



# Improving soil health by interseeding cover crops in the northern Plains

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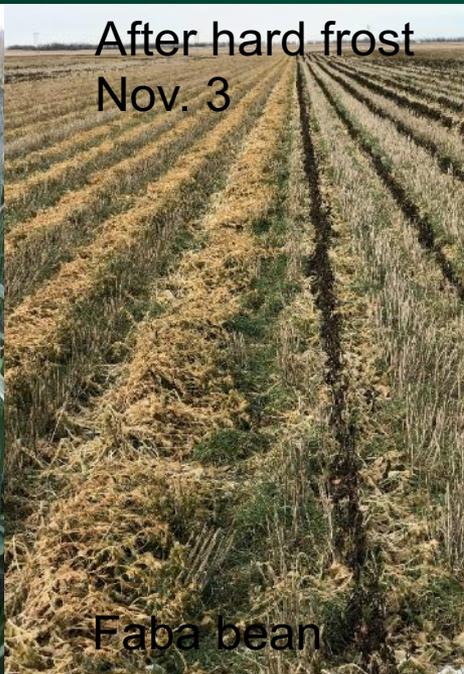
Our Farms Our Future Conference, 3-5 April 2018 St. Louis, MO

Photo: Abbey Wick

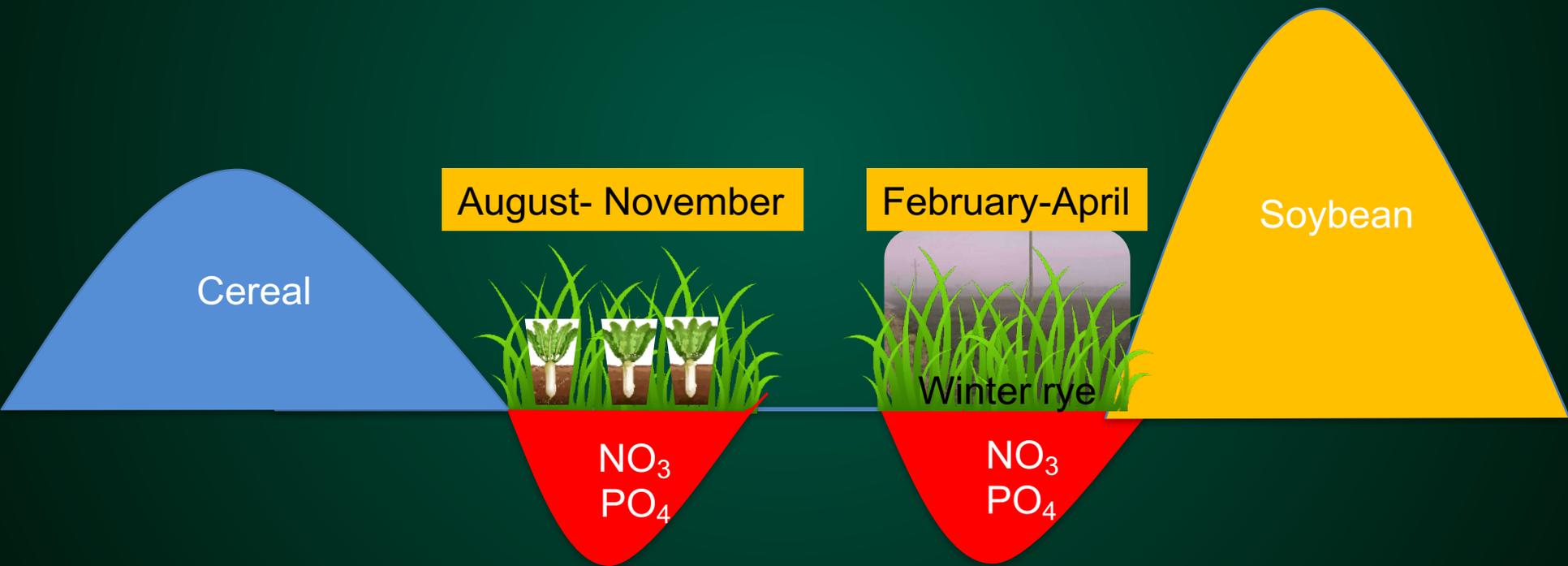
# Where do cover crops fit in a crop rotation?

