Use of Foliar Fungicide on Alfalfa: Is it Worth It?

what we have observed so far…

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Alfalfa and Foliar Disease

- Alfalfa can be susceptible to some foliar fungal diseases
  - Common leaf spot
  - Lepto leaf Spot (**not** the lepto cows get)
  - Spring Black Stem and Leaf Spot
  - Summer Black Stem and Leaf Spot
- Amount of infection is highly dependent on environmental conditions, presence of inoculum and host susceptibility

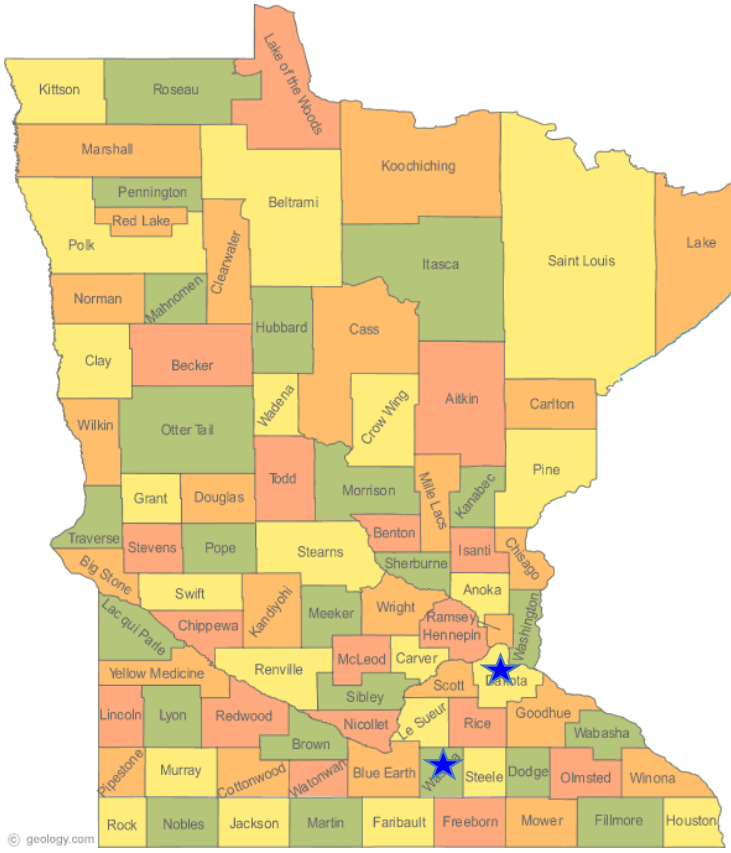
A little background

- Growers and crop consultants were asking questions about economics of use of Headline on alfalfa
- A few Extension folks in SE MN and WI decided to work collectively to evaluate Headline in 2011
  - Work grew and continued into 2012
- Received funding from Midwest Forage Association in 2011 and 2012 to help covers costs of project

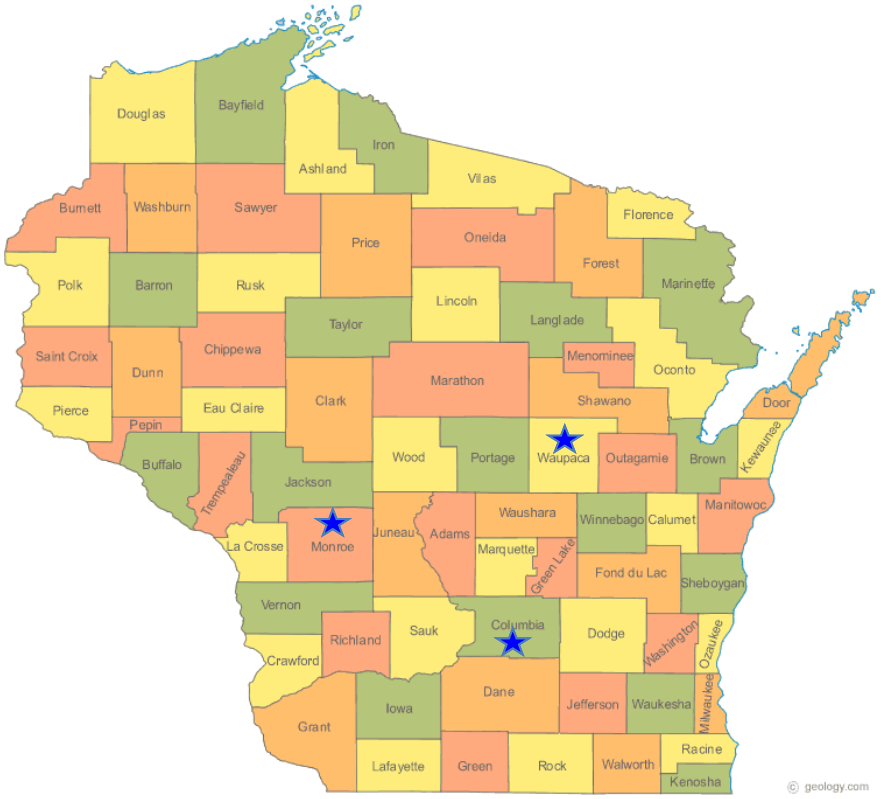
Headline Label

- Labeled for Alfalfa
- Not labeled for clover, grasses, or other perennial forage crops
- 14 day pre harvest interval
- Allowed up to 3 applications per year
  - 6 to 9 oz./ acre per application
  - Maximum total of 27 oz./ acre per year

A cooperative study in WI and MN



Waupaca on-farm expt.
Tomah on-farm expt.
Arlington Ag. Expt. Sta.



Rosemount Ag. Expt. Sta.
Waseca Ag. Expt. Sta.

