



UNIVERSITY OF MINNESOTA EXTENSION

Driven to DiscoverSM

Injecting manure into a growing cover crop

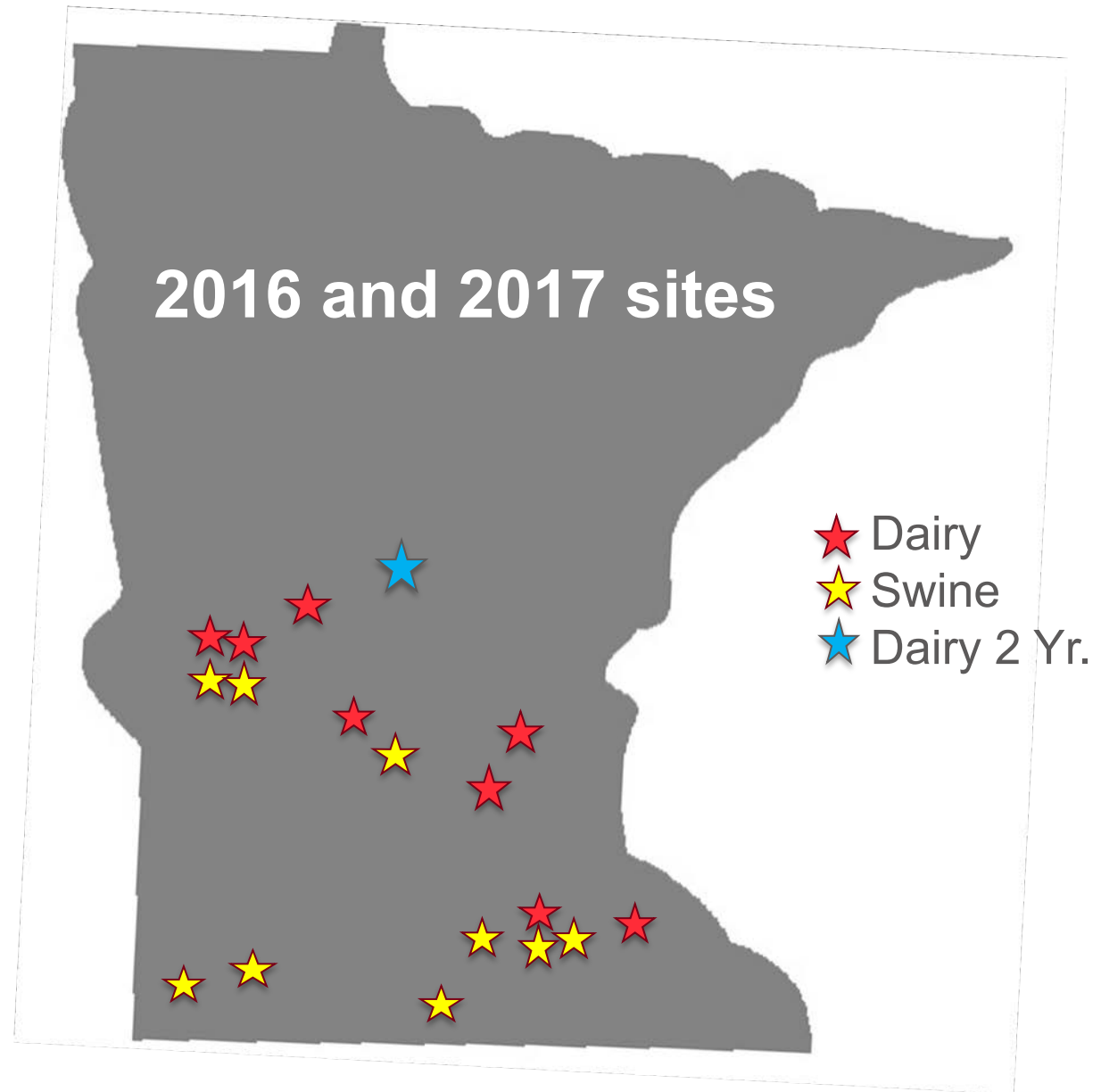
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Assistant Professor and Extension Specialist



