Soil depth groups for agricultural land development planning in New Brunswick

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Milburn, P., Rees, H., Fahmy, S. and Gartley, C. 1989. **Soil depth groups for agricultural land development planning in New Brunswick.** Can. Agric. Eng. **31**: 1–5. New Brunswick soils are generally shallow compared to major agricultural soils in North America and abroad due to the presence of bedrock or dense, compact subsoil layers near the soil surface. This single soil factor can severely limit agricultural land use and productivity; it can also impose restrictions to cost-effective agricultural land development measures, such as subsurface drainage and land clearing, where adequate depth of friable soil material is a fundamental requirement. To assist in timely, informed land development planning, a simple soil classification system based on soil depth to a restricting layer is presented. All of the Province's soil types are placed in one of four soil depth classes. Additional modifiers within soil depth classes include subsoil texture and mode of deposition. Soil Survey Reports of varying intensity provide the basic data source. The system does not replace the need for on-site soil investigation or detailed soil inventories; rather it conveniently identifies potentially limited soil conditions early in the planning process. It should be of interest to those managing, planning, and constructing agricultural land improvement works.

INTRODUCTION

Agricultural land development activities such as stone pile removal, open ditching, land clearing, subsurface drainage, erosion control, field amalgamation and marshland forming or crowning have been practiced in New Brunswick for several years (DeMerchant 1983); Milburn and Gartley 1988). These on-farm works have been cost-shared through several Provincial and/or Federal-Provincial programs (Appendix). Because New Brunswick is approximately 95% wooded (Census of Canada 1981) agricultural land development tends to concentrate on either existing cleared lands or newly cleared land in close proximity to agricultural communities. When farmers consider land improvements, the issue of easy site access and proximity to the center of farm operations often overrides considerations of land quality. Subsequent land productivity may be less than anticipated if poor soils are unknowingly selected for development.

Several investigators have developed soil-based guidelines for land-related activities. Chisholm et al. (1984) reviewed application of soil inventory information to specific activities such as land use planning and estimating crop irrigation demands, and presented an updated subsurface drainage design code for Ontario based on recent soil survey data.

Referring to subsurface drainage only, Skaggs and Nassehzadeh-Tabrizi (1986) correctly observed that, in practice, design decisions are often made with little lead time. They suggested that under these circumstances, a simple, first-estimate procedure is needed to evaluate the feasability of a proposed project; they then proceeded to develop drainage design parameters for North Carolina soils. We acknowledge that a similar short lead time exists for most types of land development projects in New Brunswick, and concur that a simple, soils-oriented planning tool is needed to initially screen on-farm land development proposals. Considering the current general nature of soil inventory data for many New Brunswick soils (Fahmy et al. 1986) and the varied nature of New Brunswick land development activities, we feel that a concise, general planning aid that summarizes major New Brunswick soil constraints would be most useful.

New Brunswick soils have been described as "marginal" because of a relative abundance of shallow, stony, sloping, imperfectly drained land underlain by dense subsoils (Nowland 1975). Lack of adequate soil depth or "shallowness" to a restricting layer is probably the least evident to the landowner and the most limiting to agricultural production. For example, a shallow soil can limit soil moisture storage, nutrient storage, rate of water movement, root proliferation, and operation of tillage and land improvement equipment. Other soil limitations such as excess slope and stoniness are admittedly additional soil productivity constraints, but local farming systems and the operating characteristics of farm equipment have indirectly established tolerable working levels for these adversities. The presence of adequate soil depth, which is a prerequisite for most agricultural land uses, is much more of an unknown than stoniness, excess slope or poor drainage. Therefore, as a simple tool to assist timely land development decisions, a classification system that stresses depth to a restricting layer was developed for New Brunswick soils. A restricting layer was defined as subsoil with bulk density exceeding 1.6 g/cm^3 (Saini 1977) or bedrock.

BASIS OF CLASSIFICATION

The proposed system simplifies existing soils data by grouping narrowly defined soil series or associations into broader categories suitable for initial land development planning. Although users need not comprehend all the complexities of the different individual soil types to employ the system, familiarity with soil survey reports and the methods and assumptions inherent in them is highly recommended. For definition of soil science terms employed in this section, the reader is referred to Agriculture Canada Publication 1459, Glossary of Terms in Soil Science.