2012

- Treatments in same spot in field for all cuttings
- 1st, 2nd, and last cutting taken before Sept 1 treated
- Used 9 oz rate per application
  - Resistance management based on other crop experiences
- 6" height at application
- Wisconsin locations were on a dairy quality cutting schedule
- Minnesota locations were on a better quality beef/ heifer hay cutting schedule

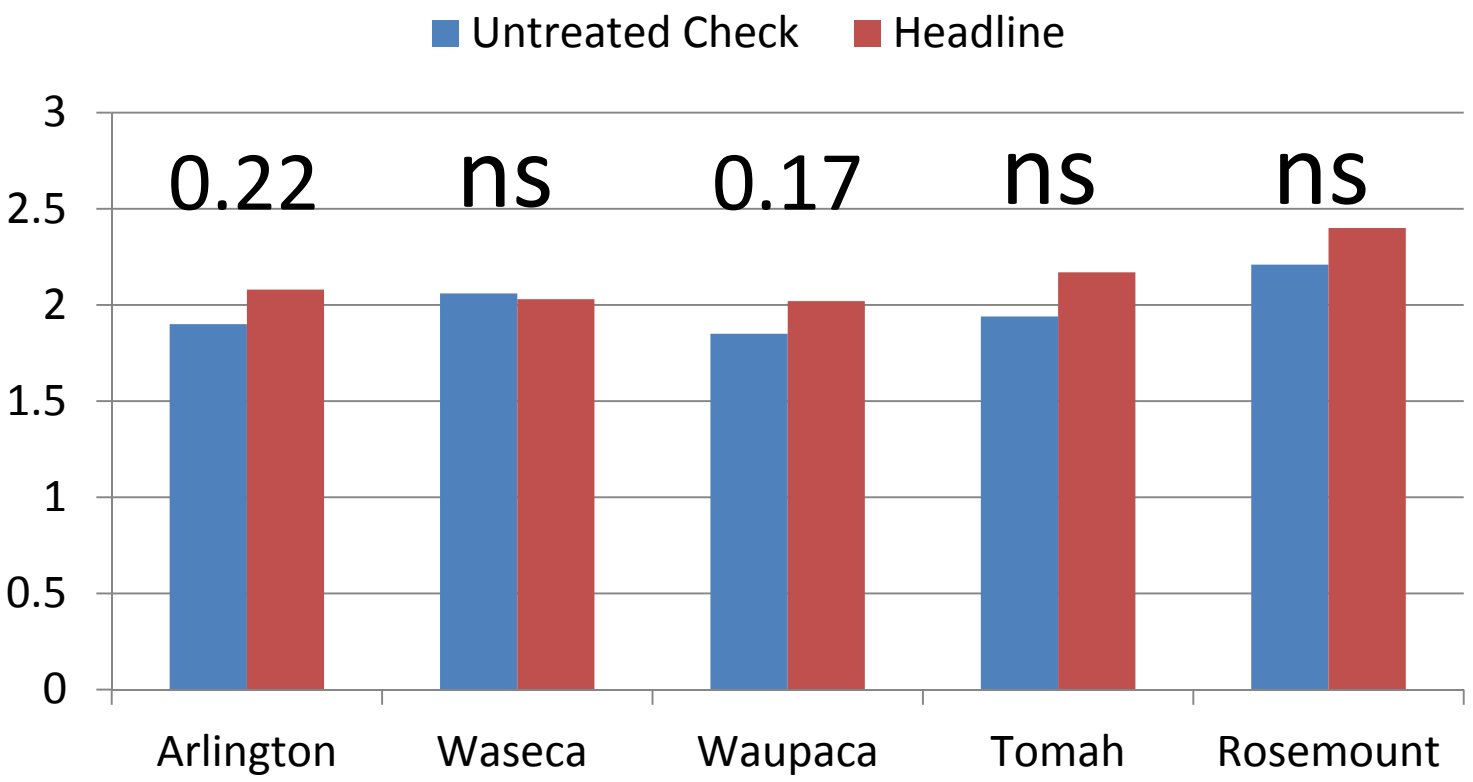
Disease Control

- 12 of 14 observations showed a decrease in defoliation (α=0.10) comparing Headline to Untreated Check
- 10 of 14 observations showed a decrease in defoliation comparing Headline + Insecticide to Insecticide alone
- There was a high correlation between disease severity and defoliation
- There was no correlation between defoliation reduction and increase in yield or quality

