

Effective No-till Weed Management

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Goals of weed and herbicide management

- Protect yield
 - Does good weed control = max yield?
- Control weeds and prevent seed production
 - Reduce density of future infestations
- Prevent shifts to new and more difficult species
- Reduce selection for herbicide resistance
 - Minimize number of weeds treated with glyphosate?

Minimum components of no-till herbicide program

- Preplant burndown (fall or spring)
- Residual herbicides (preplant/preemergence)
- Early postemergence
- Late postemergence (maybe)

No-till = increase in weed species diversity

- Winter annuals
- Biennials
- Cool-season perennials
- Warm season perennials
- And still have summer annuals
 - Some get sparser
 - Others get more abundant

Since adoption of RR soybeans

- Reduced populations of warm-season and cool-season perennials
 - Hemp dogbane, milkweed, Canada thistle, quackgrass
- Summer annuals - better or worse, depending upon management
 - Shift to late-emergers - waterhemp, giant ragweed
 - Lambsquarters issues

Winter weed problems

- Winter/summer annuals
 - marestail (horseweed)
- Winter annuals
 - common chickweed, purple deadnettle, henbit, mustards, cressleaf groundsel
- Biennials
 - wild carrot, poison hemlock
- Perennials
 - dandelion, sowthistle, curly dock

Winter weeds

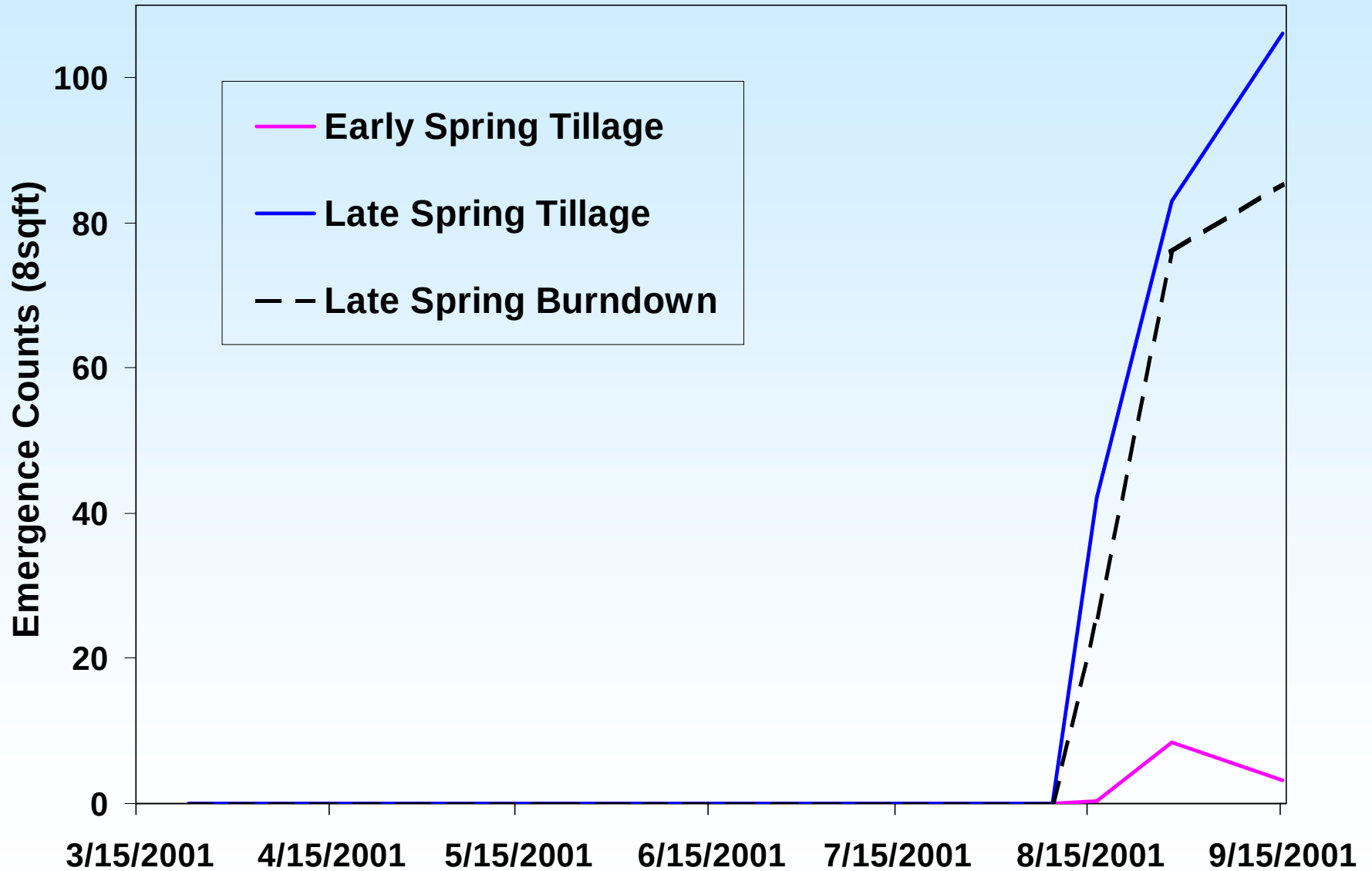
Sparse populations can be controlled in spring before planting.