MAKING A DIFFERENCE IN MINNESOTA: ENVIRONMENT + FOOD & AGRICULTURE + COMMUNITIES + FAMILIES + YOUTH

Drilled cover crops + manure project



Deep shanks



After injection in the fall



Following spring



Double disks



Knife injection



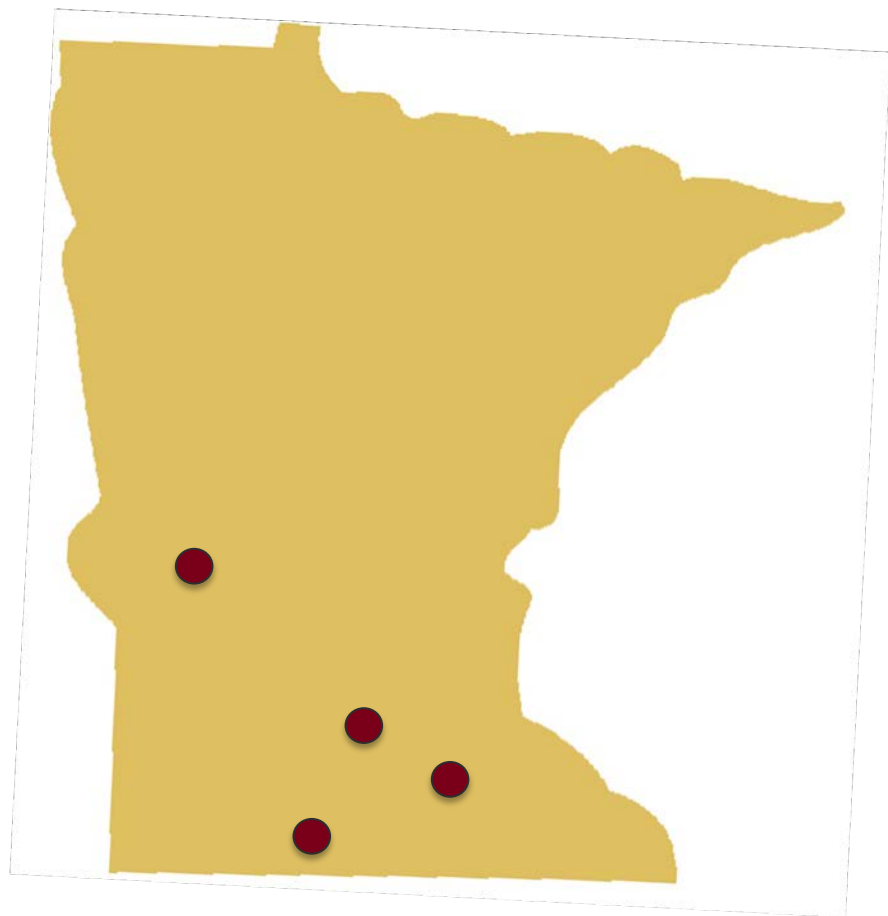
Two weeks after injection



Following spring



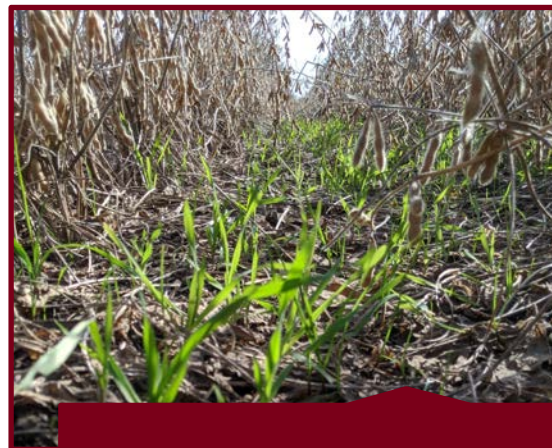
Integrating cover crops and manure



Sweet corn-corn



Continuous silage corn



Soybean-corn



On-farm strip till

Manure application



What are we testing in silage corn?



