

Integrating Manure and Cover Crops with Manure Slurry Seeding

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Enhance soil biology with organic inputs--manure and cover crops

- Increase
 - organic matter
 - water holding capacity
- Improve
 - aggregate stability
 - water infiltration
- Decrease
 - evaporation
 - soil bulk density



Manure with a cover crop

- Greater yield response to manure applied with a winter cover crop than manure on bare soil.



Goal

- Develop an integrated process that incorporates
 - low-disturbance tillage
 - manure application
 - and seeding of cover crops
- in one efficient operation



Manure slurry-enriched seeding of cover crops



Fewer plants, greater biomass

Daikon radish

Forage turnip



Seeded
09/01/09



Harvested
12/05/09



Seed placement and emergence

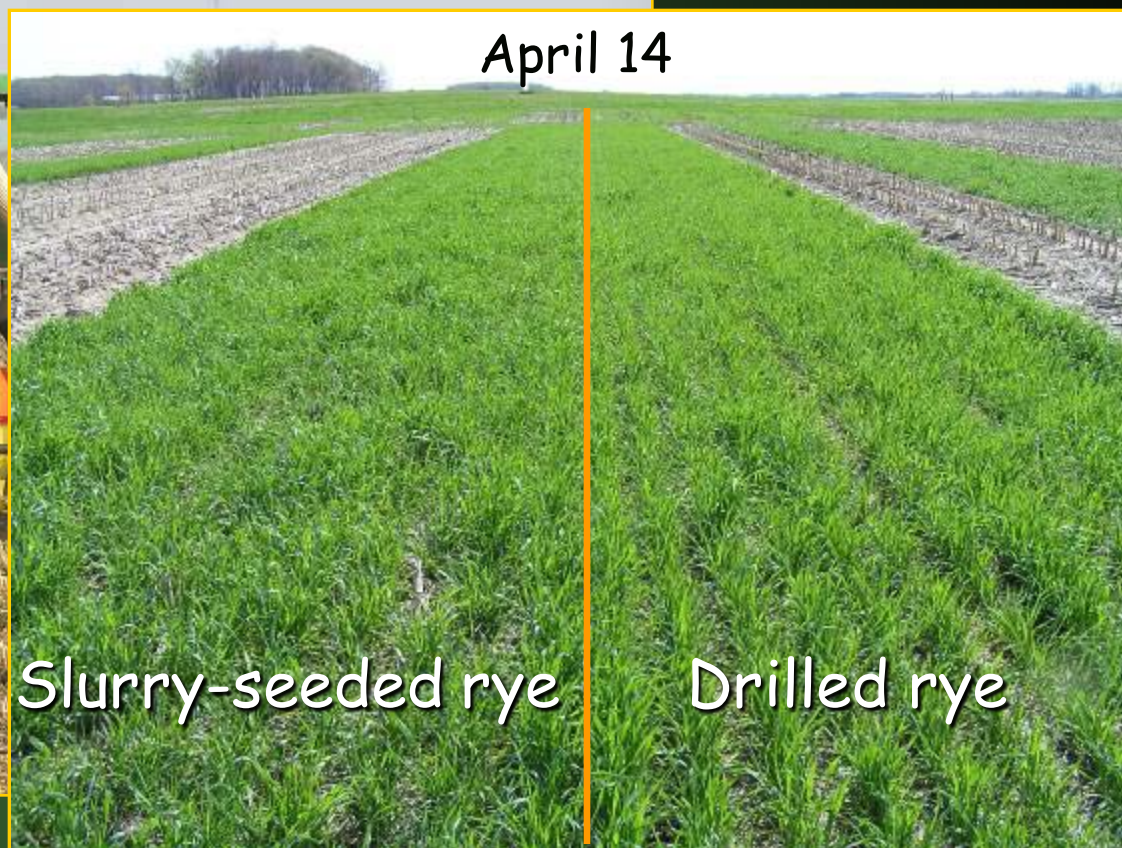
- Aeration tillage creates cracks and fissures that are filled with seed-laden slurry.
 - Emergence from near surface to 3 inches.



