

This PDF is a version of an online module that is part of the Principles for Transitioning to Organic Farming project. For all of our educational materials, please visit:

<http://organictransition.umn.edu/>

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Cultural Weed Management

This material is based upon
work that was supported by
the Minnesota Agricultural Experiment Station
and is narrated by
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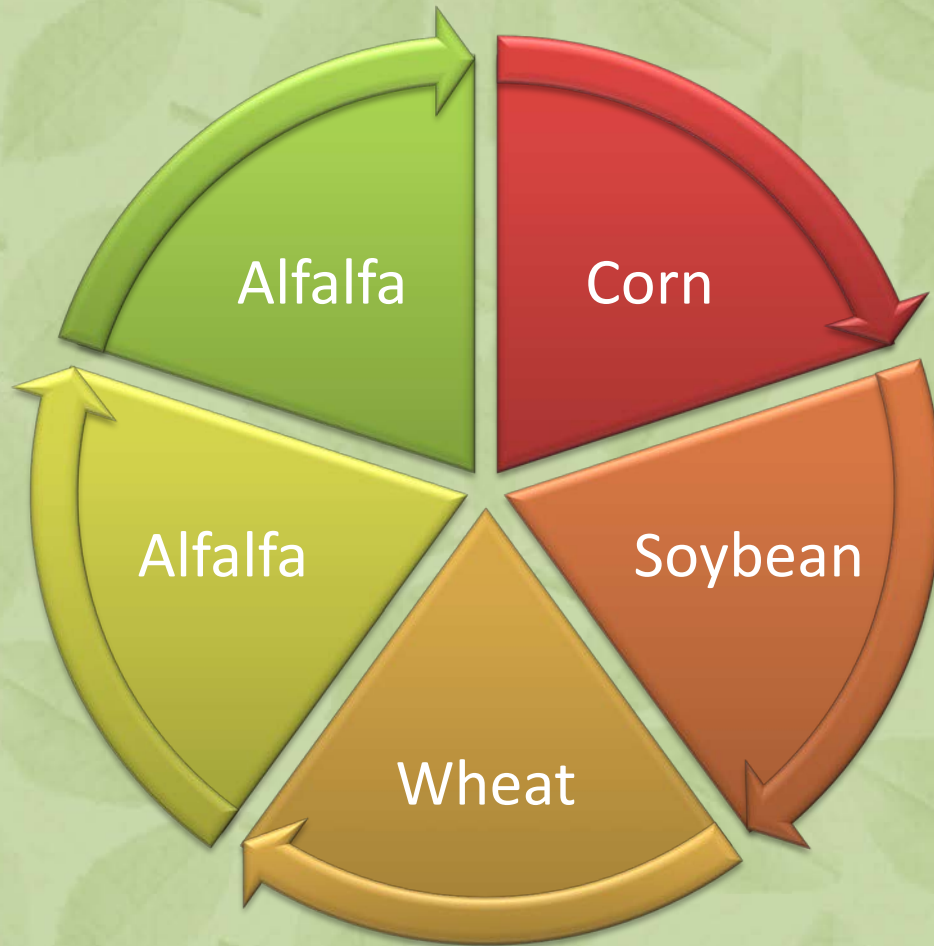
Cultural weed management =
production practices that help
manage weeds

Cultural Weed Management

- I. Rotation
- II. Crop variety selection
- III. Delayed planting
- IV. Planting rate
- V. Prevention



