



Soil Management: Nurse Crops (Spring Cover)

- Seed it at or just after potato planting to minimize soil exposure
- Need a species that germinates quickly in cool conditions
- We want to measure
 - Growth
 - Penetration of water (reduce over-surface flow)
 - Soil moisture effects as it grows
 - Effects on nutrients available to potatoes
 - Killing dates for best results



Soil Management: Nurse Crops





Soil Management: Fall Cover Crops

- Seed fall cover crops after top kill application or just after potato harvest.
- Use a species that can germinate in cool conditions of early fall.



Nutrient Management:

- Nutrient Management aims to achieve four broad goals:
 1. Cost-effective production of high quality plants and animals.
 2. Maintenance or enhancement of soil health.
 3. Efficient use and conservation of nutrient resources.
 4. Protection of the environment.





Nutrient Management:

1. Maintenance or enhancement of soil health.

- Understanding the long-term nutrient supplying and nutrient cycling capacity of the soil
- Improvement of soil and physical properties
- Maintenance of above-and-below ground biological functions and diversity
- The biological processes that comprise soil health.



Nutrient Management:

2. Cost-effective production of high quality plants and animals:

- Nutrient management goal for agriculture is to increase plant yield.
- In forestry, enhancing the survival rate of tree seedlings and the rate of tree growth. Wildlife habitat and recreational values may also be primary or secondary products.



Nutrient Management:

3. Efficient use and conservation of nutrient resources :

- Nutrient budgeting that reflects the balance between inputs and outputs.
- An clear understanding of what is currently in the soil (from soil sample testing), what the crop requirements are (N-P-K) will allow the land user to properly fertilize the soil.
- Development of a nutrient management plan.



Nutrient Management:

4. Protection of the environment:

- Nutrient loading:
 - The nutrients of greatest concern are nitrogen and phosphorus. Their excessive presence can lead to increased plant biomass, usually in the form of undesirable aquatic plants and algae. Resulting in oxygen depletion Which can cause fish kills and loss of other aquatic animal life.
- Pesticide loading in waterways.
- Pathogens in watercourses and ground water (Nitrate in drinking water).
- Using BMPs to minimize the effects of nutrient additions to the environment.
 - Buffer Strips
 - Riparian Buffers
 - Cover Crops
 - Conservation Tillage
 - Rotation Crops
 - Precision Farming (fertilizer application)
 - Split Application of fertilizer
 - Revisit harvesting methods in Forestry
 - Minimize soil disturbance in Forestry



Soil Health / Soil Quality:

- **Soil Health:**
 - Refers to the self-regulation, stability, resilience, and lack of stress symptoms in a soil as an ecosystem.
 - Describes the biological integrity of the soil community.
 - Capacity of a soil to resist degradation
- **Soil Quality:**
 - Describes the properties that make a soil fit to perform particular functions that soil play (6 key roles):
 - Support plant growth
 - Regulate water supply
 - Recycler of waste
 - Home to organisms
 - Influence the composition and physical condition of the atmosphere
 - Engineering medium
 - The intended use is taken into account



Questions?