Corn-soybean  
Interseeding

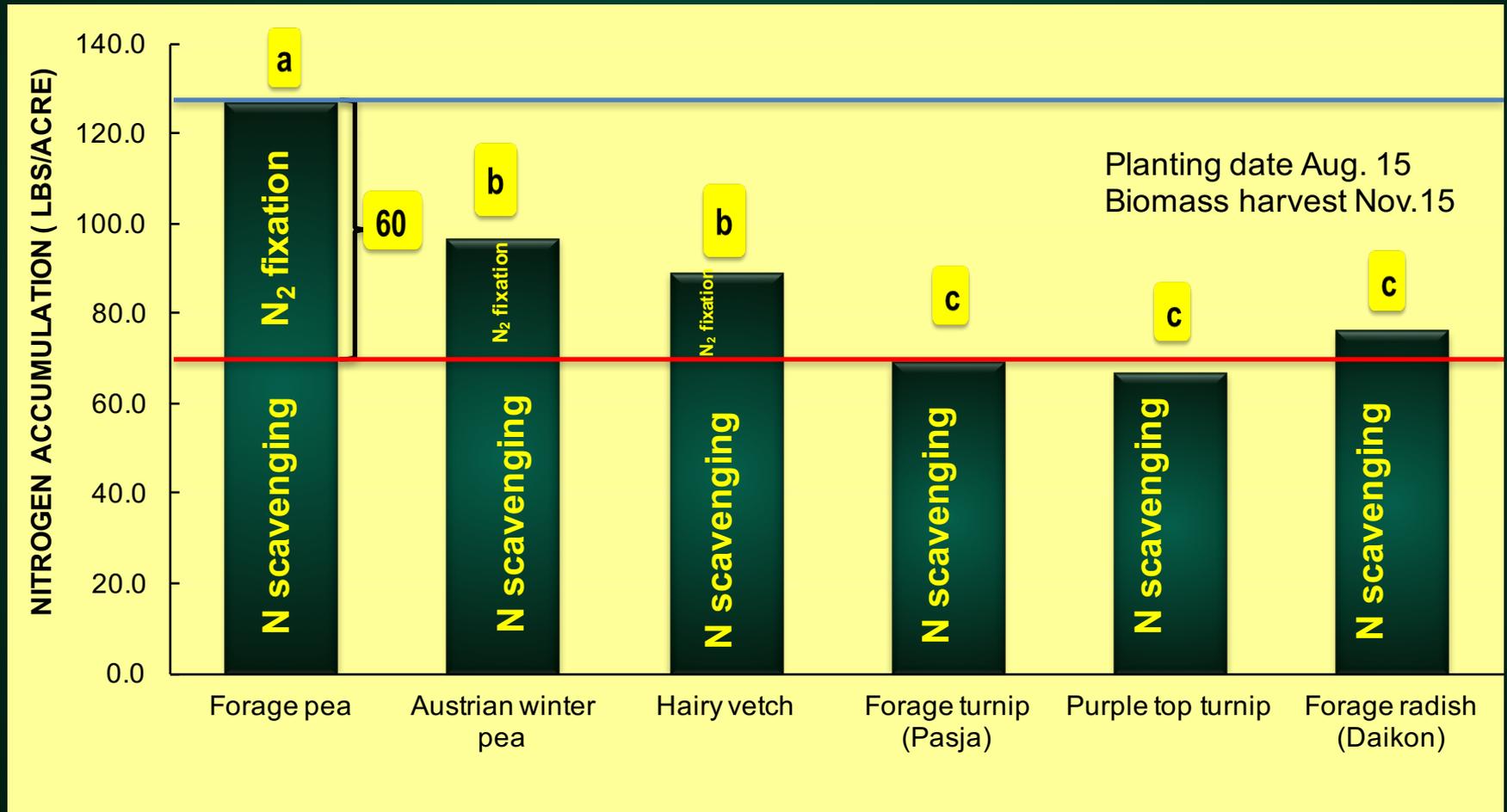
After a cereal harvest (Aug. 15)



