0.59	n/a	n/a	0.59
	DB	0.48	n/a	n/a	0.48
	BL	0.67	0.33	0.17	0.67
	DG	0.80	0.40	0.20	0.80
	GW	1.00	0.50	0.25	1.00
TH	BW-dry	0.54	n/a	n/a	0.54
	BW-moist	0.40	n/a	n/a	0.40
	DB	0.32	n/a	n/a	0.32
	BL	0.33	0.17	0.08	0.33
	DG	0.40	0.20	0.10	0.40
	GW	0.50	0.25	0.13	0.50

Range Site	Soil Zone	Pasture Tree Cover Description			
		Aspen (ASP)	Coniferous Forest/Heavy Aspen (CF/HA)	Coniferous Forest (CF)	Shrubs (SH)
BD	BW-dry	0.77	n/a	n/a	0.77
	BW-moist	0.41	n/a	n/a	0.41
	DB	0.33	n/a	n/a	0.33
	BL	0.33	0.17	0.08	0.33
	DG	0.40	0.20	0.10	0.40
	GW	0.50	0.25	0.13	0.50
CD	BW-dry	0.30	n/a	n/a	0.30
	BW-moist	0.40	n/a	n/a	0.40
	DB	0.33	n/a	n/a	0.33
	BL	0.36	0.18	0.09	0.36
	DG	0.45	0.23	0.11	0.45
	GW	0.63	0.31	0.16	0.63
WET1	BW-dry	0.50	n/a	n/a	0.50
	BW-moist	0.38	n/a	n/a	0.38
	DB	0.33	n/a	n/a	0.33
	BL	0.33	0.17	0.08	0.33
	DG	0.46	0.23	0.12	0.46
	GW	0.63	0.31	0.16	0.50
WET2	BW-dry	0.40	n/a	n/a	0.40
	BW-moist	0.34	n/a	n/a	0.34
	DB	0.30	n/a	n/a	0.30
	BL	0.33	0.17	0.08	0.33
	DG	0.46	0.23	0.12	0.46
	GW	0.75	0.38	0.19	0.75
WET3	BW-dry	0.53	n/a	n/a	0.53
	BW-moist	0.45	n/a	n/a	0.45
	DB	0.38	n/a	n/a	0.38
	BL	0.45	0.28	0.14	0.45
	DG	0.62	0.29	0.19	0.62
	GW	0.92	0.62	0.31	0.92
TH/TX	BW-dry	0.83	n/a	n/a	0.83
	BW-moist	0.63	n/a	n/a	0.63
	DB	0.50	n/a	n/a	0.50
	BL	0.50	0.33	0.17	0.50
	DG	0.80	0.40	0.20	0.80
	GW	0.75	0.50	0.25	0.75

Range Site	Soil Zone	Pasture Tree Cover Description			
		Aspen (ASP)	Coniferous Forest/Heavy Aspen (CF/HA)	Coniferous Forest (CF)	Shrubs (SH)
BO/W, SAU/W	BW-dry	0.77	n/a	n/a	0.77
	BW-moist	0.63	n/a	n/a	0.63
	DB	0.48	n/a	n/a	0.48
	BL	0.50	0.33	0.17	0.50
	DG	0.60	0.40	0.20	0.60
	GW	n/a	n/a	n/a	n/a
C/TH, L/TH	BW-dry	0.50	n/a	n/a	0.50
	BW-moist	0.36	n/a	n/a	0.36
	DB	0.29	n/a	n/a	0.29
	BL	0.35	0.18	0.09	0.35
	DG	0.41	0.21	0.10	0.41
	GW	0.50	0.25	0.13	0.50
SD/TH, SY/TH	BW-dry	0.57	n/a	n/a	0.57
	BW-moist	0.40	n/a	n/a	0.40
	DB	0.31	n/a	n/a	0.31
	BL	0.40	0.20	0.10	0.40
	DG	0.44	0.22	0.11	0.44
	GW	0.50	0.25	0.13	0.50
G/TH	BW-dry	0.67	n/a	n/a	0.67
	BW-moist	0.50	n/a	n/a	0.50
	DB	0.40	n/a	n/a	0.40
	BL	0.50	0.25	0.13	0.50
	DG	0.60	0.30	0.15	0.60
	GW	0.75	0.38	0.19	0.75
G/SY, G/SD, SG/SD, SD/SA, SY/SA	BW-dry	0.68	n/a	n/a	0.68
	BW-moist	0.48	n/a	n/a	0.48
	DB	0.37	n/a	n/a	0.37
	BL	0.53	0.27	0.13	0.53
	DG	0.59	0.30	0.15	0.59
	GW	0.67	0.33	0.17	0.67
L/SY L/SD	BW-dry	0.53	n/a	n/a	0.53
	BW-moist	0.37	n/a	n/a	0.37
	DB	0.28	n/a	n/a	0.28
	BL	0.40	0.20	0.10	0.40
	DG	0.44	0.22	0.11	0.44
	GW	0.50	0.25	0.13	0.50

