DEPARTMENT
OF REGIONAL
ECONOMIC
EXPANSION

THE CANADA LAND INVENTORY

SOIL CAPABILITY CLASSIFICATION FOR AGRICULTURE

The Canada Land Inventory
Report No. 2
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THE CANADA LAND INVENTORY

This report, describing a classification system of soil capability for agricultural use, is one of a series of reports to be published on the methods and results of the Canada Land Inventory. The Objectives, Scope and Organization of the Canada Land Inventory are described in Report No. 1 (available from the Department of Forestry of Canada).

The Canada Land Inventory is a comprehensive survey of land capability and use for various purposes. It includes assessments of land capability for agriculture, forestry, recreation and wildlife; information on present land use; and assessments of social and economic factors relative to land use. It is being undertaken as a co-operative federal-provincial program administered under the Agricultural Rehabilitation and Development Act (ARDA) of June 1961.

The classification system of soil capability for agriculture was developed for use across Canada by the National Soil Survey Committee in co-operation with the federal and provincial ARDA Administrations. It is being applied throughout the agricultural portion and adjoining forest fringe areas of Canada by the Soil Survey organizations with financial support from ARDA.

The classification system is being applied at various map scales, but generally at a scale of 1 inch = 1 mile. The maps will be used for area measurements and analysis with other Land Inventory data. A series of coloured maps will be published presenting generalized data at a scale of 1:250,000, based on the National Topographic System. These maps will be printed by the Department of Mines and Technical Surveys and may be purchased from the Queen's Printer, Ottawa, as they become available.

The Soil Capability Classification

The soil capability classification for agricultural purposes is one of a number of interpretive groupings that may be made from soil survey data. As with all interpretive groupings, the capability classification is developed from the soil-mapping units. In this classification the mineral soils are grouped into seven classes according to their potentialities and limitations for agricultural use. The first three classes are considered capable of sustained production of common cultivated crops, the fourth is marginal for sustained arable culture, the fifth is capable of use only for permanent pasture and hay, the sixth is capable of use only for wild pasture, while the seventh class is for soils and land types (including rock outcrop and small unmappable bodies of water) considered incapable of use for arable culture or permanent pasture. While the soil areas in classes one to four are capable of use for cultivated crops they are also capable of use for perennial forage crops. Soil areas in all classes may be suited for forestry, wildlife and recreation. For the purposes of this classification, trees, tree fruits, cranberries, blueberries and ornamental plants that require little or no cultivation are not considered as cultivated or common field crops.

The capability classification, applied in Canada, consists of two main categories: (1) the capability class, and (2) the capability subclass.

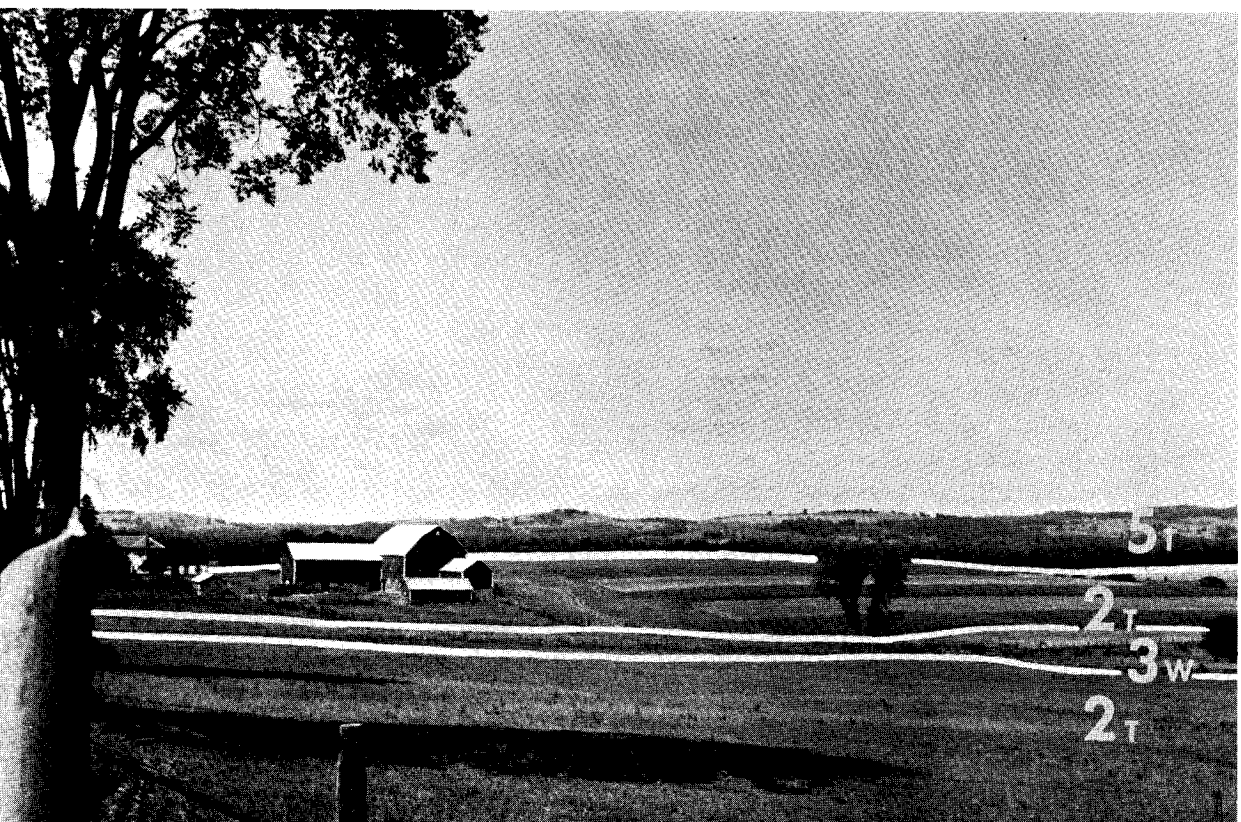
The *class*, the broadest category in this classification, is a grouping of subclasses that have the same *relative degree of limitation or hazard.* The limitation or hazard becomes progressively greater from Class 1 to Class 7. The class indicates the general suitability of the soils for agricultural use.