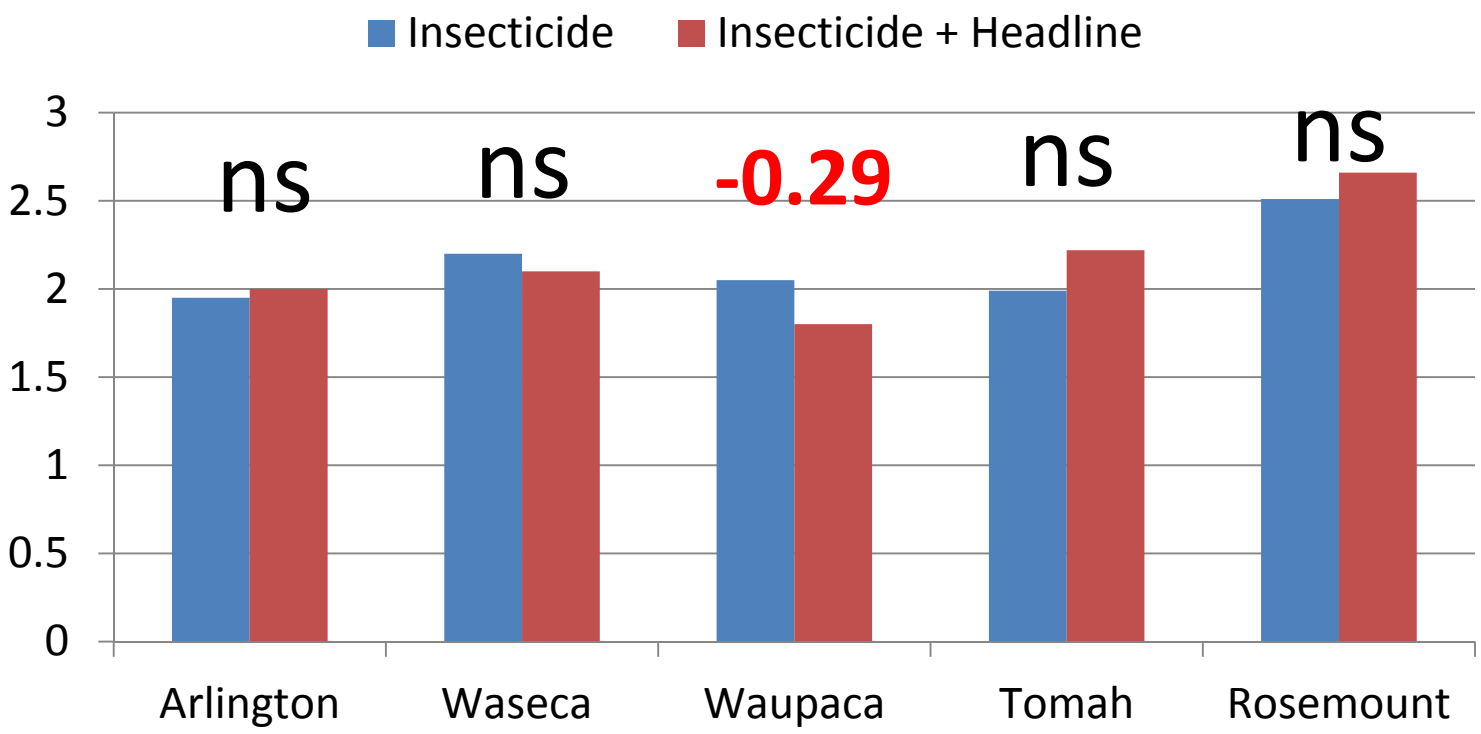
2012 Dates and Timing

Location	Arlington	Tomah	Waupaca	Waseca	Rosemount
1st cut app.	April 3	April 4	April 6	April 17	April 17
1st cut har.	May 9	May 15	May 14	May 21	June 1
2nd cut app.	May 25	May 30	May 22	June 5	June 22
2nd cut har.	June 11	June 15	June 12	June 25	July 5
4th cut app.	July 26	drought	July 20	Aug. 17	Sept. 4
4th cut har.	Aug. 15	out	Aug 6	Sept.6	Sept. 24

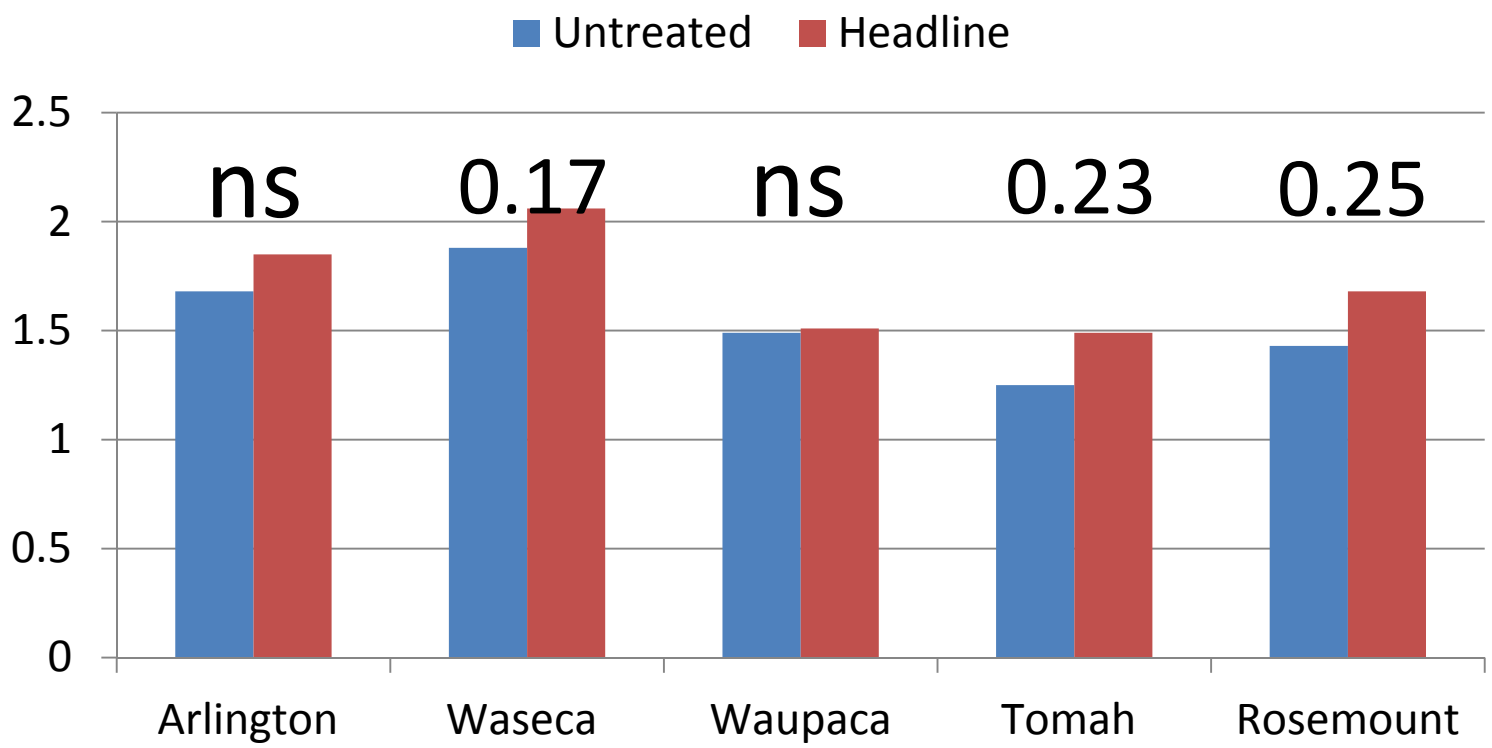
1st Cutting Yield (tons d.m./acre)
Untreated vs Headline



