

New Weed Control Options for Sweet Corn

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Sweet Corn

- Limited number of postemergence herbicide options for sweet corn
- HPPD-inhibiting herbicides
 - Callisto (Syngenta)
 - Primarily broadleaf activity
 - Impact (AMVAC)
 - Broadleaf and grass activity
 - Laudis (Bayer)
 - Broadleaf and grass activity
 - Expected label in 2008
- Differential sweet corn hybrid tolerance exists



Objectives

- Evaluate efficacy of postemergence applications of Callisto, Impact, and Laudis
- Evaluate sweet corn hybrid tolerance to postemergence applications of Callisto, Impact, and Laudis

Materials and Methods

- 2006 sites: Arlington, WI and Waseca, MN
- Legacy sweet corn
- POST treatments applied to 2-4 in weeds
- Weed control evaluations at 14 and 35 DAT
- Ears with husks were mechanically harvested



Herbicide Treatments

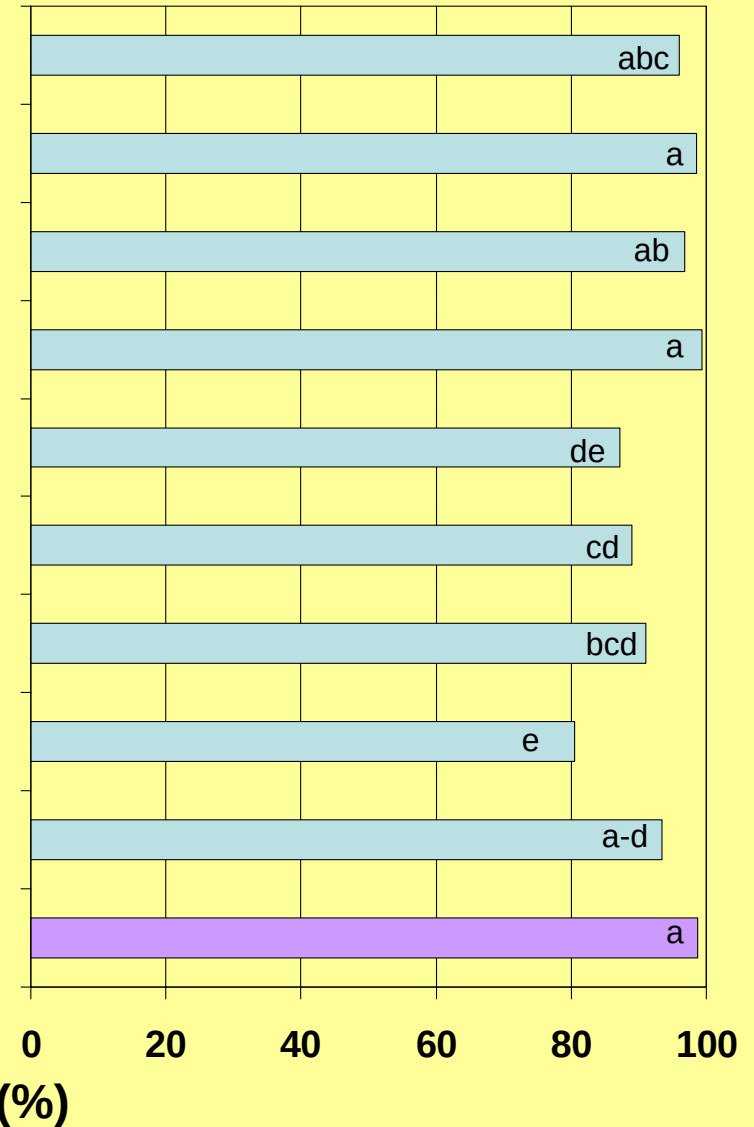
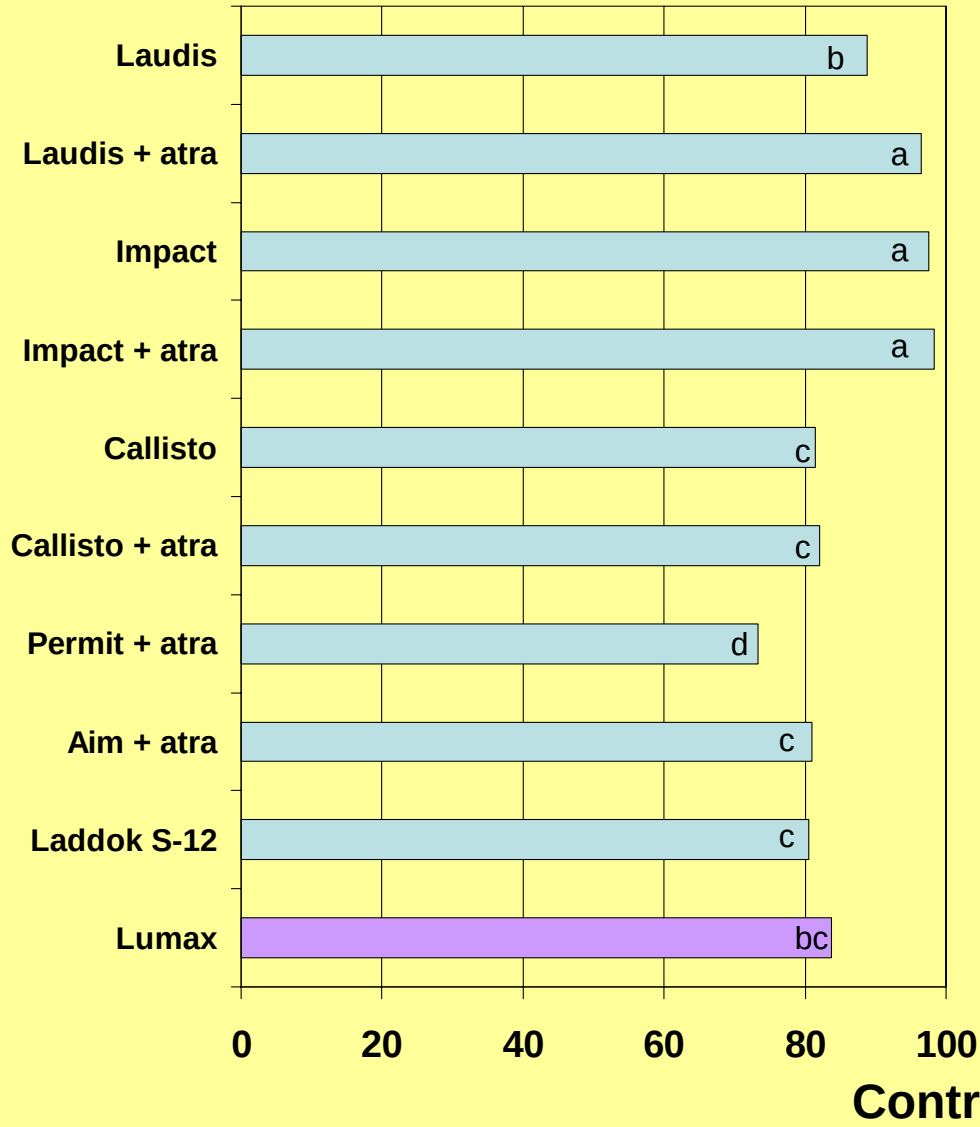
Herbicide	Rate	Atrazine	NIS	COC	UAN
	per acre	pt/a	----- % -----		pt/a
Dual II Magnum	1.67 pt				
fb Laudis	3 oz	-	-	1	3
fb Laudis	3 oz	1	-	1	3
fb Impact	0.5 oz	-	-	1	3
fb Impact	0.5 oz	1	-	1	3
fb Callisto	3 oz	-	0.25	-	-
fb Callisto	3 oz	1	0.25	-	-
fb Permit	0.67 oz	1	0.25	-	-
fb Aim	0.5 oz	1	0.25	-	-
fb Laddok S-12	2.33 pt		-	2.5	4
Lumax	3 qt				