The *subclass* is a grouping of soils with *similar kinds of limitations and hazards.* It provides information on the kind of conservation problem or limitation. The class and subclass together provide the map user with information about the degree and kind of limitation for broad land-use planning, and for the assessment of conservation needs.

The capability classification is applied to virgin as well as to presently cultivated lands, with the exception of organic soils. Research data, recorded observations, and experience are used as the basis for placing soils in capability classes and subclasses. In areas where such information is lacking, soils are placed in capability classes and subclasses by interpretation of soil characteristics in accordance with experience gained on similar soils elsewhere. The level of generalization of the soil

▲ FIGURE 1: This field has no significant limitations for the production of field crops and is therefore placed in capability Class 1.

▼ FIGURE 2: Classes 2, 3, and 5 are present in this illustration. Class 2 has moderate slopes, indicated by subclass T, that require some soil conservation measures for sustained use for arable crops. Class 5 has steep slopes which makes this area unsuitable for arable field crops but it is capable of improvement for production of perennial forage crops. Class 3 has a continuing limitation of wetness that restricts its use for field crops.



capability classification is indicated by the map scale on which the information is published.

This classification is not a guide to the most profitable use of land but it is an inventory of our agricultural soil resources and a guide to better land use in Canada.

Assumptions

This soil capability classification is based on certain assumptions which must be understood by those using the soil capability maps and statistical data derived from these maps if they are to obtain full benefit from such information and avoid making erroneous deductions.

1. The soil capability classification is an interpretive classification based on the effects of combinations of climate and soil characteristics, on limitations in use of the soils for agriculture, and their general productive capacity for common field crops. Shrubs, trees or stumps are not considered as limitations to use unless it is unfeasible to remove them.
2. Good soil management practices that are feasible and practical under a largely mechanized system of agriculture are assumed.
3. The soils within a capability class are similar with respect to degree but not to kind of limitations in soil use for agricultural purposes. Each class includes many different kinds of soil and many of the soils within any one class require unlike management and treatment. The subclass provides information on the kind of limitation and the class indicates the intensity of the limitation. Capability Class 1 has no subclasses. Information for specific soils is included in soil survey reports and in other sources of information.
4. Soils considered feasible for improvement by draining, by irrigating, by removing stones, by altering soil structure, or by protecting from overflow, are classified according to their continuing limitations or hazards in use after the improvements have been made. The term "feasible" implies that it is within present day economic possibility for the farmer to make such improvements and it does not require a major reclamation project to do so. Where such major projects have been installed, the soils are grouped according to the soil and climatic limitations that continue to exist. A general guide to what is considered a major reclamation project is that such projects require co-operative action among farmers or between farmers and governments. (Minor dams, small dykes, or field conservation measures are not included.)
5. The capability classification of the soils in an area may be changed when major reclamation works are installed that permanently change the limitations in use for agriculture.
6. Distance to market, kind of roads, location, size of farms, characteristics of land-ownership and cultural patterns, and the skill or resources of individual operators are not criteria for capability groupings.
7. Capability groupings are subject to change as new information about the behaviour and responses of the soils becomes available.

Capability Classes

Class 1 —*Soils in this class have no significant limitations in use for crops.*

Soils in Class 1 are level or have very gentle slopes, they are deep, well to imperfectly drained and have a good water-holding capacity. They are easily maintained in good tilth and productivity, and damage from erosion is slight. They are moderately high to high in productivity for a wide range of field crops adapted to the region.

Class 2 —*Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices.*

Soils in Class 2 are deep and have a good water-holding capacity. The limitations are moderate and the soils can be managed and cropped with little difficulty. The soils are moderately high to high in productivity for a fairly wide range of field crops adapted to the region.

The limitation of soils in this class may be any one of the following: adverse regional climate; moderate effects of accumulative undesirable characteristics; moderate effects of erosion; poor soil structure or slow permeability; low fertility correctable with consistent moderate applications of fertilizers and usually lime; gentle to moderate slopes; occasional damaging overflow; and wetness correctable by drainage but continuing as a moderate limitation.

Soils in this class are not generally suited to as wide a range of crops as the soils in Class 1. Also more intensive conservation measures, tillage practices, or special soil-conserving systems may be required. The combinations of practices vary from place to place depending on the climate, soil and regional cropping systems.