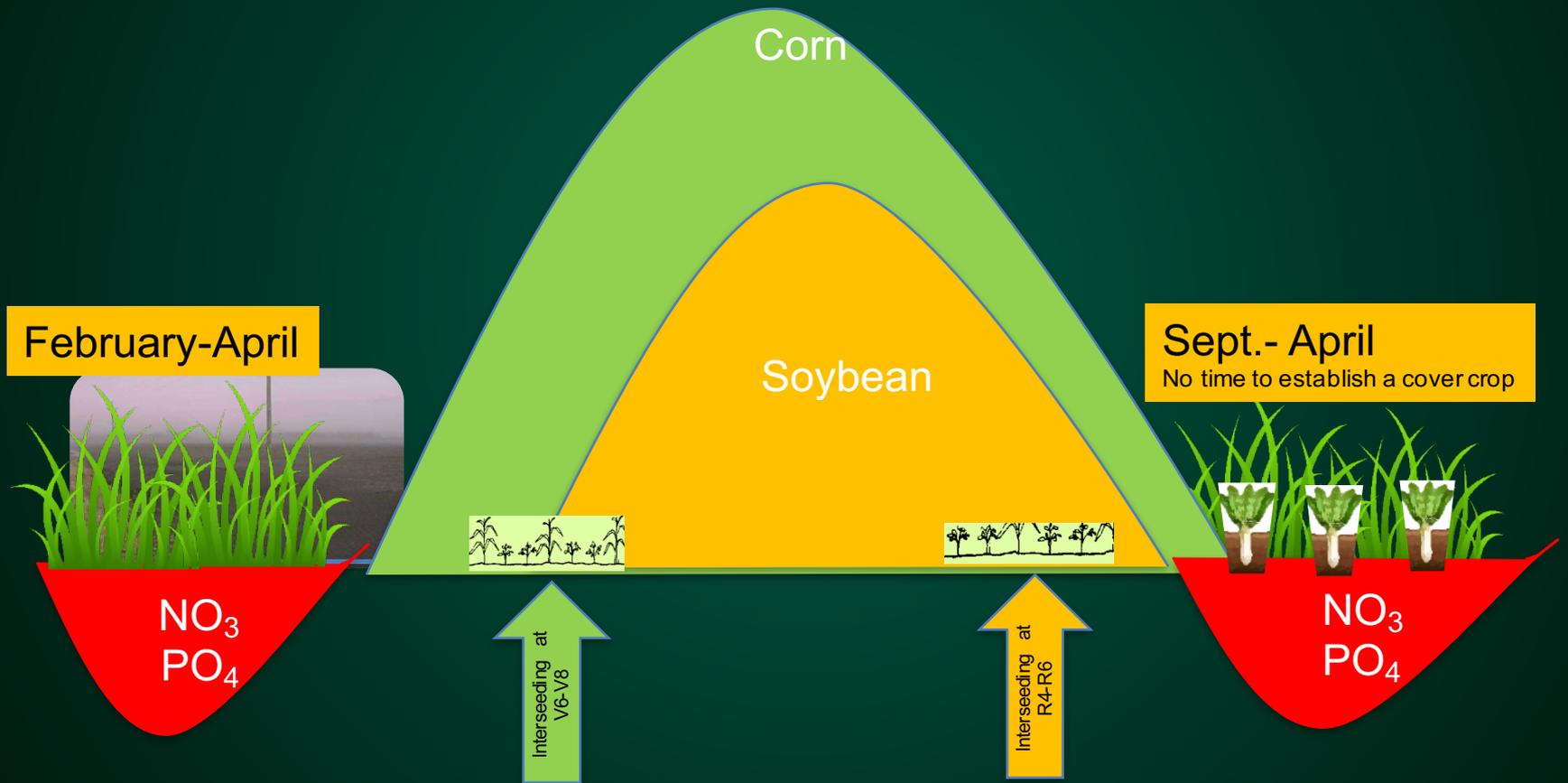
# Cover crops in cereal-soybean



# Cover crops after wheat - N