Giant Foxtail Control 35-40 DAT

Dual II Magnum fb

Arlington, WI

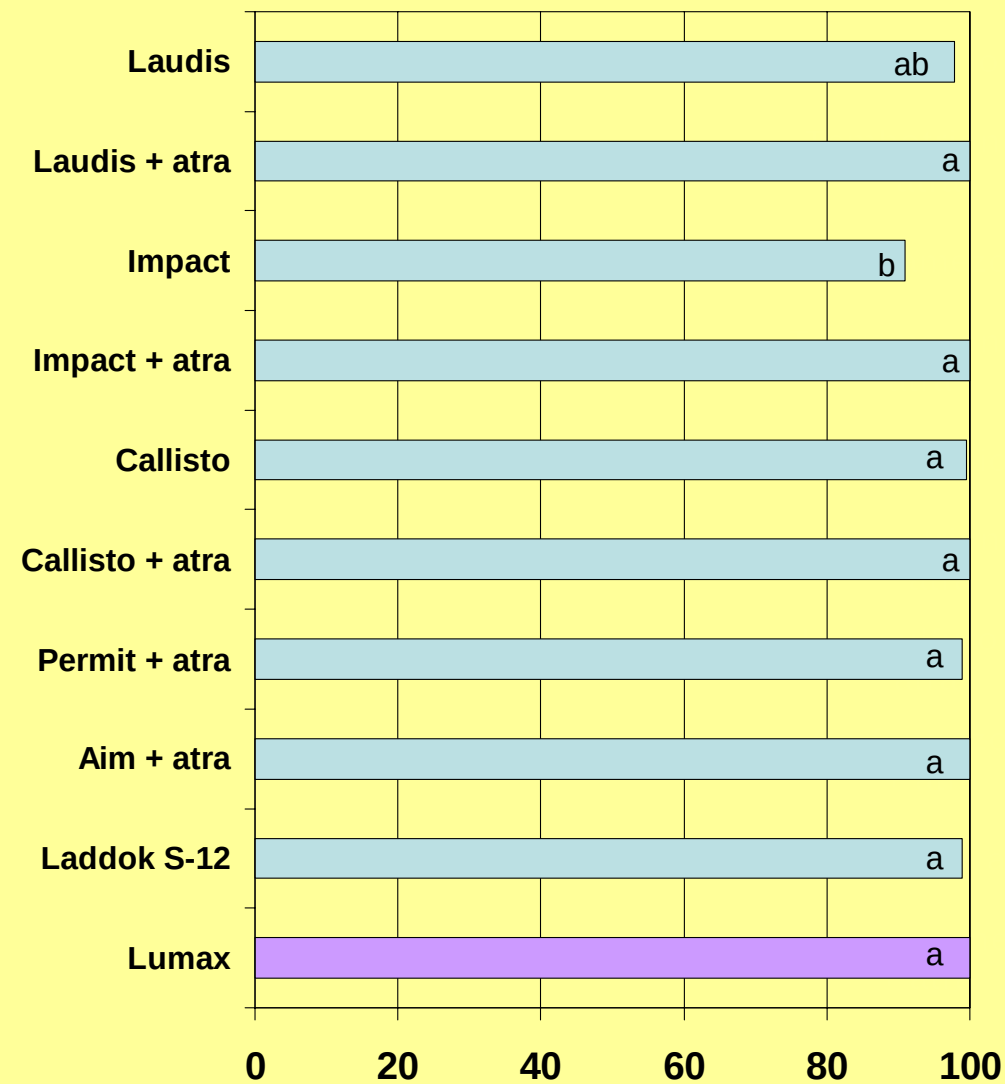
Waseca, MN



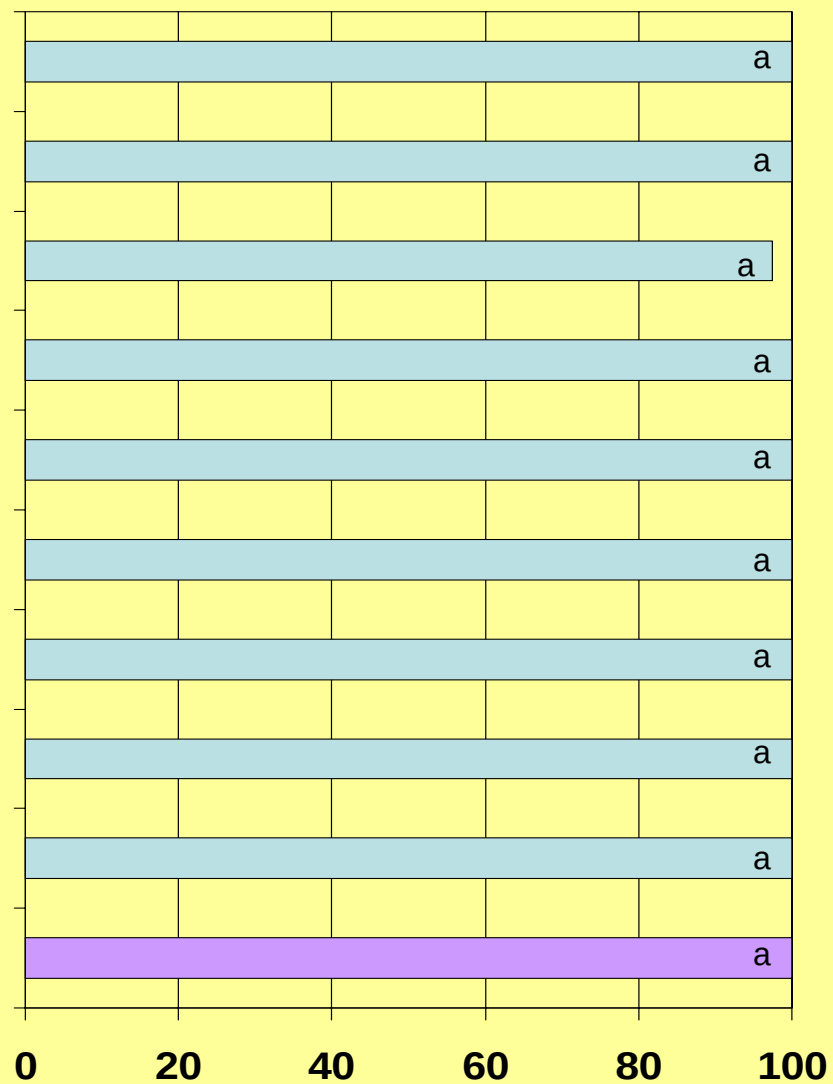
Common Lambsquarters Control 35-40 DAT

Dual II Magnum fb

Arlington, WI