Class 3 —*Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.*

Soils in Class 3 have more severe limitations than those in Class 2 and conservation practices are more difficult

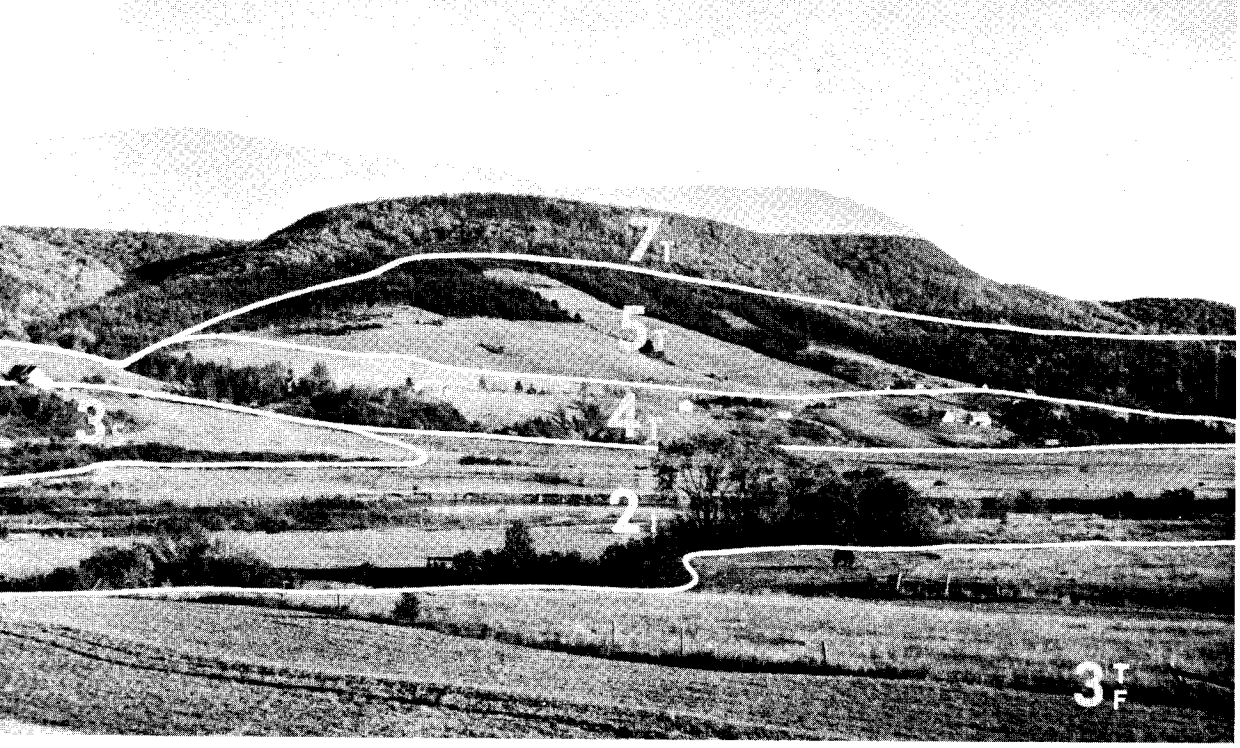


FIGURE 3: Classes 2, 3, 4, 5, and 7 are illustrated. The Class 2 area has a moderate limitation because of occasional damaging overflow; the Class 3 areas are affected by topographic and fertility limitations; the Class 4 and 5 areas are downgraded from Class 3 because of steepness of slope. The Class 7 area is considered to be non-agricultural because of steepness of slopes and generally rough topography.

FIGURE 4: The main limitation in the Class 2 and Class 3 land shown here is topography. The Class 2 land requires some special conservation measures to prevent damage from water erosion while the Class 3 area, owing to its greater slopes, requires more intense conservation measures to control water erosion. The Class 5 area, while severely eroded, may be used for perennial forage crops.

to apply and maintain. Under good management these soils are fair to moderately high in productivity for a fairly wide range of field crops adapted to the region.

In this class the limitations that restrict cultivation, ease of tillage, planting and harvesting, the choice of crops, the application and maintenance of conservation practices, are a combination of two of those described under Class 2 or one of the following: moderate climatic limitations including frost pockets; moderately severe effects of erosion; intractable soil mass or very slow permeability; low fertility correctable with consistent heavy applications of fertilizers and usually lime; moderate to strong slopes; frequent overflow accompanied by crop damage; poor drainage resulting in crop failures in some years; low water-holding capacity or slowness in release of water to plants; stoniness sufficiently severe to seriously handicap cultivation and necessitating some clearing; restricted rooting zone; moderate salinity.

Each soil in this class may have one or more alternative uses or practices required for use but the alternatives may be fewer than for soils in Class 2.

Class 4—*Soils in this class have severe limitations that restrict the range of crops or require special conservation practices or both.*

Soils in Class 4 have such limitations that they are only suitable for a few crops, or the yield for a range of crops is low, or the risk of crop failure is high. The limitations may seriously affect such farm practices as the timing and ease of tillage, planting and harvesting, and the application and maintenance of conservation practices. These soils are low to medium in productivity for a narrow range of crops but may have higher productivity for a specially adapted crop.

The limitations include the adverse effects of a combination of two or more of those described in Classes 2 and 3 or one of the following: moderately-severe climate; very low water-holding capacity; low fertility difficult or unfeasible to correct; strong slopes; severe past erosion; very intractable mass of soil or extremely slow permeability; frequent overflow with severe effects on crops; severe salinity causing some crop failures; extreme stoniness requiring considerable clearing to permit annual cultivation; very restricted rooting zone, but more than one foot of soil over bedrock or an impermeable layer.

Class 4 soils in subhumid and some arid regions may produce good yields of regionally cultivated crops in years of high rainfall; low yields in years of average rainfall and failures in years below average rainfall. During years of low precipitation even though no crop is expected, special management practices are required to minimize wind erosion, maintain productivity and conserve moisture. These measures include emergency tillage and crops used only for the primary purpose of preventing soil deterioration. These treatments and others must be applied more frequently and more intensively than on soils in Class 3.

