Canola Research Update 2011

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Acknowledgements: Stephanie Bailey, Fabien Belanger, Justin Dillon, Brian Gray, Scott Harkcom, Andrew Kirk, Glenna Malcolm, and Andrew Puglia, Joshua Walker.

Penn State Extension

Sustainable Cropping Systems for Dairy Farms in the Northeastern US

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Sustainable Agriculture Research & Education

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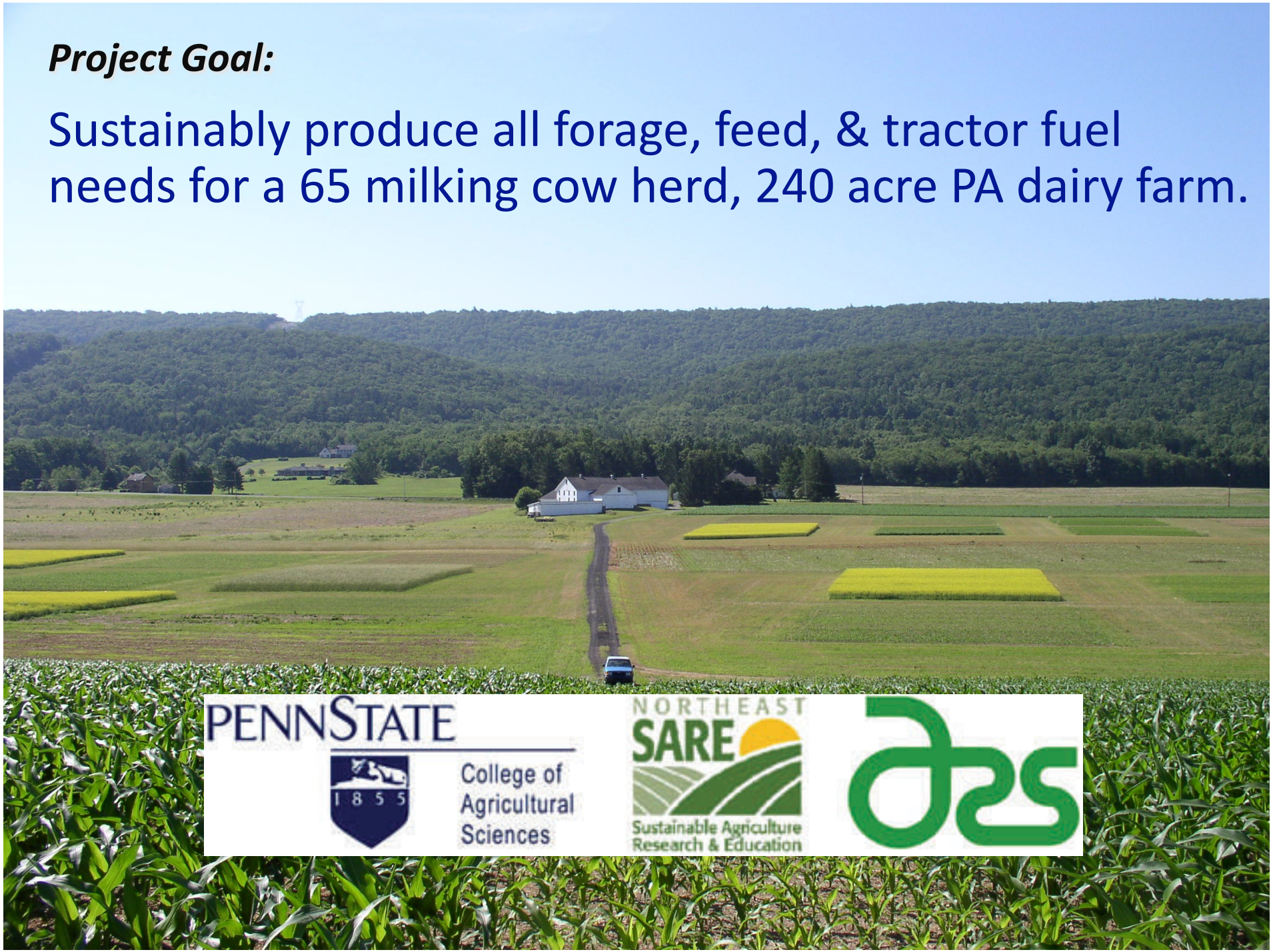
Research Assistants: Stephanie Bailey, *Fabien Balaguer,, Benjamin Crooke, Brian Gray, Joshua Hibit, Andrew Kirk, Allison Lush, Andrew Puglia Sarah Rihl, Adam Seit, Joshua Walker*

Project Goal:

Sustainably produce all forage, feed, & tractor fuel needs for a 65 milking cow herd, 240 acre PA dairy farm.



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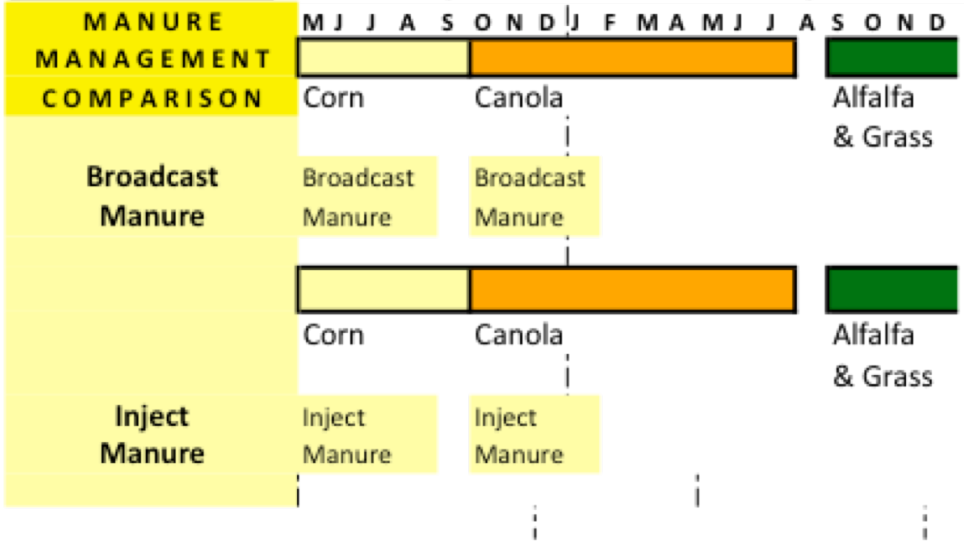
ars