accumulation in cover crop aboveground biomass



# Cover crops corn-soybean

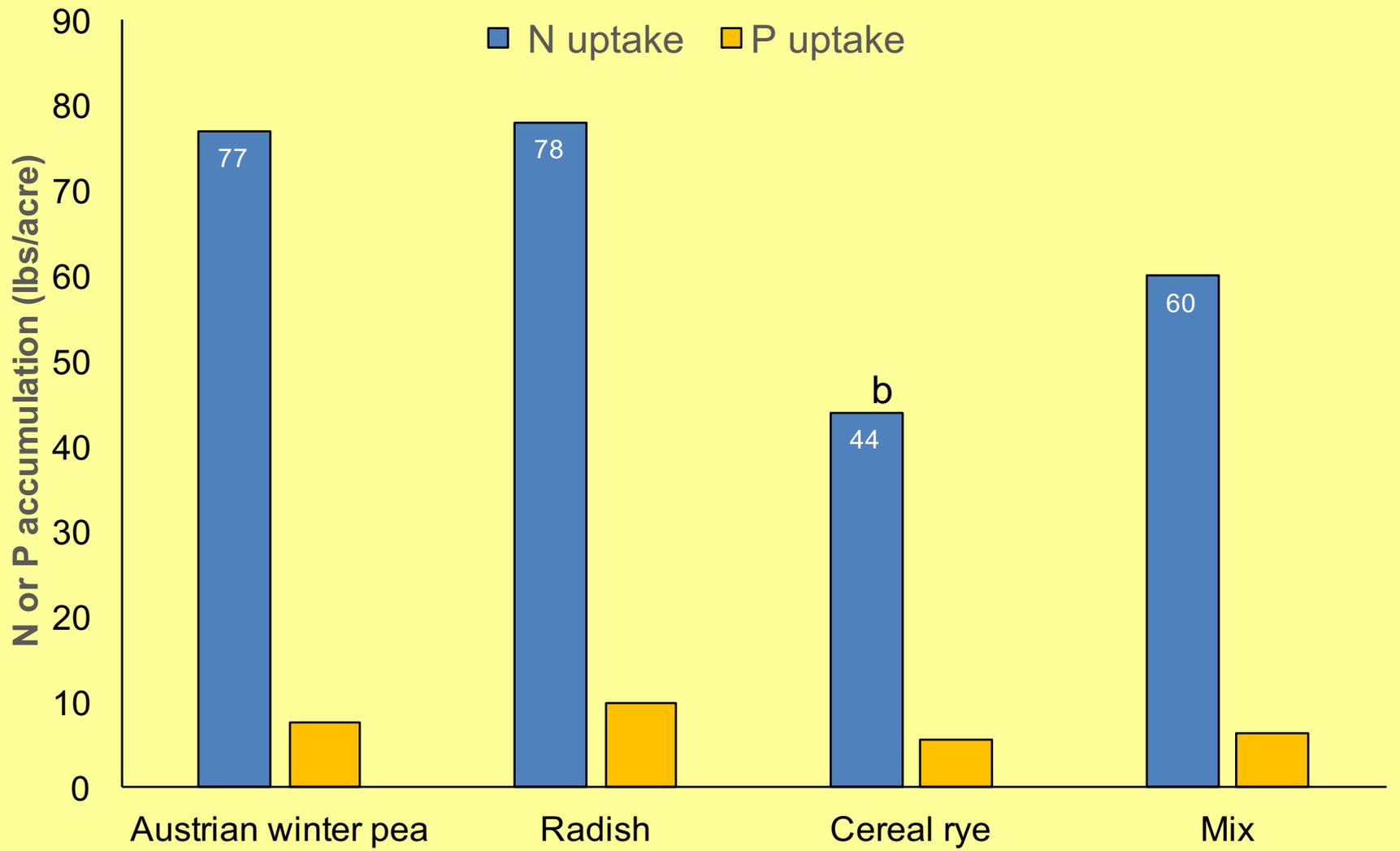


