



MONTANA
STATE UNIVERSITY

EXTENSION

Soils and Nutrient Sources

Class Outline

Master Gardener Level 1

Fairmont Hot Springs, Montana

March 31, 2011

- I. Soil Science Fundamentals -
 - a. Soil Formation and Soil Horizons
 - b. Parent materials and soil genesis
 - c. Soil vs Dirt – minerals, organic matter, soil solution and atmosphere

- II. Physical Properties of Soil –
 - a. Soil textural classes – sand, silt, and clay – coarse fragments
 - b. Soil structure
 - c. Soil depth
 - d. The “ideal” gardening soil

- III. Chemical Properties of Soil –
 - a. Soil pH – acidity vs. alkalinity
 - b. Plant nutrients from soils – textural influences
 - c. Macro-nutrients
 - d. Micro-nutrients

- IV. Soil Testing and Analysis Interpretation
 - a. Collecting samples
 - b. Available analyses
 - c. Analysis interpretation and identifying deficiencies

- V. Amending Identified Deficiencies –
 - a. Physical deficiencies – Texture, structure
 - b. Chemical – Nutrient Deficiencies, pH mitigation
 - c. Organic vs. inorganic sources of nutrients

- VI. Holistic Soil Management –
 - a. Growing medium as a complex interaction of interdependent contributors
 - b. Problems of single factor management – balance is the key