Winter canola to provide cover, fuel, & feed, & use manure in late summer and fall

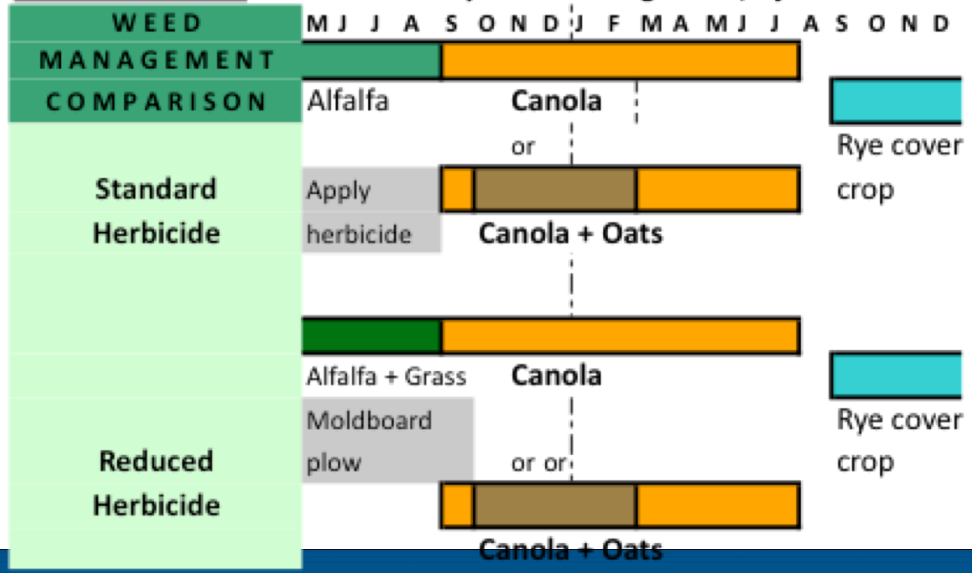
Comparing 2 strategies for integrating canola into a dairy crop rotation

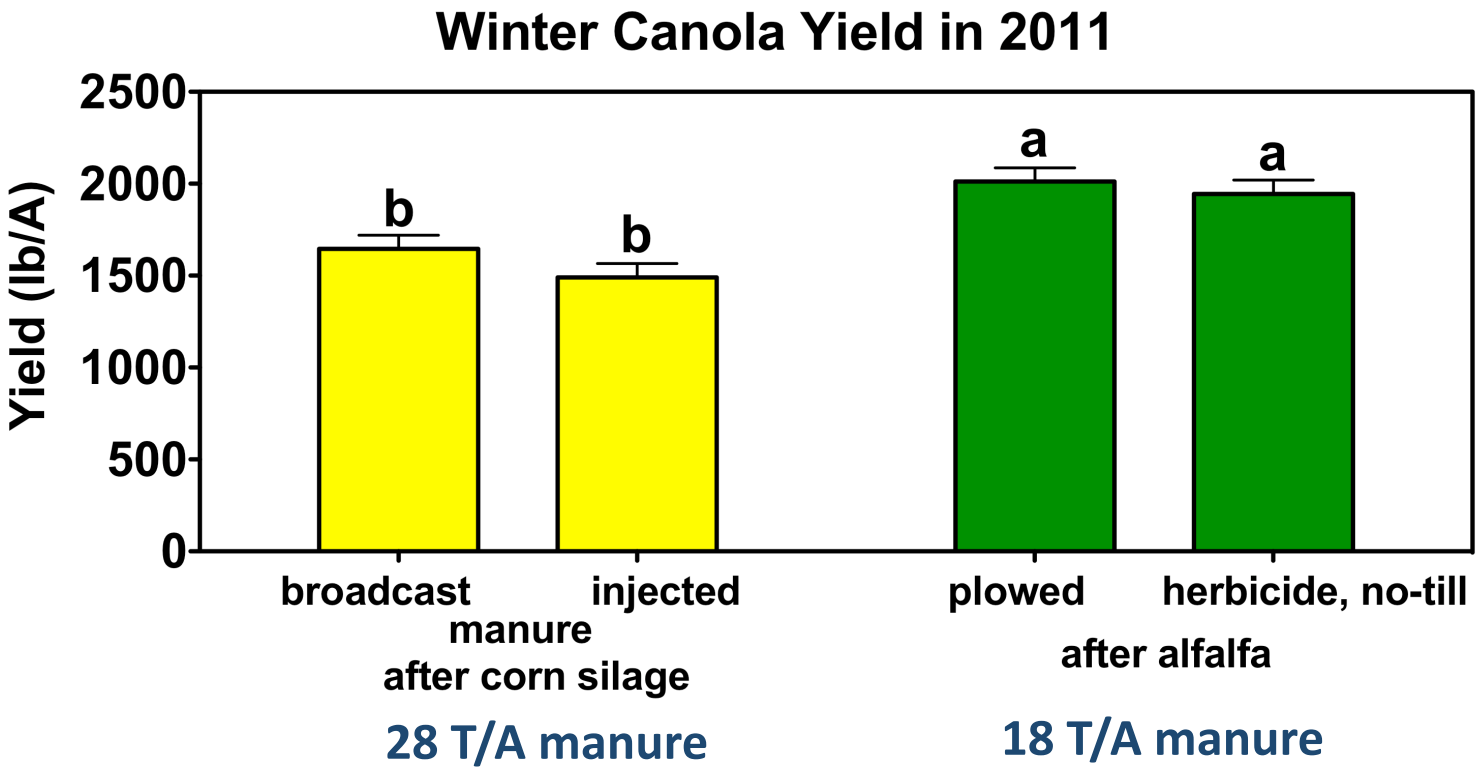
Systems are no-till except in the reduced herbicide treatment when alfalfa is plowed.