Small grain cover after corn silage



3/12/2010



Suitable for several crops

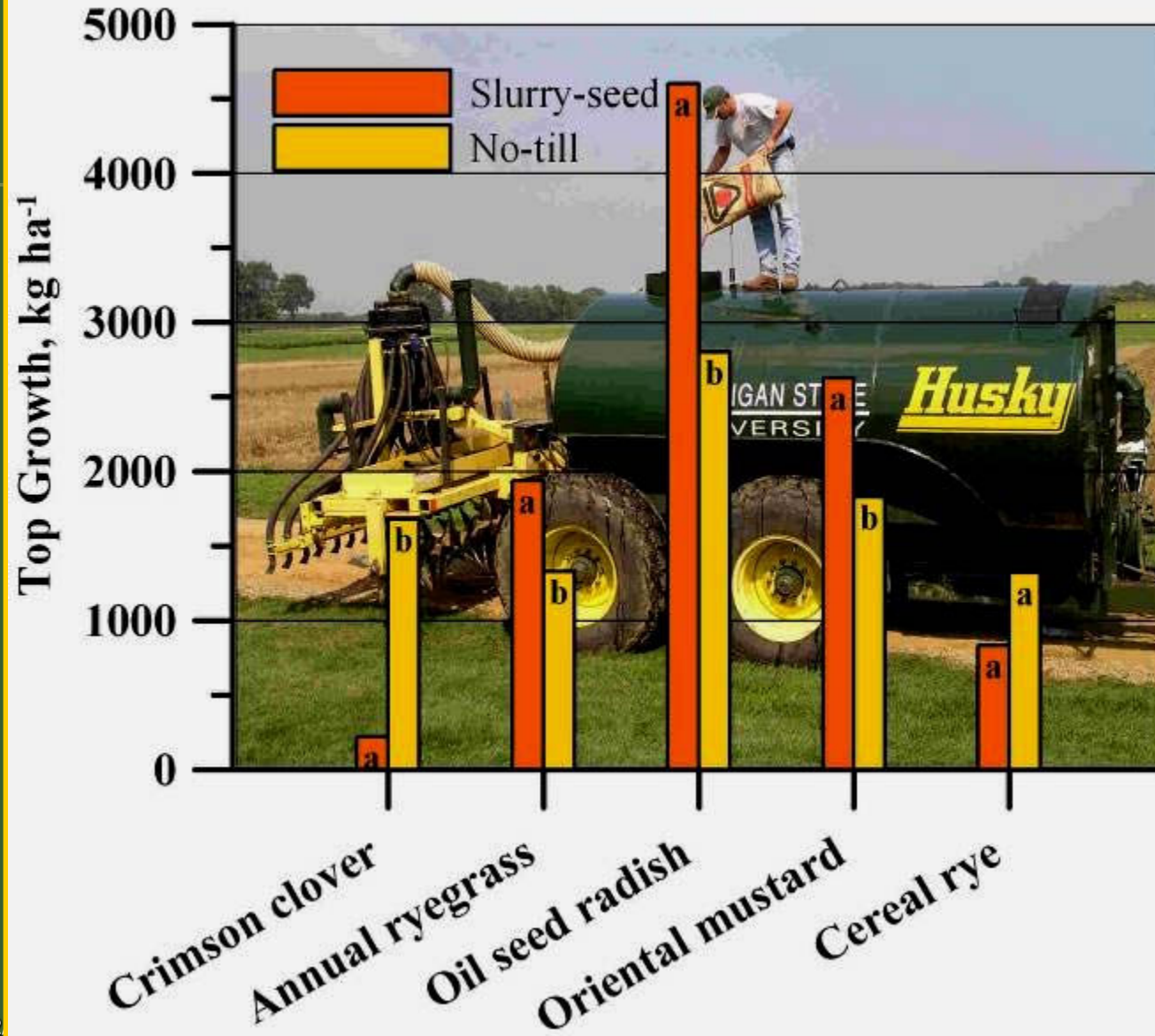


Oil seed radish



Annual rye grass

KBS 2005



Pasture improvement



Pasture impro



Frost Seed RC

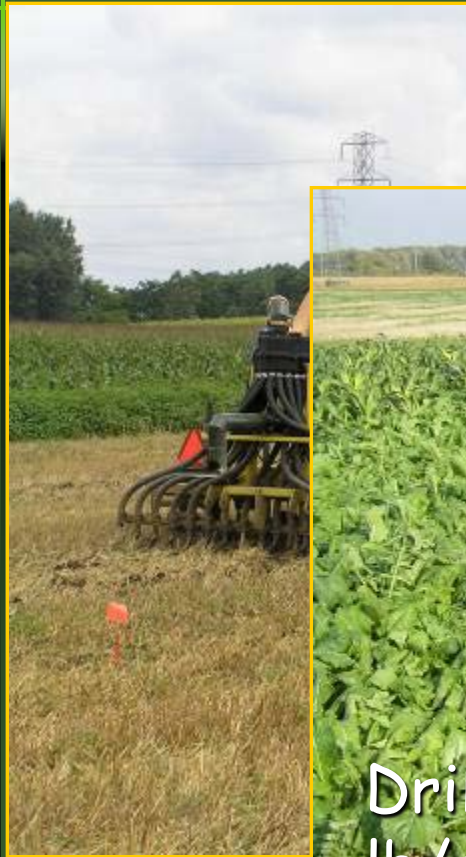


Slurry Seed RC

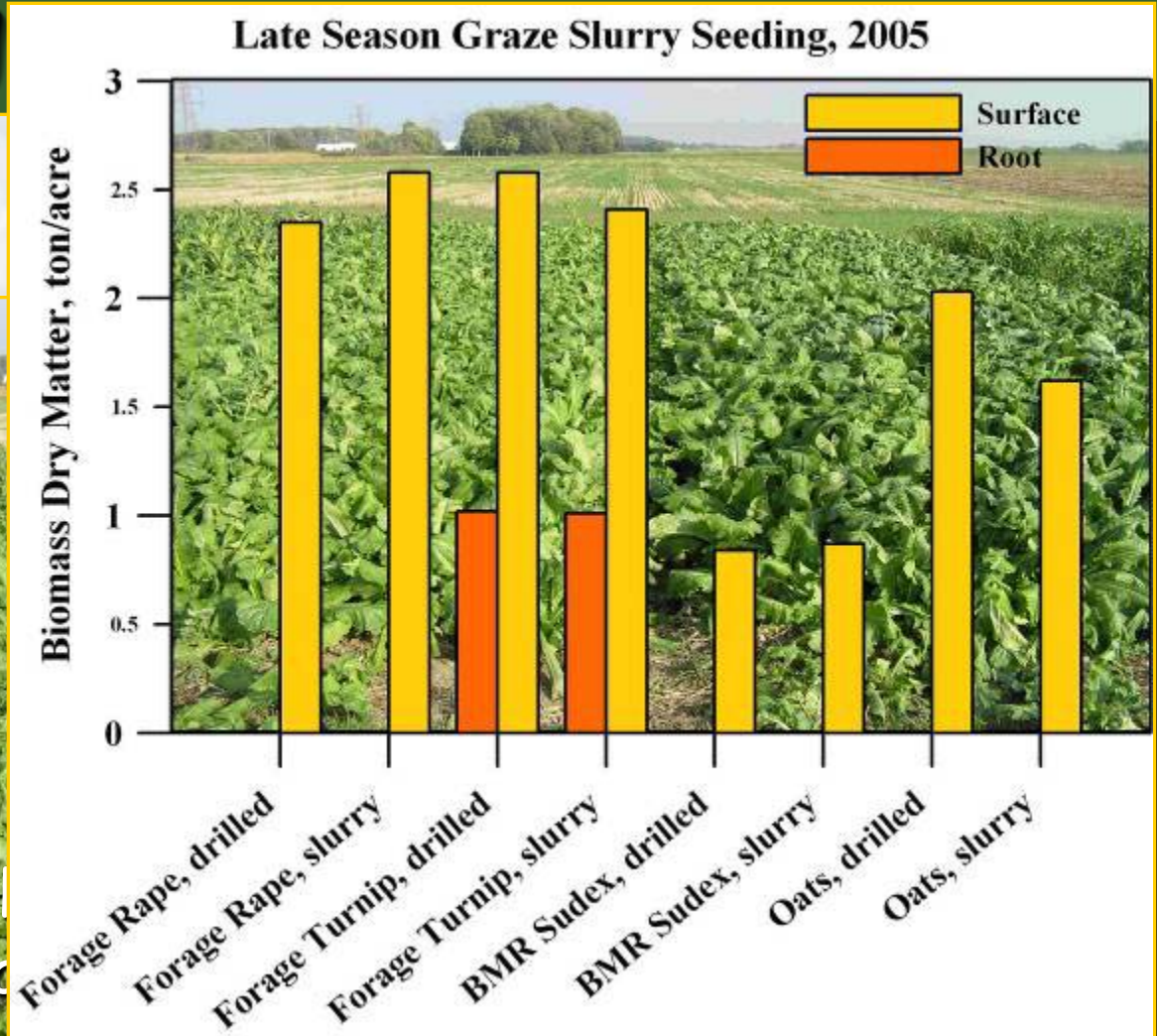


NT Drill RC

Late season/stockpile grazing



Drill
lb/c





3/12/2010



3/12/2010

Slurry-enriched seeding is environmentally sensitive

- **Environmental benefits**
 - Conserves crop residue and improves infiltration, reduces over land flow.
 - Stabilize soil and contaminants, recycles nutrients.
- **Crop protection**
 - Natural pest suppression, reduction in pesticides.
- **Soil quality benefits**
 - Reduce tillage and traffic, organic inputs, sequester carbon, increase soil organic matter.
- **Resource efficiency**
 - Aeration tillage, manure application and cover crop seeding in one pass. Saves 2 gal/acre fuel, 0.35 h/acre labor.