Waseca, MN



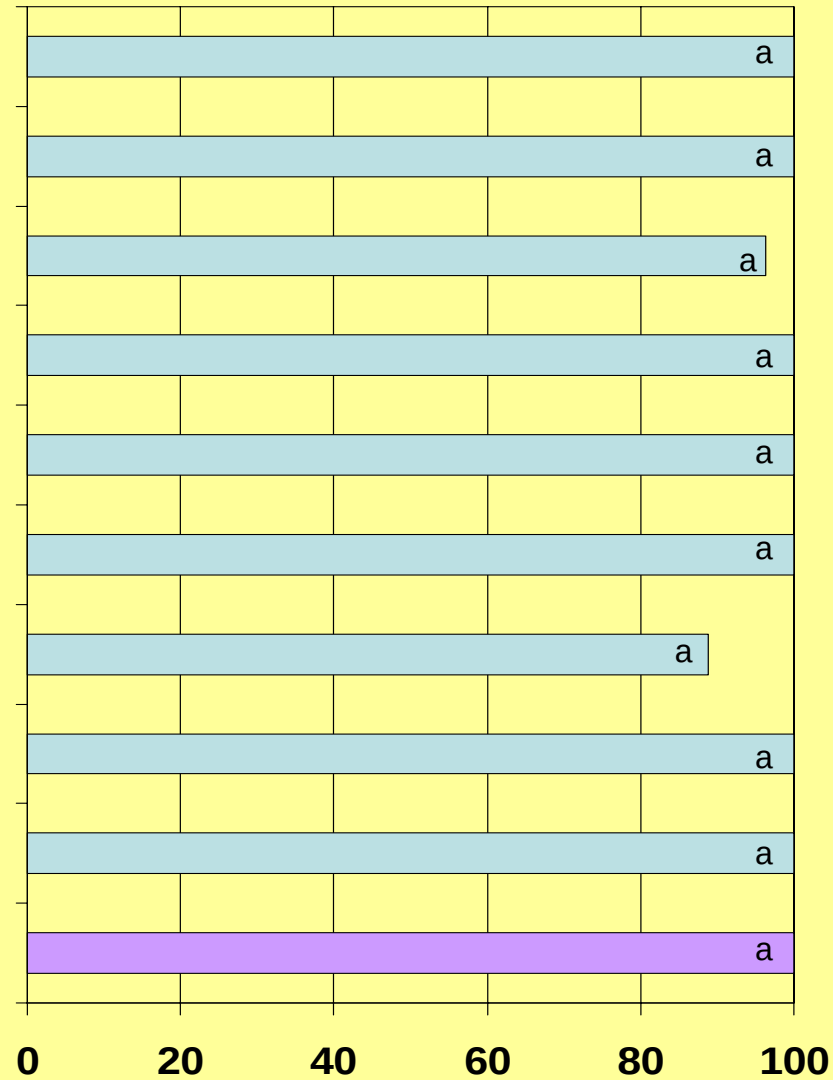
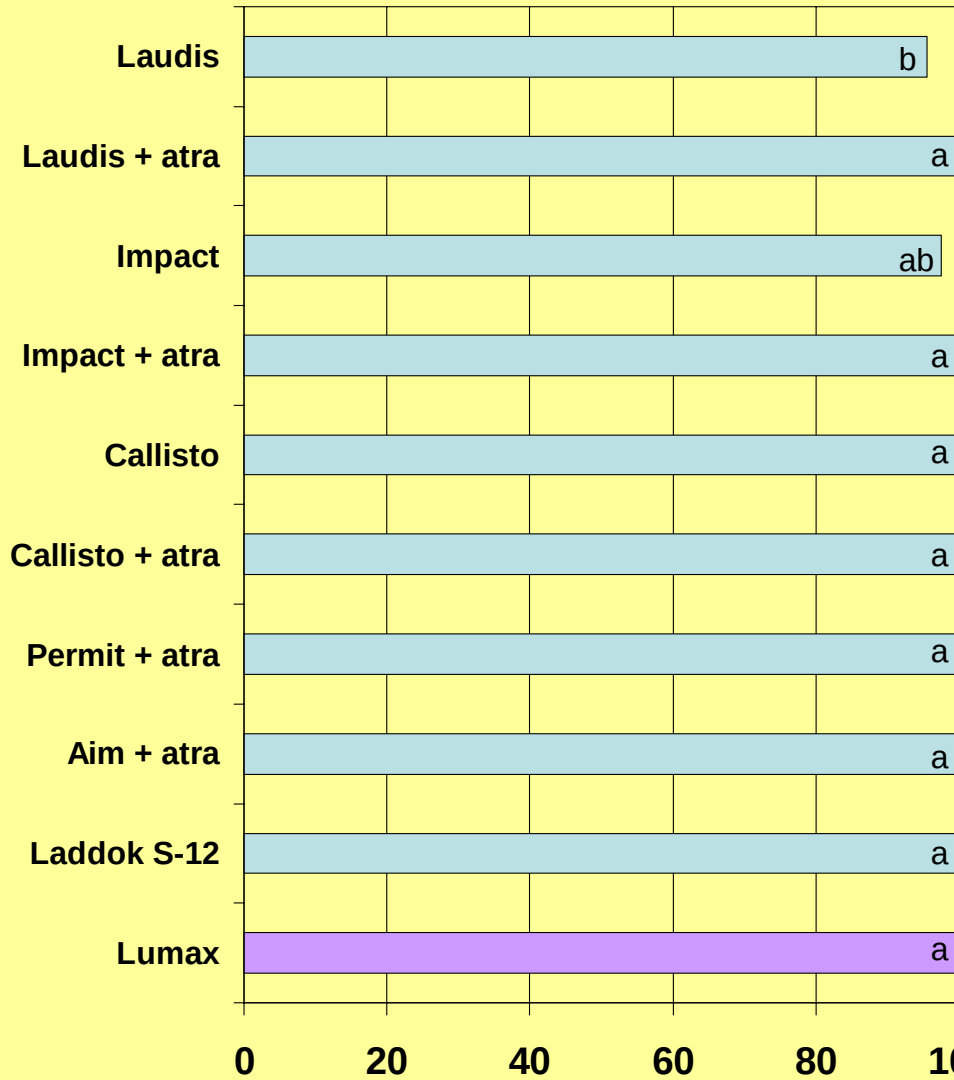
Control (%)

Velvetleaf Control 35-40 DAT

Dual II Magnum fb

Arlington, WI

Waseca, MN

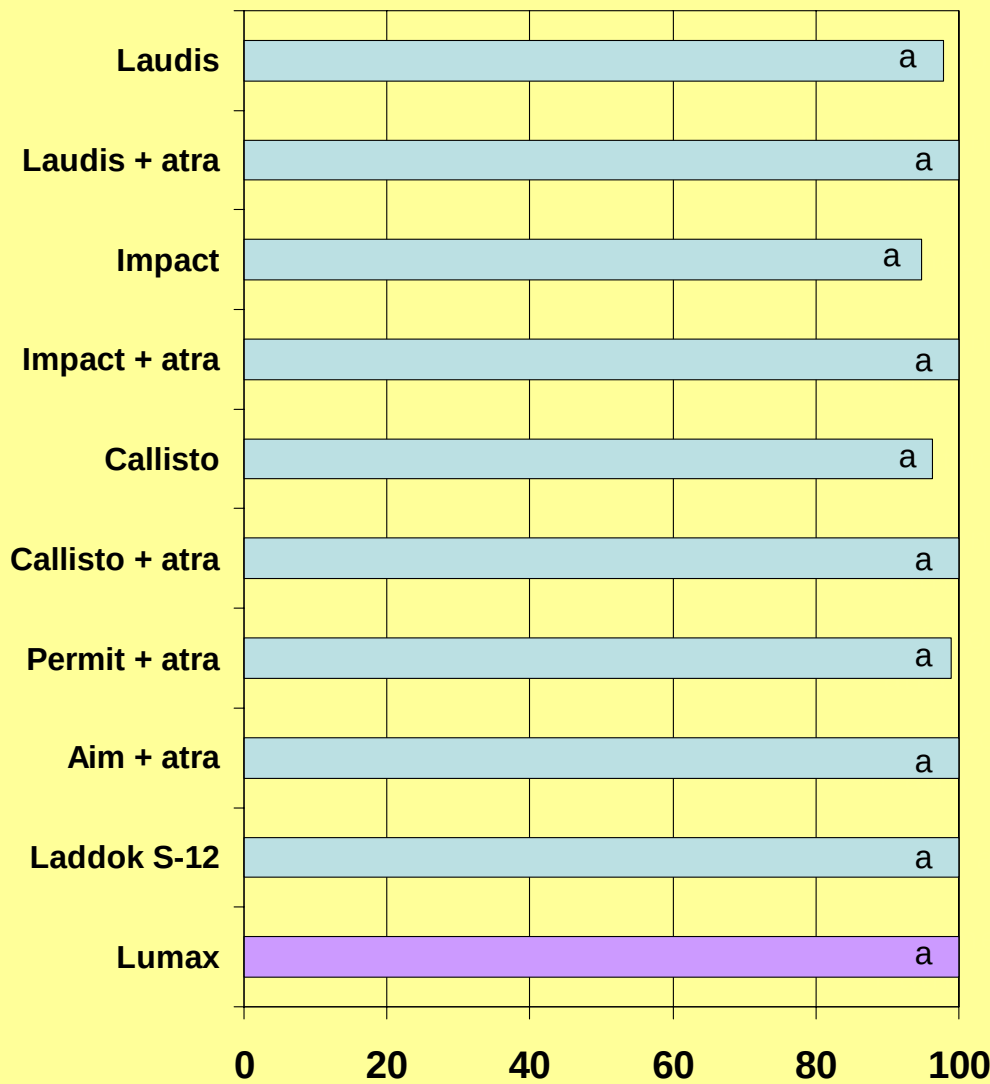


Control (%)