FORAGE ROTATION: manure managements, standard herbicide regime



GRAIN ROTATION: weed & canola mycorrhize managements, injected manure

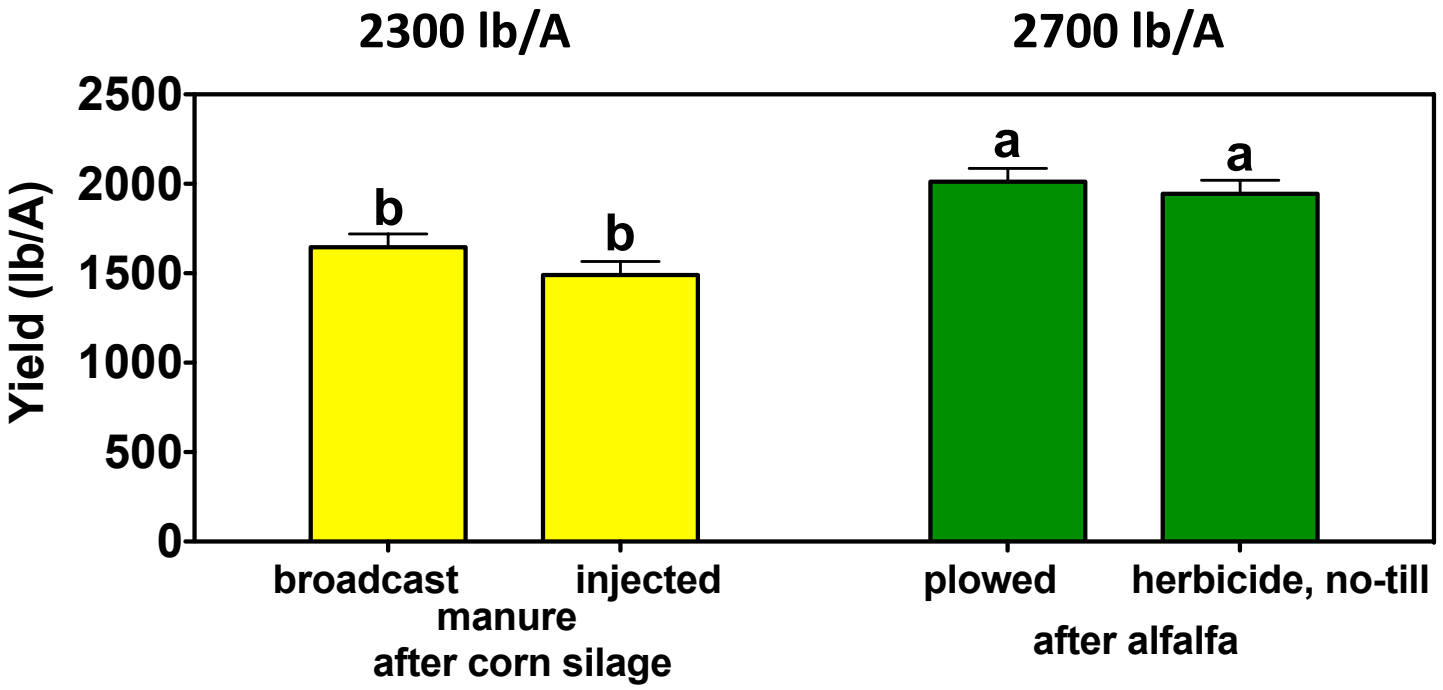




a, b indicate treatments that differ at $p < 0.05$

Canola grown after alfalfa yielded 400 lb/A (26%) more

-Despite 10 T/A more liquid dairy manure, canola after corn silage, plant tissue N was < sufficient



a, b indicate treatments that differ at p <0.05

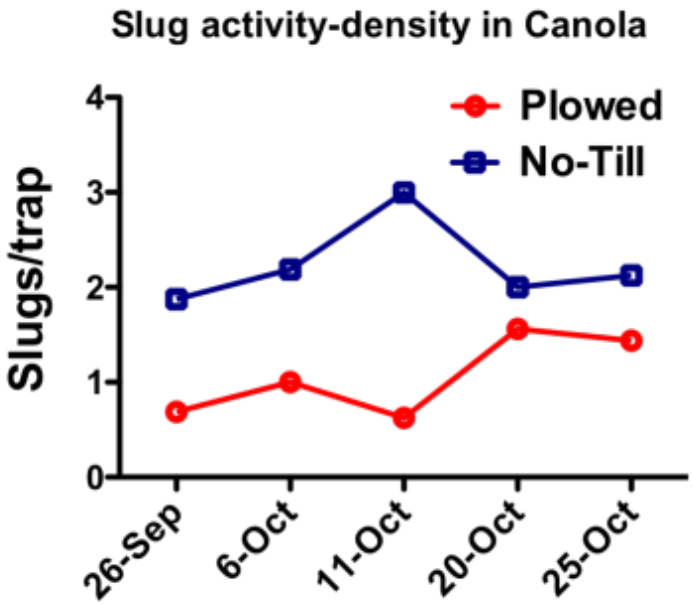
Canola seed lost during harvest was 35 - 40% of total produced.

