Nutrient Management in Cover Cropping Systems

ISA Conservation Agronomists
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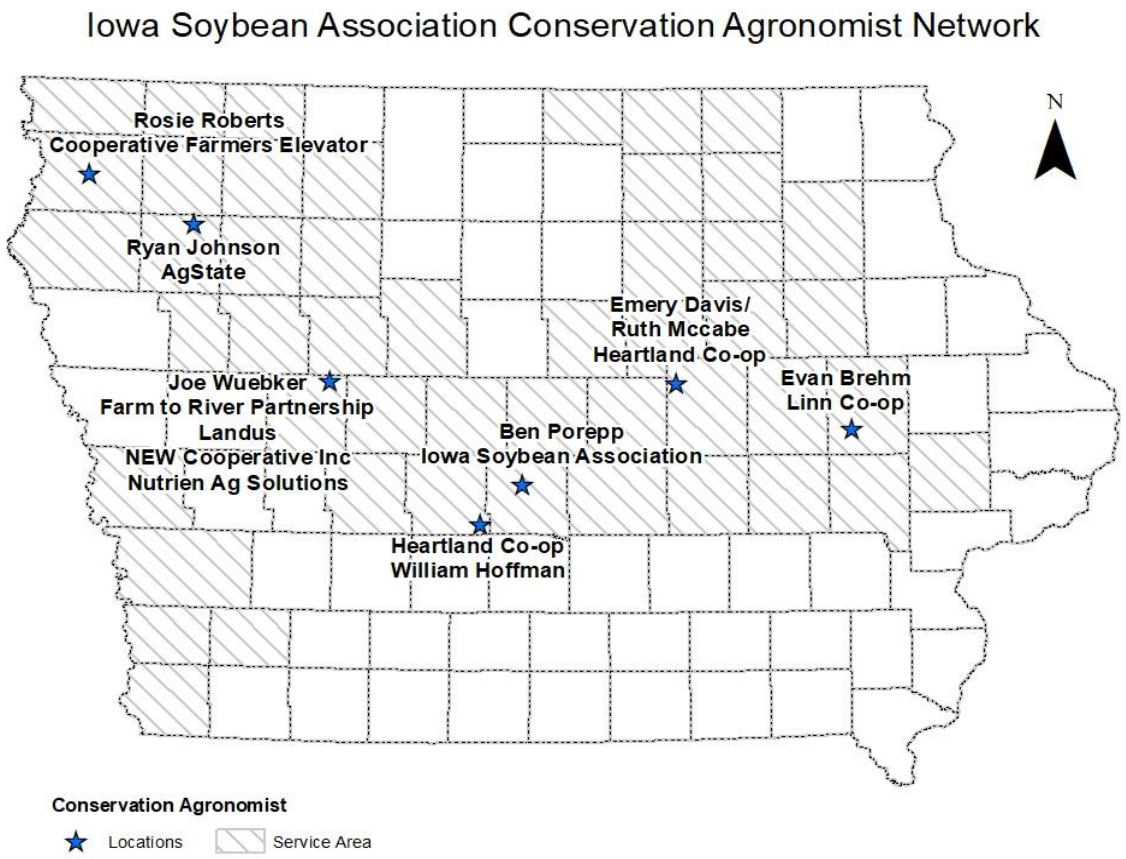

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What Are Cover Crops?

- Plants used for the protection and enrichment of the soil
- Planted after cash crop harvest in Iowa, but early season interseeding is gaining popularity
- Iowa has exceeded 3 MILLION acres, and constantly increasing
- Cereal Rye is most common, but diversity of species is better

Why Do Cover Crops Matter?