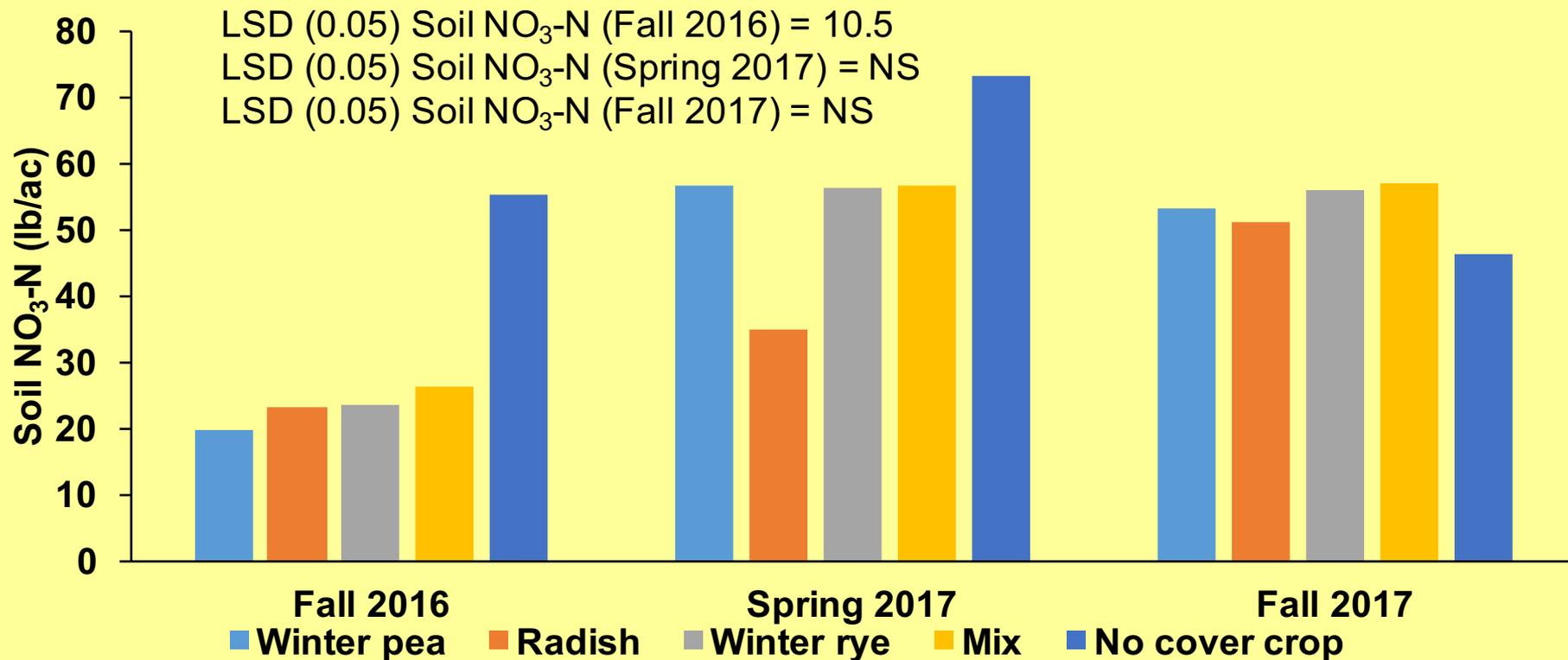
# Interseeding of cover crops into soybean at R4 and R6