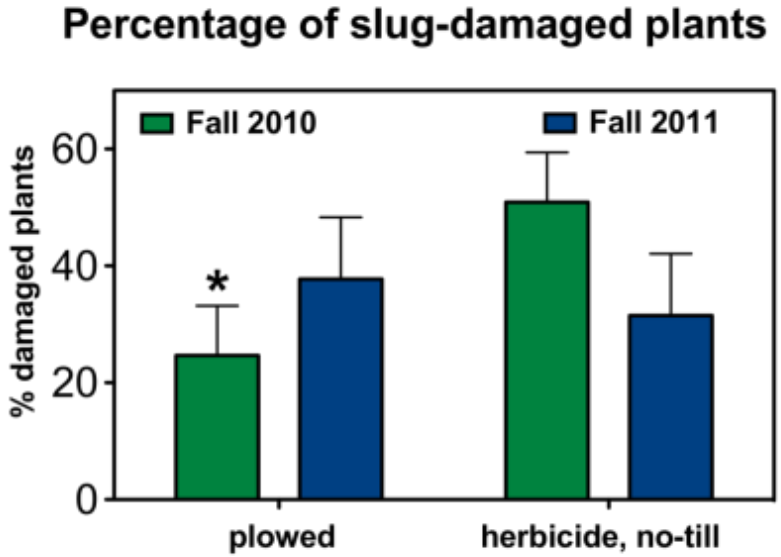
2011 Fall: planted after alfalfa, mid-Sept. poor stands

- few sunny days, cool weather & high slug-activity

most slugs are largest in fall

2011


Slug activity-density in Canola
Slugs/trap
Plowed
No-Till
0
1
2
3
4
26-Sep
6-Oct
11-Oct
20-Oct
25-Oct


Percentage of slug-damaged plants
% damaged plants
Fall 2010
Fall 2011
0
20
40
60
*
plowed
herbicide, no-till

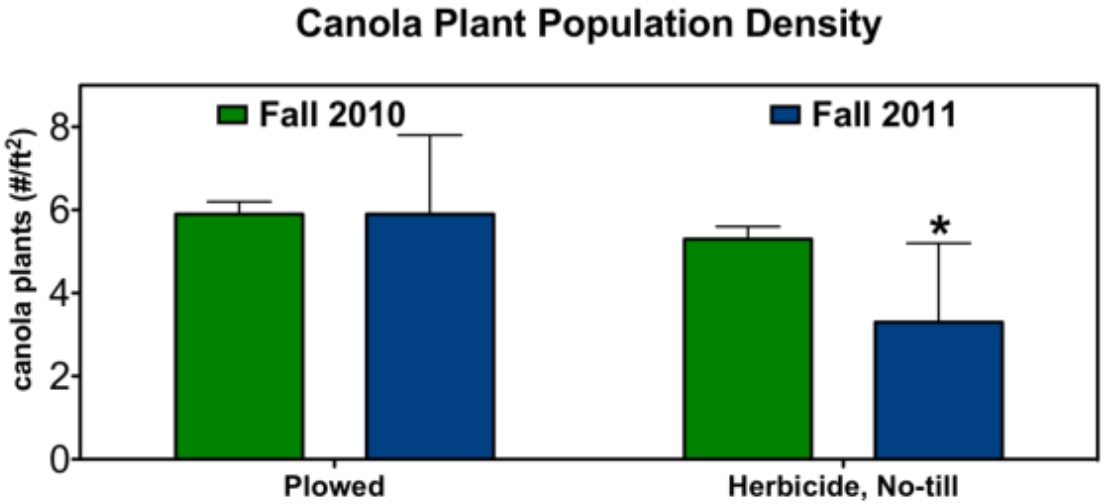
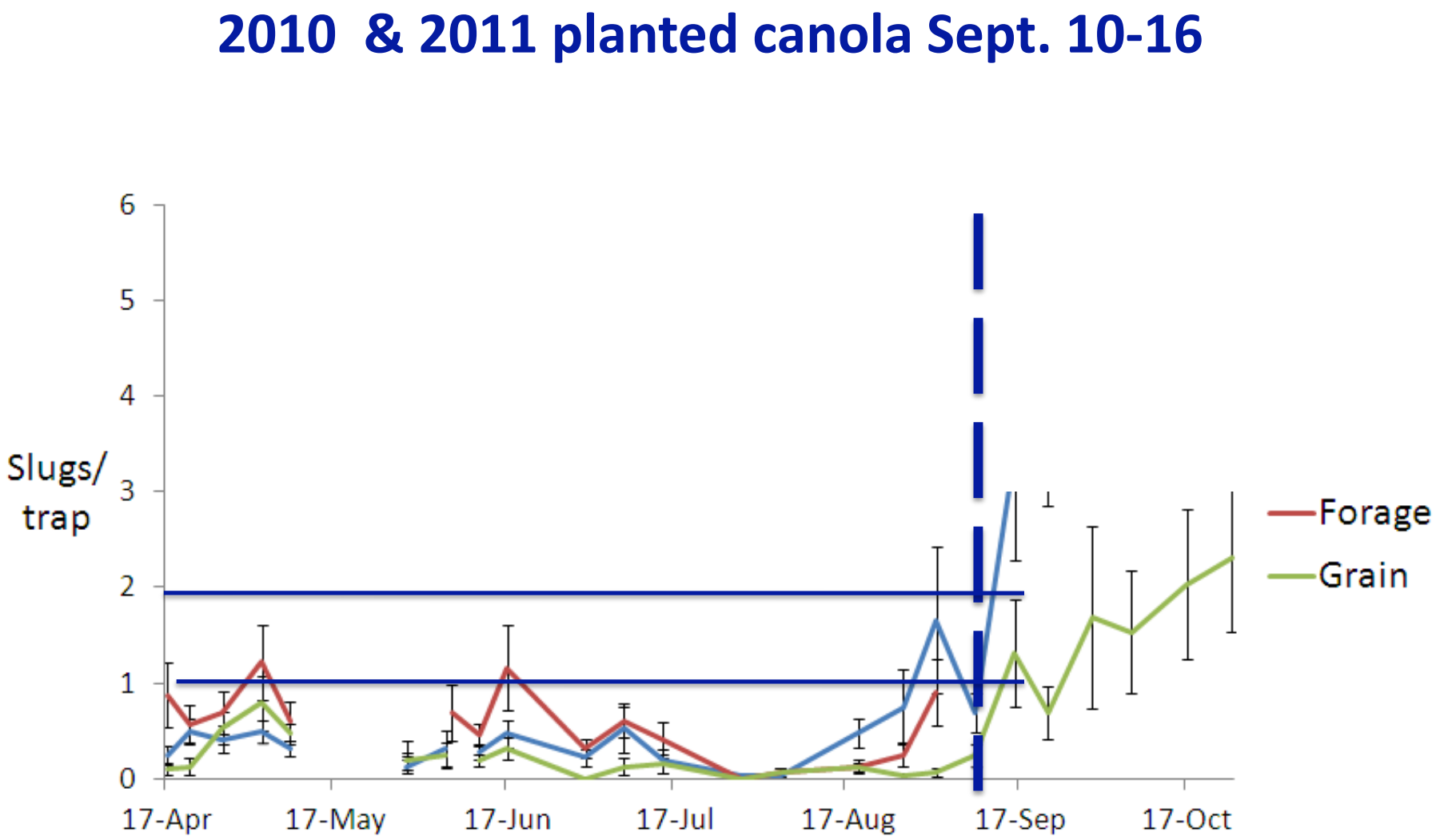