Class 5—*Soils in this class have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible.*

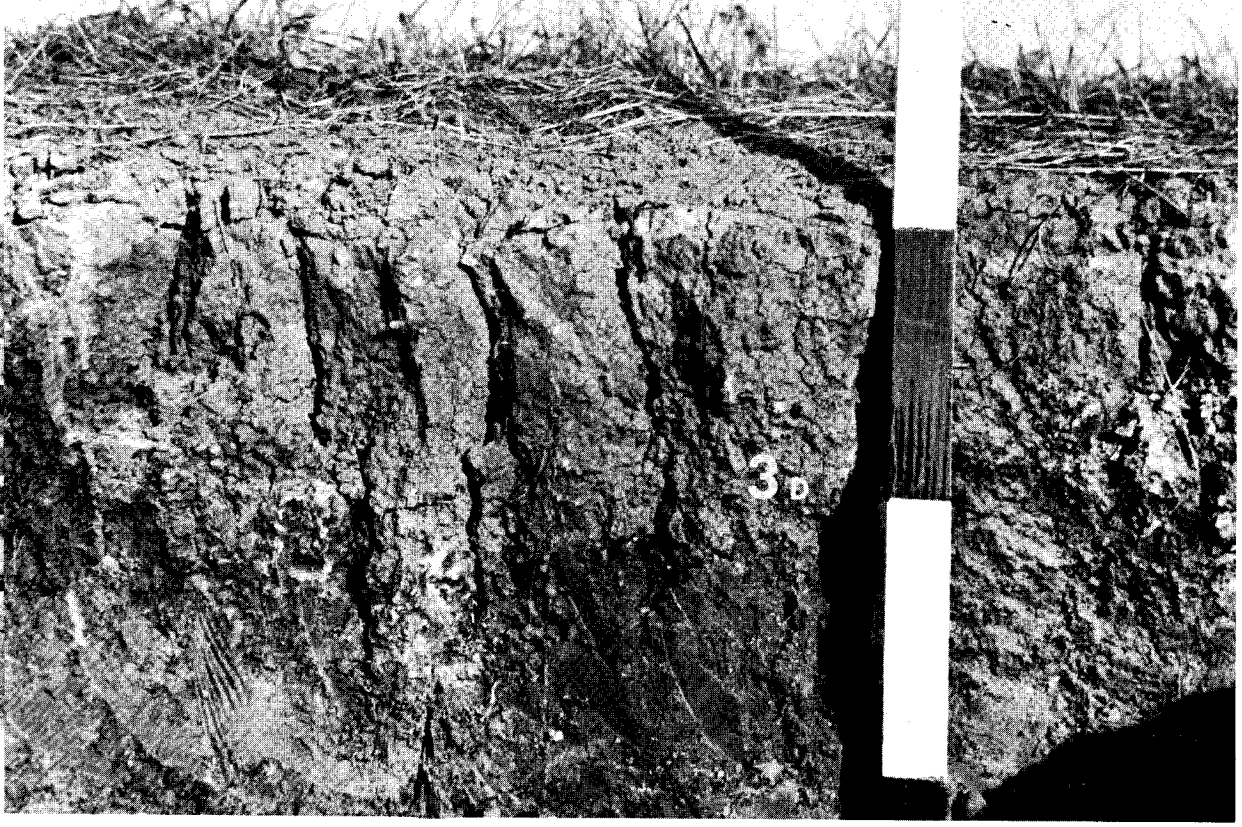
Soils in Class 5 have such serious soil, climatic or other limitations that they are not capable of use for sustained production of annual field crops. However, they may be improved by the use of farm machinery for the production of native or tame species of perennial forage plants. Feasible improvement practices include clearing of bush, cultivation, seeding, fertilizing and water control.

The limitations in Class 5 include the adverse effects of one or more of the following: severe climate; low water-holding capacity; severe past erosion; steep slopes; very poor drainage; very frequent overflow; severe salinity permitting only salt tolerant forage crops to grow; stoniness or shallowness to bedrock that make annual cultivation impractical.

Some soils in Class 5 can be used for cultivated field crops provided unusually intensive management is used. Some of the soils in this class are also adapted to special crops such as blueberries, orchard crops, or the like, requiring soil conditions unlike those needed by the common crops. Cultivated field crops may be grown in Class 5 areas where adverse climate is the main limitation but crop failures occur under average conditions.

Class 6—*Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.*

Soils in Class 6 have some natural sustained grazing capacity for farm animals but have such serious soil, climatic or other limitations as to make impractical the application of improvement practices that can be carried out in Class 5. Soils may be placed in this class because their physical nature prevents improvement through the use of farm machinery, or the soils are not responsive to improvement practices or because of a short grazing season, or because stock watering facilities are inadequate. Such improvement as may be effected by seeding



▲ FIGURE 5: This soil profile illustrates a soil that is placed in Class 3 because of a poorly structured, dense subsoil that severely limits permeability and root development.

FIGURE 6: The Class 4 land shown in the background has suffered considerable damage from erosion and is difficult to farm on account of its steep slopes and irregular topography. While still capable of use for annual field crops under good management, further damage from erosion would reduce its capability to Class 5. The Class 2 land has gentle to moderate slopes that require some conservation measures to protect it from erosion. The Class 3 area is affected by frequent overflow which would cause some crop damage if farmed. This area, if cleared, could be used for the production of some annual field crops.

▼

and fertilizing by hand or by aerial methods shall not change the classification of these soil areas.

The limitations in Class 6 include the adverse effects of one or more of the following: very severe climate; very low water-holding capacity; very steep slopes; very severely eroded land with gullies too numerous and too deep for working with machinery; severely saline land producing only edible, salt-tolerant, native plants; very frequent overflow allowing less than 10 weeks effective grazing; water on the surface of the soil for most of the year; stoniness or shallowness to bedrock that makes any cultivation impractical.