Soils are grouped into four classes according to depth to compact layer or bedrock and then further stratified by two additional parameters, texture of the subsoil or compact layer and

Table I. Soil depth groups for New Brunswick mineral soils

Soil depth group			Soil name¶
Soil depth class†	Texture class‡	Mode of deposition§	
1 (0–0.30 m)	F	W	Acadia*, Baker Brook, Barnaby, Bellefleur, Bouleau, Canobie, Fundy, Lorneville, Rob, Sheila, St. Amand, Tracadie*
2 (0.30–0.65 m)	C	W	Bay-du-Vin (r), Baie-Ste-Anne (r), Caissie (r), Chockpish (r), Escuminac (r), Fontaine (r), Napan (r), Robichaud (r)
2	C	T	Aulac, Beaver Lake (r), Big Bald Mtn (r), Big Hole (r), Catamaran, Crossman*, Dee, Dunsinane, Fredericton, Midway, Parry*, Queenville, Research Station, Rooth, Tidnish, Tormentine*, Tracy*, Wirral
2	M	T	Blue Mountain (r), Bretagneville, Carleton, Chipman, Colter Mountain, Dorchester, Dubé (r), Green River, Green Road, Holmesville, Jacquet River (r), Johnville, Kintore, Lewis, Long Lake, Lower Ridge, Poitras, Popple Depot, Quisbis (r), Rogersville, Redstone, Reece, Serpentine, St. Michael, Undine (r), Tuadook
2	M-F	T	Acadieville, Adder, Barrieau*, Black Rock, Blackville, Canterbury, Coal Branch, Cote d'Or, Deed, Grangeville, Harcourt, Harewood, Hicksville, Jenkins, Kings, Kingston, North Forks (r), North Tetagouche, Pangburn, Parsons Brook*, Queens, Rosaireville, Salem, Salisbury*, Shediac, Shemogue*, Shinnickburn, Stony Brook*, St. Gabriel (r), St. Charles, Violette
2	F	W	Blackland, Boland, Clarendon, Corbett Brook, Lincoln Road, Little Shippegan, Mount Hope*, Poqueawis, Rusagonis, Sewellville, Tomoowa, Upper Caraquet*
2	F	T	Allardville, Balmoral, Boston Brook, Bourgoin, Byrns, Cambridge, Chaleur, Corn Hill (r), Dunlap (r), Harquail (r), Kedgwick, Kingsclear, Knightville*, Nackawic, Petitcodiac, Plaster Rock, Riley Brook (r), Salmon, Saltspring*, Siegas, Skin Gulch, Tetagouche, Yellow Brook
3 (0.65–1.00 m)	C	W	Babineau (r), Bransfield (r), Briggs Brook (r), Galloway (r), Miscou Island, Smelt Brook (r)
3	C	T	Black Brook (r), Clearwater, Fair Isle (r), Ogilvie Lake, Saumarez, Yellow Lake
3	M	T	Babbit Brook, Britt Brook, Buctouche*, Coté, Erb Settlement (r)*, Glassville (r), Goodfellow, Halls Brook, Irving, Lomond (r)*, McCluskey, Michaud, Neguac, Parleeville (r)*, Portage Lake, Temiscouata (r), Victoria
3	F	W	Caraquet, Middle Caraquet, St. John River
3	F	T	Big Spring (r), Caribou, Carlingford, Five Fingers, Jardine, Nickel Mills, Washburn
4 (>1.00 m)	C	W	Aldouane, Benedict, Cap Lumière, Champdoré, Cocagne, Ennishore, Gagetown, Geary, Grand Falls, Guimond River, Gulquac, Island Lake, Kennebecasis, Kouchibougouac, Lord and Foy, Maliseet, Marquant, Muniac, Nevers Road, Nictau, Oromocto, Pennfield, Penobsquis, Potters Mills, Quispamsis, Richibucto, Riverbank, Sirois, St. Oliver, St. Theodule, Vautour, Wapskee
4	C	T	Anagance, Becaguimec, Cork, Coronary, Hoyt, Juniper, McAdam, Pinder, Snyder, Sunbury, Thibault, Tobique
4	M	W	Belldune, Bottom Land, Cyr, Durham Centre, East Canaan, Flemming, Green Point, Hacheville, Hampton, Interval Kelly, Martial, Mount Baily, Pokeshaw, Shippegan, Sussex, Waasis
4	M	T	Foreston, Guerchville, Jeffries Corner, Jummet Brook, Lauzier, McGee, McKiel, Midland, Monquart, Nason, Trafton

†Depth to continuous compact layer (>1.6 g/cm^3 or bedrock (r). Depth to compact or bedrock is reduced as a result of cultivation. The percentage reduction is heavily dependant upon past management practices. Depth classes: 1 = <0.30 m; 2 = 0.30–0.65 m; 3 = 0.65–1.00 m; 4 = >1.00 m

‡Texture of restricting layer and/or subsoil: Fine (F) — heavy clay, clay, silty clay, sandy clay, clay loam, silty clay loam; Medium (M) — loam, sandy clay loam, silt, silt loam; and Coarse (C) — sandy loam, loamy sand, sand.