Canola Plant Population Density
canola plants (#/ft²)
Fall 2010
Fall 2011
0
2
4
6
8
*
Plowed
Herbicide, No-till

Figure 14: Slug activity-density in corn plots, by rotation.

from Margaret Douglas for NESARE Dairy Corn 2011



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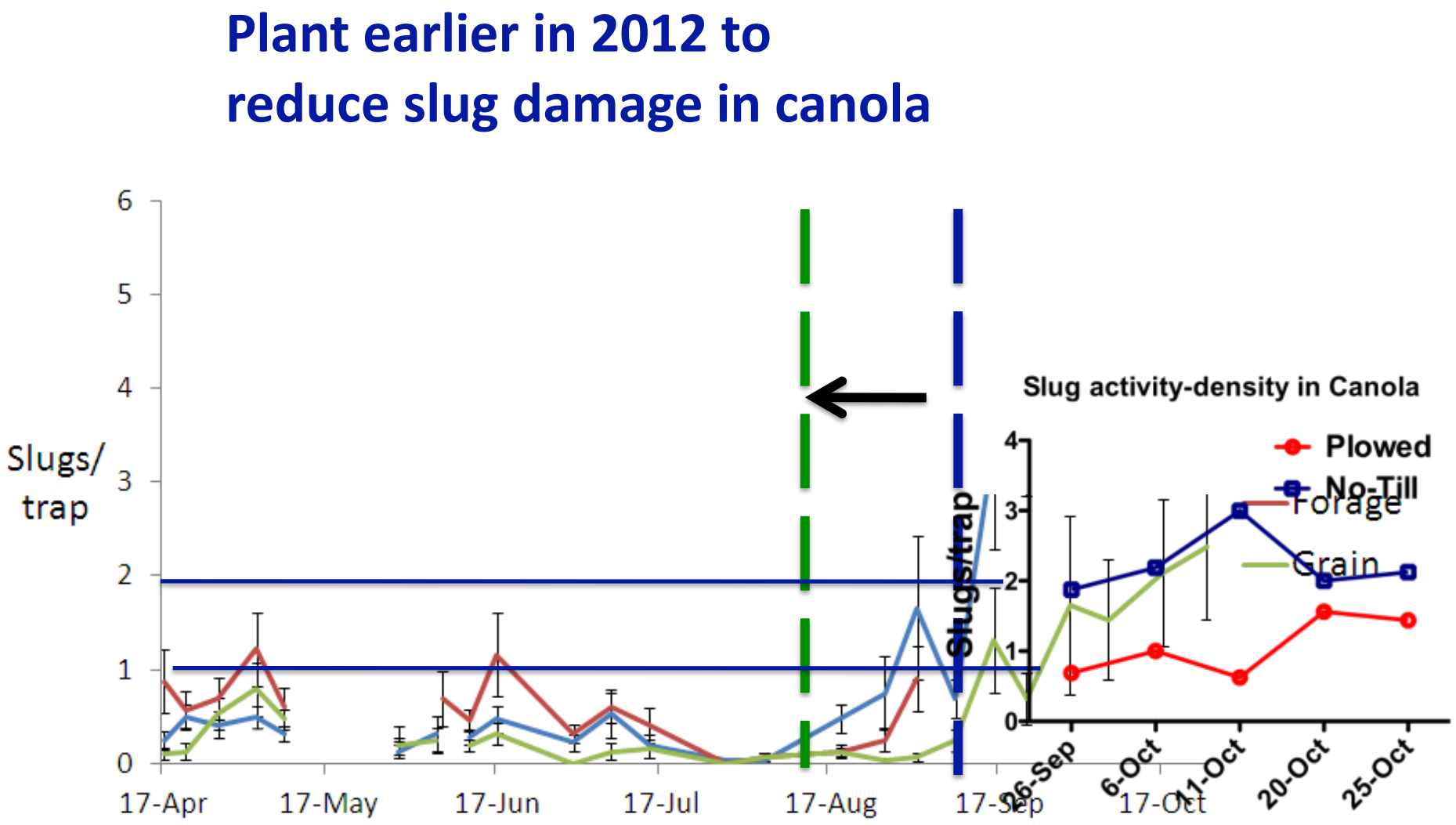
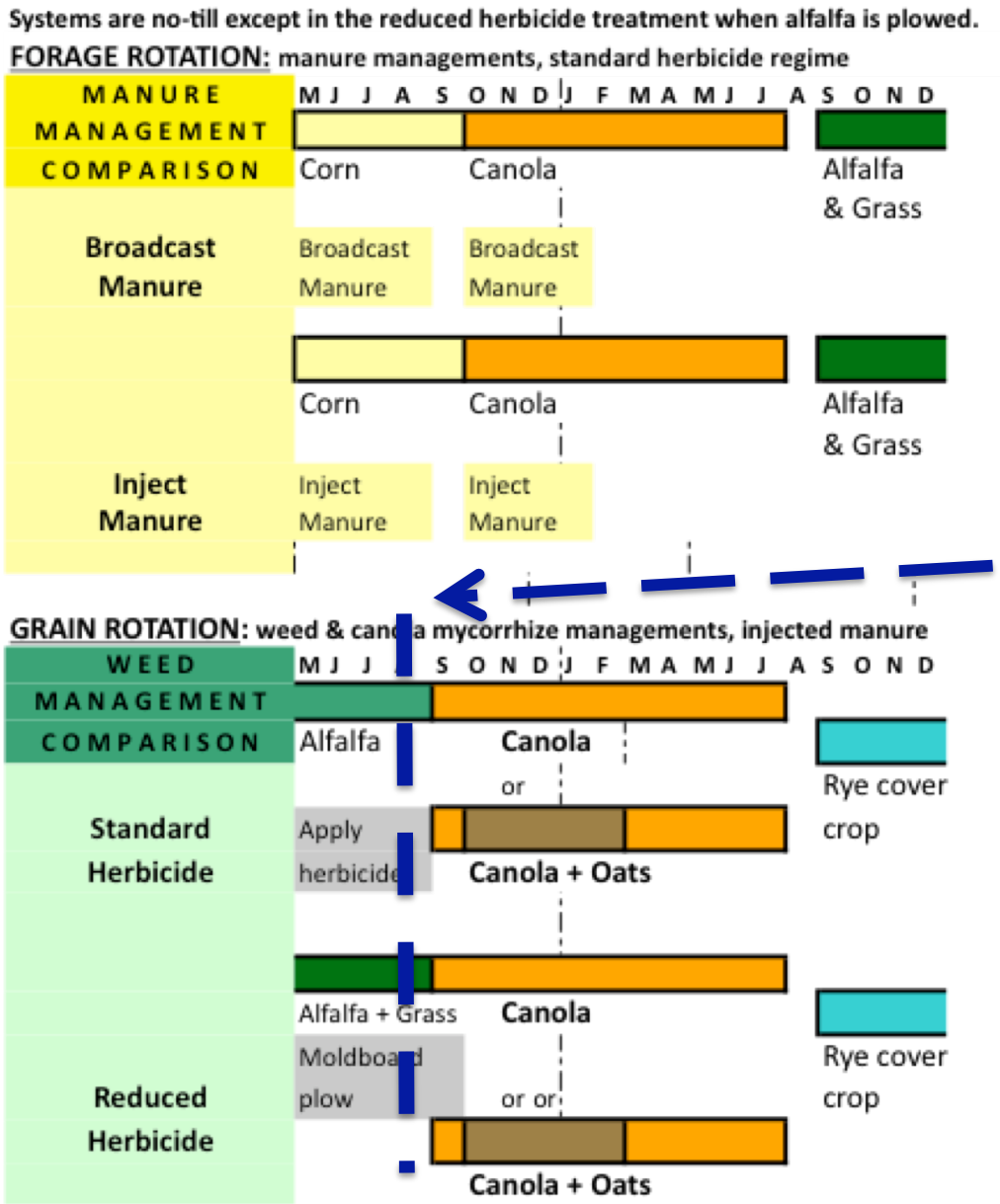


