Why Describe Soil Profiles?

There are no reliable interpretations of soil suitability without proper classification of the soil.

And …

There is no reliable classification without description of soil properties.

Therefore,
In order to determine a soil's suitability for a given use we must describe, classify, and interpret the soil.

Steps of Soil Classification

1. Describe
   Describe the soil to determine its properties.

2. Classify
   Use the described properties to classify the soil.

3. Interpret
   Use the soil properties to interpret best uses and limitations.

What is a Dichotomous Key?

A Dichotomous Key:

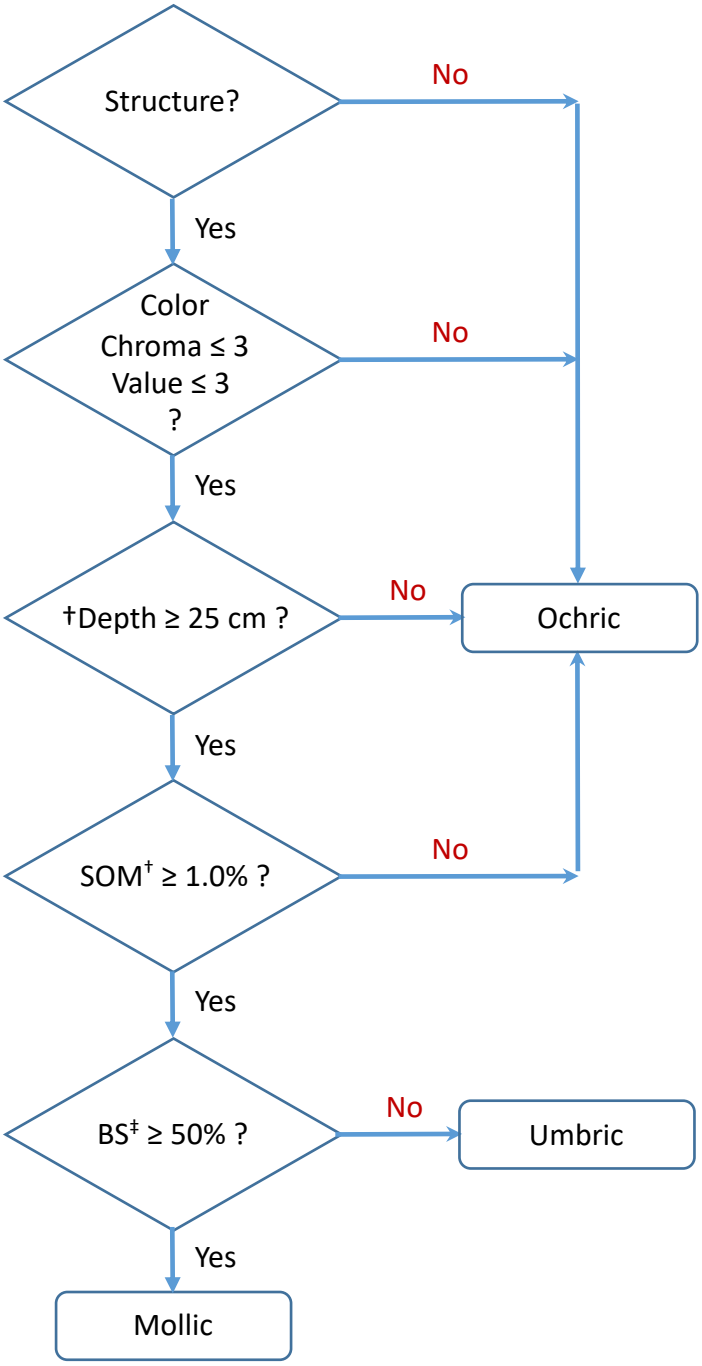
- Asks a series of Yes-No questions in an inverted tree structure.
- The answer to one question determines the next question.
- Once passing a given question, users follow that branch to the end and ignore any questions from any other branches.

Use the following Dichotomous keys with the Soil Taxonomy Exercise 2.

The first key is used to determine the Epipedon.