Class 7—*Soils in this class have no capability for arable culture or permanent pasture.*

The soils or lands in Class 7 have limitations so severe that they are not capable of use for arable culture or permanent pasture. All classified areas (except organic soils) not included in Classes 1 to 6 shall be placed in this class. Bodies of water too small to delineate on the map are included in this class.

Class 7 soils may or may not have a high capability for trees, native fruits, wildlife and recreation. Hence no inferences can be made as to the capability of the soils and land types in this class beyond the scope of their capability for agriculture.

Capability Subclasses

Subclasses are divisions within classes that have the same kind of limitations for agricultural use. Thirteen different kinds of limitations are recognized at the subclass level. A brief discussion of these subclasses and their designation on maps follows:

Adverse climate (C): This subclass denotes a significant adverse climate for crop production as compared to the "median" climate which is defined as one with sufficiently high growing-season temperatures to bring field crops to maturity, and with sufficient precipitation to permit crops to be grown each year on the same land without a serious risk of partial or total crop failures.

Undesirable soil structure and/or low permeability (D): This subclass is used for soils difficult to till, or which absorb water very slowly or in which the depth of rooting zone is restricted by conditions other than a high water table or consolidated bedrock.

Erosion (E): Subclass E includes soils where damage from erosion is a limitation to agricultural use. Damage is assessed on the loss of productivity and on the difficulties in farming land with gullies.

Low fertility (F): This subclass is made up of soils having low fertility that either is correctable with careful management in the use of fertilizers and soil amendments or is difficult to correct in a feasible way. The limitation may be due to lack of available plant nutrients, high acidity or alkalinity, low exchange capacity, high levels of carbonates or presence of toxic compounds.

Inundation by streams or lakes (I): This subclass includes soils subjected to inundation causing crop damage or restricting agricultural use.

Moisture limitation (M): This subclass consists of soils where crops are adversely affected by drouthiness owing to inherent soil characteristics. They are usually soils with low water-holding capacity.

Salinity (N): This subclass includes soils with enough soluble salts to adversely affect crop growth or restrict the range of crops that may be grown. Such soils are not placed higher than Class 3.

Stoniness (P): This subclass is made up of soils sufficiently stony to significantly hinder tillage, planting, and harvesting operations. Stony soils are usually less productive than comparable non-stony soils.

Consolidated bedrock (R): This subclass includes soils where the presence of bedrock near the surface restricts their agricultural use. Consolidated bedrock at depths greater than 3 feet from the surface is not considered as a limitation, except on irrigated lands where a greater depth of soil is desirable.

Adverse soil characteristics (S): On the 1:250,000 scale capability maps this subclass will be used in place of subclasses D, F, M and N either individually or collectively. On larger scale maps it may be used in a collective sense for two or more of these subclasses (see guidelines).

Topography (T): This subclass is made up of soils where topography is a limitation. Both the percent of slope and the pattern or frequency of slopes in different directions are important factors in increasing the cost of farming over that of smooth land, in decreasing the uniformity of growth and maturity of crops, and in increasing the hazard of water erosion.

Excess water (W): Subclass W is made up of soils where excess water other than that brought about by inundation is a limitation to their use for agriculture. Excess water may result from inadequate soil drainage, a high water table, seepage or runoff from surrounding areas.

▲ FIGURE 7: The Class 4 area in the foreground is severely affected by drouthiness because of the low water-holding capacity of the gravelly soil. The steep slopes of the area denoted as Class 7 preclude its use for agriculture.

▼ FIGURE 8: Adequate drainage of this area by the farmer is not feasible. Hence this land is rated as Class 5, only suitable for certain perennial forage crops.

Cumulative minor adverse characteristics (X): This subclass is made up of soils having a moderate limitation caused by the cumulative effect of two or more adverse characteristics which singly are not serious enough to affect the class rating.

Conventions in use of subclasses and map symbols.

1. A subclass is used only when the limitation it represents has been a factor in determining the class. However, on published maps no more than two subclasses are shown.
2. On maps large arabic numerals denote the capability classes and small capital letters placed after the class numerals denote the subclasses. In map units comprising more than one class, small arabic numerals placed after each class numeral as superscripts denote the proportion of each class out of a total of 10.

Organic Soils*

The interpretive soil capability classification is not applied to organic soils since, in general, there is insufficient information on these organic soil areas to make such an interpretive judgement.

Organic soils are designated by the letter O alone.

*The definition of organic soils as prepared by the National Soil Survey Committee reads as follows: Soils that contain 30 per cent or more of organic matter and have a depth of 12 inches or more of consolidated organic material.