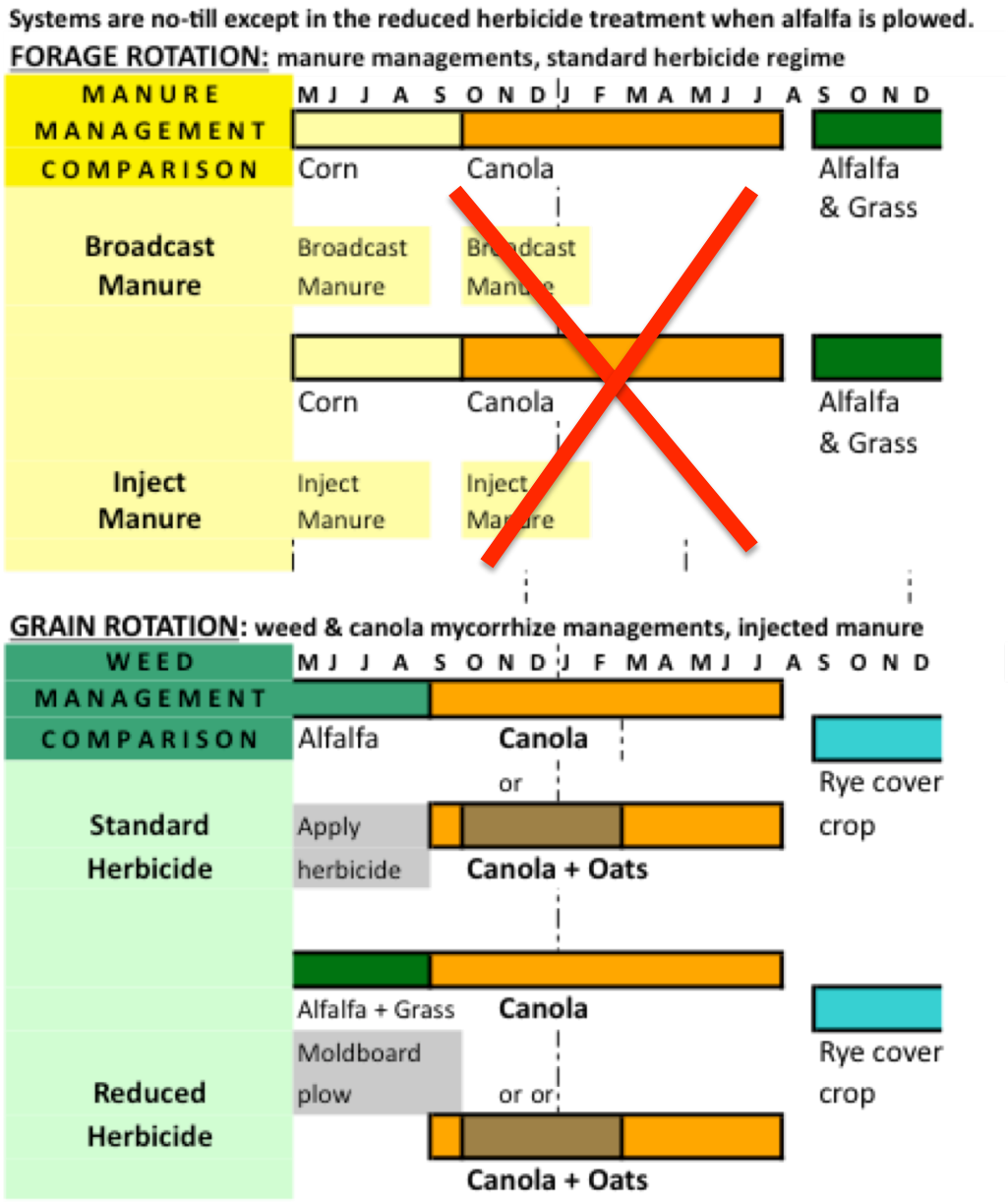


To reduce slug damage:

plant Canola earlier,

~ mid-August

- **likely reduce alfalfa harvest**

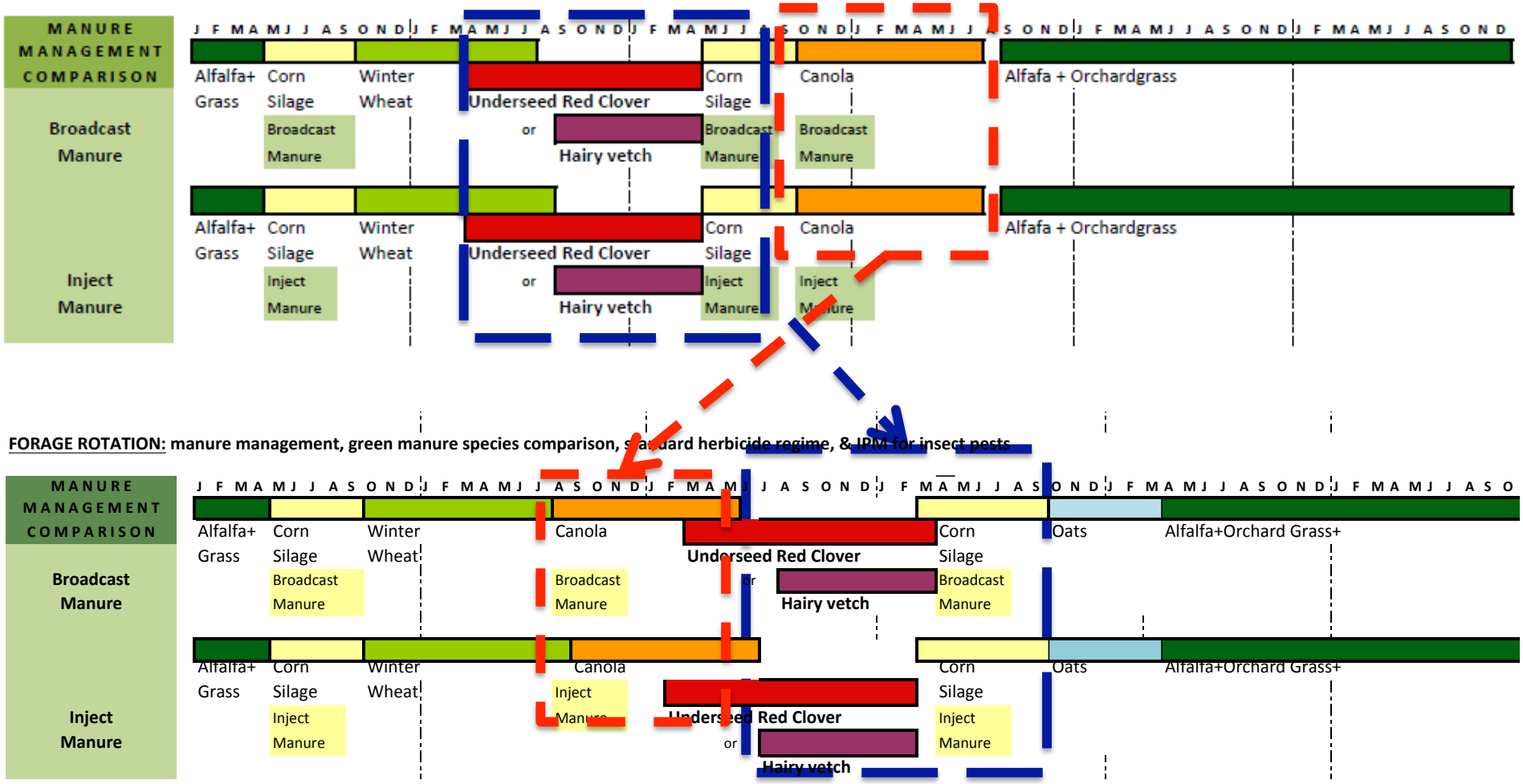


2011
No Canola was planted after Corn Silage

- wet weather delayed harvest, manure application

- planted rye cover crop will plant spring canola soon

FORAGE ROTATION: Proposed Rotation Change for Earlier Canola Planting

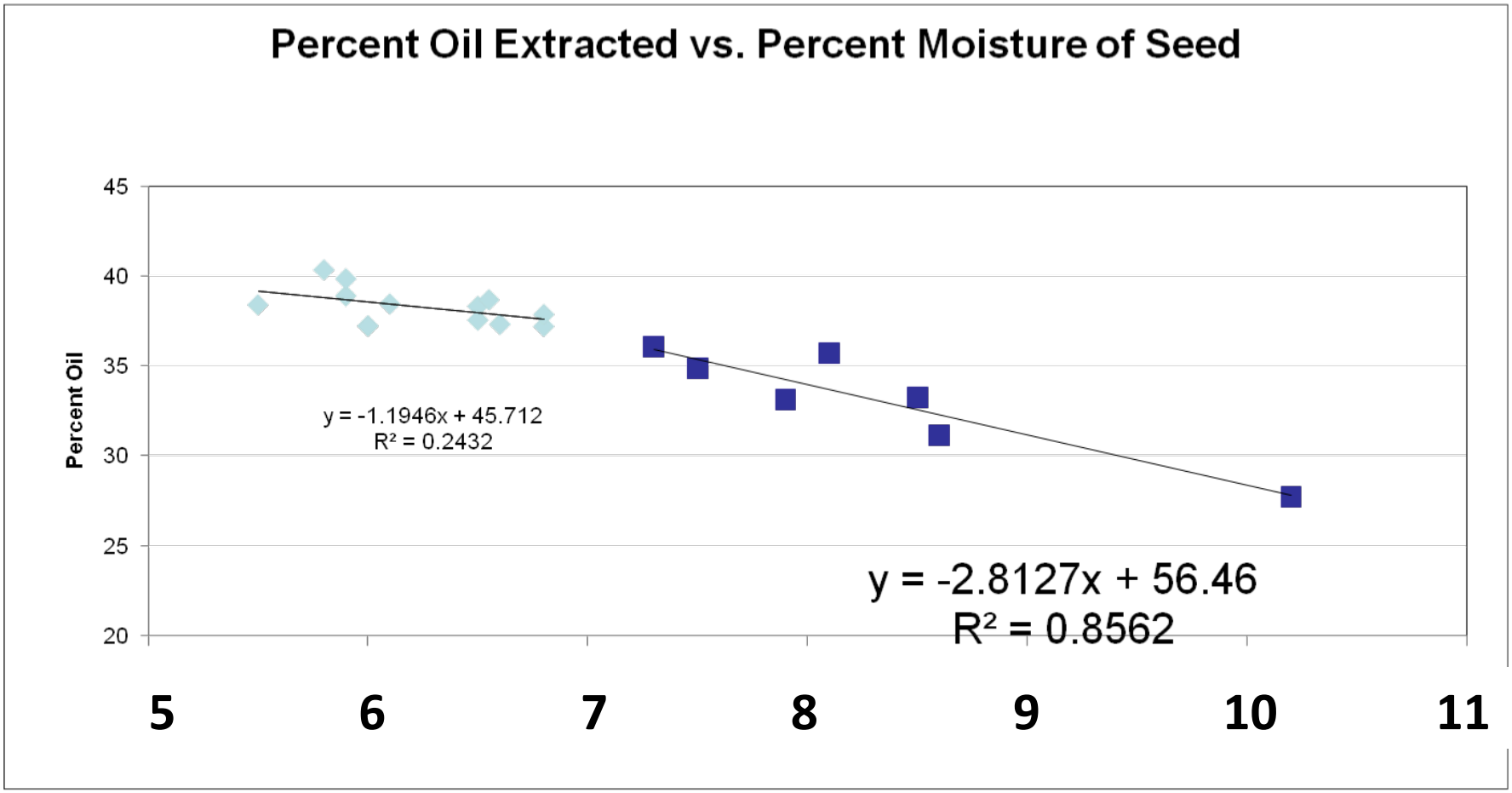


FORAGE ROTATION: manure management, green manure species comparison, standard herbicide regime, & IPM for insect pests

Penn State **Extension**

Kern Kraft Oilseed Press

Photo: Douglas Schaufler



2011 pressed canola at **lower moisture** than in 2010, **meal**:

- protein was 5% higher
- fat was 8% lower

Summary

- Alfalfa supplied N better than liquid dairy manure
- Harvest losses were significant

- Canola planted after plow vs. no-till
  - reduced plant populations
  - 2 x slug-activity density

- Will evaluate planting ~ month earlier to avoid peak slug activity

- Cold-press canola at 5.5-7% moisture:
  - more oil, meal higher % protein, lower % fat

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