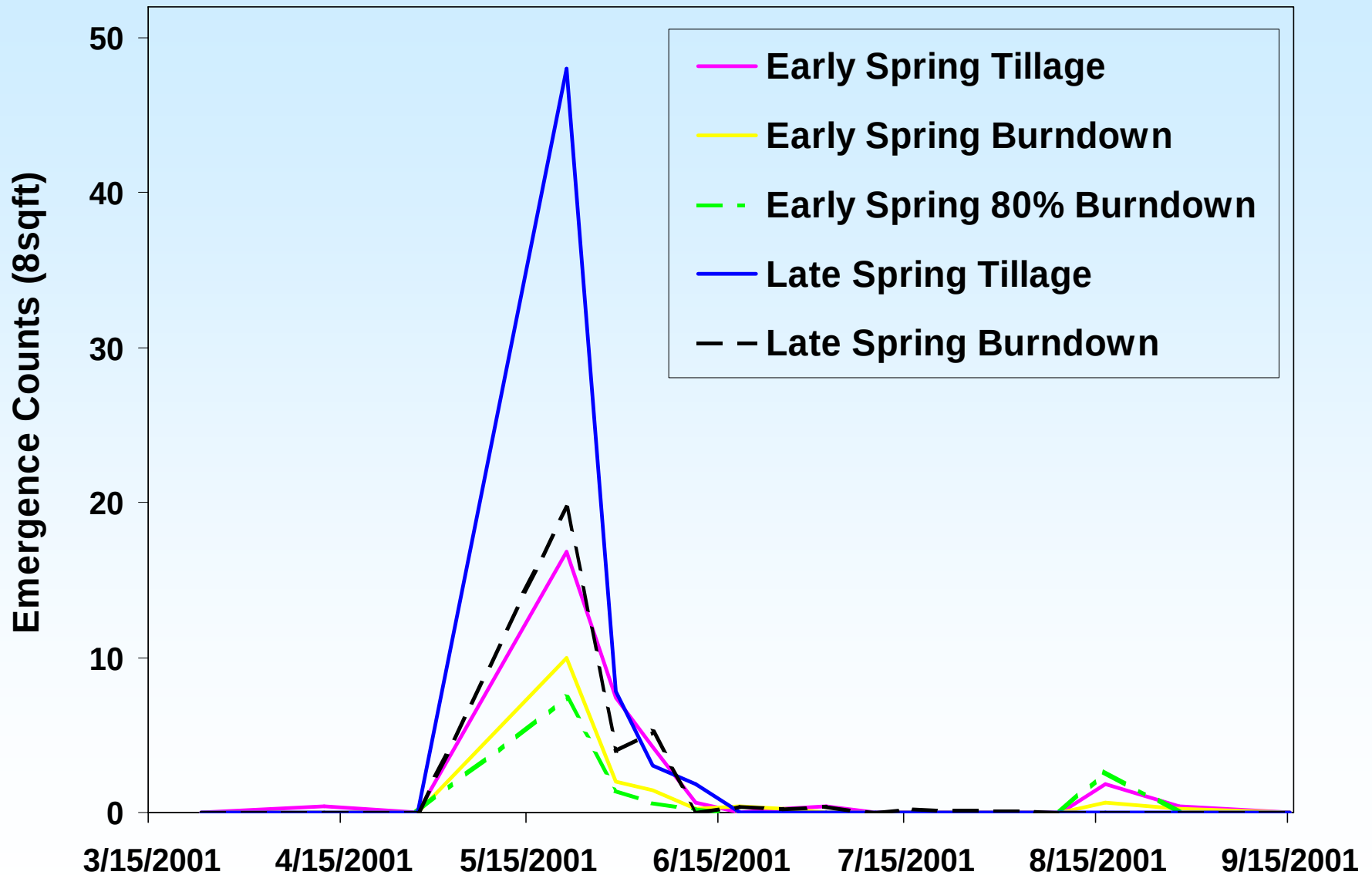
Denser populations may require late fall or early spring herbicide treatment.



Purple Deadnettle



Seedling dandelion



Purple deadnettle control - 2001

Control at soybean planting

Site1

Site2

Site3

Fall (Nov)

Gly/2,4-D	90	88	92
CanXL/Exprs/2,4-D	100	98	100
Sencor/2,4-D	51	98	98
Sencor/Gramox/2,4-D	95	85	100

Spring (March)

Gly/2,4-D	32	18	95
CanXL/Exprs/2,4-D	80	98	93
Sencor/2,4-D	77	100	80
Sencor/Gramox/2,4-D	78	100	72

Chickweed/deadnettle control
Fall-applied herbicides, Western OH, 2002-03

	April 17		May 28
	Pdead	Chick	Chick
Glyphosate	100	100	42
CanopyXL (2.5 oz)	99	100	100
CanopyXL (4.5 oz)	100	100	100
Sencor (8 oz)	100	100	67
Scepter (2.1 oz)	100	100	58
Valor (2 oz)	100	100	58

All treatments applied with glyphosate and/or 2,4-D

Horseweed (marestail)



2002/03 – Marestalk control
Early May application – 4 to 6 inch plants

	Rate oz/A	% control – 30 DAT		
		ALS	Sens	Gly
2,4-D	32	78	52	88
Glyphosate 3S	32	90	100	68
	48	97	100	68
Gly 3S + 2,4-D	24 + 16	100	100	97
	32 + 16	100	100	95
CanopyXL + Gly3S	4.5 + 32	100	100	100
CanopyXL + 2,4-D	4.5+16+32	100	100	100
+ Gly3S				

Marestail Response in Field with 2,4-D – Montgomery Co., OH



FirstRate + glyphosate - 1X



FirstRate + glyphosate + 2,4-D - 1X



Size at time
of application – 5-11-04



Glyphosate (3.0 lb ea/A) + 2,4-D (0.5 lb ai/A)

Marestail control in soybeans

- Ohio has populations resistant to glyphosate or ALS inhibitors (or possibly both)
- Use an effective preplant burndown or tillage
 - Glyphosate (1.1 to 1.5 lbs/A) + 2,4-D
 - Glyphosate + 2,4-D plus:
 - Authority First, Canopy, FirstRate, Gangster, Sonic, or Synchrony
 - Gramoxone + 2,4-D + Canopy DF + Sencor
 - Gramoxone + 2,4-D + metribuzin (Sencor)