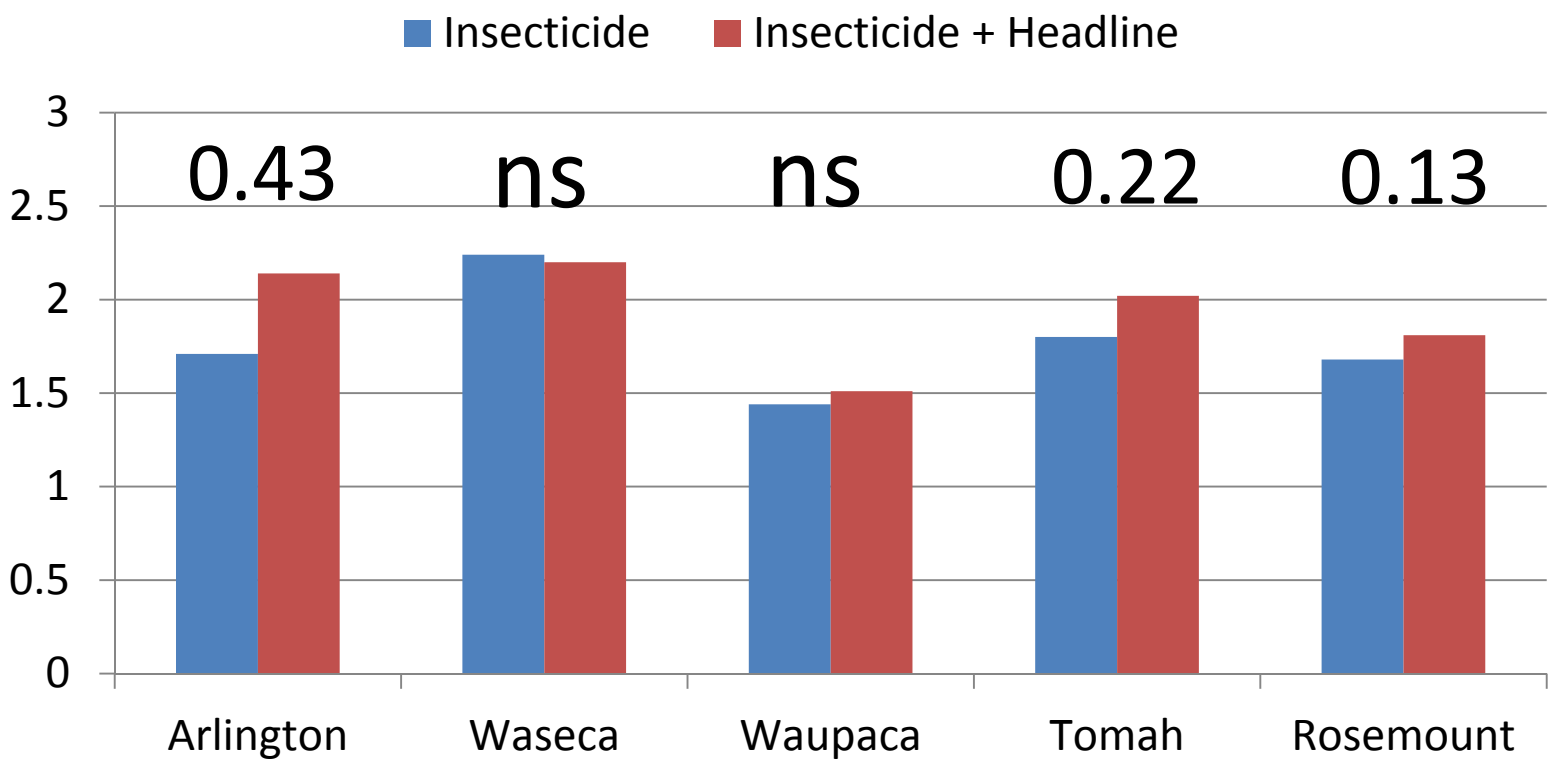
1st Cutting Yield (tons d.m./acre)
Insecticide vs Insecticide + Headline