§W = water-deposited sediments: alluvial, fluvial, glaciofluvial, marine, glaciomarine, lacustrine, glaciolacustrine. T = ice-deposited debris: glacial tills of both ablational and lodgment origin; inclusions of colluvial and residual materials.

¶Soil name as published in appropriate New Brunswick Soil Survey Report; when followed by (r), denotes depth limitation due to bedrock.

*General soil depth group only; recently mapped as an association, with specific soil depth classes assigned. Refer to appropriate Soil Survey Report for detailed information (Fahmy et al. 1986).

Table II. New Brunswick soils and corresponding soil depth group (with descriptors)

Soil name	Soil depth group†	Soil name	Soil depth group†	Soil name	Soil depth group†	Soil name	Soil depth group†	Soil name	Soil depth group†
Acadia	1FW($d_{w\text{-}p}$,f,*)	Cornhill	2FT($d_{w\text{-}p}$,m,r,*)	Kingsclear	2FT(d_w,f)	Reece	2MT($d_{w\text{-}p}$,c,*)	St. Gabriel	2M-FT($d_{w\text{-}p}$,m,r,*)
Acadieville	2M-FT($d_{i,m}$)	Coronary	4CT(d_i,c)	Kingston	2M-FT(d_w,m)	Research Station	2CT($d_{w\text{-}p}$,c,*)	St. John River	3FW(d_i,m)
Adder	2M-FT(d_i,m)	Coté	3MT(d_p,m)	Kintore	2MT($d_{w\text{-}p}$,m)	Riley Brook	2FT(d_w,m,r)	St. Oliver	4CW(d_i,c)
Allardville	2FT(d_w,m)	Cote d'Or	2M-FT(d_i,c,w/t)	Knightville	2FT($d_{w\text{-}p}$,m,*)	Riverbank	4CW($d_{w\text{-}p}$,c,*)	St. Theodule	4CW(d_p,c)
Aldouane	4CW(d_w,c)	Crossman	2CT($d_{w\text{-}p}$,c,*)	Kouchibouguac	4CW($d_{w\text{-}p}$,c,o,*)	Rob	1FW(d_p,f)	Stoney Brook	2M-FT($d_{w\text{-}p}$,m,*)
Anagance	4CT($d_{w\text{-}p}$,c,*)	Cyr	4MW(d_p,m)	Lauzier	4MT(d_p,m)	Robichaud	2CW(d_i,c,o,r)	Sunbury	4CT($d_{w\text{-}p}$,c,*)
Aulac	2CT(d_w,c)	Dee	2CT(d_i,c)	Lewis	2MT(d_pm,)	Rogersville	2MT($d_{w\text{-}p}$,m,*)	Sussex	4MW($d_{w\text{-}p}$,h,m,*)
Babbit Brook	3MT(d_p,m)	Deed	2M-FT($d_{i\text{-}p}$,m)	Lincoln Road	2FW(d_i,m)	Rooth	2CT(d_p,c)	Temiscouata	3MT(d_i,m,r)
Babineau	3CW(d_w,c,o,r)	Dorchester	2MT(d_w,c)	Little Shippegan	2FW(d_i,c)	Rosaireville	2M-FT(d_p,m)	Tetagouche	2FT($d_{w\text{-}p}$,m,*)
Baie-St.-Anne	2CW(d_i,c,r)	Dubé	2MT(d_i,m,r)	Lomond	3MT($d_{w\text{-}p}$,m,r,*)	Rusagonis	2FW(d_w,f)	Thibault	4CT($d_{w\text{-}p}$,m,*)
Bay-du-Vin	2CW($d_{w\text{-}p}$,c,r,*)	Dunlap	2FT(d_w,m,r)	Long Lake	2MT($d_{w\text{-}p}$,m,*)	Salem	2M-FT($d_{w\text{-}p}$,m,*)	Tidnish	2CT($d_{i\text{-}p}$,m)
Baker Brook	1FW(d_w,m)	Dunsinane	2CT($d_{i\text{-}p}$,c)	Lord and Foy	4CW($d_{w\text{-}p}$,c,*)	Salisbury	2M-FT($d_{w\text{-}p}$,m,*)	Tobique	4CT(d_w,c)