Practices

Cover crop
seeding
timing

Interseeded

Drilled

None

Nutrient
source
timing

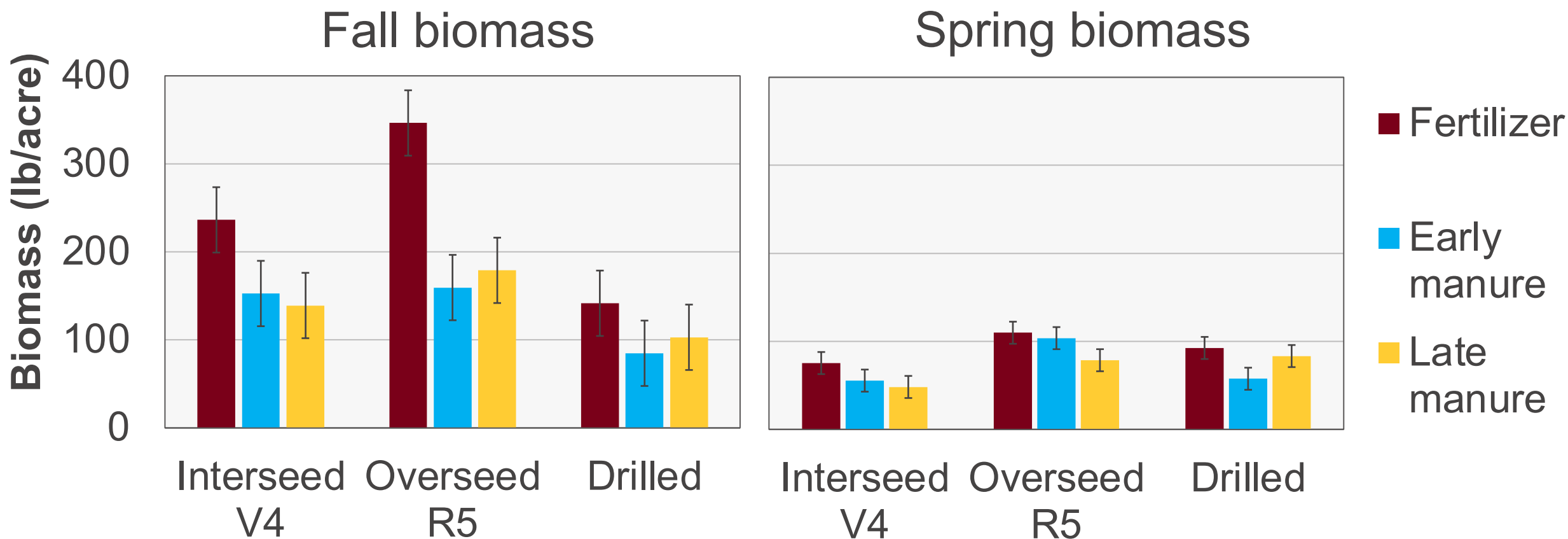
Early manure

Late manure

Spring fertilizer

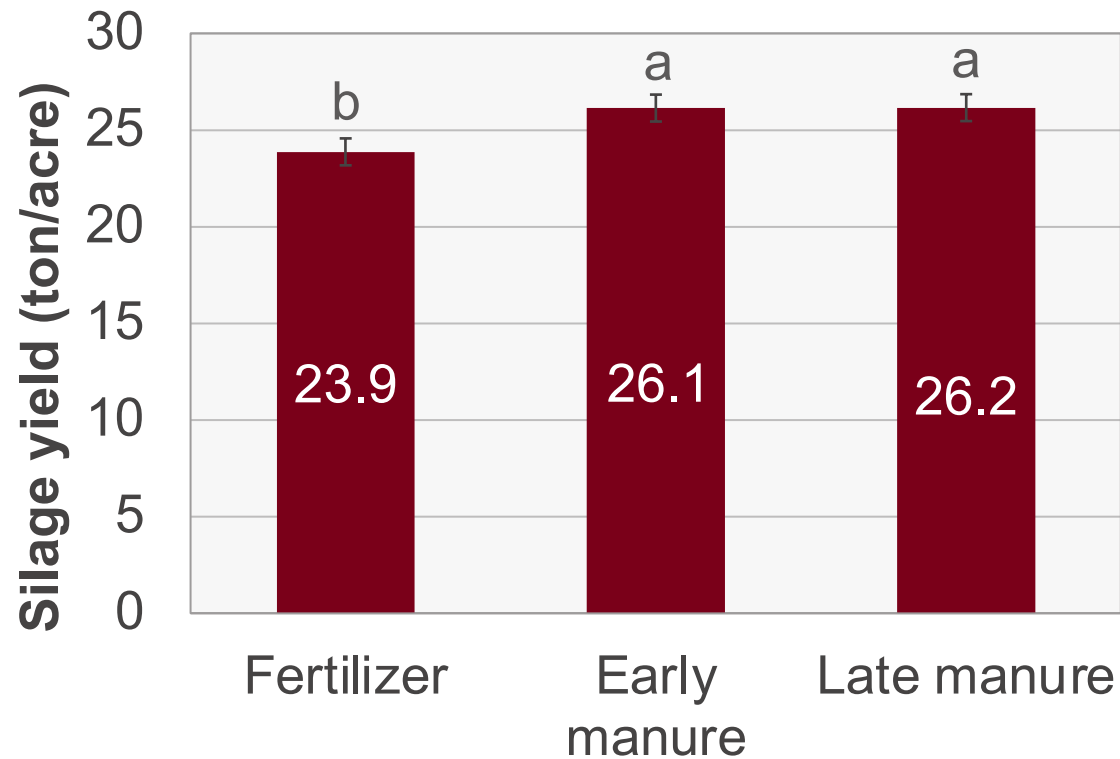