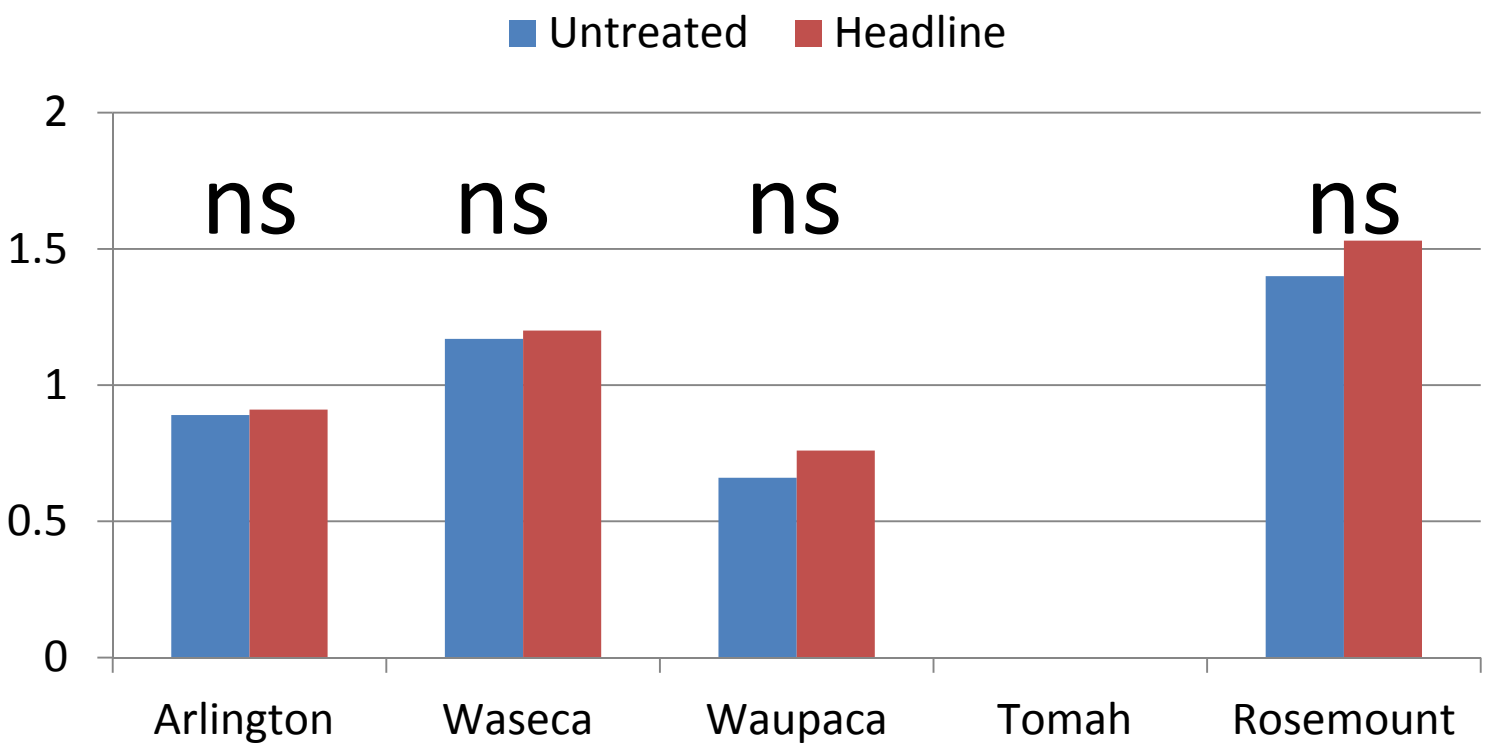
2nd Cutting Yield (tons d.m./acre)
Untreated vs Headline



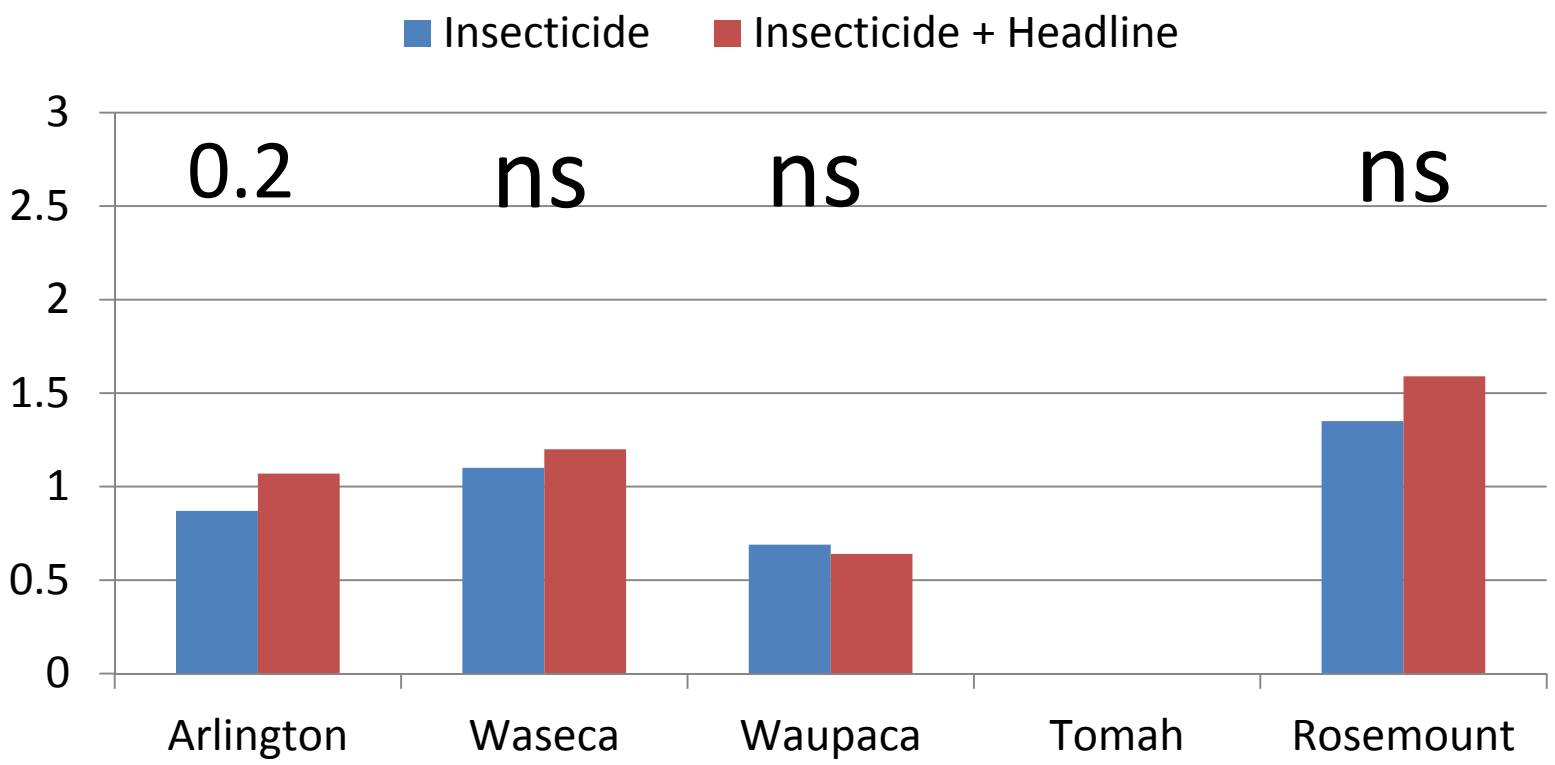
2nd cutting yield (tons d.m./acre)
Insecticide vs Insecticide + Headline