Balmoral	2FT(d_w,m)	Durham Centre	4MW(d_w,m)	Lorneville	1FW(d_i,f)	Salmon	2FT(d_i,f)	Tomoowa	2FW(d_i,m)
Barnaby	1FW(d_w,m)	East Canaan	4MW(d_p,h,m)	Lower Ridge	2MT($d_{w\text{-}p}$,m,*)	Saltspring	2FT($d_{w\text{-}p}$,f,*)	Tormentine	2CT($d_{w\text{-}p}$,c,*)
Barrieau	2M-FT($d_{w\text{-}p}$,c,w/t,*)	Ennishore	4CW(d_i,m)	Maliseet	4CW($d_{w\text{-}p}$,c,*)	Saumarez	3CT(d_w,c)	Tracadie	1FW($d_{w\text{-}p}$,f,*)
Beaver Lake	2CT(d_i,c,r)	Erb Settlement	3MT($d_{w\text{-}p}$,m,r,*)	Marquant	4CW(d_i,c)	Serpentine	2MT(d_w,m)	Tracy	2CT($d_{w\text{-}p}$,m,*)
Becaguimec	4CT(d_w,c)	Escuminac	2CW(d_w,c,r)	Martial	4MW(d_i,m)	Swellville	2FW(d_w,m)	Trafton	4MT(d_p,m)
Belldune	4MW(d_w,m)	Fair Isle	3CT($d_{w\text{-}p}$,c,r,*)	McAdam	4CT($d_{i\text{-}p}$,c)	Shediac	2M-FT(d_p,c,w/t)	Tuadook	2MT($d_{w\text{-}p}$,m,*)
Bellefleur	1FW(d_w,f)	Five Fingers	3FT(d_p,m)	McCluskey	3MT(d_i,m)	Sheila	1FW(d_p,f)	Undine	2MT(d_w,r,m)
Benedict	4CW(d_w,c)	Flemming	4MW(d_w,m)	McGee	4MT($d_{w\text{-}p}$,m,*)	Shemogue	2M-FT($d_{w\text{-}p}$,m,*)	Upper Caraquet	2FW($d_{w\text{-}p}$,c,*)
Big Bald Mt.	2CT($d_{w\text{-}p}$,c,r,*)	Fontaine	2CW(d_p,c,r)	McKiel	4MT(d_p,m)	Shinnickburn	4MW(d_p,m)	Vautour	4CW(d_p,c,o)
Big Hole	2CT($d_{w\text{-}p}$,c,r,*)	Foreston	4MT(d_p,m)	Michaud	3MT(d_i,c,w/t)	Shippegan	4MW(d_w,c)	Victoria	3MT(d_w,m)
Big Spring	3FT(d_p,f)	Fredericton	2CT(d_w,c,w/t)	Middle Caraquet	3FW(d_i,c)	Siegas	2FT($d_{w\text{-}p}$,f,*)	Violette	2M-FT($d_{w\text{-}p}$,m,*)
Black Brook	3CT(d_i,c,r)	Fundy	1FW($d_{w\text{-}p}$,f,*)	Midland	4MT($d_{i\text{-}p}$,m)	Sirois	4CW(d_i,m)	Waasis	4MW(d_i,h,m)
Blackland	2FW(d_w,f)	Gagetown	4CW($d_{w\text{-}p}$,c,*)	Midway	2CT($d_{i\text{-}p}$,m)	Skin Gulch	2FT(d_i,f)	Wapske	4CW($d_{i\text{-}p}$,c)
Black Rock	2M-FT(d_w,m)	Galloway	3CW($d_{w\text{-}p}$,c,r,*)	Miscou Island	3CW(d_w,c)	Smelt Brook	3CW(d_i,c,r)	Washburn	3FT(d_p,m)
Blackville	2M-FT(d_i,m)	Geary	4CW(d_i,c)	Monquart	4MT($d_{w\text{-}p}$,m,*)	Snyder	4CT($d_{i\text{-}p}$,m)	Wirral	2CT(d_i,m)
Blue Mountain	2MT(d_i,m,r)	Glassville	3MT(d_w,m,r)	Mount Bailey	4MW(d_w,m)	St. Amand	1FW(d_i,f)	Yellow Brook	2FT(d_p,f)
Boland	2FW(d_i,f)	Goodfellow	3MT(d_i,m)	Mount Hope	2FW($d_{w\text{-}p}$,m,*)	St. Charles	2M-FT(d_w,c,w/t,o)	Yellow Lake	3CT(d_p,m)
Boston Brook	2FT($d_{w\text{-}p}$,f,*)	Grand Falls	4CW($d_{w\text{-}p}$,c,*)	Muniac	4CW($d_{w\text{-}p}$,m,*)				
Bottom Land	4MW($d_{w\text{-}p}$,m,*)	Grangeville	2M-FT(d_p,c)	Nackawic	2FT(d_p,f)				