Rotation

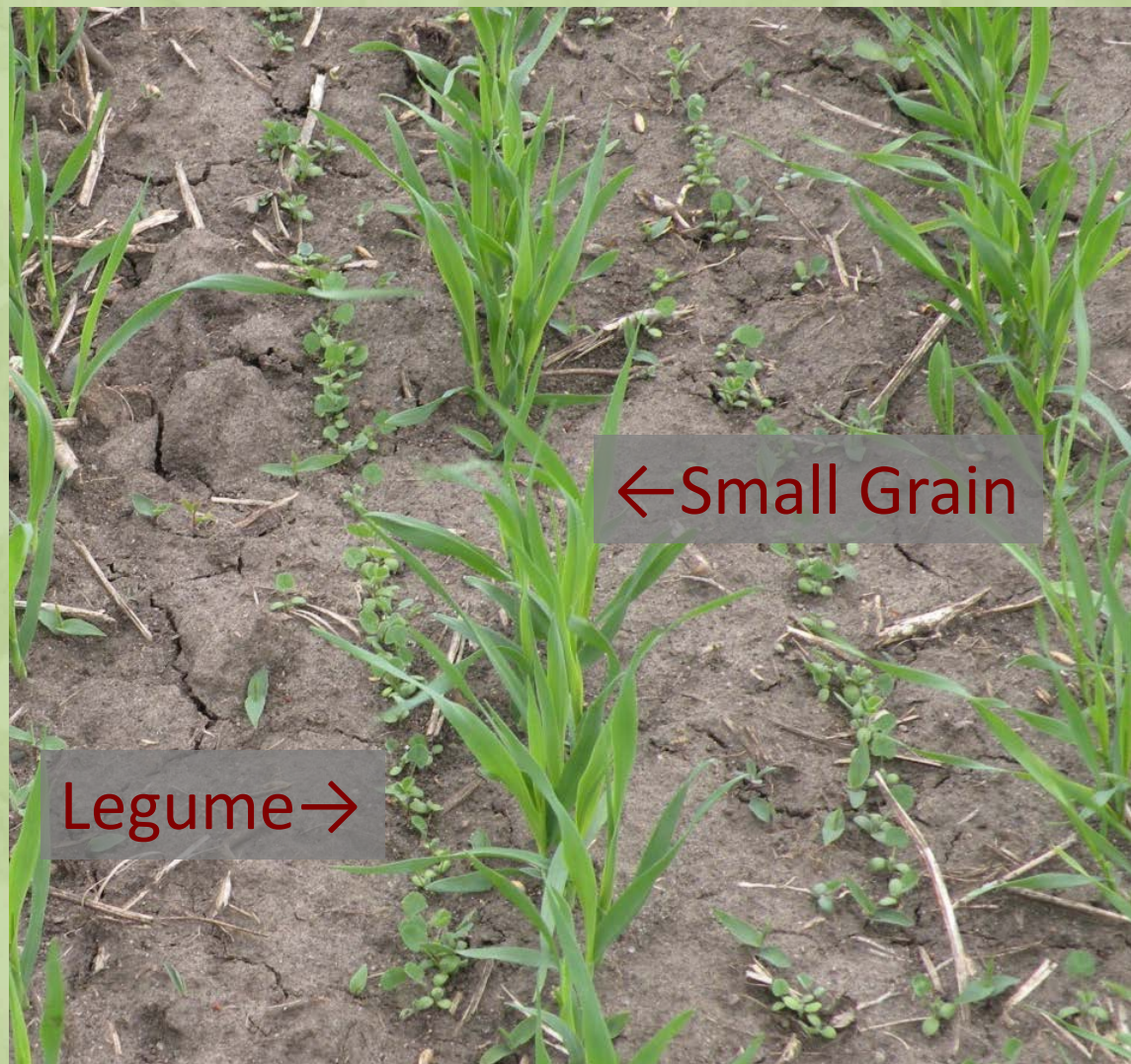


5-year Rotation

- Diversify with:
 - Perennials such as alfalfa
 - Small grains
 - Cover crops

Benefits of Small Grains

- Early competitive growth suppresses early weeds
- Can be underseeded with red clover for even more weed control