Cover crop	Soybean	Spring wheat
	--- grain yield (bu/acre)---	
Winter camelina	44.6	.
Winter pea	44.8	32.4
Radish	43.8	36.4
Winter rye	44.4	25.5
Mix	44.4	34.5
No cover crop	43.3	33.0
	NS	NS



Combined across both locations and both planting dates





Cover crops decreased soil residual N significantly from the check

# Interseeding in corn

Pea



Faba bean



Winter rye



Interseeding on June 23, V8 stage

# On-farm research: Interseeding into standing corn at V8 stage same time as side dressing



Photo : Abbey Wick



Photo : Abbey Wick



Photo : Karen Hertsgaard



August 16, 2016



25 October, 2016



Photo : Abbey Wick

11 November 2016



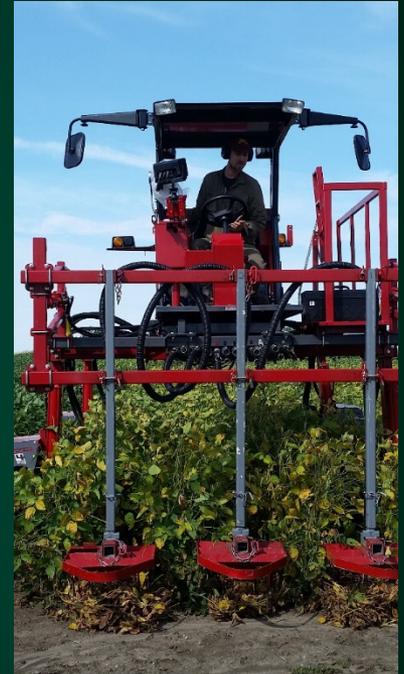
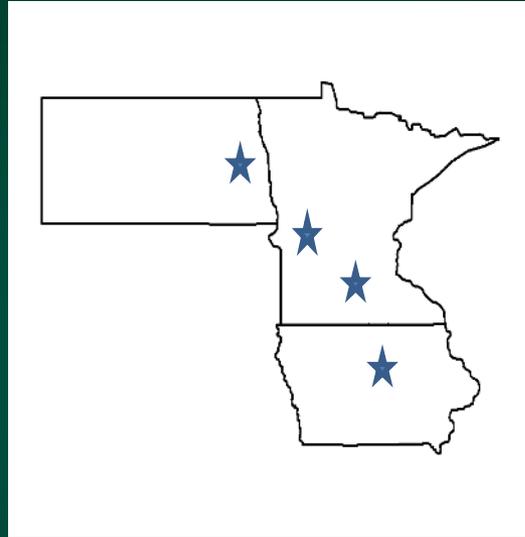
# Going into Winter



Photo : Abbey Wick

# Interseeding into corn

- 2016
  - 4 sites
  - 3 cover crops
  - 3 planting dates



Winter camelina  
(*Camelina sativa*)