- **Suppress Weeds**
  - cover crop matte acts as a barrier reducing the amount of germinated weeds
- **Reduce Resistance**
  - reduces herbicide resistant weeds, increasing herbicide effectiveness
- **Control Erosion**
  - keeps topsoil in place, keeping nutrient rich organic matter in the field
  - maintains land value, rising land markets
- **Cycle Nutrients**
  - retain and scavenge nutrients that would normally be unavailable to the plant
- **Reduce Inputs**
  - provide the potential for reduced herbicide and fertilizer inputs

So Which Species Are Common and What Do They Do?

Cover Crops 101

Grasses

biomass

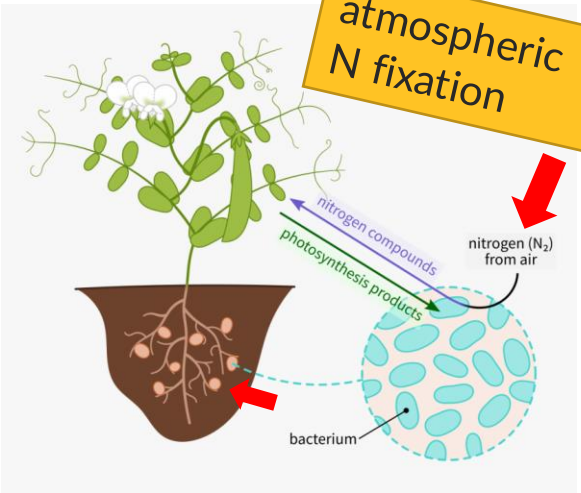
tillers

N scavenger

- cereal rye
- oat
- triticale
- wheat
- barley
- annual ryegrass

Legumes

atmospheric N fixation



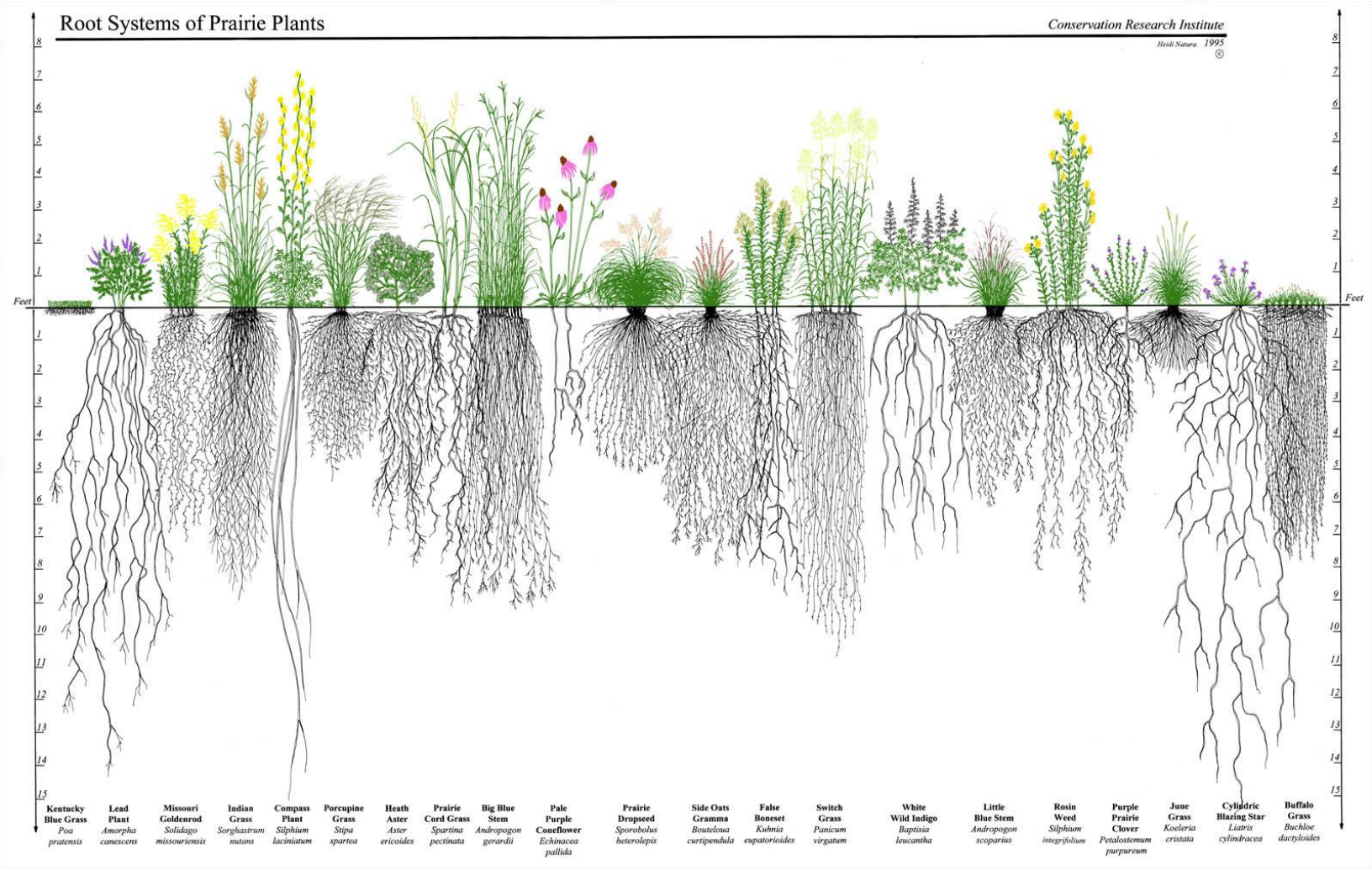
- fieldpea
- clovers
- common vetch
- hairy vetch
- cowpea