The second key is used to determine the Soil Order

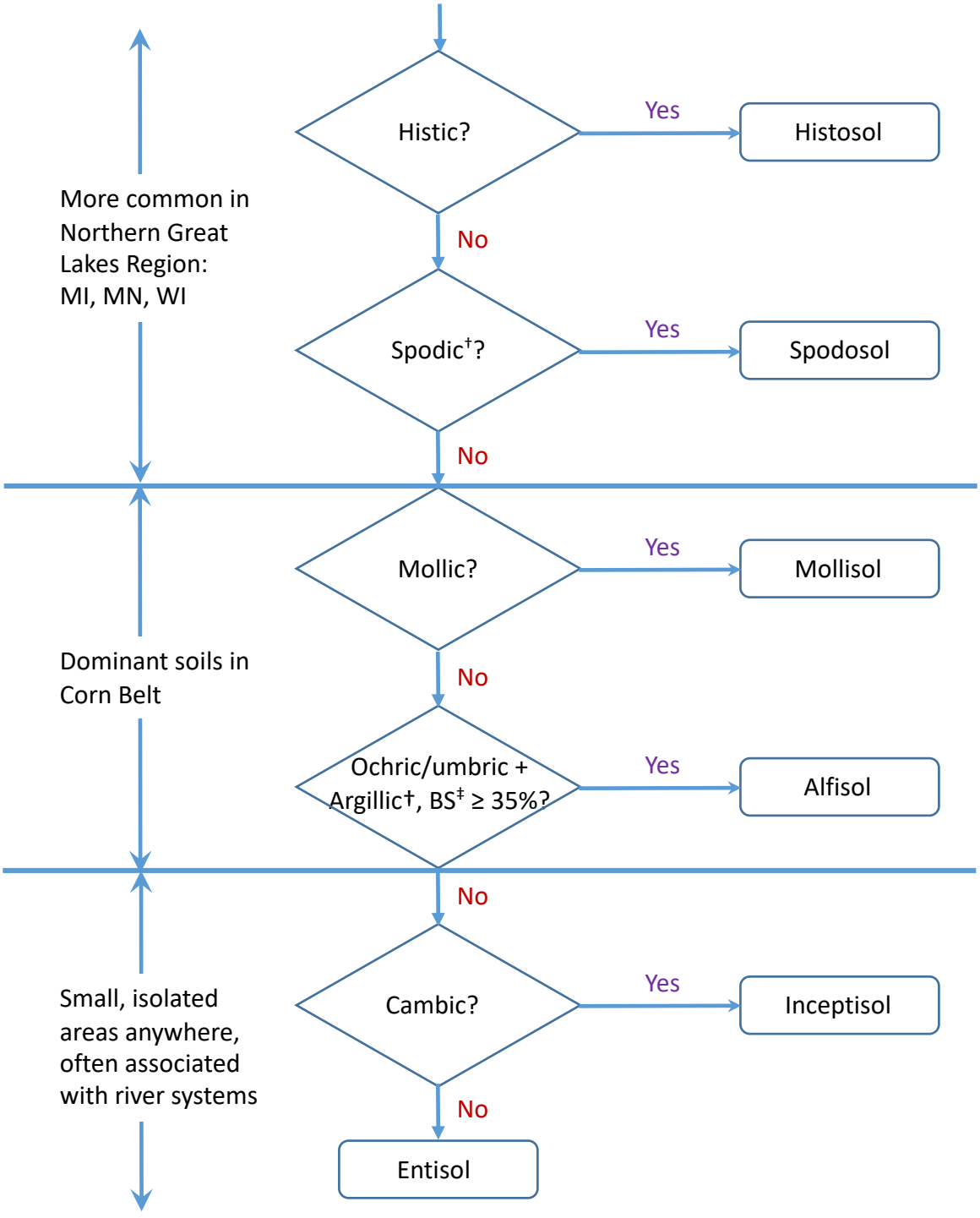
Surface Mineral (Epipedon) simplified diagnostic horizon key (dichotomous)



†SOM – Soil Organic Matter

‡BS – Basic Saturation

Simplified Taxonomic Order key for Corn Belt Soils



†Endopedon – subsurface diagnostic horizon

‡BS – Basic Saturation

Endopedon Characteristics (simplified)

- Albic – eluvial horizon
  - Based mostly on color
  - Chroma ≤ 2 &
    - value ≥ 3 moist & ≥ 6 dry or ≥ 4 moist & ≥ 5 dry
  - Or Chroma ≤ 3 & value ≥ 6 moist or ≥ 7 dry
- Spodic – illuvial horizon
  - pH ≤ 5.9 & SOC ≥ 0.6%
  - Illuvial accumulation of organic carbon and aluminum with/without iron
  - Appear redder or blacker or both than overlying horizon.
- Argillic – illuvial horizon
  - Illuvial accumulation of clay
  - Amount of clay increase depends upon texture, minimum 3% or 1.2 x clay of overlying layer
- Cambic – illuvial horizon
  - Some evidence of soil development: structure or color changes from parent material
  - Does not meet characteristics for other endopedons