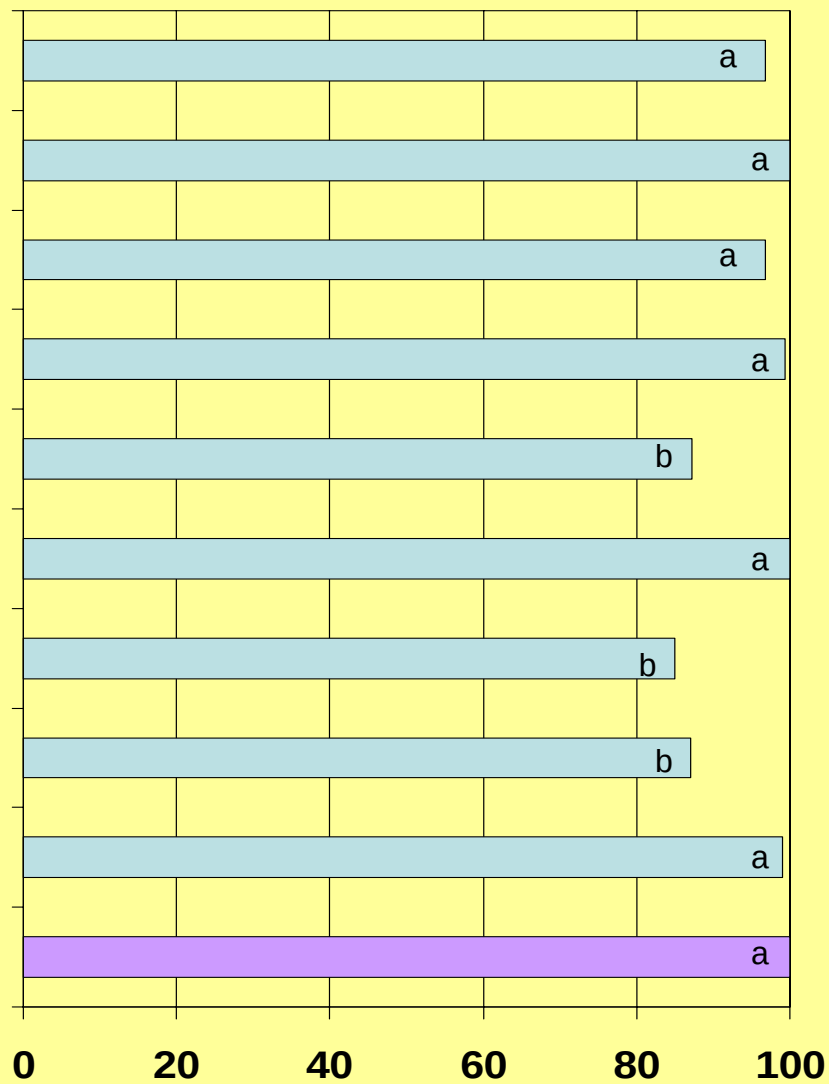
Common Ragweed Control 35-40 DAT

Dual II Magnum fb

Arlington, WI



Waseca, MN



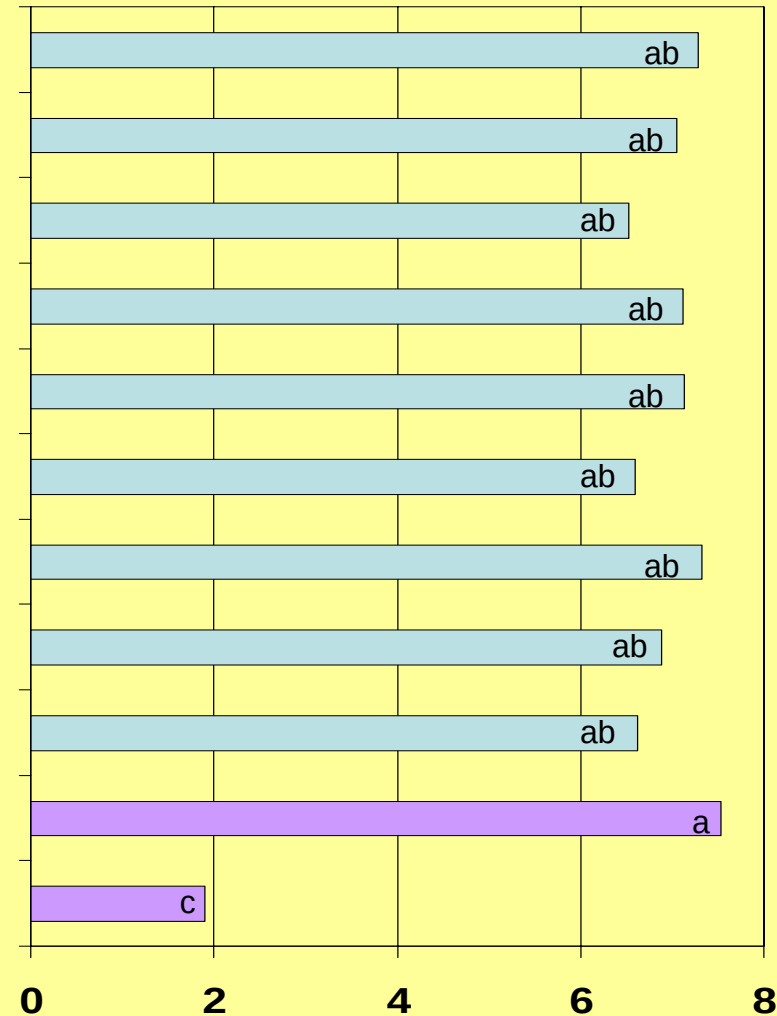
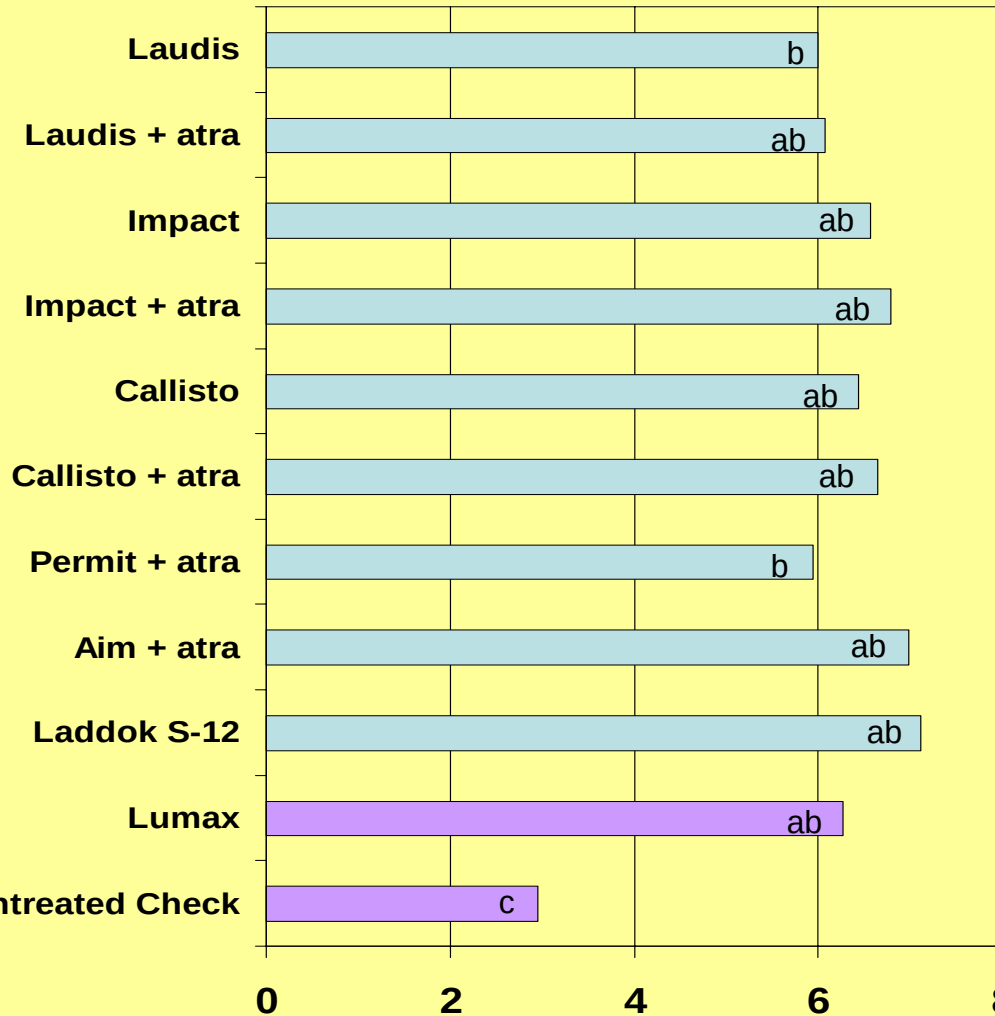
Control (%)