Marestail control in soybeans

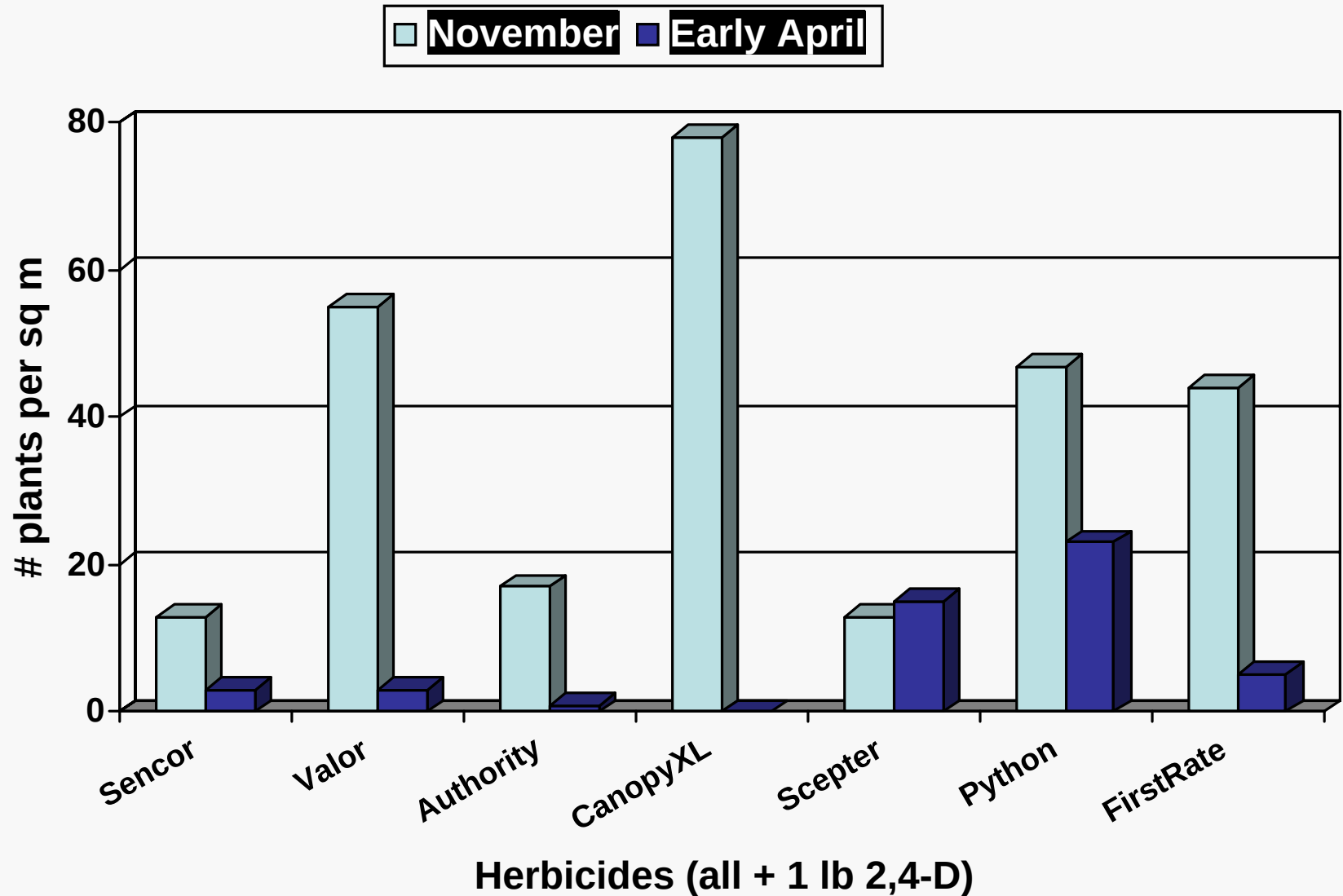
Add residual herbicide if planting before mid-May

- ALS-resistant
 - Valor, Sencor, Gangster, Canopy + Sencor
- Not ALS-resistant
 - Authority First, Canopy, Synchrony XP, Python, FirstRate, Sonic

