

Impacts of fall manure application method and timing on nitrogen conservation for a winter annual and subsequent corn crop Rachel Milliron, Heather Karsten, Doug Beegle, and William Curran

Introduction

Dairy farmers are typically limited to 6 months of manure and fall. In the fall, there is a higher risk of water quality impairment when manure is applied to bare ground.





Objective

Evaluate different field management strategies that will before corn.

Methods

Rock Springs, PA and was fertilized only with a fall manure application.

Compared manure...

- Applied to a winter rye cover crop vs rye silage
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- iii. Applied Early (Sept.) vs Late (Nov) in the fall















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Conclusions Managing rye

- No difference in cover crop growth or total N content when manure was injected or broadcasted
- Higher rye silage yields and total N content when manure was injected
- After an early application of manure, more rye biomass produced and N conserved when injected.
- 2014, after a late application of manure, rye biomass and N uptake did not differ based on method of application
- 2015, after a late application of manure, rye was damaged by injecting manure due to a late replanting. Although reduced rye stands, N uptake was greater than when manure was broadcasted.

Managing corn silage

- Corn yields were higher after a rye cover crop than rye silage
- Corn yields after a rye cover crop, were higher when manure was injected and applied later in the fall.
- Corn yields after rye silage, were higher after manure was injected. The timing of manure application did not significantly affect corn yields.

Recommendations

- Corn silage can be produced with less additional nitrogen when following a cover crop and when manure is injected later in the fall.
- Greater total forage can be produced by double cropping rye before corn. Less fertilizers would be required when manure is injected.
- Delaying manure applications after a winter annual is planted, can ensure an established early spring silage crop without negatively impacting yield.