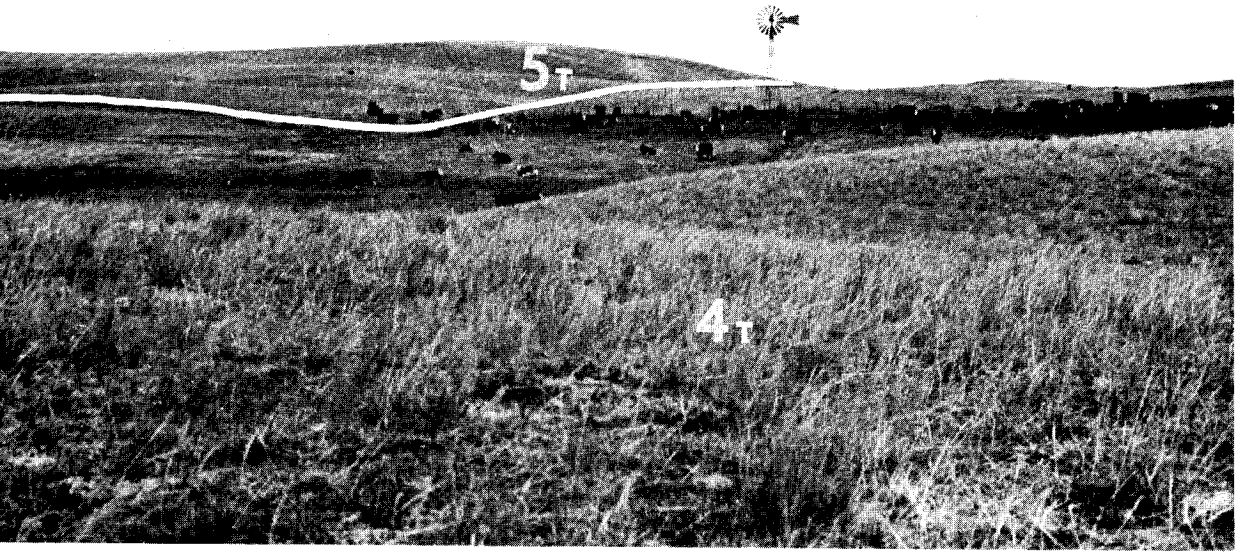
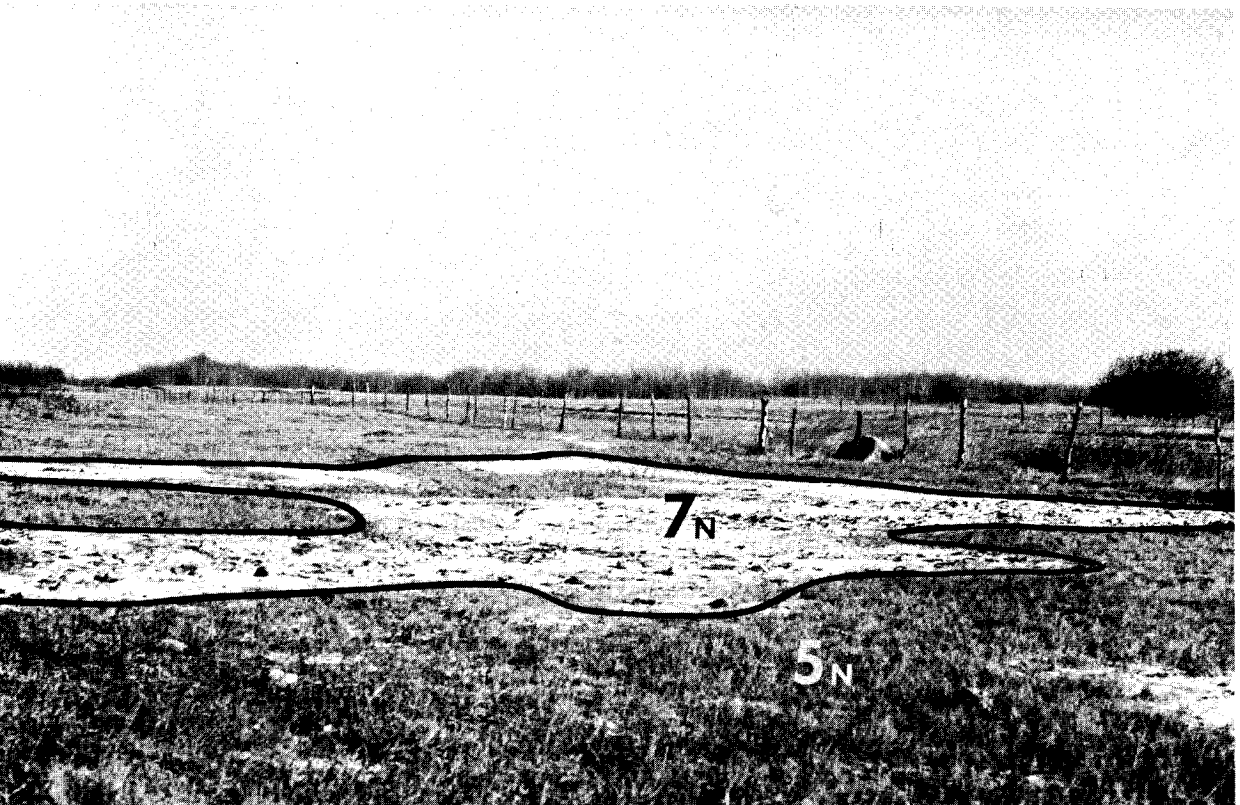


FIGURE 9: This photograph was taken in the Brown Soil Zone of the prairies where the drouth hazard limits the top class of soil to Class 3C. The areas shown here have been further downgraded to Classes 4 and 5 because of topographic limitations.

FIGURE 10: Strongly saline soils are of limited or of no use for agriculture. In the area marked as Class 5, salt tolerant forage crops can be established and maintained, while the area marked as Class 7 contains an excessive salt concentration that prevents the growth of useful vegetation.



APPENDIX I

Guidelines for Placing Soils in Capability Classes

Guidelines for placing soils in classes and subclasses in a country as diverse as Canada are required at both national and regional levels. For this purpose the regions agreed on are Eastern Canada, Western Canada, and the West Coastal area. The guidelines presented here are national in scope but some of them may require modification for regional application.

Subclass "C" is made up of soils where climate (temperature and precipitation) is a major limitation. Hazards of crop damage due to hail, rain, snow and winds are not included. This subclass denotes a significant adverse departure from what is considered as the median climate of the region. Subclass "C" may be used either on a subregional or local basis.