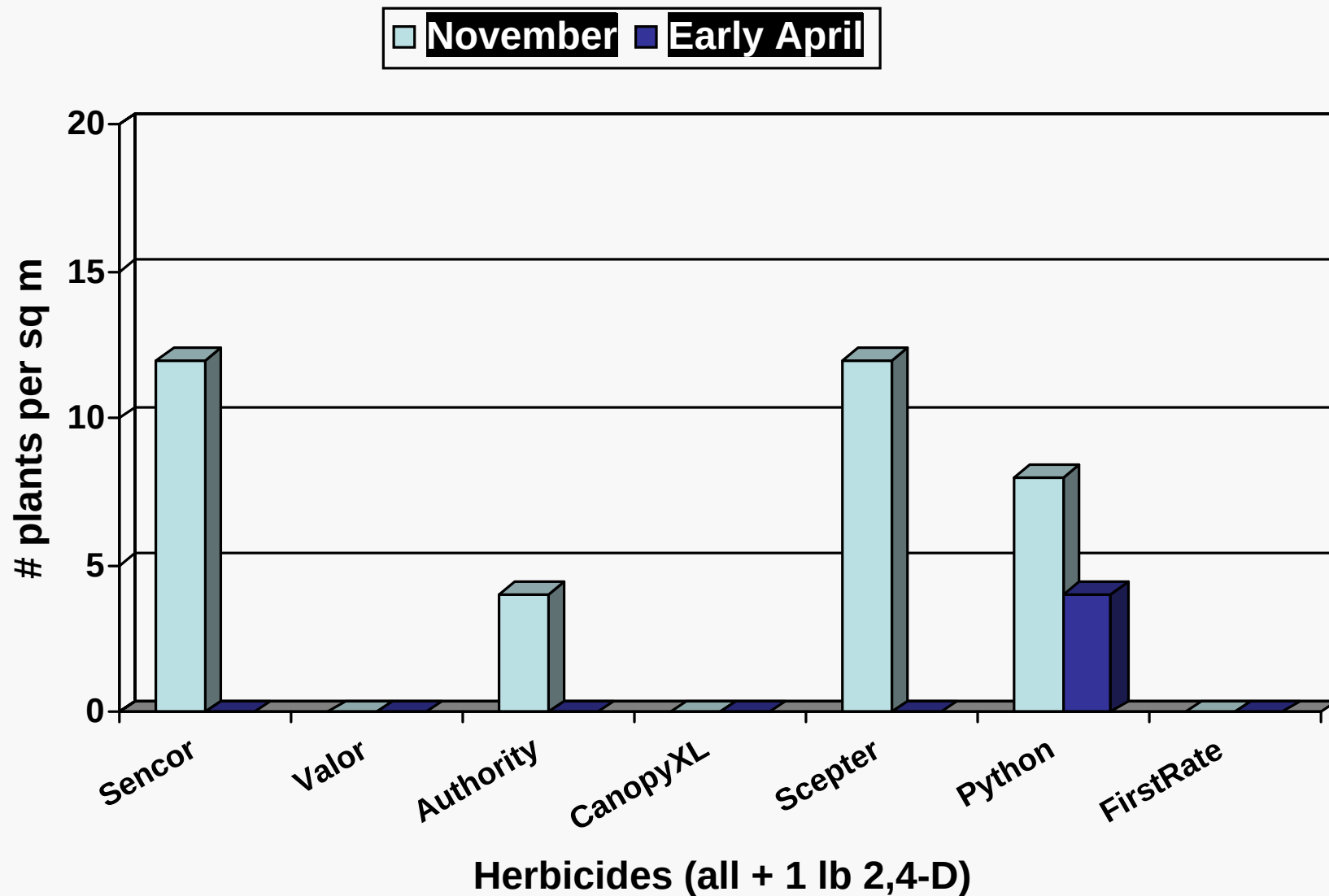
Postemergence to control escapes in RR soybeans

- Glyphosate (1.5 lb ae) plus:
 - FirstRate or Classic
- Hope you are living right!