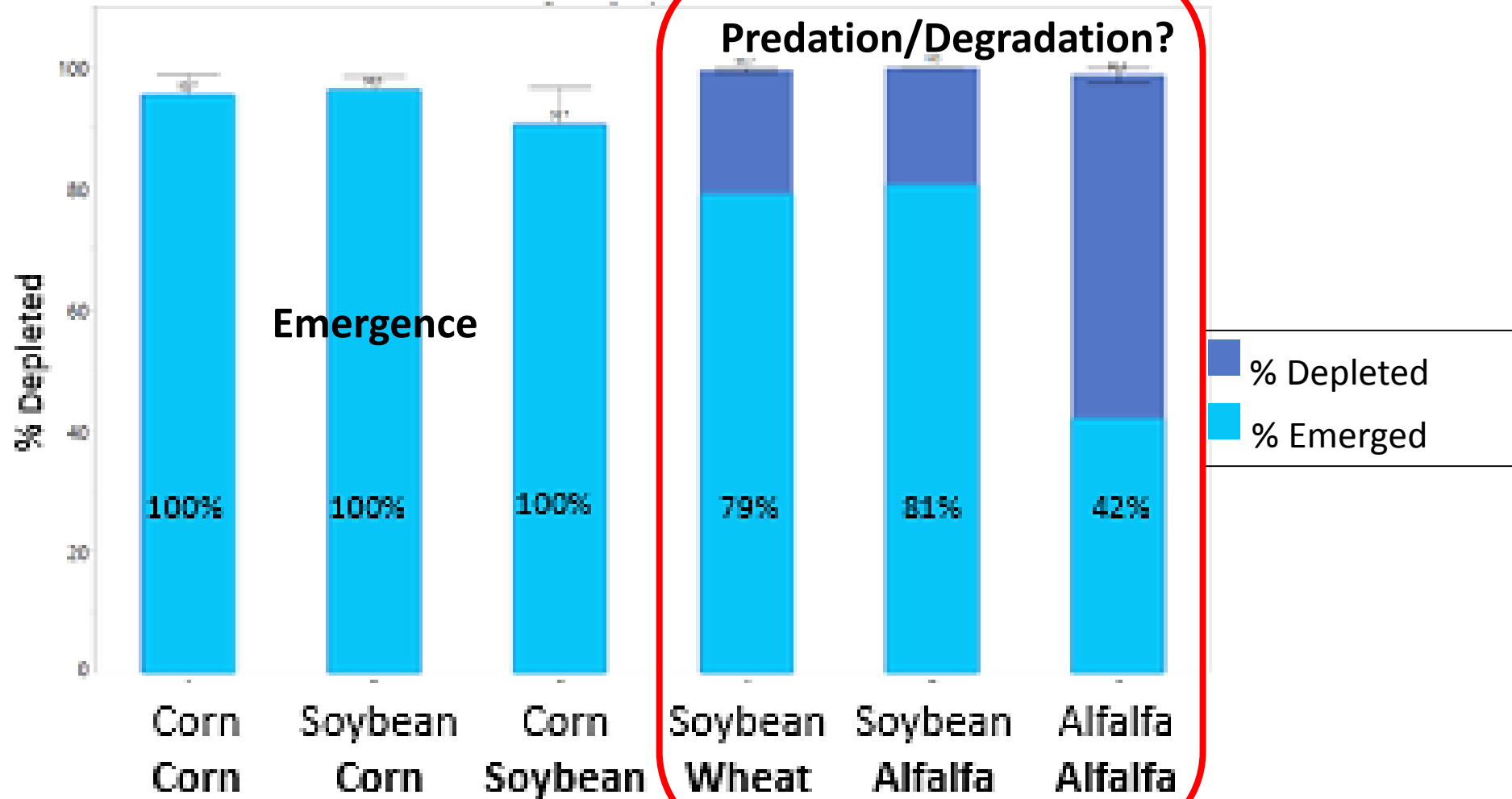


Benefits of Alfalfa



- Weeds are suppressed by continuous cover
- Repeated mowing:
 - Depletes energy reserves of weeds
 - Can prevent them from setting seed

Weed Seed Depletion in Diverse Rotations



Winter Cover Crops in Rotations



Winter rye

- Inhibit fall and early spring germinating weeds
- Residue can have some short-term allelopathic effects that impede germination of some small-seeded weeds

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Crop Variety Selection

- Crop varieties vary in their competitiveness
- Some have:
 - Faster emergence
 - Greater growth rate
 - More rapid canopy closure
 - Better tolerance to weeds



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Delayed Planting

- Allows for more weeds to germinate to be controlled with mechanical weed control
- Can benefit corn and soybean production
- Crop seed emerges faster in warm soils