Bouleau	1FW(d_i,f)	Green Point	4MW(d_w,m)	Napan	2CW(d_i,c,r)				
Bourgoin	2FT(d_p,f)	Green River	2MT(d_w,m)	Nason	4MT(d_i,m)				
Bransfield	3CW(d_w,c,r)	Green Road	2MT($d_{w\text{-}p}$,m,*)	Nevers Road	4CW(d_p,c)				
Bretagneville	2MT(d_w,c,w/t)	Guerchville	4MT(d_i,m)	Nichel Mills	3FT(d_i,m)				
Briggs Brook	3CW(d_w,c,r)	Guimond River	4CW($d_{w\text{-}p}$,c,*)	Nictau	4CW(d_w,c,o)				
Britt Brook	3MT(d_w,m)	Gulquac	4CW(d_w,c)	North Forks	2M-FT($d_{i\text{-}p}$,m,r)				
Buctouche	3MT($d_{w\text{-}p}$,c,w/t,*)	Hacheville	4MW(d_w,c)	North Tetagouche	2M-FT(d_w,m)				
Byrns	2FT($d_{i\text{-}p}$,f)	Halls Brook	3MT(d_p,m)	Ogilvie Lake	3CT(d_i,m)				
Caissie	2CW(d_w,c,o,r)	Hampton	4MW(d_i,m,h)	Oromocto	4CW(d_i,c)				
Cambridge	2FT(d_p,f)	Harcourt	2M-FT($d_{w\text{-}p}$,c,*)	Pangburn	2M-FT(d_p,m)				
Canobie	1FW(d_p,f)	Harewood	2M-FT(d_i,m)	Parleeville	3MT($d_{w\text{-}p}$,m,r,*)				
Canterbury	2M-FT($d_{i\text{-}p}$,m)	Harquail	2FT(d_w,m,r)	Parry	2CT($d_{w\text{-}p}$,m,*)				
Cap Lumière	4CW(d_i,c)	Hicksville	2M-FT(d_p,m)	Parsons Brook	2M-FT($d_{w\text{-}p}$,m,*)				
Caraquet	3FW($d_{w\text{-}p}$,c,*)	Holmesville	2MT($d_{w\text{-}p}$,m,*)	Pennfield	4CW($d_{i\text{-}p}$,c)				
Caribou	3FT($d_{w\text{-}p}$,m,*)	Hoyt	4CT(d_i,c)	Penobsquis	4CW(d_p,c)				
Carleton	2MT($d_{w\text{-}p}$,m,*)	Interval	4MW($d_{w\text{-}p}$,h,m,*)	Petitcodiac	2FT($d_{w\text{-}p}$,f,*)				
Carlingford	3FT(d_i,m)	Irving	3MT(d_w,c)	Pinder	4CT($d_{w\text{-}p}$,c,*)				
Catamaran	2CT($d_{w\text{-}p}$,c,*)	Island Lake	4CW(d_w,c)	Plaster Rock	2FT(d_i,f)				
Chaleur	2FT(d_w,m)	Jacquet River	2MT($d_{w\text{-}p}$,m,r,*)	Poitras	2MT(d_p,m)				
Champdoré	4CW(d_i,c,o)	Jardine	3FT(d_w,m)	Pokeshaw	4MW(d_w,c)				
Chipman	2MT(d_i,m)	Jefferies Corner	4MT($d_{w\text{-}p}$,m,*)	Popple Depot	2MT($d_{w\text{-}p}$,m,*)				
Chockpish	2CW(d_w,c,r)	Jenkins	2M-FT(d_p,m)	Poqueawis	2FW(d_p,m)				
Clarendon	2FW(d_w,m)	Johnville	2MT(d_i,m)	Portage Lake	3MT(d_i,m)				
Clearwater	3CT(d_w,m)	Jummet Brook	4MT(d_i,m)	Potters Mill	4CW(d_i,c,o)				
Coal Branch	2M-FT(d_i,c)	Juniper	4CT($d_{w\text{-}p}$,c,*)	Queens	2M-FT(d_w,m)				
Cocagne	4CW(d_w,c,o)	Kedgwick	2FT($d_{w\text{-}p}$,m,*)	Queenville	2CT($d_{w\text{-}p}$,c,*)				
Colter Mountain	2MT(d_p,m)	Kelly	4MW(d_p,m)	Quisibis	2MT(d_w,m,r)				
Corbett Brook	2FW(d_w,m)	Kennebecasis	4CW($d_{w\text{-}p}$,c,*)	Quispamsis	4CW(d_i,c)				
Cork	4CT(d_p,c)	Kings	2M-FT($d_{i\text{-}p}$,m)	Redstone	2MT(d_i,m)				