Cover crop biomass following silage corn

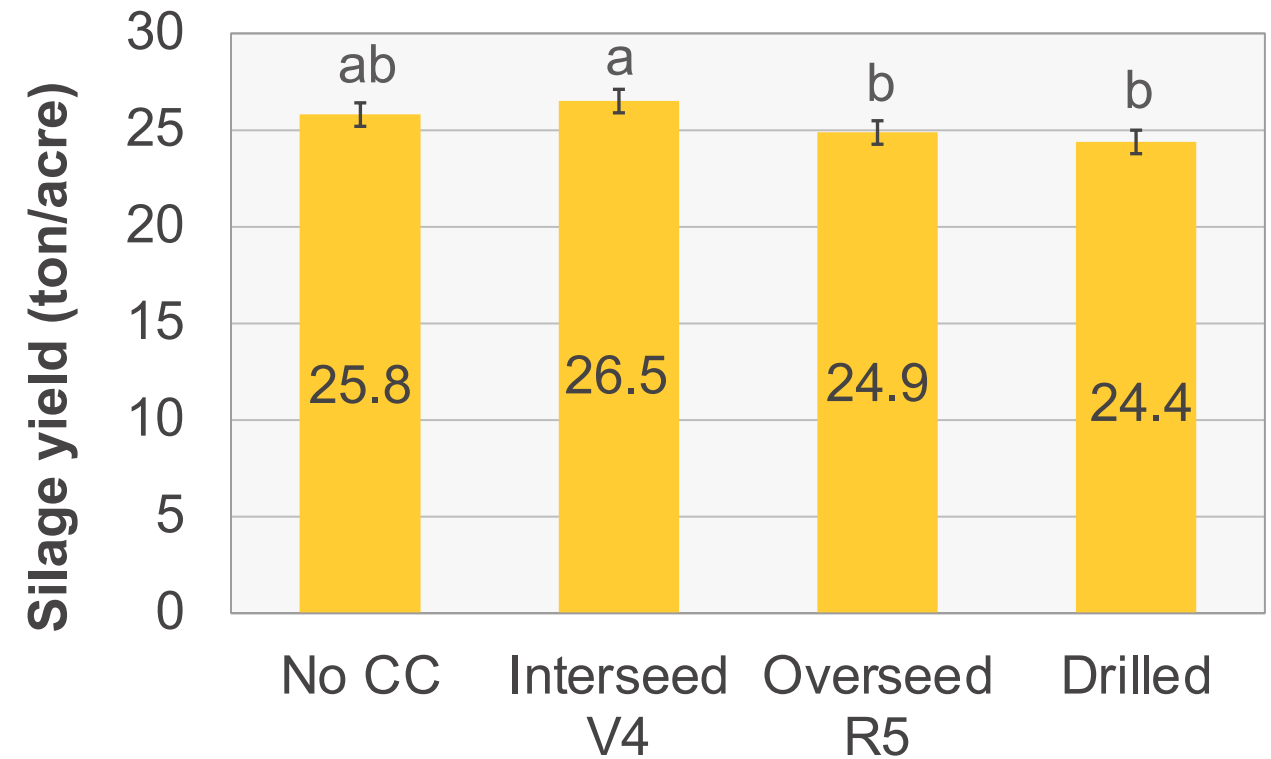


Silage corn yield after cover crops (2 site years)

Effect of nutrient source/timing



Effect of cover crop



What are we testing after sweet corn?