4th Cutting Yield (tons d.m./acre)
Untreated vs Headline



4th cutting yield (tons d.m./acre)
Insecticide vs Insecticide + Headline



1st Cutting Quality Comparisons

	Arlington		Waseca		Waupaca		Tomah		Rosemount	
	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L
UTC	26.5	0.73	19.3	0.65	24.7	0.72	22.8	0.70	17.8	0.66
Headline	26.1	0.72	19.5	0.66	24.6	0.72	22.6	0.70	19.2	0.67
difference	**-0.4**	**-0.01**	**0.2**	**0.01**	**nsd**	**nsd**	**nsd**	**nsd**	**0.4**	**0.01**
Insecticide	26.0	0.71	20.9	0.67	24.8	0.72	22.7	0.74	17.5	0.67
Ins + Hdln	25.9	0.71	18.2	0.65	24.5	0.72	22.6	0.74	18.6	0.70
difference	**nsd**	**nsd**	**-2.7**	**-0.02**	**nsd**	**nsd**	**nsd**	**nsd**	**1.1**	**0.03**

NE_L is Net Energy for Lactation, presented as MCal per pound of dry matter

2nd Cutting Quality Comparisons

	Arlington		Waseca		Waupaca		Tomah		Rosemount	
	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L
UTC	27.3	0.67	22.1	0.65	24.1	0.66	25.0	0.70	23.9	0.68
Headline	27.4	0.67	21.6	0.66	24.7	0.66	24.5	0.70	24.7	0.67
difference	**nsd**	**nsd**	**-0.5**	**0.01**	**nsd**	**nsd**	**nsd**	**nsd**	**0.8**	**-0.01**
Insecticide	27.0	0.71	21.9	0.65	24.2	0.66	24.7	0.70	25.1	0.66
Ins + Hdln	26.8	0.71	22.5	0.66	24.3	0.66	24.9	0.70	25.6	0.67
difference	**nsd**	**nsd**	**0.6**	**nsd**	**nsd**	**nsd**	**nsd**	**nsd**	**0.5**	**0.01**

NE_L is Net Energy for Lactation, presented as MCal per pound of dry matter

4th Cutting Quality Comparisons

	Arlington		Waseca		Waupaca		Tomah		Rosemount	
	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L	%CP	NE_L
UTC	26.8	0.68	24.2	0.72	27.7	0.69			23.5	0.73
Headline	27.8	0.68	23.3	0.71	27.9	0.69			23.7	0.71
difference	**nsd**	**nsd**	**-0.9**	**-0.01**	**nsd**	**nsd**			**nsd**	**-0.02**
Insecticide	27.4	0.71	23.0	0.70	27.9	0.69			24.9	0.72
Ins + Hdln	27.0	0.71	22.9	0.70	27.6	0.69			24.3	0.74
difference	**nsd**	**nsd**	**nsd**	**nsd**	**nsd**	**nsd**			**-0.6**	**0.02**

NE_L is Net Energy for Lactation, presented as MCal per pound of dry matter

Return on Investment

- Recognize that changing feed prices influence returns
- Determine value differences of hay based on quality parameters
  - FeedVal 2012 spreadsheet tool uses known prices of benchmark feeds and matrix calculations to calculate dollar values of feeds.
- Calculated return per acre cutting
  - Based on $ value of yield and or quality differences
  - less cost of application

UW Extension Dairy Specialists Dr. Victor Cabrera and Dr. Randy Shaver helped develop procedure and select benchmark feeds and feed values