Residual Control of ALS-resistant Marestalk
May 30, 2002 rating



Residual Control of ALS-sensitive Marestail
May 30, 2003 rating

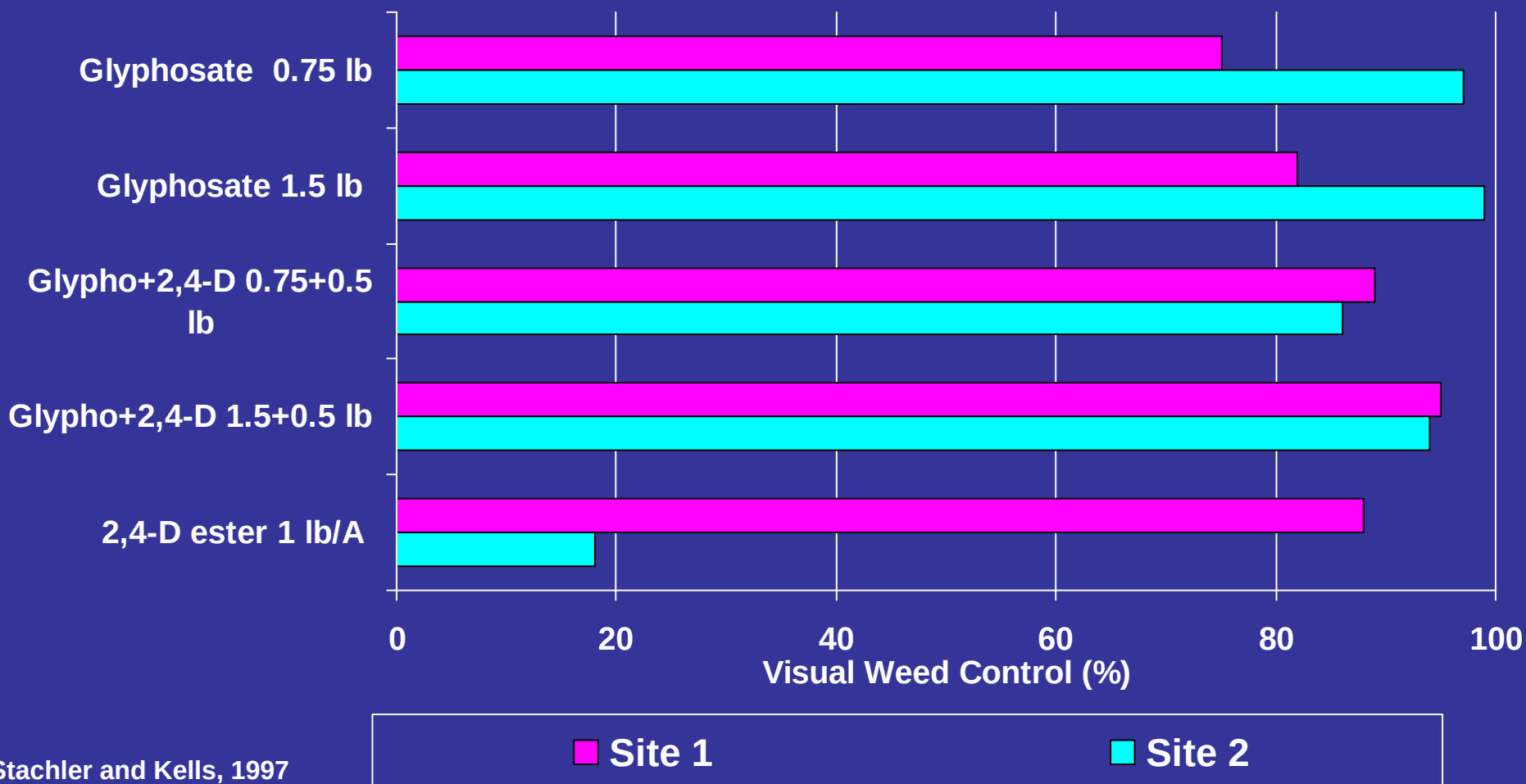


Wild Carrot



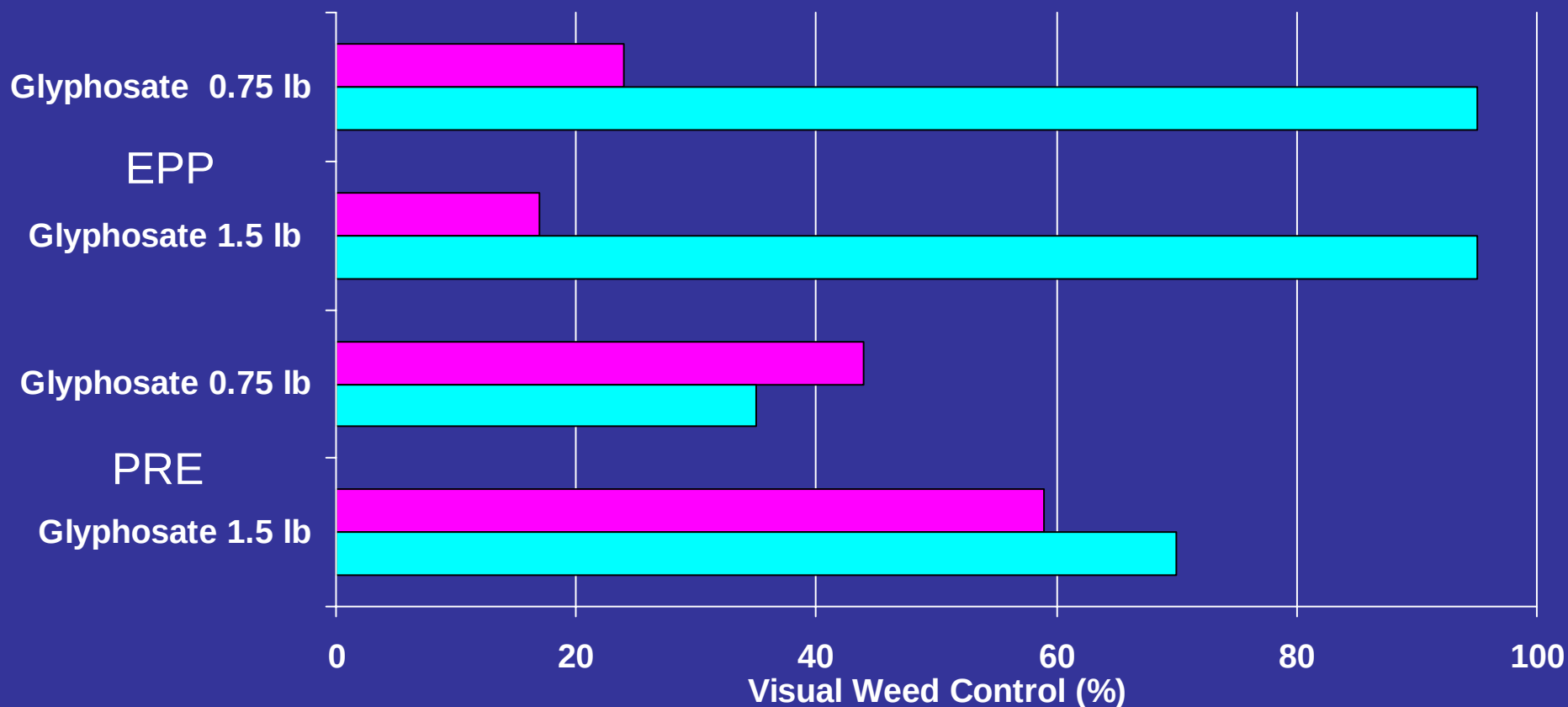
Wild Carrot

Fall Applications - May 16 rating



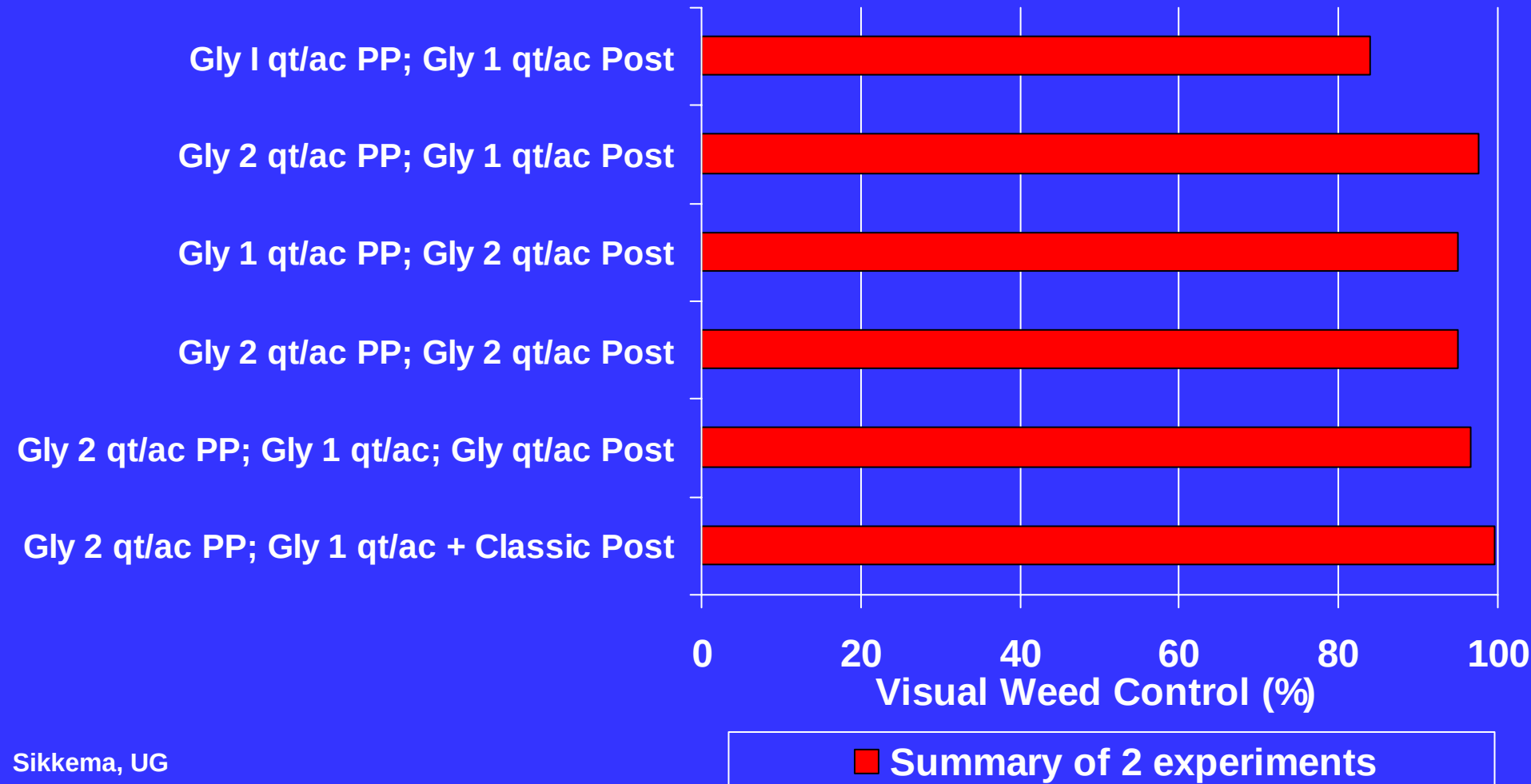
Wild Carrot

EPP/PRE Applications - July rating



Wild Carrot

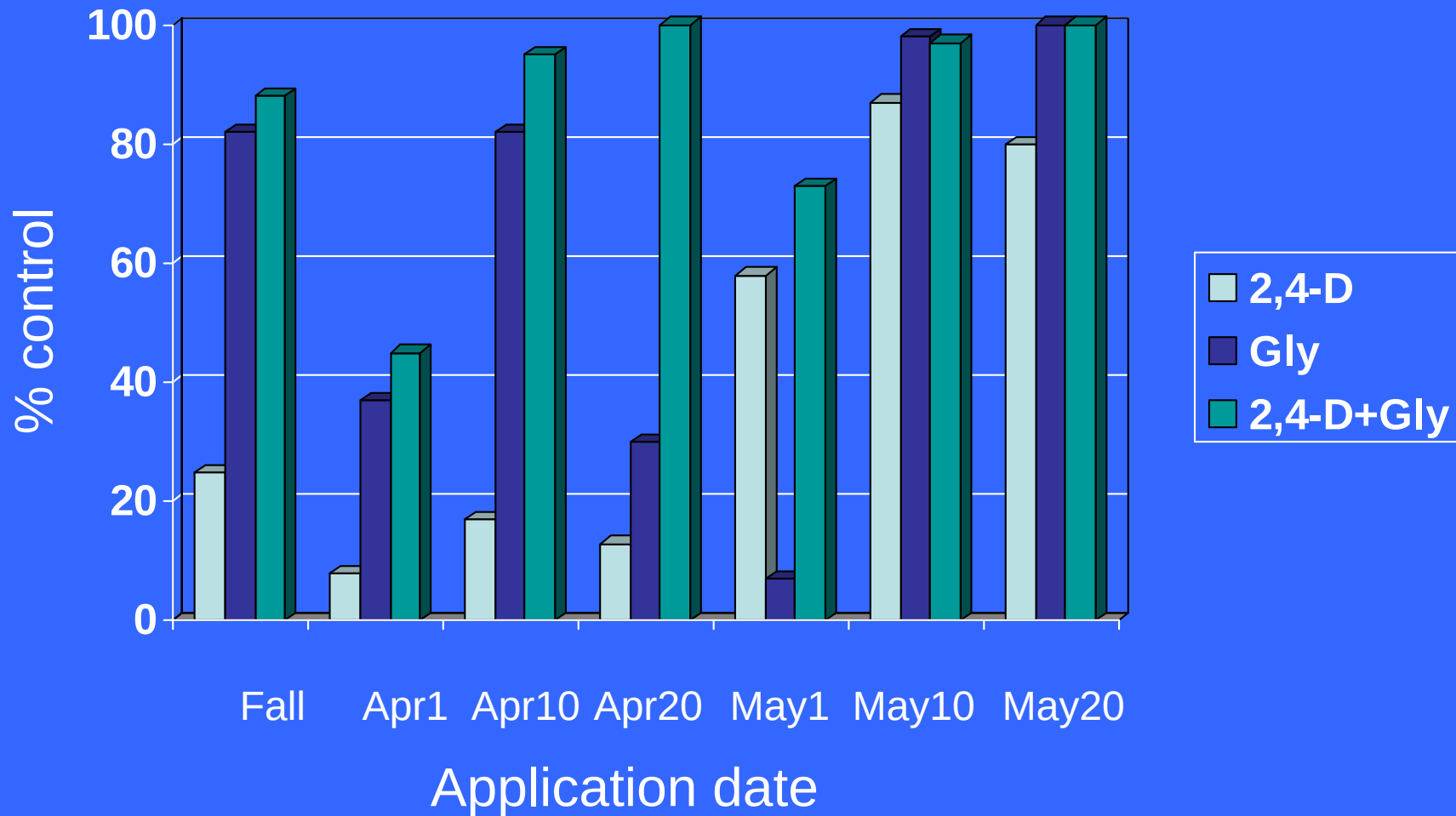
Roundup Ready Soybeans



Dandelion *Taraxicum officinale*



OARDC NW OH
Dandelion – 2003 spring timing study
June 23 Evaluation



Dandelion control - fall soybean treatments Western OH, 2002/2003

	Rate	4/30	Harvest	
	(lb ai/A)	% control		# plants % of UT
2,4-D ester	1.0	80	89	15