Practices

Cover
crop
types

Winter rye

Oat

Rye/oat/radish

None

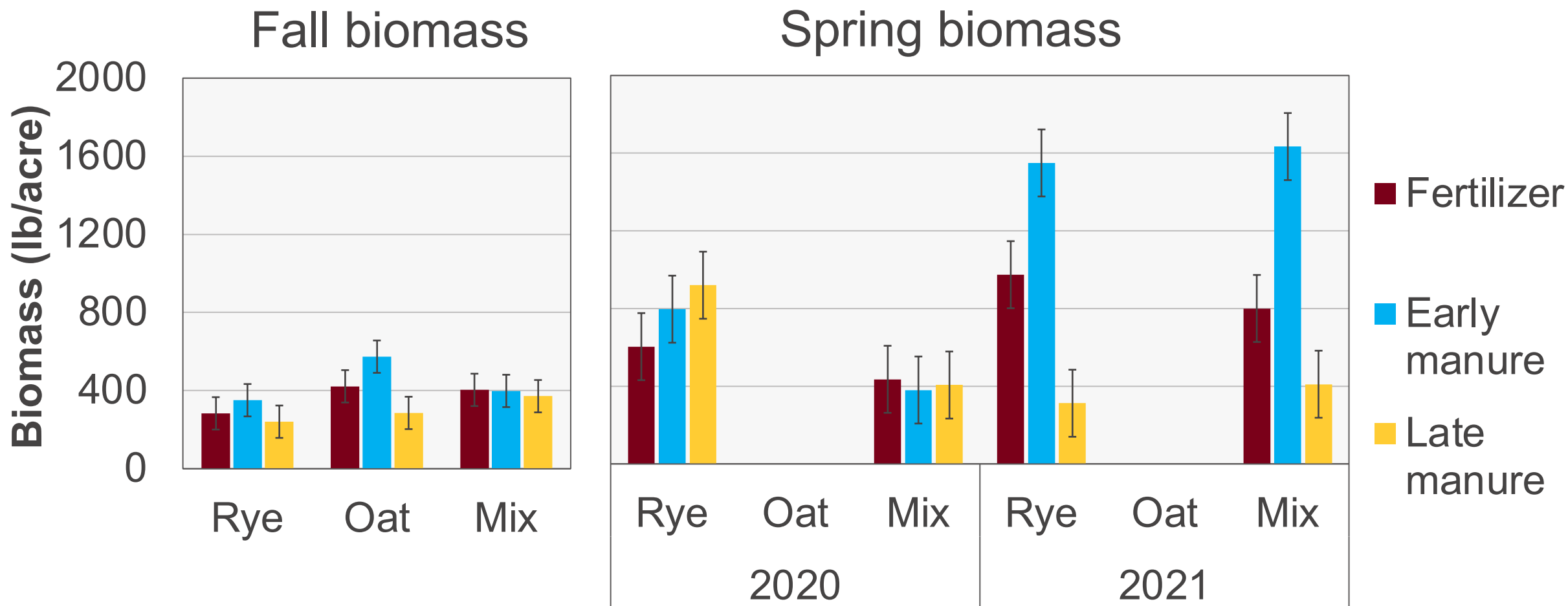
Nutrient
source
timing

Early manure

Late manure

Spring fertilizer

Cover crop biomass following sweet corn



Cover crop residue versus corn emergence



Winter rye with early applied manure



Oats with early applied manure