Sweet Corn Yield

Dual II Magnum fb

Arlington, WI

Waseca, MN



Yield (T/A)

HPPD Herbicide Efficacy

- Laudis and Impact increased giant foxtail control compared to Callisto
- Atrazine synergism was observed with
 - Laudis on giant foxtail and velvetleaf
 - Callisto on common ragweed
- All treatments excluding the nontreated control yielded similarly

Objectives

- Evaluate efficacy of postemergence applications of Callisto, Impact, and Laudis
- Evaluate sweet corn hybrid tolerance to postemergence applications of Callisto, Impact, and Laudis

Materials and Methods

- Trial locations
 - Waseca, MN
 - Arlington, WI
- Hybrids
 - Cahill
 - Dynamo
 - GH 2042
 - GH 2547
 - GH 9597
 - Merit
- 3 herbicide treatments
- 2 rates
- 4 replications

1	2	3	4	5	6
		2x Rate			
1	2	3	4	5	6
		Control			
1	2	3	4	5	6
		1x Rate			

Herbicide Treatments – 1x Rate

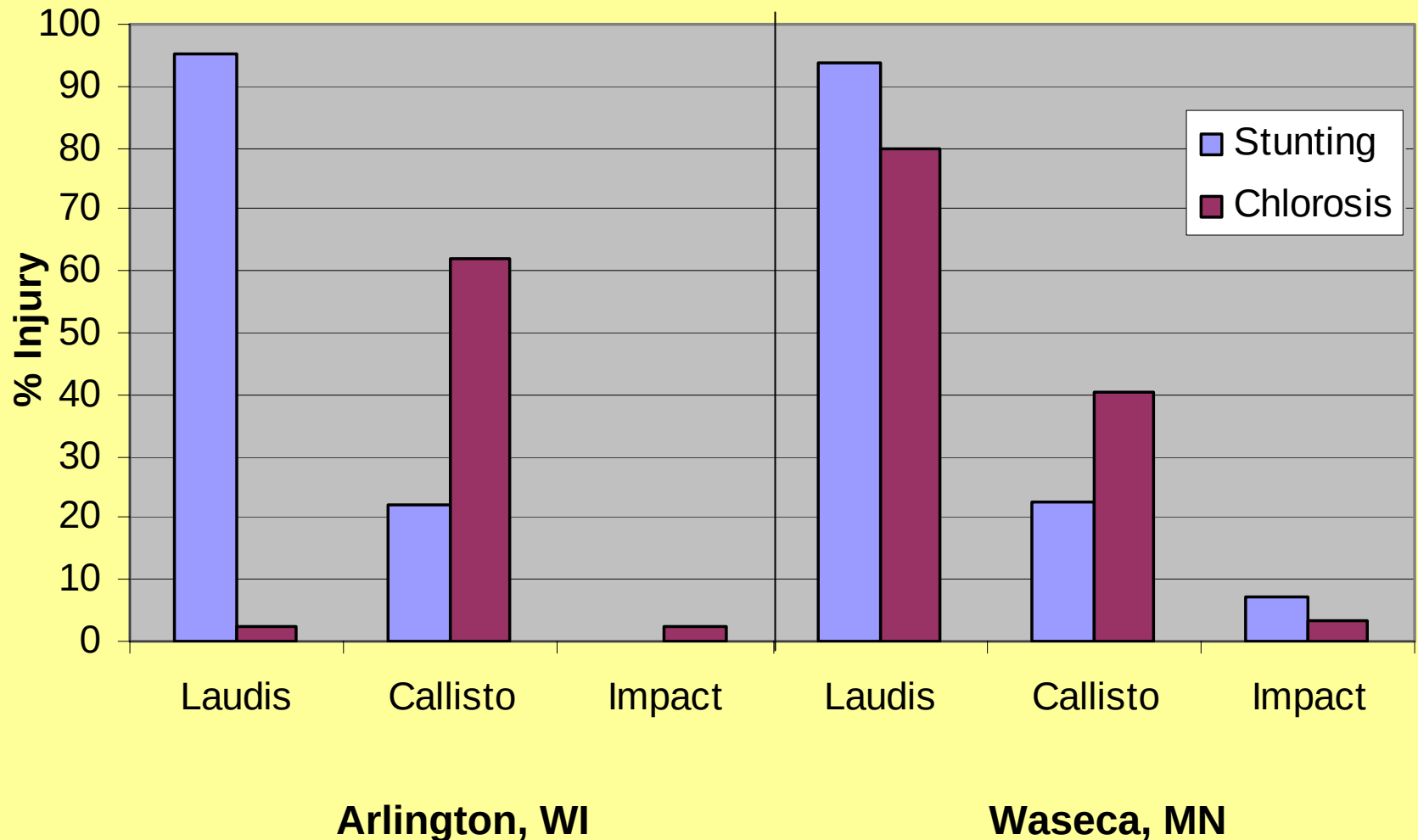
<u>Herbicide</u>	<u>Rate</u>	<u>Atrazine</u>	<u>COC</u>	<u>UAN</u>
Laudis	3 fl oz/a	1 pt/a	1%	1.5 qt/a
Callisto	3 fl oz/a	1 pt/a	1%	
Impact	0.75 fl oz/a	1 pt/a	1%	1.5 qt/a