Glyphosate/2,4-D	0.75/0.5	100	99	0
CanXL/Express/2,4-D	0.16/0.008/0.5	100	100	0
Valor/2,4-D	0.07/0.5	50	37	100
Valor/glyphosate	0.07/0.56	97	87	10
Untreated		0	30	100

****All treatments followed with POST glyphosate treatment****

Dandelion control - fall soybean treatments Northwest OH, 2002/2003

	Rate	4/24	Harvest	
	(lb ai/A)	% control		# plants % of UT
2,4-D ester	1.0	72	80	28
Glyphosate	0.75	95	82	21
Glyphosate/2,4-D	0.56/0.5	93	82	13
CanXL/Express/2,4-D	0.16/0.008/0.5	88	87	8
Valor/2,4-D	0.07/0.5	70	62	88
Valor/glyphosate	0.07/0.56	95	83	16
Untreated		0	30	100

****All treatments followed with POST glyphosate treatment****

Control of dandelion – PRE corn herbicides 2003/2004 – applied April 20 - avg of 4 exps

	May 18	June 18	Harvest
	% control		# plants % of UT
Balance/atrazine	59	41	22
Balance/atrazine/2,4-D	81	77	13
Lumax	93	68	13
Lumax/2,4-D	96	88	7
Atrazine/2,4-D	64	59	31
Atrazine/glyphosate	82	77	47
Atrazine/glyphosate/2,4-D	78	79	40

****All treatments followed with POST Distinct****

Control of dandelion – PRE soybean herbicides 2003/2004 – applied April 20 - avg of 4 exps

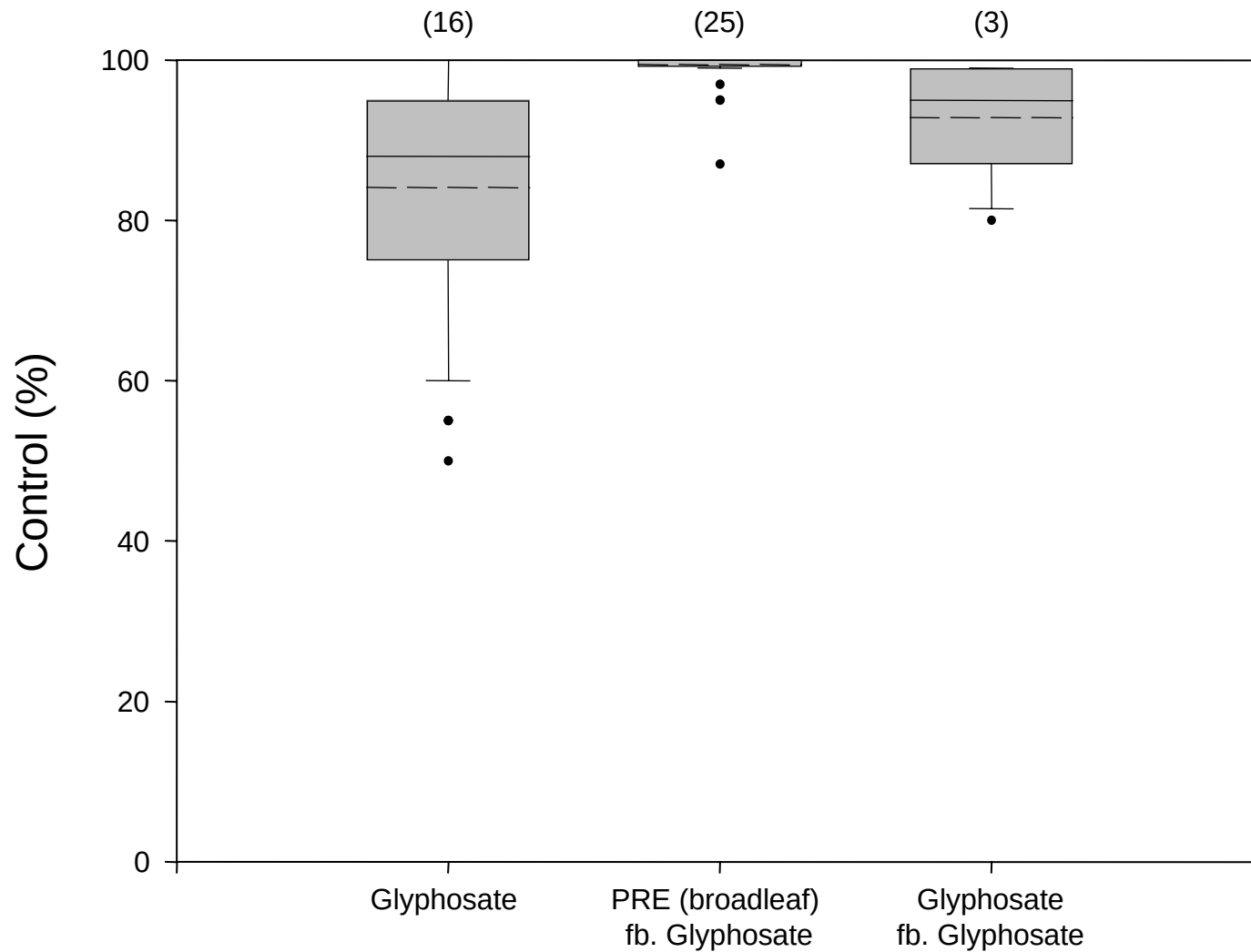
	May 18	June 4	Harvest
	% control		# plants
Glyphosate (0.75)	70	73	42
Glyphosate (1.1)	77	85	26
Gly (0.75) + 2,4-D	72	81	35
Valor + Glyphosate	92	81	28
Valor + Gly + 2,4-D	91	79	26
CanopyXL + Gly	81	93	26
CanopyXL + Gly + 2,4-D	87	95	19