Growing season and nutrient deficiency symptoms



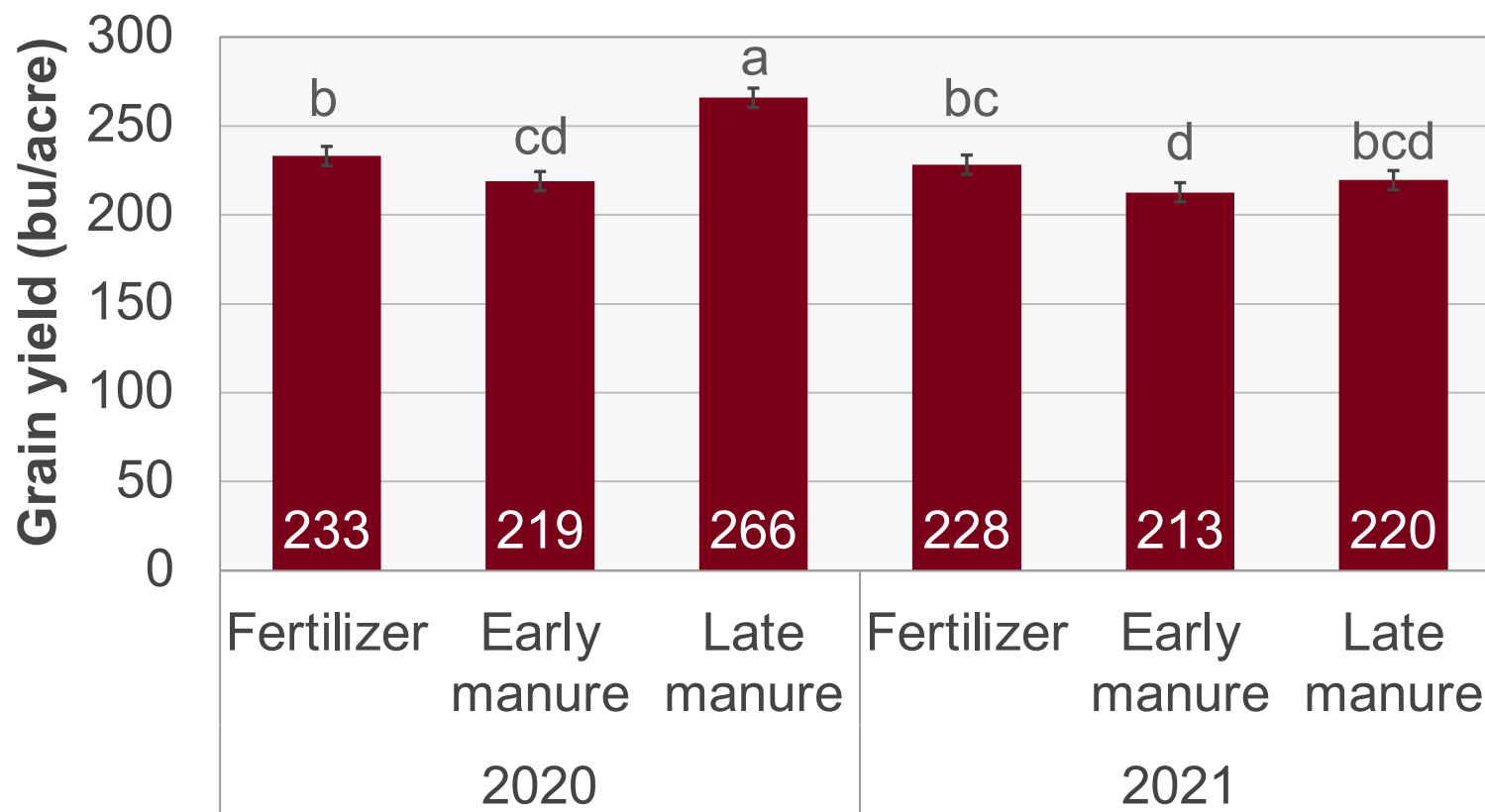
Oat – early manure



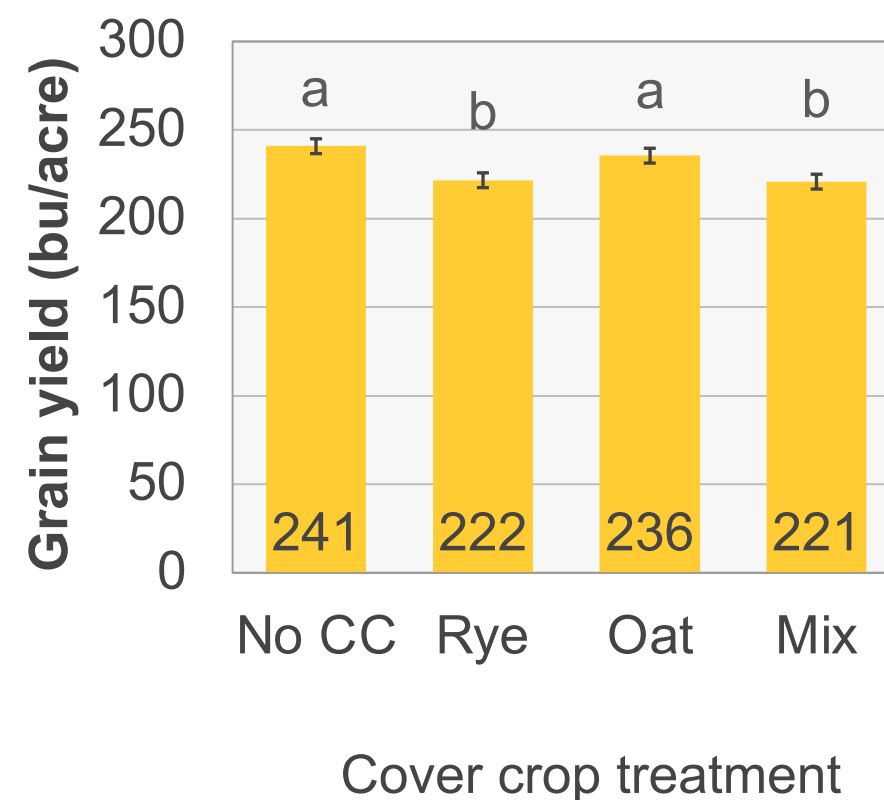
Oat – fertilizer

Corn yield following sweet corn (2 site years)

Effect of nutrient source/timing



Effect of cover crop



What are we testing in soybean?