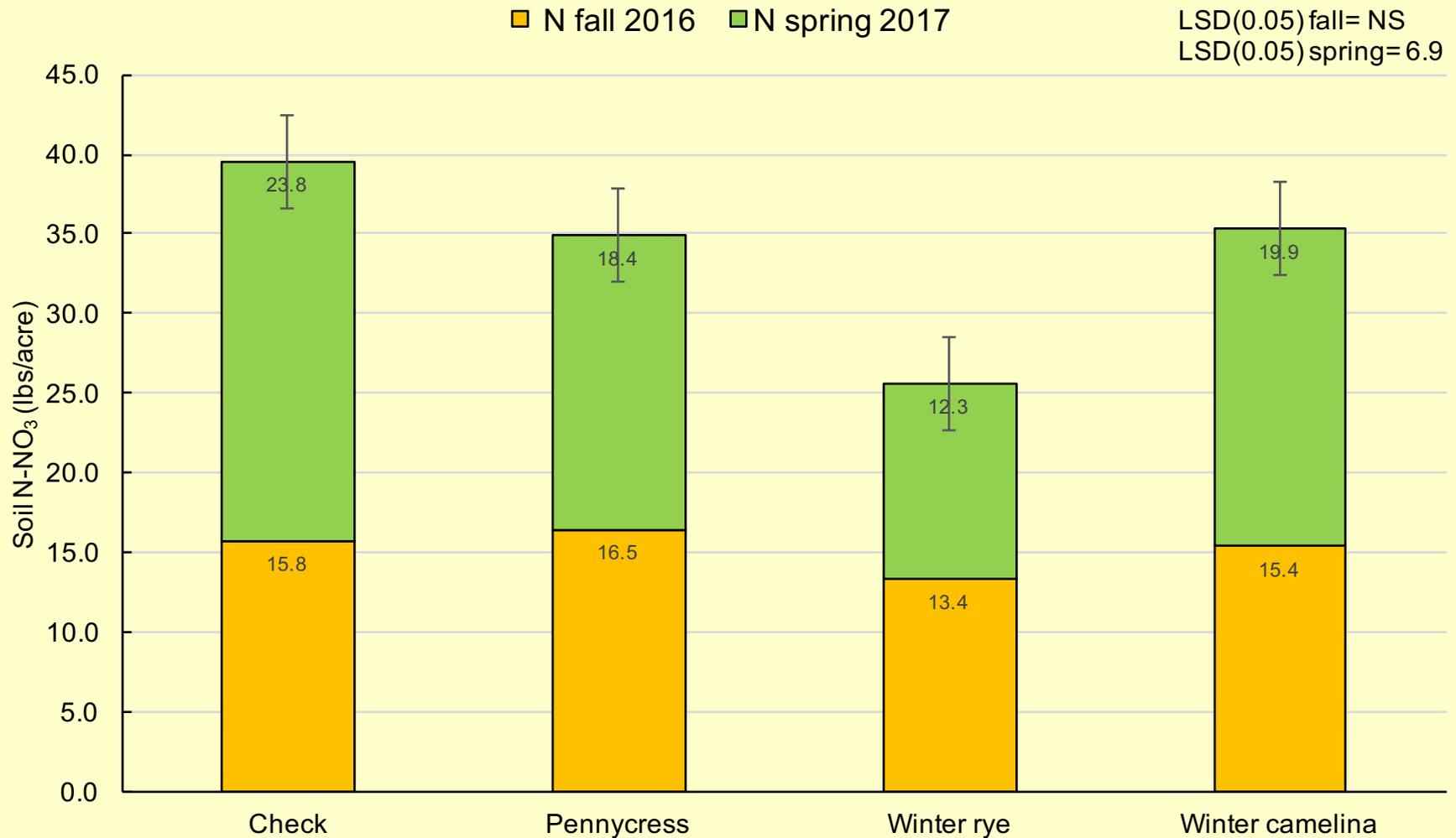
Pennycress  
(*Thlaspi arvense*)



Winter rye  
(*Secale cereale*)



# Soil NO<sub>3</sub>-N @ 24" depth fall and spring





Soybean relayed rows

Camelina harvest in Morris, MN in 2017

# Summary



- Interseeding after R4 stages does not decrease corn or soybean yield.
- Interseeding cover crops into soybean and corn reduces soil nitrate in the inter-row, which potentially could decrease nitrate losses.
- Interseeding keeps soil covered in fall and spring

# Thank you

Thank you for your attention and interest

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