Materials and Methods

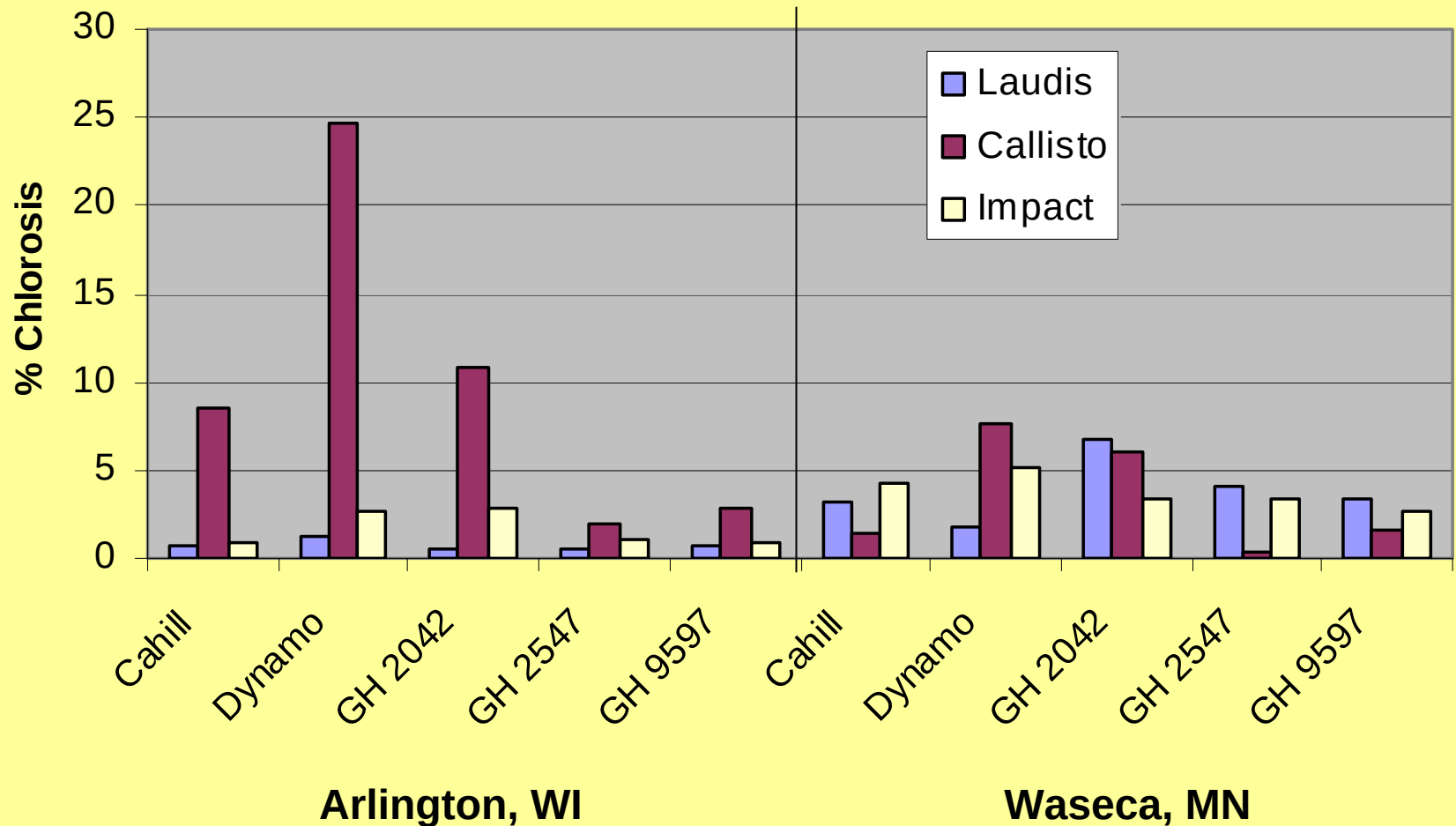
- Preemergence treatment applied
- Applied at V3-V4
- Crop injury rated at 7, 14, and 35 DAT
- Green husk yields taken