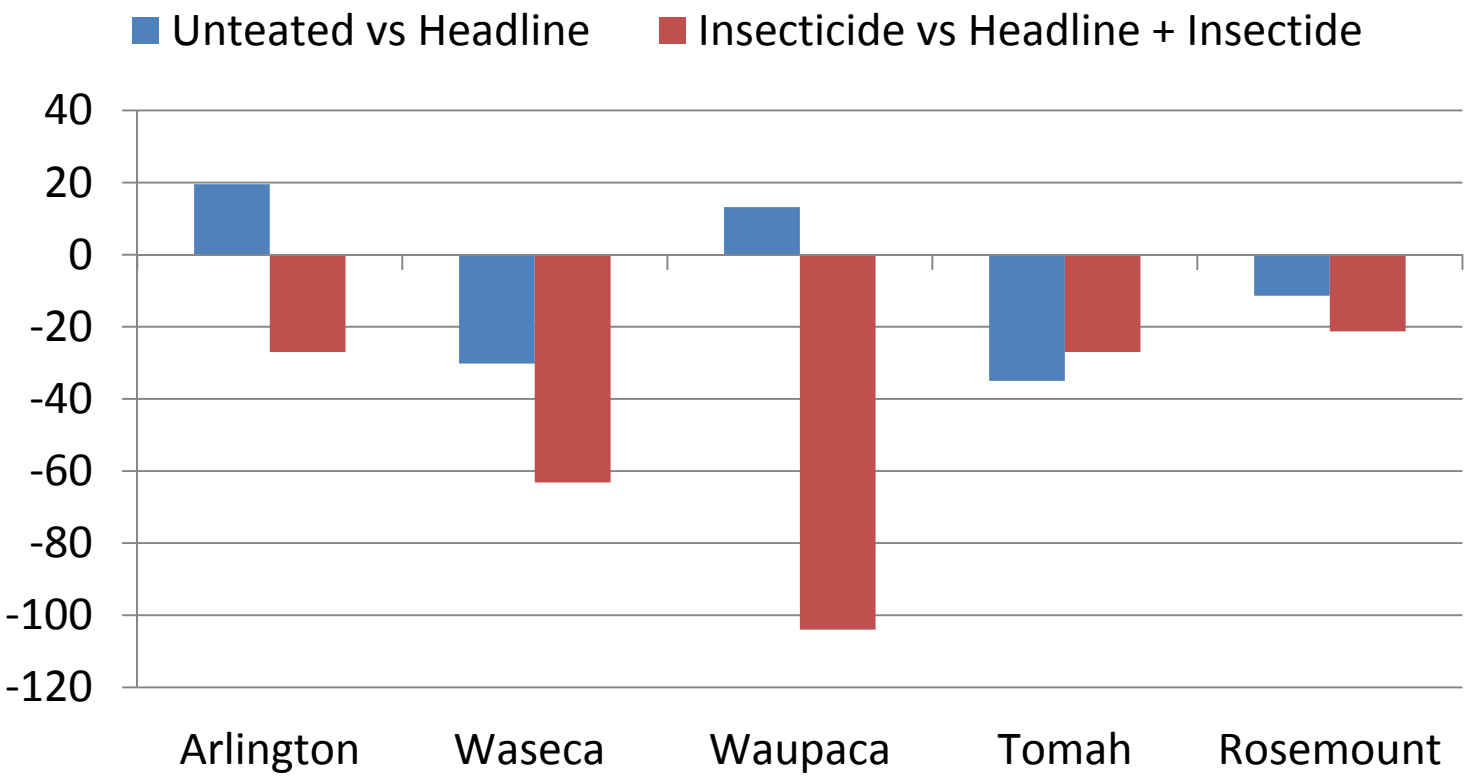
- Feed Values used
  - % crude protein
  - Net Energy for lactation (NE_L)
  - Represents nutrients livestock obtains from hay

Feed	Price
Dry shell corn	$6.42/ bu.
48% soybean meal	$433.74/ ton
Good Hay (150 RFV)	$215.37/ ton
Poor Hay (110 RFV)	$79.05/ ton
Corn silage	$51.32/ ton

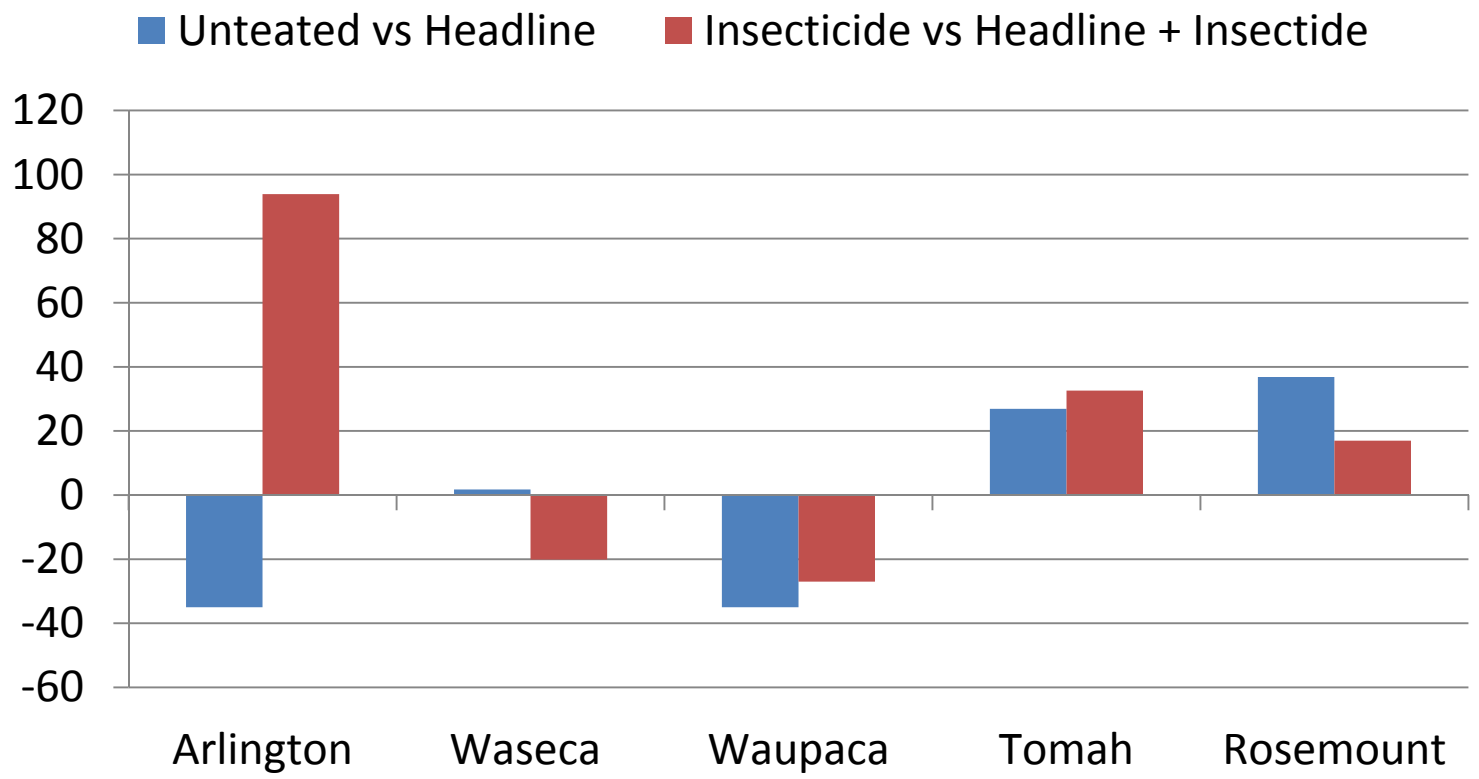
January 2012 through November 2012 average prices