Practices

Cover crop
seeding
timing

Interseeded

Drilled

None

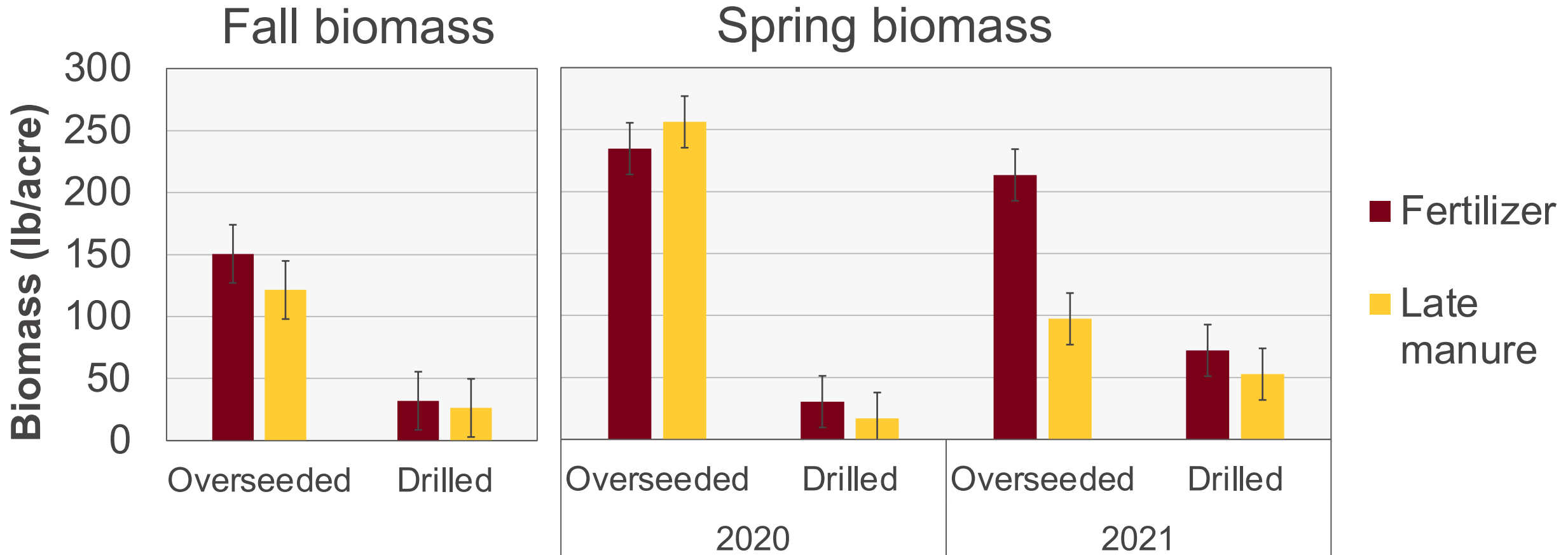
Nutrient
source
timing

~~Early manure~~

Late manure

Spring fertilizer

Cover crop biomass following soybean at both sites and both years



Soil your undies



Sweet corn - corn

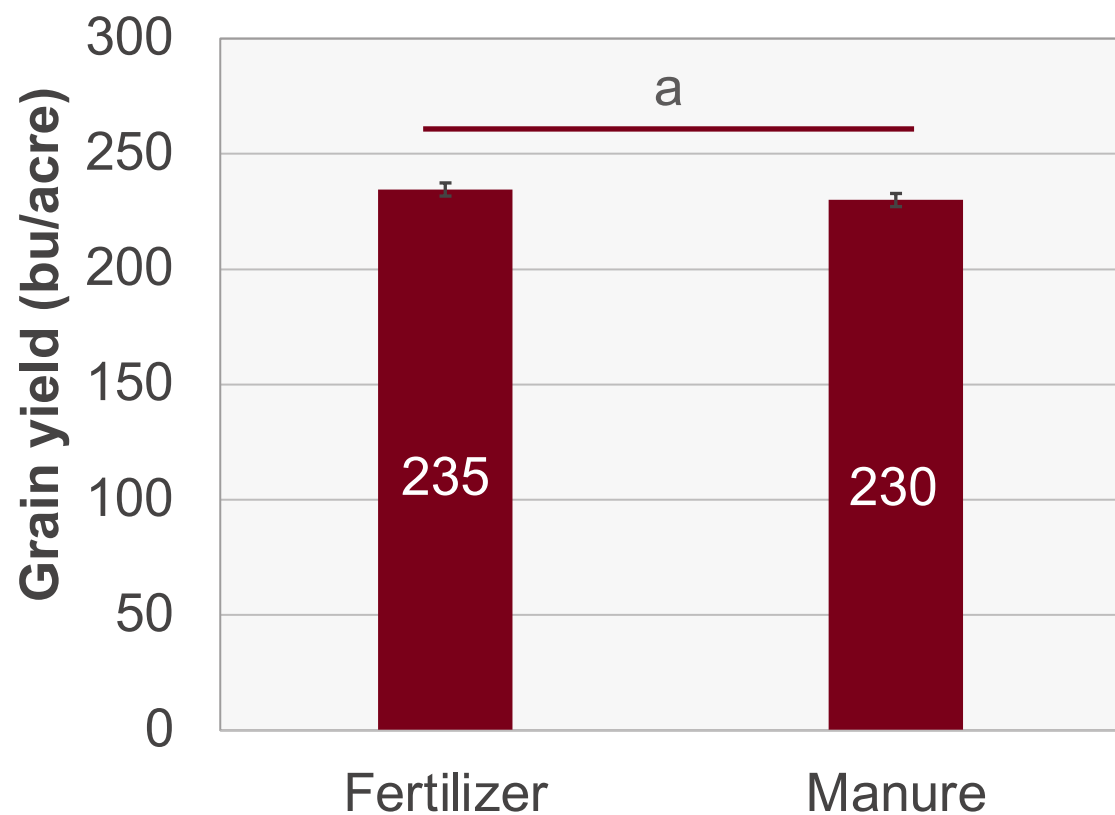