†Key to symbols 2^1 F^2 W^3 $(o,r,p)^4$

1. Soil depth to continuous compact layer (1.6 g/cm^3) or bedrock: 1 ≤ 0.30 m; 2 = 0.30–0.65 m; 3 = 0.65–1.00 m; 4 ≥ 1.00 m.
2. Texture of restricting layer or subsoil: Fine F — heavy clay, clay, silty clay, sandy clay, clay loam, silty clay loam; Medium M — loam, sandy clay loam, silt, silt loam; and, Coarse C — sandy loam, loamy sand, sand.
3. Mode of deposition: W — water deposited sediments: alluvial, fluvial, glaciofluvial, lacustrine, glasiolacustrine, marine and glaciomarine; T — ice deposited debris; glacial tills of both ablational and lodgment origin; inclusions of colluvial and residual material.
4. Additional soil descriptors from data base: 0, ornstein; r, depth restrictions due to bedrock; n, subject to high water or flooding; w/t, water deposited sediments over till; d_w, d_i, d_p, drainage classes — d_w, rapid to moderately well; d_i, imperfect; d_p, poor; *, recently mapped as soil association; refer appropriate Soil Survey Report for more precise soil depth and soil drainage information (Fahmy et al. 1986); f,m,c, texture of friable layer-f, fine; m, medium; c, coarse, as described in (2).

productivity have not been quantitatively established. Using field observations and Tables I and II, extension staff and researchers can readily identify soils within SDGs that consistently present major development difficulties or that are known to respond readily to land improvements. In this way the agricultural interpretation of SDGs can be improved. Similarly, new or upgraded soil inventory information would better define those soils within each SDG.

SDGs identify soils of similar physical composition on the basis of depth, subsoil texture, and mode of deposition. For engineering research purposes, these groups can assist in problem definition, selection of experimental sites, and application of research results. Should more soil physical data be required to further isolate a specific soil condition (i.e. saturated hydraulic conductivity or drainable porosity), SDGs facilitate targetting the effort to a particular group of Provincial soils which possess common developmental constraints or opportunities. For example, seven of the 16 SDGs of Table I describe water-deposited (W) soils. As previously stated, only 10% of New Brunswick's agriculturally blocked land is of water-deposited origin. Therefore, nine SDGs of glacial till origin (T) include 90% of the agriculturally blocked land; two of these are assigned to a small number of soils greater than 1.00 m deep that are limited in areal extent. Because of their widespread distribution, it could be argued that future land-related research should concentrate on soils in the remaining seven SDGs.

SUMMARY

A soil grouping based on a dominant limitation common to New Brunswick soils, namely soil depth, is presented. Four soil-depth classes are further stratified according to subsoil texture and mode of deposition to produce SDGs. When this system is applied to New Brunswick soils, 16 distinct SDGs are identified. SDGs may be employed to:

1. Assist in the preliminary selection of soils that are appropriate for specific land development activities such as deep ripping (subsoiling), subsurface drainage, or land clearing.
2. Identify soils that require extensive on-site investigation before land development planning can proceed.
3. Target problem soils of a particular physical composition for research or soil inventory purposes.
4. Aid in problem definition for soil research programs.

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APPENDIX

New Brunswick on-farm land improvement programs

Canada-New Brunswick Economic and Regional Development Agreement, Agri-Development Subsidiary Agreement, 1984–1989.

Canada-New Brunswick General Development Agreement, Canada-New Brunswick Agricultural Resources Development Subsidiary Agreement, 1978–1983.

Canada-New Brunswick General Development Agreement, Canada-New Brunswick Agricultural Development Subsidiary Agreement 1973–1978.

Canada-New Brunswick Agricultural and Rural Development Act Agreement, 1963–1973.

Farmland Improvement Policy, Department of Agriculture of the Province of New Brunswick, 1943–1963.