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Rye cover crops (CC) suppress weeds while potentially increasing nitrogen fixation in soybean plants.



Cover Crop (Rye) Planted November 3, 2022



Soybeans Planted May 22, 2023



Weeds Counted and Identified June 20 and 21, 2023



No CC Plot Sampling Soybean Growth Stage (V2)



CC Plot Sampling Soybean Growth Stage (V5)



Soybean Greenness Measured (V5)

### Weed Canopy and Soybean Growth



Photos processed in Canopeo app

### Soybean Root Nodules



Soybean plants dug up, nodules counted and dissected

### Soybean Plant Greenness



Leaf greenness measured in FieldScout GreenIndex+ App

### Weed Canopy and Soybean Growth

Original images

Canopeo processed images



Total Canopy

Soybean Canopy

50.4%

6.4%



Total Canopy

Soybean Canopy

23.5%

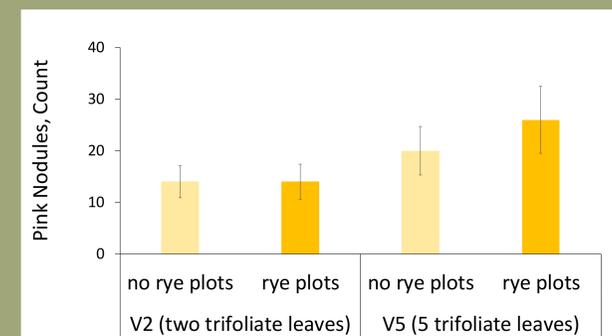
4.9%

**No Cover Crop Plots**  
 Total Canopy – Soybean Canopy = Weed Canopy  
 50.4% – 6.4% = 44.0%

**Cover Crop Plots**  
 Total Canopy – Soybean Canopy = Rye Canopy  
 23.5% – 4.9% = 18.6%

- No measurable weeds with rye
- Rye Suppressed Weeds
- Rye Impacted Soybeans

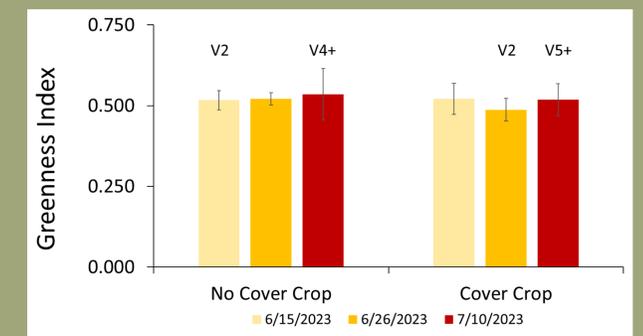
### Soybean Root Nodules



Graph 1. Pink nodules counted at the V2 and V5 soybean growth stages.

- Increase in nodules from V2 to V5 stages in both no CC and CC plots
- Majority of nodules were pink for all plots
  - No CC-84% at V2 and V5
  - CC- 91% (V2) and 81% (V5)

### Soybean Greenness Index



Graph 2. FieldScout GreenIndex+ data collected at the V2 and approximate V5 soybean growth stages in the no cover crop and cover crop plots.

- Similar greenness values measured in no CC and CC plots
  - Greenness may be slightly lower at V2 with CC
- No notable differences in greenness at V2 and V5