Range Site	Soil Zone	Pasture Tree Cover Description			
		Aspen (ASP)	Coniferous Forest/Heavy Aspen (CF/HA)	Coniferous Forest (CF)	Shrubs (SH)
SD/DS	BW-dry	0.68	n/a	n/a	0.68
	BW-moist	0.48	n/a	n/a	0.48
	DB	0.34	n/a	n/a	0.34
	BL	0.53	0.27	0.14	0.53
	DG	0.52	0.26	0.13	0.52
	GW	0.50	0.25	0.13	0.50
L/G, C/BO, L/BO, C/SA, L/SA, L/SG	BW-dry	0.59	n/a	n/a	0.59
	BW-moist	0.43	n/a	n/a	0.43
	DB	0.34	n/a	n/a	0.34
	BL	0.47	0.24	0.12	0.47
	DG	0.55	0.28	0.14	0.55
	GW	0.67	0.33	0.17	0.67

Land Rating

The land rate is assigned for each carrying capacity.

The land rating shall be determined based on carrying capacity in accordance with the following:

Carrying Capacity (AUM/qtr.)	Land Rating	Carrying Capacity (AUM/qtr.)	Land Rating
0 - 6	5	115 - 118	45
7 - 10	7	119 - 122	45
11 - 14	9	123 - 126	46
15 - 18	11	127 - 130	46
19 - 22	13	131 - 134	46
23 - 27	15	135 - 138	46
27 - 31	17	139 - 142	47
31 - 34	19	143 - 146	47
35 - 38	21	147 - 150	47
39 - 42	23	151 - 154	47
43 - 46	25	155 - 158	47
47 - 50	27	159 - 162	48
51 - 54	29	163 - 166	48
55 - 58	31	167 - 170	48
59 - 62	33	170 - 174	48
63 - 66	34	175 - 178	48
67 - 70	35	179 - 182	48
71 - 74	36	183 - 186	49
75 - 78	37	187 - 190	49
79 - 82	38	191 - 194	49
83 - 86	39	195 - 198	49
87 - 90	40	199 - 202	49
91 - 94	41	203 - 206	49
95 - 98	42	207 - 210	49
99 - 102	43	211 - 214	50
103 - 106	44	215 - 218	50
107 - 110	44	219 - 222	50
111 - 114	45	223 - 226	50

Provincial Factor

The Provincial Factor is 17.45 dollars per acre per land rating.

Calculation Procedure

Description	Document No.	Page No.
a) Carrying Capacity = (a_1 x a_2 x a_3)		
a_1. Range Site Carrying Capacity	2.2.2	8-9
a_2. Vegetation Type Factor	2.2.2	9
a_3. Tree Cover Factor	2.2.2	9-13
b) Land Rating	2.2.2	14
c) Provincial Factor	2.2.2	15
d) Pasture Land Area		
e) Assessed Value = (b x c x d)		

Summary

This section describes the valuation procedures for determining the assessed value of non-arable agricultural waste land.

Description

Waste land is non-arable agricultural land with no productive potential as arable land or pasture land.

Waste land includes areas that cannot be accessed by farm equipment or livestock, such as:

- small parcels of land severed by a natural land form, such as a lake or river;
- land severed by man-made features, such as roads and railroads; and
- areas where the topography is greater than 60% slope.

Formulas, Rules and Principles

The assessed value of waste land is determined by the schedule of rates method using the formula:

LV = R x U

where: LV = assessed value of waste land
R = base land rate
U = number of land units

Base Land Rate

The base land rate for waste shall be $10.00 per acre.

Waste Land Descriptions

Description	Abbreviation
Badlands	BADLANDS
Bedrock	BEDROCK
Bog	BOG
Creek	CK
Creek and draw	CK-DW
Creek and salinity	CK-SA
Dam	DAM
Drainage ditch	DD
Draw	DRAW
Draw and salinity	DW-SA
Dugout	DO
Gravel Pit	GRAVEL-P
Lake	LAKE
Peatland	PEAT
Ravine	RV
River	RI
River and draw	RI-DW

Description	Abbreviation
Saline - waste	SA-W
Waste	WASTE
Waste and creek	WS-CK
Waste and draw	WS-DW
Waste knoll	WN
Waste knoll cultivated	WNK
Waste knoll and creek	WN-CK
Waste knoll and ravine	WN-RV
Waste knoll and river	WN-RI
Waste and saline - waste	WS&SA-W
Waste slough	WS
Waste slough bush	WSB
Waste slough - cultivated	WSK
Waste slough - hay	WSH
Waste slough and dam	WS-DAM
Waste slough and drainage ditch	WS-DD
Waste slough and dugout	WS-DO
Waste slough and ravine	WS-RV
Waste slough and river	WS-RI
Waste slough and waste knoll	WS-WN
Waste slough and waste slough bush	WS-WSB
Waste slough and waste slough cultivated	WS-WSK