Surveyed area agronomy dealers for cost of Headline and application costs: $3 per ounce and $8 per acre application fee

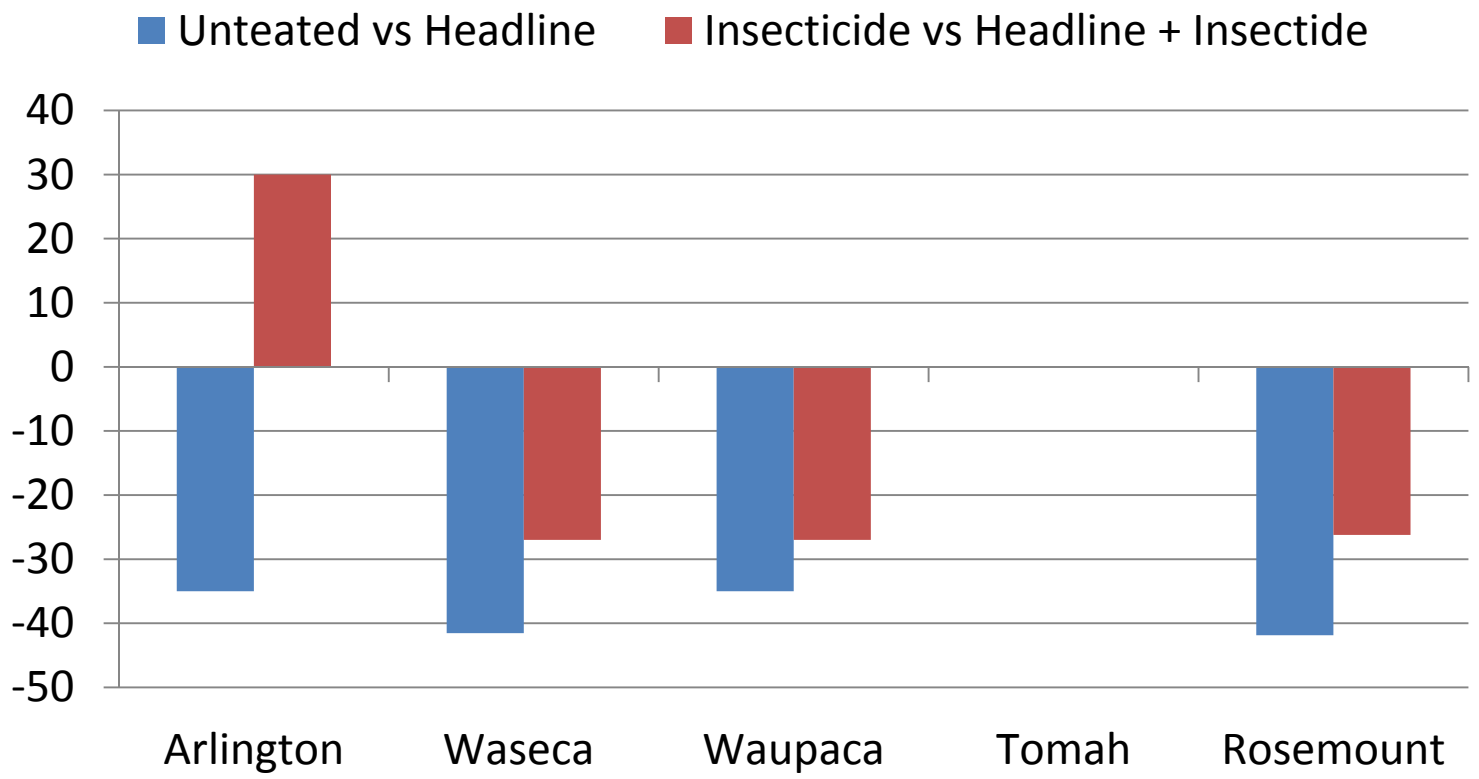
Return on Investment $/acre
1st Cutting



Return on Investment $/acre
2nd Cutting



Return on Investment $/acre
4th Cutting



Known Challenges Encountered so far

- Application timing for a dairy quality harvest schedule is **extremely** tight
- Demand for sprayers at timing for applying to 1st & 2nd cutting can high for herbicide applications
- Resistance management is important
  - Lessons from commercial vegetable growers

Summary

- Results similar to 2011 plots
- Response was inconsistent and unpredictable in 2012 plots
- Further evaluation needed
  - Try to be able to identify conditions that strongly favor a response