Mean Chlorosis and Stunting of Merit 7 DAT



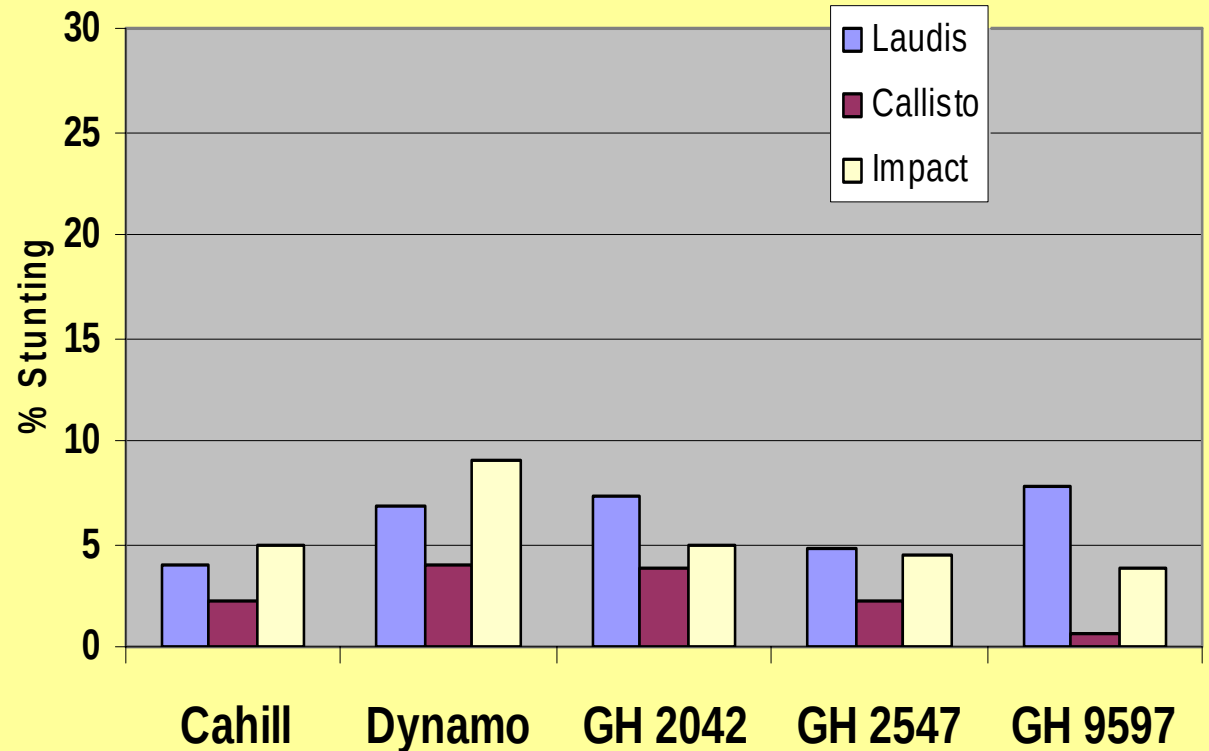
Mean Chlorosis at 7 DAT



Mean Stunting at 7 DAT

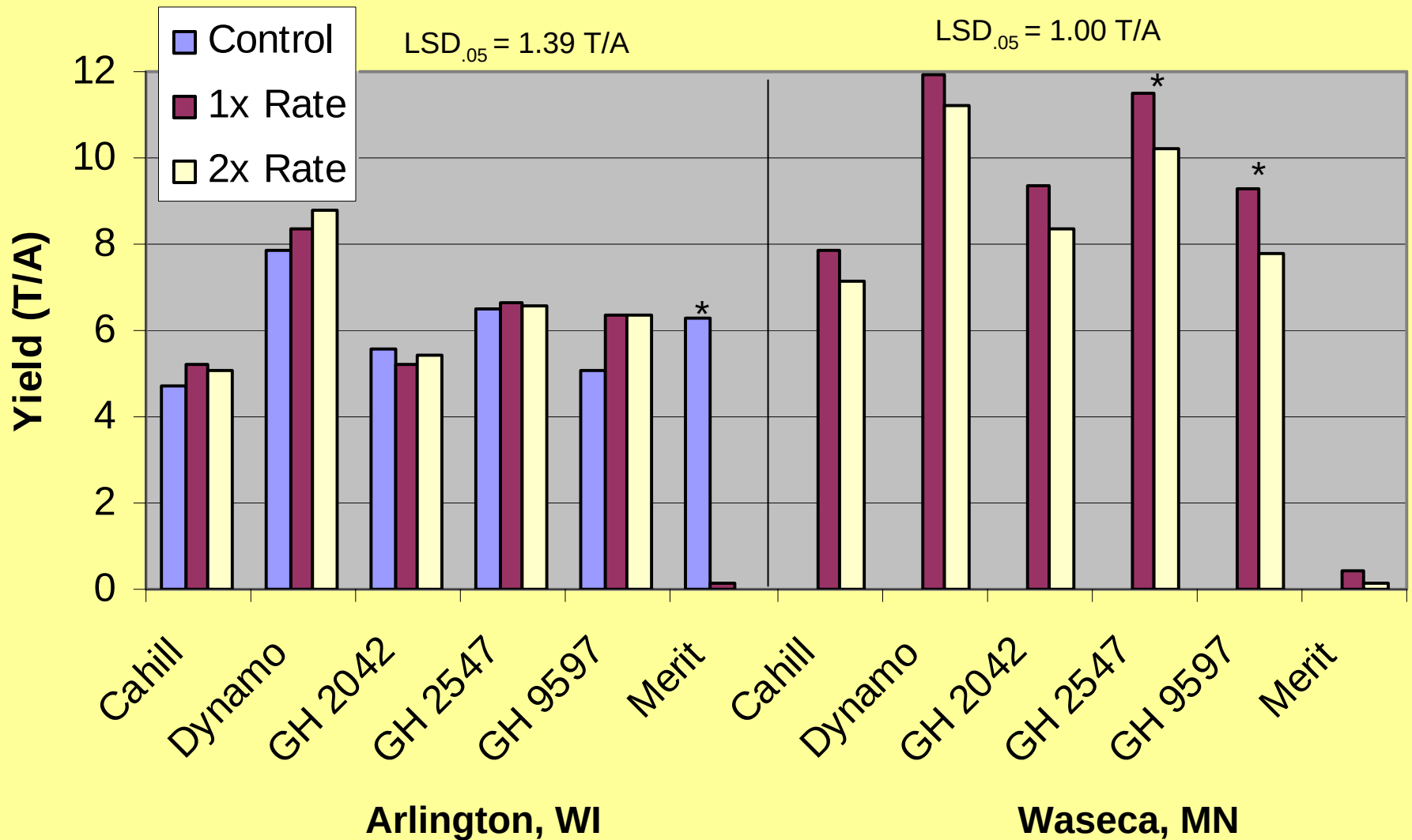
Arlington, WI

- No stunting over 1%

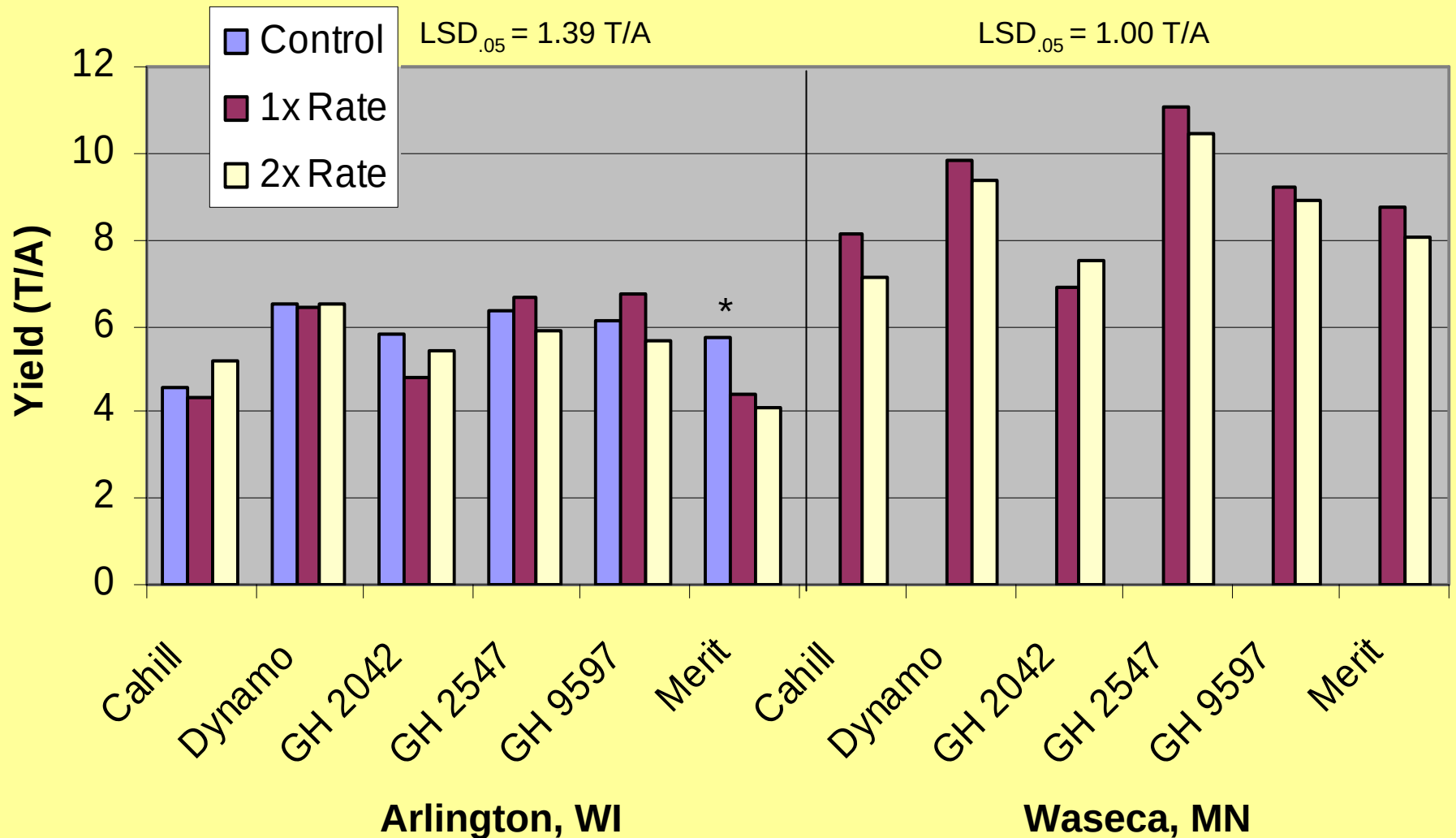


Waseca, MN

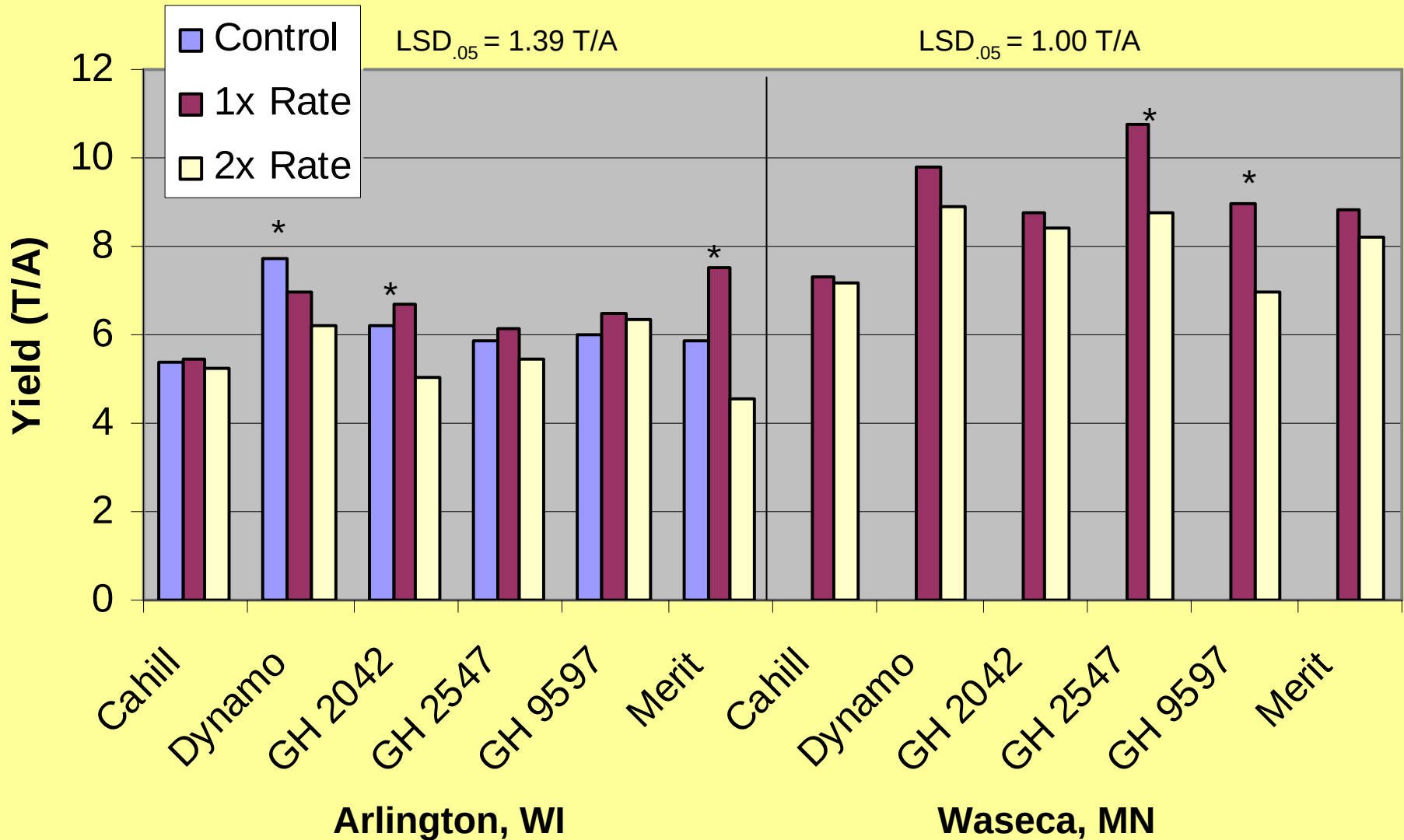
Laudis: Hybrid Yield by Rate



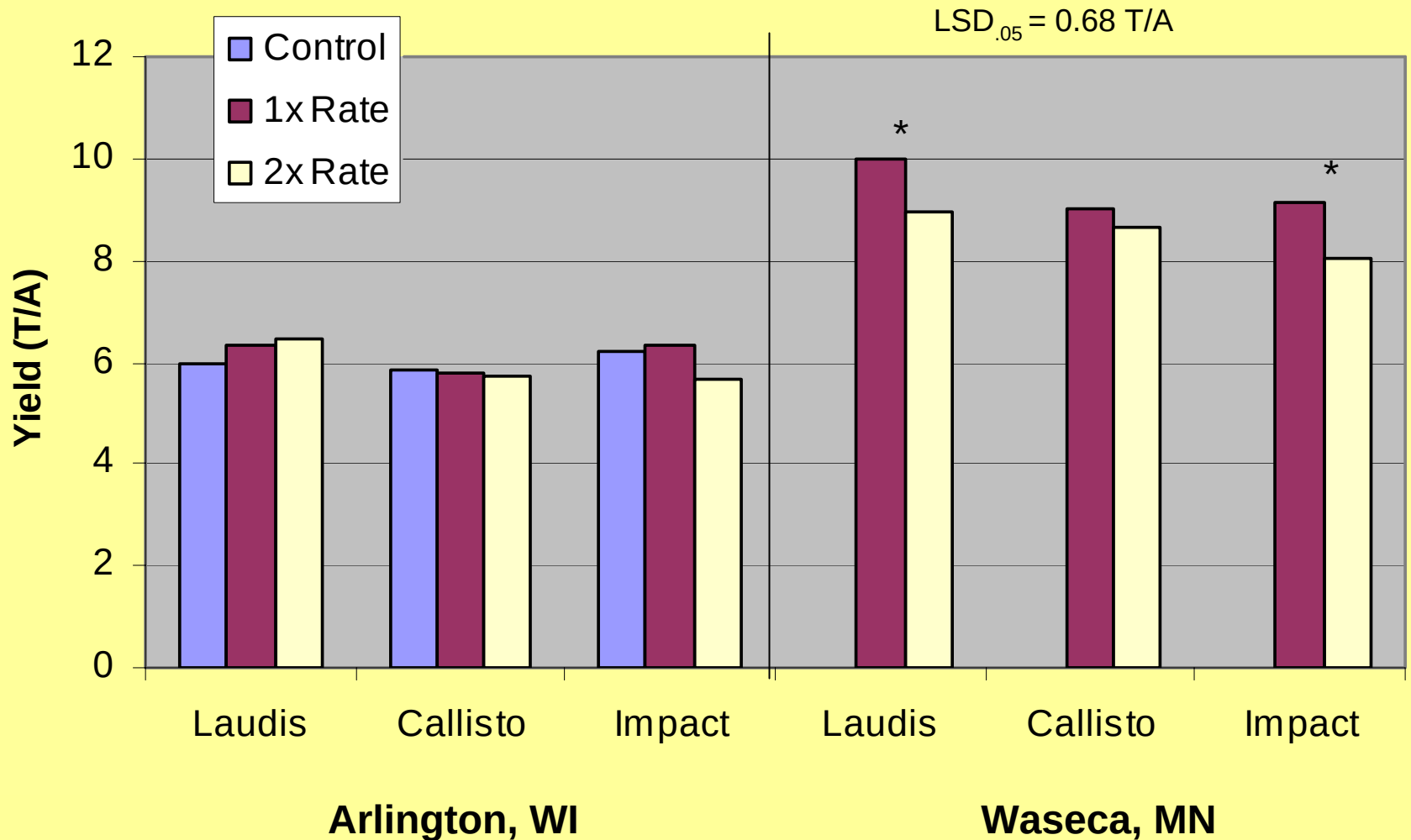
Callisto: Hybrid Yield by Rate



Impact: Hybrid Yield by Rate



Average Yield of 5 Hybrids



HPPD Herbicide Summary

- Callisto has greater potential than Impact or Laudis to visually injure certain hybrids
- Laudis killed the homozygous sensitive hybrid Merit
- Yields did not differ among herbicides at Arlington
- Yields were reduced at 2X rates of Laudis and Impact at Waseca

Weed Control Ratings

Grass		Callisto	Impact	Accent	Poast
	Barnyardgrass	P	F/G	G/E	E
	Crabgrass	F/G	F/G	P	E
	Fall Panicum	P	F	G	E
	Foxtails	P	F/G	G/E	E
	Field sandbur	P	-	G	E
	Wild proso millet	P	F	G/E	E
	Woolly cupgrass	P	F	G/E	G
Broadleaf	Cocklebur	G	G	P	N
	Common ragweed	F/G	G	P	N
	Giant ragweed	G	G	P	N
	Eastern black nightshade	E	G/E	P	N
	Common lambsquarters	E	E	P	N
