Interseeding Cover Crops into Standing Crops

Marisol Berti
Professor

Doug Toussaint, farmer,
Wahpeton, ND
Interseeding of cover crops into soybean at R4 and R6

<table>
<thead>
<tr>
<th>Cover crop</th>
<th>Grain yield</th>
<th>Mg ha$^{-1}$</th>
<th>Bu/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter camelina</td>
<td></td>
<td>3.91</td>
<td>59</td>
</tr>
<tr>
<td>Austrian winter pea</td>
<td></td>
<td>4.23</td>
<td>62</td>
</tr>
<tr>
<td>Radish</td>
<td></td>
<td>4.06</td>
<td>58</td>
</tr>
<tr>
<td>Cereal rye</td>
<td></td>
<td>4.09</td>
<td>60</td>
</tr>
<tr>
<td>Mix</td>
<td></td>
<td>3.98</td>
<td>59</td>
</tr>
<tr>
<td>No cover crop</td>
<td></td>
<td>3.96</td>
<td>60</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>NS</td>
<td>NS</td>
<td></td>
</tr>
</tbody>
</table>

Combined across both location and both planting dates
Pea 1st planting  
Pea 2nd planting  
Radish 1st planting  
Radish 2nd planting  
Rye 1st planting  
Rye 2nd planting  

October 11, 2016
Cover crops fall biomass and green cover in soybean

- Winter camelina: 3.7%
- Austrian winter pea: 67%
- Radish: 11%
- Cereal rye: 37%
- Mix: 33%

LSD (0.05) = 975

Alan Peterson, MS student, NDSU, Dr. Berti
N and P uptake of cover crops biomass

Austrian winter pea
Radish
Cereal rye
Mix

N or P uptake (kg/ha)

N uptake
P uptake

NDSU NORTH DAKOTA STATE UNIVERSITY
Soil NO$_3$-N in the fall (0-60cm depth) and difference from spring N

Cover crops decreased soil residual N significantly from the check
## Soybean yield - camelina interseeding

<table>
<thead>
<tr>
<th>Soybean growth stage</th>
<th>Grain yield (Mg ha(^{-1}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>No winter camelina</td>
<td>4.2</td>
</tr>
<tr>
<td>Same seeding date as</td>
<td>3.8</td>
</tr>
<tr>
<td>soybean</td>
<td></td>
</tr>
<tr>
<td>Soybean at V3-V4 stage</td>
<td>4.4</td>
</tr>
<tr>
<td>Soybean at R1-R2 stage</td>
<td>4.6</td>
</tr>
<tr>
<td>After soybean harvested</td>
<td>4.1</td>
</tr>
<tr>
<td>LSD ((P=0.05))</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Dulan Samarappuli, PhD student, NDSU, Dr. Berti
Camelina fall and spring cover

- Fall cover: 20-22 October
- Spring cover: 25 April-9 May

LSD_{fall} (P=0.05) = 24
LSD_{spring} (P=0.05) = 22
Interseeding into standing corn

- September 30
- April 2
- June 3
Corn yield - camelina interseeding

Grain yield (bu/acre)

- No winter camelina
- Same seeding date as maize
- Maize at V4-V5 stage
- Maize at 'silking' stage
- After maize harvested

LSD\(_1\) (\(P=0.05\)) = 21
LSD\(_2\) (\(P=0.05\)) = 27
Camelina green cover in fall and spring

- Same sowing date as maize
- Maize at V4-V5 stage
- Maize at ‘silking’ stage
- After maize harvested

Graph showing the green cover (%): Fall cover (blue) and Spring cover (orange) for different stages.
Interseeding into standing corn - on farm

Photo: Abbey Wick

Photo: Karen Hertsgaard

Photo: Abbey Wick
Aerial rye + c. clover + radish @ R4 corn
Hagie rye + radish @ R1 corn
Rye + radish in twin rows @ V7 corn
Post harvest - going into winter

Photo: Abbey Wick
Crops in Rotation: Small grain, Corn, Soybean, Sunflower

Perennial Grass: Reed Canary
Equipment

Drag
Supercoulter
Planter
Air Seeder
Small Drill – Test Plots
Main Goal:
*Fit a cover crop in every part of the rotation*

Reduce Erosion, Manage Water
Cover Crops in Corn

Airplane

Inter-seeding
Cover Crops in Soybean

Planting Green

Post-Harvest

Airplane
After Wheat  Flown on into Soybean  Inter-seeded in Corn
Cover Crops in Sunflower

Airplane Seeded with Sunflower
Thank you

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Photo: Nick Toussaint

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