Brassicas

tubers

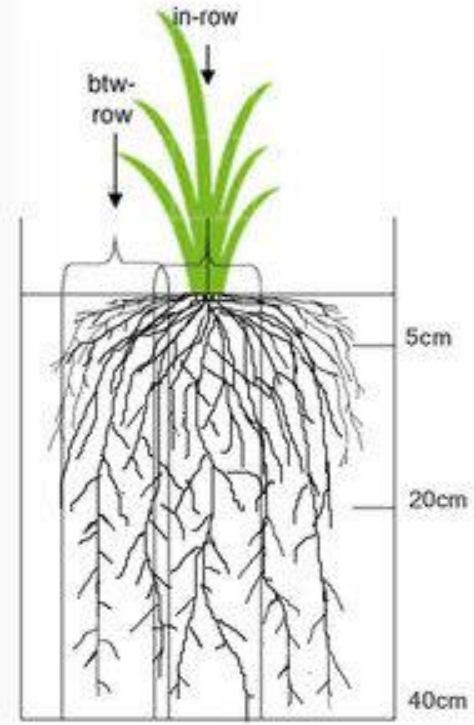
- radish
- turnip
- winter camelina
- canola (rapeseed)
- mustard
- kale

Roots Impact on Soil



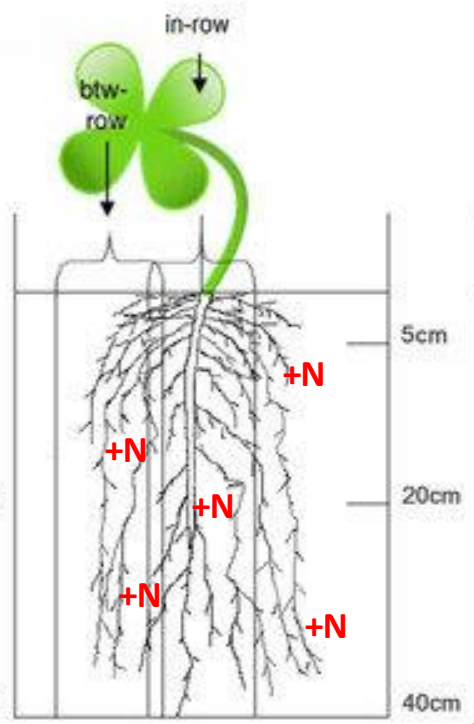
Cover Crop Roots

Grasses



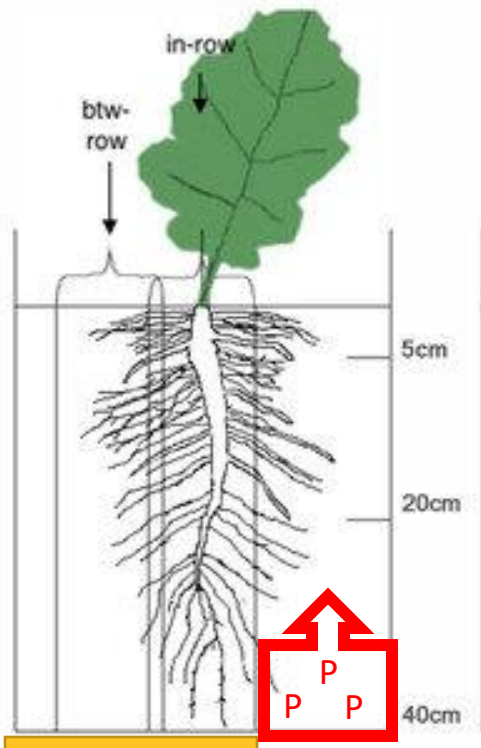
N scavenger

Legumes



N source

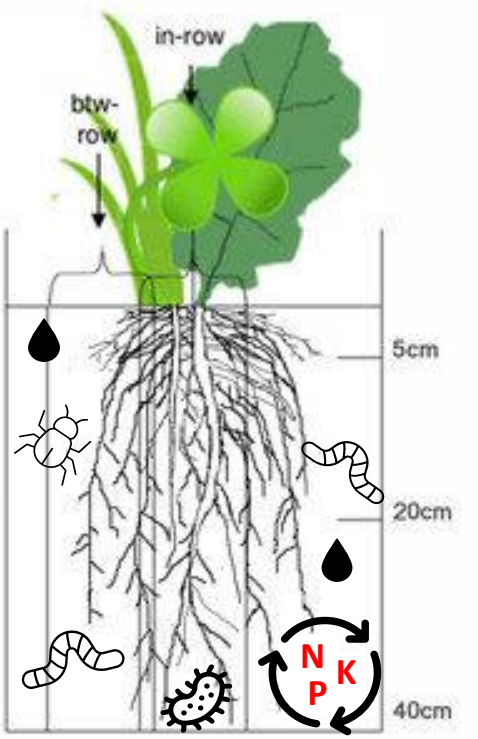
Brassicas



N scavenger

Draw up P

Multi-Species Mix



nutrient cycling

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Nutrient Management in Cover Cropping Systems

- N-form and placement should be different in cover cropping systems
- P & K recommendations stay the same
- 30-50% of total N **as nitrate at or soon after planting!**
- Show me the DATA!!!