The soils placed in this subclass because of adverse subregional climate will be those soils that have no limitations except climate. Hence they will be the highest class soils of the subregion. Soils with other significant limitations or hazards to use will be placed in lower classes as the subregional climate will affect all of them. Subregions are large areas of land that can be clearly defined as having adverse climates compared to the median climate.

Locally, crop-damaging frosts will be the chief climatic factor in placing soils in this subclass. The evaluation of local adverse temperature effects on class designations must be based on both intensity and frequency. Since there is no way to indicate local frosty areas except by the subclass symbol "C" and since the soils in such areas may have other serious limitations, there is no restriction on using the symbol "C" with symbols for other limitations for local areas with adverse climates.

The median climate may be broadly defined as one with sufficiently high growing-season temperatures to bring field crops to maturity in a frost-free period exceeding 90 days and with sufficient precipitation to permit crops to be grown each year on the same land without a high risk of crop failure. Precise guidelines in regard to significant departures from the median as they affect the class designations have yet to be established but the following general subregional guidelines have been adopted.

Western Canada:

Median climate—most of the Black and Dark Gray soil zones.

Brown soil zone—generally highest class 3C.

Dark Brown soil zone—generally highest class 2C.

Gray Wooded soil zone below 3,000 feet—generally highest class 2C.

Eastern Canada:

Median climate—the Acadian, Great Lakes-St. Lawrence, and Deciduous forest regions.

Boreal forest region—generally highest class 2C.

There are a number of areas having a significant adverse departure from the median climate but these may be regarded as local variations.

Subclass "D" is made up of soils adversely affected by soil structure and/or permeability. It includes soils where the depth of rooting zone is restricted by soil conditions other than wetness (high water table) or consolidated bedrock. No guidelines were established for class designations.

Subclass "E" is made up of soils where actual damage from erosion is a limitation to agricultural use. Damage is to be assessed on the loss in productivity and/or the difficulties imposed by gullies in farming the affected soil areas. No attempt was made to develop specific guidelines for class designations.

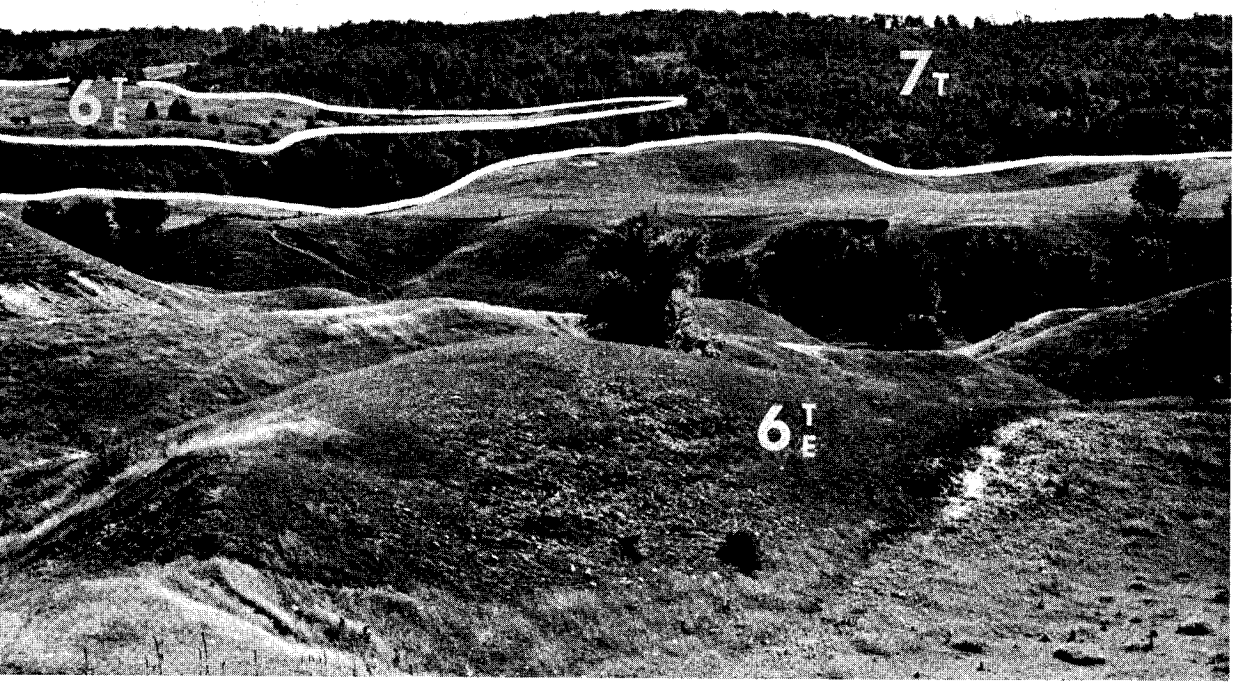
Subclass "F" is made up of soils having low fertility that either is correctable with constant and careful management in the use of fertilizers and amendments, or is difficult to correct in a feasible way. The limitations may be due to lack of available nutrients, high acidity or alkalinity, high levels of carbonates, toxic elements, inadequate cation exchange capacity, high fixation of plant nutrients.

The following guidelines are suggested for class designations.

Class 2: Soils highly responsive to fertilizers and amendments.

Class 3: Soils only moderately responsive to fertilizers and amendments.

Class 4: Soils in which the low fertility status cannot be improved with feasible management practices.



▲ FIGURE 11: The soil areas marked as Class 6 are so rough and eroded as to be capable of being used only as wild pasture. Regeneration of trees on the cleared areas will be very slow so that the areas will provide wild pasture for many years. The area classified as 7, if cleared, would also provide wild pasture. However, areas that require land clearing must have a higher capability than Class 6 to be rated other than Class 7.