Soybean - corn

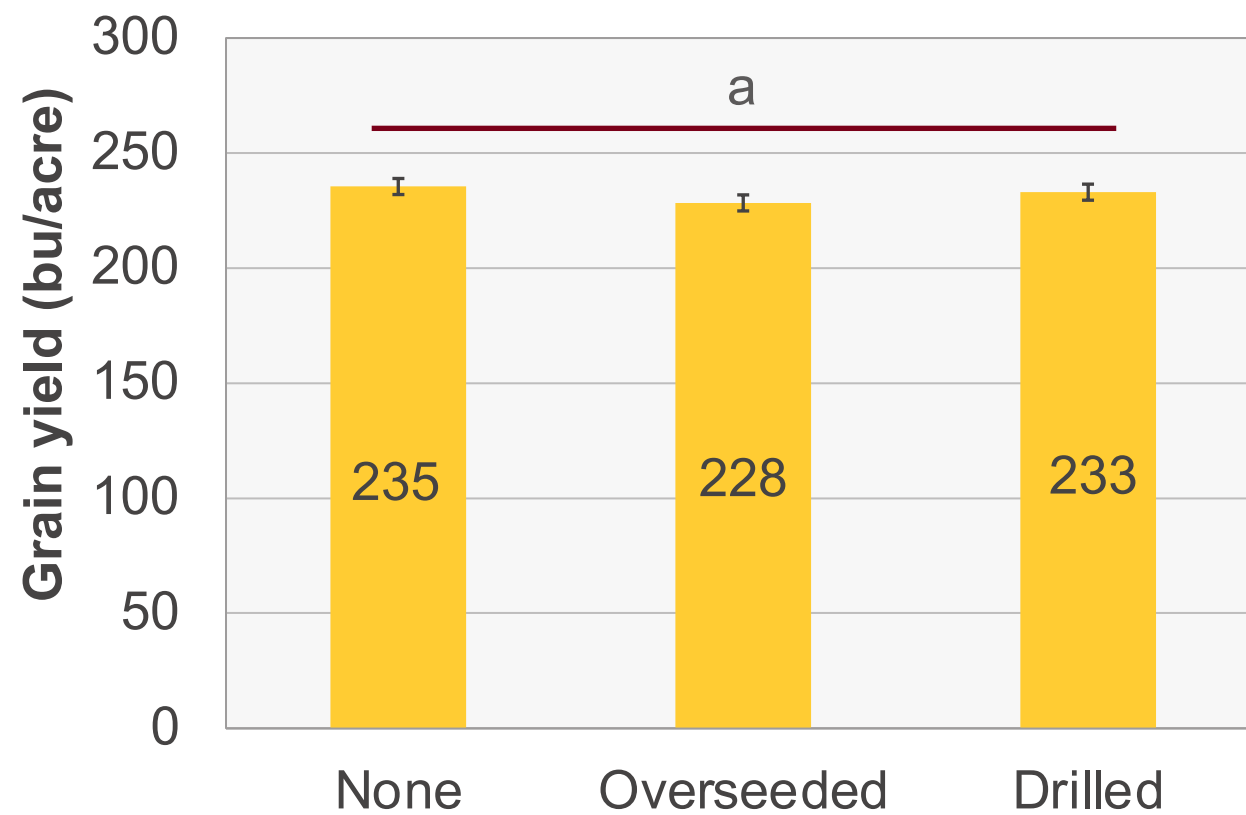


Corn yield following soybean (3 site years)

Effect of nutrient source/timing



Effect of cover crop



Take home messages



What
we've
found so
far:





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Thank you! Questions?

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