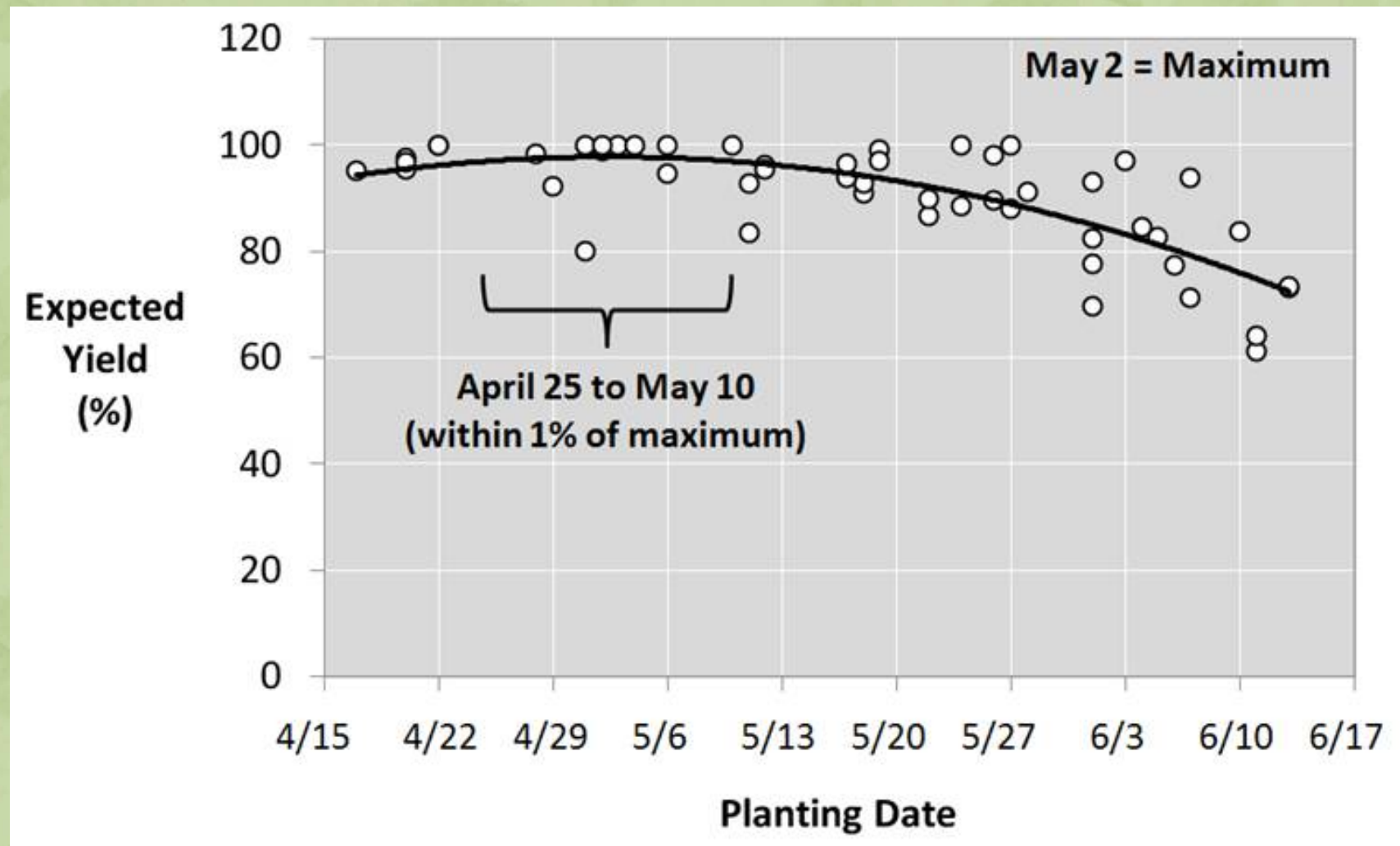
Delayed Planting



Lambsquarters

- Effective on early-emerging weeds
- Not effective on later-emerging ones or ones with prolonged emergence times

Drawback – Reduced Yields



Coulter, 2012. Response of corn grain yield to planting date at Lamberton, Morris, and Waseca, MN from 2009 to 2011.