	Pigweeds	E	E	G	N
	Smartweeds	E	G	G	N
	Velvetleaf	G/E	G/E	F	N

Rotational Restrictions

Herbicide	Alfalfa	Barley	Snap beans	Oats	Peas	Potato	Soybean	Wheat
Callisto	10M	120D	18M	120D	18M	10M	10M	120D
Impact	9M	3M	18M	3M	9M	9M	9-18M ^a	3M
Accent	10M	8M	10M	8M	10M	10-18M ^b	15D	4-8M ^c
Poast	0	0	0	0	0	0	0	0

^a Wait 9M if using 0.5 oz/a rate.

^b If the soil pH is 6.5 or greater, do not plant for 18M.

^c 4M for spring wheat and 8M for winter wheat.

Summary

- HPPD-inhibiting herbicides
 - Excellent broadleaf activity, especially with atrazine tank mixtures
 - Certain rotational crop restrictions
- Callisto - 3 oz/a
 - Minimize risk of injury by using nonionic surfactant vs crop oil conc.
 - DO NOT:
 - Add 28% UAN or AMS
 - Apply to seed treated with Counter or Lorsban
 - Tank mix with organophosphates (OP) or carbamates
 - Apply Callisto POST 7 days before/after OP or carbamate applications
- Impact - 0.5 or 0.75 oz/a
 - Good crop safety
 - Can only rotate to soybeans if using 0.5 oz/a
 - Good grass suppression or control
- Laudis
 - Registration expected in 2008
 - Good crop safety
 - Good grass control