▼ FIGURE 12: Non-agricultural land because of numerous rock outcrops and very shallow soils.

Class 7: Soils containing toxic elements to vegetation, or plants poisonous to farm animals, which cannot be removed with feasible management practices.

Subclass "I" is made up of soils subjected to inundation by streams or lakes.

The following limits were adopted subject to regional interpretation.

Class 2I: Occasional damaging overflow.

Class 3I: Frequent overflow with some crop damage.

Class 4I: Frequent overflow with severe crop damage including some years without a crop.

Class 5I: Very frequent overflow with effective grazing period longer than 10 weeks.

Class 6I: Very frequent overflow with effective grazing period shorter than 10 weeks and longer than 5 weeks.

Class 7I: Land inundated for most of the growth period.

Subclass "M" is a group of soils adversely affected by drouthiness owing to inherent soil characteristics. These are usually coarse-textured soils with low water-holding capacity but some fine-textured soils with high water-holding capacity may be placed in this subclass. Drouthiness caused by soil characteristics must not be confused with climatic drouth.

The following general guidelines were accepted.

This subclass will not be used for Class 2 soils.

As compared to soils under the same climatic conditions which do not have this limitation, the following general rules will apply.

Soils moderately affected by drouthiness—downgrade one class

Soils moderately severely affected by drouthiness—downgrade two classes

Soils severely affected by drouthiness—downgrade three classes

Soils very severely affected by drouthiness—downgrade four classes.

Subclass "N" is made up of soils adversely affected by the presence of soluble salts. Soils with enough salts to adversely affect crop growth or the range of crops which may be grown will not be placed in Class 1 or Class 2.

Class 3: Crops moderately affected. (Class 4 in those subregions where top class is 3C.)

Class 4: Crops seriously affected with crop failure in some years.

Class 5: Crops seriously affected on cultivated land with crop failures in most years but salt-tolerant forage crops can be established and maintained.

Class 6: Soils too salty except for native salt-tolerant grasses. If poisonous plants are present place in Class 7.

Class 7: Growth of useful native vegetation impossible.

Subclass "P" is made up of soils sufficiently stony as to significantly increase the difficulty of tillage, planting and harvesting.

The stoniness classes accepted by the N.S.S.C. in 1955 and 1963 will be used in establishing capability classes except that stoniness classes 1 and 2 would not be considered as limitations.

Stoniness 3—Class 3 or Class 4

Stoniness 4—Class 4 or Class 5

Stoniness 5—Class 6 or Class 7.

Subclass "R" is made up of soils where the depth of the rooting zone is restricted by consolidated bedrock.

The effect of consolidated bedrock near the surface on crop production is variable in intensity in different climatic regions. Hence precise guidelines for all of Canada cannot be established. As a general guide, where depth to bedrock is less than 12 inches the soil will not be rated higher than Class 5, and where depth to bedrock is more than 3 feet the class rating will not be affected except under irrigation.

Subclass "S". On the 1:250,000 scale capability maps this subclass is used in place of D, F, M, and N. On larger scale maps "S" should only be used: (1) for two of these limitations when some other limitation also is present and (2) when more than two of them are present. The reason for this convention on the use of "S" on maps having a greater scale than 1:250,000 is that, while it is desirable to denote the limitations as specifically as possible, it is usually impractical to show more than two subclasses for each class. The following examples may serve to illustrate this convention:

2_{F} not 2s

3^{F}_{M} preferred to 3s

but $4^{F}_{M_T}$ should be 4^{S}_{T}.

Subclass "T" is made up of soils where the topography (slope and pattern) is a limitation in agricultural use.

The following guidelines for subregions with median climates are based on topographic classes and symbols adopted by the N.S.S.C. in 1963. In this system capital letters are used for single slopes (regular surface) and lower-case letters are used for multiple slopes (irregular surface).

Class 1 —0 *to* 5% Aa, Bb, C

Class 2T—2 *to* 5% c; 6 *to* 9% D

Class 3T—6 *to* 9% d; 10 *to* 15% E

Class 4T—10 *to* 15% Ee

Class 5T—16 *to* 30% Ff

Class 6T—31 *to* 60% Gg

Class 7T—60+% Hh

In subregions having adverse climates compared to the median climate the effect of topography as it affects the class placement above Class 6 is subject to regional interpretation. For example in 3C subregions, soil areas with topography d, E and e have topographic limitations and hence would have to be placed in Class 4 or Class 5. Topography Gg places the affected soil areas in Class 6 irrespective of climate.

Subclass "W" is made up of soils where excess water, apart from that brought about by inundation, is a limitation in their use for agriculture. Excess water may be the result of poor soil drainage, high water table, seepage, or runoff from surrounding areas. Usually soils needing drainage have some permanent limitation that precludes placing them in Class 1 even after drainage.

If drainage is considered feasible at the farm level, wet soils will be classified according to their continuing limitations or hazards after drainage. If drainage cannot be effected without community action then wet soils will be classified on the basis of their present limitations.

Since the problem of classifying wet soils will require regional application of the N.S.S.C. Soil Moisture Classes no national guidelines were proposed. With further study regional guidelines may be developed.

Subclass "X" is made up of soils having a moderate limitation caused by the cumulative effect of two or more adverse characteristics which singly are not serious enough to affect the class rating. This subclass should only be used for soils that have no other limitation except subregional climatic limitations. Hence this subclass will be used alone and since it only represents a moderate limitation the soils will only be downgraded one capability class from the best possible soils in a climatic region. Thus with this subclass the capability classes will be as follows:

Median climatic subregions			2X
2C	"	"	3X
3C	"	"	4X

(See guidelines for subclass C, subregional climates)