Introduction to Section 1 (1b – Managing Organic Matter & Nitrogen Inputs to Improve the Soil Resource)

- **Cash Crop/Crop Rotations** (the more diverse, the better) or Pasture
  - Harvested Crops
  - Grazed
  - Manure
  - Compost

- **Crop Residue mgmt.**
  - (i.e., surface residues & roots)
  - NOTE: Keep the soil covered with residues and/or crops

- **Soil Surface Residues** (no-till)
  - Zone of major soil structure development (≈ 0 – 4" depth)
  - NOTE: Minimal soil structure development at deeper soil depths

- **Healthy Soils**
  - Crop roots & Soil Food Web activity are a function of proper aeration, moisture, temperature & nutrient conditions, as well as the C:N ratio of all organic carbon sources.

- **Soil Moisture**
- **N Inputs**
- **CO₂ (Carbon losses)**

- **Soil Food Web**
  - OM feeds the Soil Food Web
  - Soil Temperature
  - Root Exudates
  - Crop Residues

- **Cover Crop Cocktail Mix** (legumes, grasses & brassicas)
  - Organic Matter (OM) feeds the Soil Food Web

- **Nitrogen losses:**
  - Nitrate leaching
  - Ammonia volatilization
  - Denitrification
  - Soil erosion
  - Surface runoff

- **Nitrogen Primer**

- **Planting Cover Crops**
  - Soil Food Web makes water-stable aggregates and soil humus