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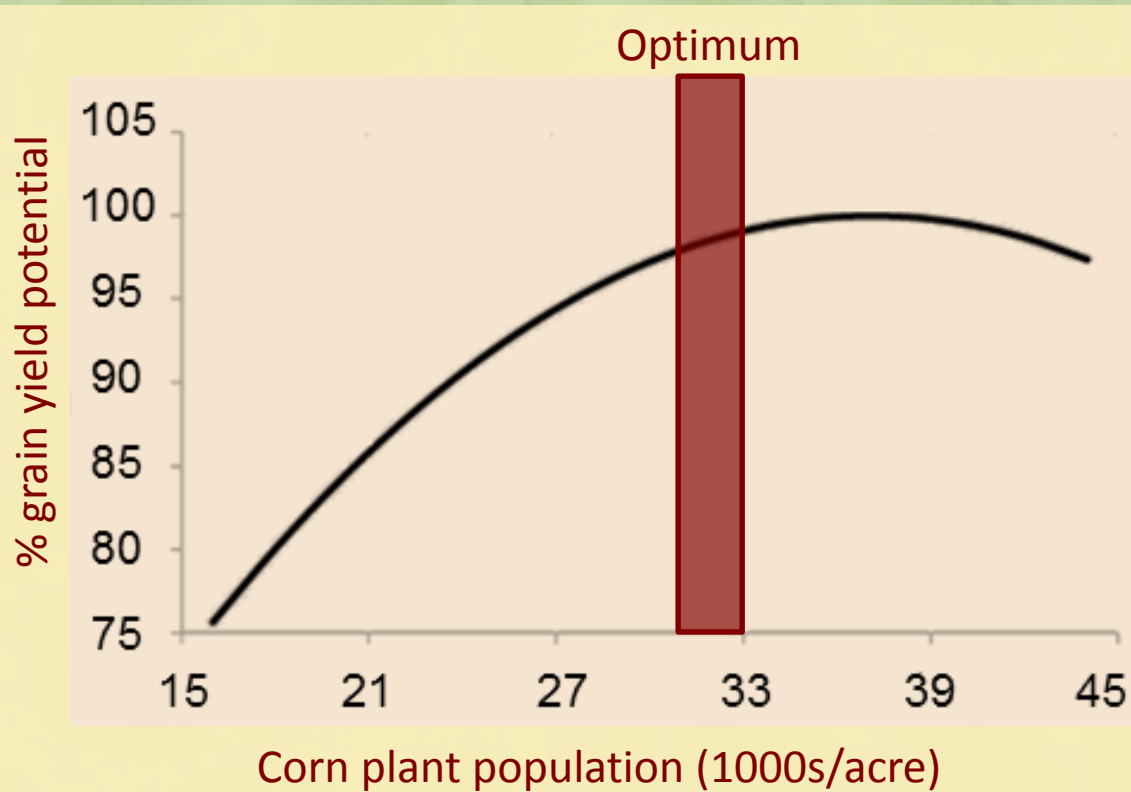


Mechanical Weed Control



- Can reduce plant populations
- Example = rotary hoeing can lead to a 10% reduction in crop stand

Planting Rate



- Planting at the optimum rate will increase crop competitiveness
- Higher planting rates can compensate for stand losses due to mechanical weed control

Source: Coulter, 2009

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Prevention

1. Plant weed-free seed
2. Manage weeds in ditches, buffers and CRP land
3. Be aggressive about new weeds
4. Don't allow weeds to go to seed



