



AGRICULTURAL CAPABILITY CLASSIFICATION IN BC

Not all agricultural lands are created equal and not all agricultural land are capable or suitable for producing all agricultural products, regardless of the level of management applied. The main limiting factors in British Columbia are climate and topography. Climate determines the heat energy and moisture inputs required for agricultural production. Topographic limitations mostly restrict the ability to use cultivation equipment. Soils with all their variability are also a key limiting factor. Depending upon their properties and characteristics they may be appropriate for sustaining the production of certain agricultural products, but not others.

In BC agricultural capability ratings and limitations are assessed through a classification system known as the "Land Capability Classification for Agriculture in British Columbia"¹. The classification system describes seven land capability classes for agriculture (Classes 1 to 7). Class 1 land has minimal limitations when associated with the most amenable climates in the Province. In Class 2 to Class 5 lands the limitations increase. Class 6 lands have limitations that preclude arable agricultural activities yet are capable of sustaining native and/or perennial uncultivated agriculture. Class 7 lands have limitations that preclude all arable and natural grazing agricultural systems, regardless of the climate. Increasingly, new innovations in drainage and irrigation, tillage, nutrient replenishment (whether organic or inorganic), pest management, as well as closed environmental systems, allow for agricultural production on agricultural land once deemed too limited or unsuited for producing specific products. The recognition of 'arable' agricultural activities is also significant in that Class 6 and 7 lands may still be agriculturally productive, where topography and climate allows, and where the agricultural activities are dedicated to closed environmental systems (i.e. greenhouses).

The land capability classification for agriculture has two main components; the capability [class](#) and the capability [subclass](#). The class identifies potential for agriculture. **The best agricultural lands are rated Class 1 because they have the ideal climate and soil to allow a farmer to grow the widest range of crops. Class 7 is considered non-arable, with no potential for soil bound agriculture.** As the class numbers increase from Class 1 to Class 7, the range of crops decreases. Associated with each class is a subclass that identifies limitations or special management practices needed to improve the soil, such as topography, stoniness, soil moisture deficiency, low fertility, etc. Regular management practices required to make land productive include, drainage, irrigation, stone picking, fertilization etc.



AGRICULTURAL CAPABILITY CLASSIFICATION IN BC

LAND CAPABILITY CLASSES FOR MINERAL SOILS

The seven land capability classes for mineral soils are defined and described as follows:

CLASS 1 LAND IN THIS CLASS EITHER HAS NO OR ONLY VERY SLIGHT LIMITATIONS THAT RESTRICT ITS USE FOR THE PRODUCTION OF COMMON AGRICULTURAL CROPS.

Land in Class 1 is level or nearly level. The soils are deep, well to imperfectly drained under natural conditions, or have good artificial water table control, and hold moisture well. They can be managed and cropped without difficulty. Productivity is easily maintained for a wide range of field crops.

CLASS 2 LAND IN THIS CLASS HAS MINOR LIMITATIONS THAT REQUIRE GOOD ONGOING MANAGEMENT PRACTISES OR SLIGHTLY RESTRICT THE RANGE OF CROPS, OR BOTH.

Land in class 2 has limitations which constitute a continuous minor management problem or may cause lower crop yields compared to Class 1 land but which does not pose a threat of crop loss under good management. The soils in Class 2 are deep, hold moisture well and can be managed and cropped with little difficulty.

CLASS 3 LAND IN THIS CLASS HAS LIMITATIONS THAT REQUIRE MODERATELY INTENSIVE MANAGEMENT PRACTISES OR MODERATELY RESTRICT THE RANGE OF CROPS, OR BOTH.

The limitations are more severe than for Class 2 land and management practises are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practises: timing and ease of tillage, planting and harvesting, and methods of soil conservation.

CLASS 4 LAND IN THIS CLASS HAS LIMITATIONS THAT REQUIRE SPECIAL MANAGEMENT PRACTISES OR SEVERELY RESTRICT THE RANGE OF CROPS, OR BOTH.

Land in Class 4 has limitations which make it suitable for only a few crops, or the yield for a wide range of crops is low, or the risk of crop failure is high, or soil conditions are such that special development and management practises are required. The limitations may seriously affect one or more of the following practises: timing and ease of tillage, planting and harvesting, and methods of soil conservation.

CLASS 5 LAND IN THIS CLASS HAS LIMITATIONS THAT RESTRICT ITS CAPABILITY TO PRODUCING PERENNIAL FORAGE CROPS OR OTHER SPECIALLY ADAPTED CROPS.

