AGRICULTURAL LAND SENSITIVITY

Wang and Coote (1980), Agriculture Canada

Objective

To predict effects of long term acid precipitation on agricultural soils assuming an average annual input of 60 kg $CaCO_3$ equivalent/ha.

Criteria

Soil clay content and pH can be used to estimate CEC and base saturation respectively. Both are used to provide a measure of the exchangeable bases in a soil assuming average organic matter content.

Sensitivity Class Definitions

Sensitivity	Soil Conditions
Sensitive	Soil Exchangeable bases less than 6 meq/100 g soil (or over 25% of exchangeable bases could be depleted in 25 years).
Moderately sensitive	Soil exchangeable bases are up to 15 meq/100 g soil (or 10 to 25% exchangeable bases could be depleted in 25 years).
Non Sensitive	Soil exchangeable bases are over 15 meq/100 g soil (or less than 10% exchangeable bases could be depleted in 25 years).

Map Product

Soil sensitivity map of agricultural areas of eastern Canada at 1:5,000,000.

Interpretation

For agricultural soils a loss of 10 to 25% of the exchangeable bases within the plowed layer is significant. A field guide for determining soil sensitivity can be defined as follows:

Sensitivity Class	Soil Characteristics*
Non-Sensitive	All calcareous soils Clayey, pH** more than 5.0 Loamy, pH more than 5.5
Moderately Sensitive	Sandy, pH more than 5.5 Clayey, pH 4.5 - 5.0 Loamy, pH 5.0 - 5.5
Sensitive	Clayey, pH less than 4.5 Loamy, pH less than 5.0 Sandy, pH less than 5.5