

Calcium content of the A, B and C horizons

In soil, calcium is fixed on the soil's argillo-humic absorbing complex, clay and organic matter. Calcium is the most important exchangeable base in terms of its physical, chemical and biological action in soil. It acts on soil structure by promoting the flocculation of fine clay particles (Magny and Baur 1962). Calcium is a secondary element that is essential to plant nutrition and plays a regulatory role, controlling soil reaction and enhancing the uptake of various nutrients. Calcium amendments stimulate microbial life.

Table 1. Definition of Ca content classes

Class	Ca (meq/100g)	Ca (kg/ha)
Very low	<2.5	<1120
Low	2.5 - 8.5	1120 - 3800
Moderate	8.5 - 14.5	3800 - 6500
High	14.5 - 20.5	6500 - 9200
Very high	≥20.5	≥9200

Martin and Nolin 1991

Five calcium content classes are used (Table 1). Generally speaking, the A horizon of soils in the southeastern part of the Montreal plain displays a low (51.5%) (e.g. Saint-Aimé series) to moderate (41.5%) calcium content (e.g. Saint-Blaise series). Soils with a high calcium content (i.e. clay soils) and soils with a very high calcium

content (i.e., as a rule, soils with a humic or peaty surface layer) account for 2.5% and 2.8% of the study area respectively, while soils with a very low calcium content account for only 1.7% of the total (e.g. du Bourrelet series) (Figure 14). Sandy soils are generally poor in calcium, owing to their weakly absorbing complex. Calcium leaching is observable in the B horizon, especially in sandy soils (e.g. Aston series) (very low, 32.5%, low, 13.7% and moderate, 52.7%) and calcium enrichment is observable in the C horizon (low, 34.5%, moderate, 36.5%, high, 14.0% and very high, 15.0%).