Land in Class 5 is generally limited to the production of perennial crops or other specially adapted crops. Productivity of these suited crops may be high. Class 5 lands can be cultivated and some may be used for cultivated field crops provided unusually intensive management is employed and/or the crop is particularly adapted to the conditions peculiar to these lands. Cultivated field crops may be grown on some Class 5 land where adverse climate is the main limitation, but crop failure can be expected under average conditions. Note that in areas which are climatically suitable for growing tree fruits and grapes the limitations of stoniness and/or topography on some Class 5 lands are not significant limitations to these crops.

CLASS 6 LAND IN THIS CLASS IS NONARABLE BUT IS CAPABLE OF PRODUCING NATIVE AND OR UNCULTIVATED PERENNIAL FORAGE CROPS.

Land in Class 6 provides sustained natural grazing for domestic livestock and is not arable in its present condition. Land is placed in this class because of severe climate, or the terrain is unsuitable for



AGRICULTURAL CAPABILITY CLASSIFICATION IN BC

cultivation or use of farm machinery, or the soils do not respond to intensive improvement practises. Some unimproved Class 6 lands can be improved by draining and/or diking.

CLASS 7 LAND IN THIS CLASS HAS NO CAPABILITY FOR ARABLE OR SUSTAINED NATURAL GRAZING.

All classified areas not included in Classes 1 to 6 inclusive are placed in this class. Class 7 land may have limitations equivalent to Class 6 land but they do not provide natural sustained grazing by domestic livestock due to climate and resulting unsuitable natural vegetation. Also included are rockland, other nonsoil areas, and small water-bodies not shown on maps. Some unimproved Class 7 land can be improved by draining or diking.

Agriculture Capability Subclasses

The subclass indicates lands with similar kinds but varying intensities of limitations and hazards. It provides information on the kind of management problem or use limitation. Except for Class 1 lands, which have no significant limitations, the capability classes are divided by subclasses on the basis of type of limitation to agricultural use. Each class can include many different kinds of soil, similar with respect to degree of limitation: but soils in any class may require unlike management and treatment as indicated by the subclasses shown.

A & M	Soil moisture deficiency	N	Salinity
C	Adverse climate (excluding precipitation)	P	Stoniness
D	Undesirable soil structure	R	Shallow soil over bedrock and/or bedrock outcroppings
E	Erosion	T	Topography
F	Low fertility	W	Excess water (groundwater)
I	Inundation (flooding by streams, etc.)	S & X	Cumulative and minor adverse conditions



AGRICULTURAL CAPABILITY CLASSIFICATION IN BC

Table 1: ALR Area by Region

Region	ALR Area (hectares)*	ALR Area (percent)
Okanagan	224,977	5
Island	116,207	2
South Coast	148,207	3
Interior	1,528,968	33
Kootenay	392,557	8
North	2,210,783	49
Total	4,621,699	100

* ALC GIS Database as of April 2013

Table 2: Total CLI Agriculturally Classified and ALR Lands in British Columbia (hectares)

CLI Agricultural Classification	Total Area Classified (hectares)	Land in the ALR	ALR as a Percent of Land Classification
Class 1	69,989	52,920	75.6%
Class 2	397,634	289,079	72.7%
Class 3	999,644	692,090	69.2%
Class 4	2,131,581	1,409,080	66.1%
Class 5	6,137,470	1,468,100	23.9%
Class 6	5,357,781	431,560	8.1%
Class 7	14,898,572	167,540	1.1%
Water		88,890	
Total	29,992,071	4,599,259	

Source: Select Standing Committee on Agriculture, 1978, Inventory of Agricultural Land Reserves in British Columbia, Phase 'I' Research Report.

Table 3: Agriculture Capability (BC Land Inventory) by Region

Committee Region (Current Region)	Total ALR Area	BCLI Class 1-4 Lands (hectares)	BCLI Class 1-4 Lands (percent)
Cariboo (Interior)	947,000	335,000	37
Island (Island)	112,000	83,000	74
Kootenay (Kootenay)	429,000	232,000	54
Mainland (South Coast)	175,000	130,000	74
Okanagan (Okanagan)	238,000	140,000	59
Omineca (North)	504,000	217,000	43



AGRICULTURAL CAPABILITY CLASSIFICATION IN BC

Peace (North)	1,336,000	960,000	72
Skeena (North)	277,000	147,000	53
Thompson (Interior)	580,000	181,000	31
British Columbia	4,599,000	2,425,000	53

Source: Select Standing Committee on Agriculture, November 1978, Land Productivity in BC; Phase 1 Research Report,

**Table 4: British Columbia Agricultural Capability
(Percent of BC's Land Base)**

Land Capable of a Range of Crops (CLI Class 1-4)	2.70%
Prime Agricultural Land (CLI Class 1-3)	1.10%
Class 1 Agricultural Capability	0.06%
Land Suitable for Tree Fruit Production in the ALR	0.04%

Source: Smith, B.E. 1998. Planning for Agriculture - Resource Materials, Provincial Agricultural Land Commission, Burnaby

References

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