2020 On-Farm Trials in Corn Following Cereal Rye

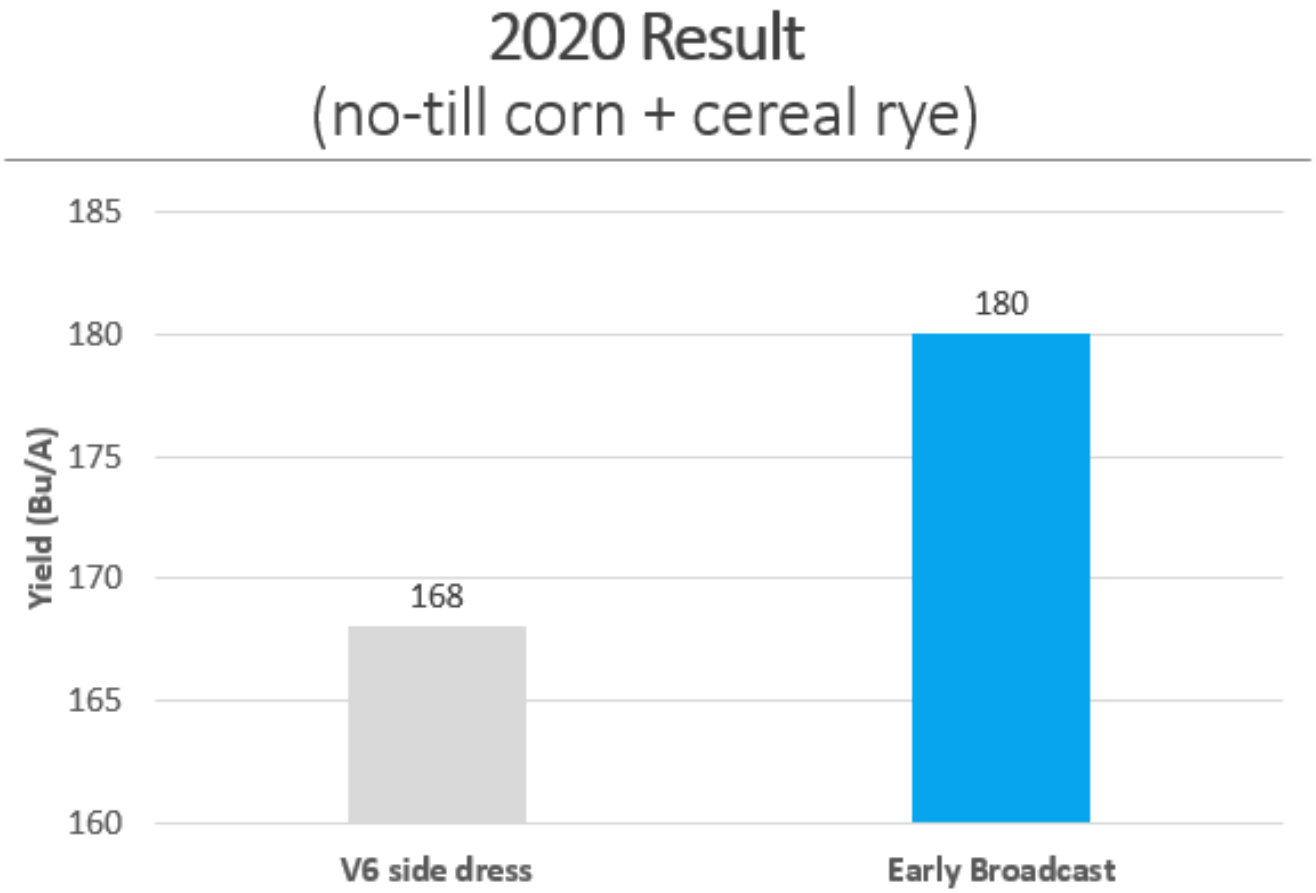
Treatments

1. Control- side dress 50 lbs of N as NH3 at V6 crop stage

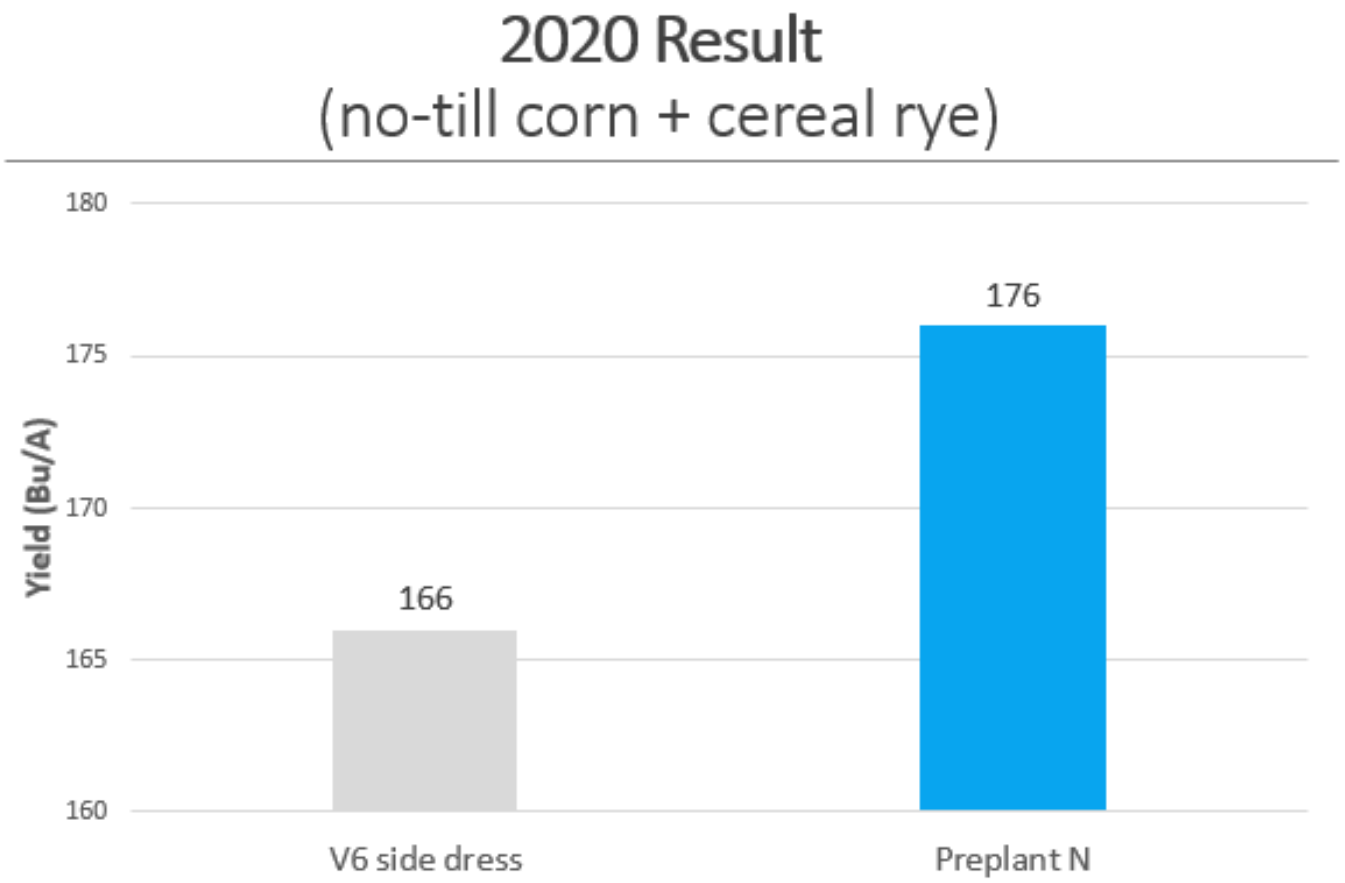
2. Improved- After planting broadcast of stabilized Urea + AMS (50 lbs N + 20 lbs S)

- *100 # fall applied NH3 in addition to treatments*
- *Fall, drill-seeded, Cereal Rye*