Mowed buffer



Just one year of weeds going to seed
replenishes the weed seed bank



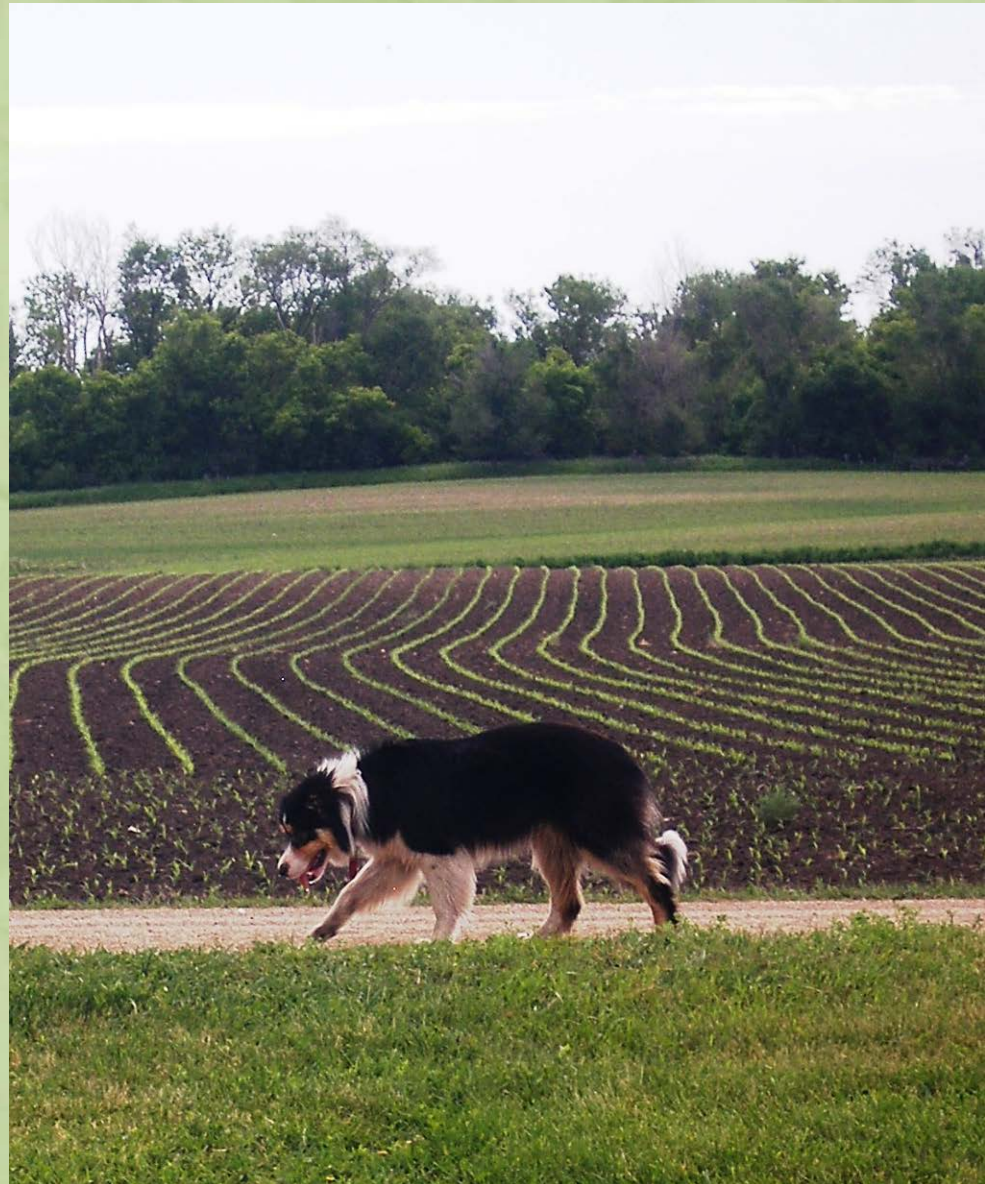
Weeds in Manure



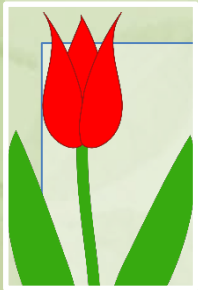
- Viable weed seed can survive digestion
- Weed risks will depend on manure storage, livestock species, feed type and weed species
- Be careful where you apply potentially weedy manure!

Scouting

- Detection of weeds is critical
- Note
 - Species
 - Emergence patterns
- Keep weed maps and records on operation effectiveness



Scouting Schedule



Early Spring



Early Summer



Early Fall



Conclusion





Resources

- [Transition to Organic Management – Rodale Institute](#)
- [Sustainable Weed Management](#)
- [Risk Management for Organic Producers - Weed Management](#)
- [The Role of Crop Rotation in Weed Management](#)
- [Control Practices in Organic Weed Management](#)

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