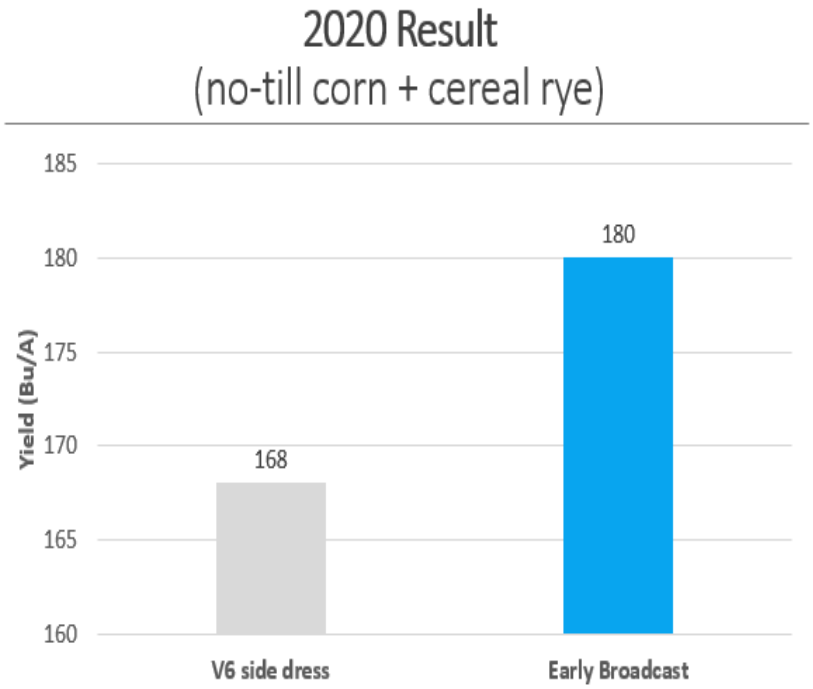
Field 1


2020 Result
(no-till corn + cereal rye)
Yield (Bu/A)
185
180
175
170
165
160
168
180
V6 side dress
Early Broadcast

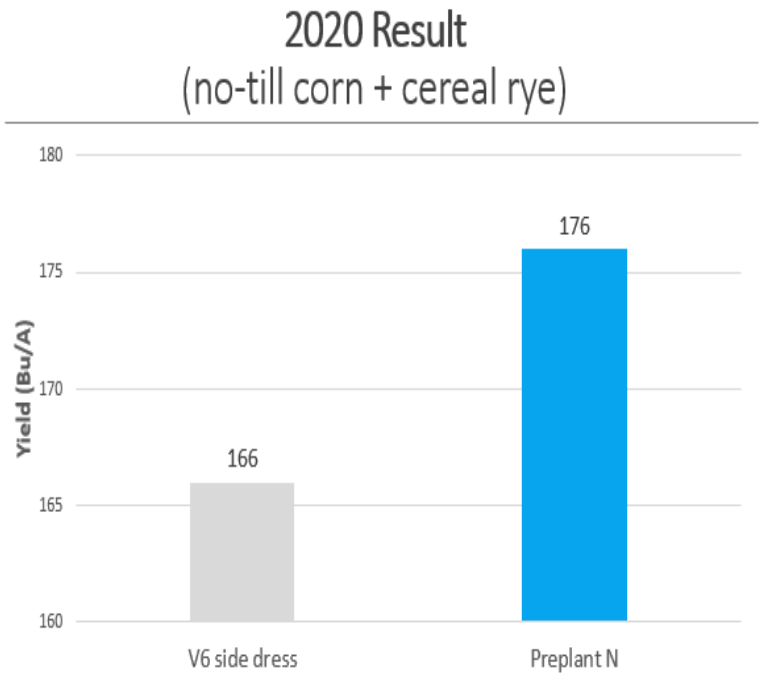
Field 2


2020 Result
(no-till corn + cereal rye)
Yield (Bu/A)
180
175
170
165
160
166
176
V6 side dress
Preplant N

Field 1



Field 2



Summary/Review

- N-form and placement should be different in cover cropping systems
- P & K recommendations stay the same
- 30-50% of total N **as nitrate at or soon after planting!**

Worksheet Instructions

Work in groups of 5-6 on assigned example

- 5 minutes to work, 10 minutes to review

Topics to Consider

Species selection (one or multiple)

Management Recommendations

- Ability to overwinter
- Termination method & timeframe
- Change in fertilizer application/timing

Q & A

Questions, Comments, Concerns?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