POST LBQ control - RR soybeans
No burndown vs burndown (Gly + 2,4-D)

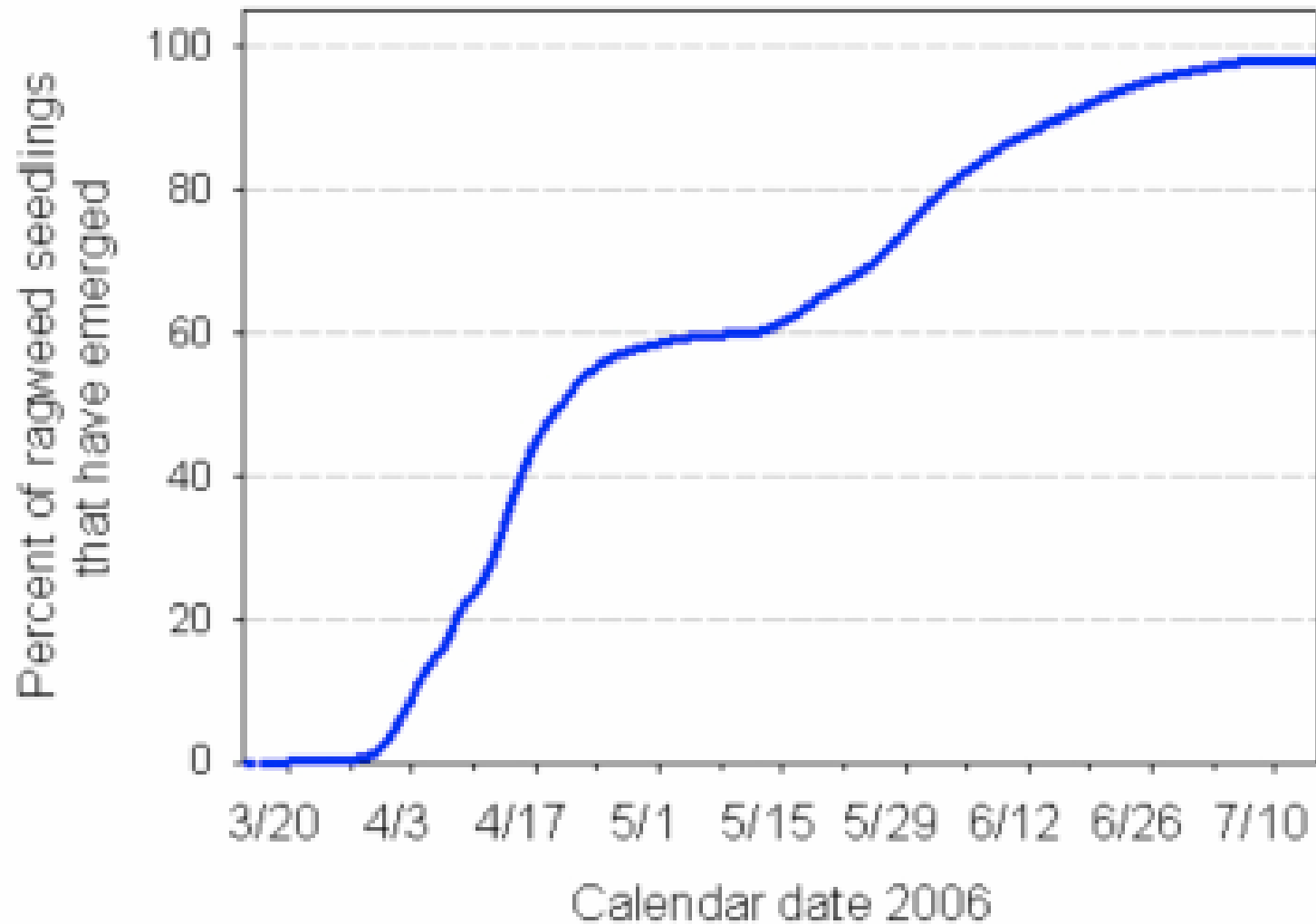
	Darke Co.	Jay Co.
No burndown	% control	
Gly 0.75 lb	67	26
Gly 1.5 lb	83	59
Gly 0.75 + Gly 0.75	90	73
Burndown		
Gly 0.75 lb	77	68
Gly 1.5 lb	93	74
Gly 0.75 + Gly 0.75	100	97

Consistency of Common Lambsquarters Control
in Roundup Ready Soybeans
Data from studies in 2000-05, Michigan State University



() = Number of treatments in each observation
each treatment was replicated 3 to 4 times.

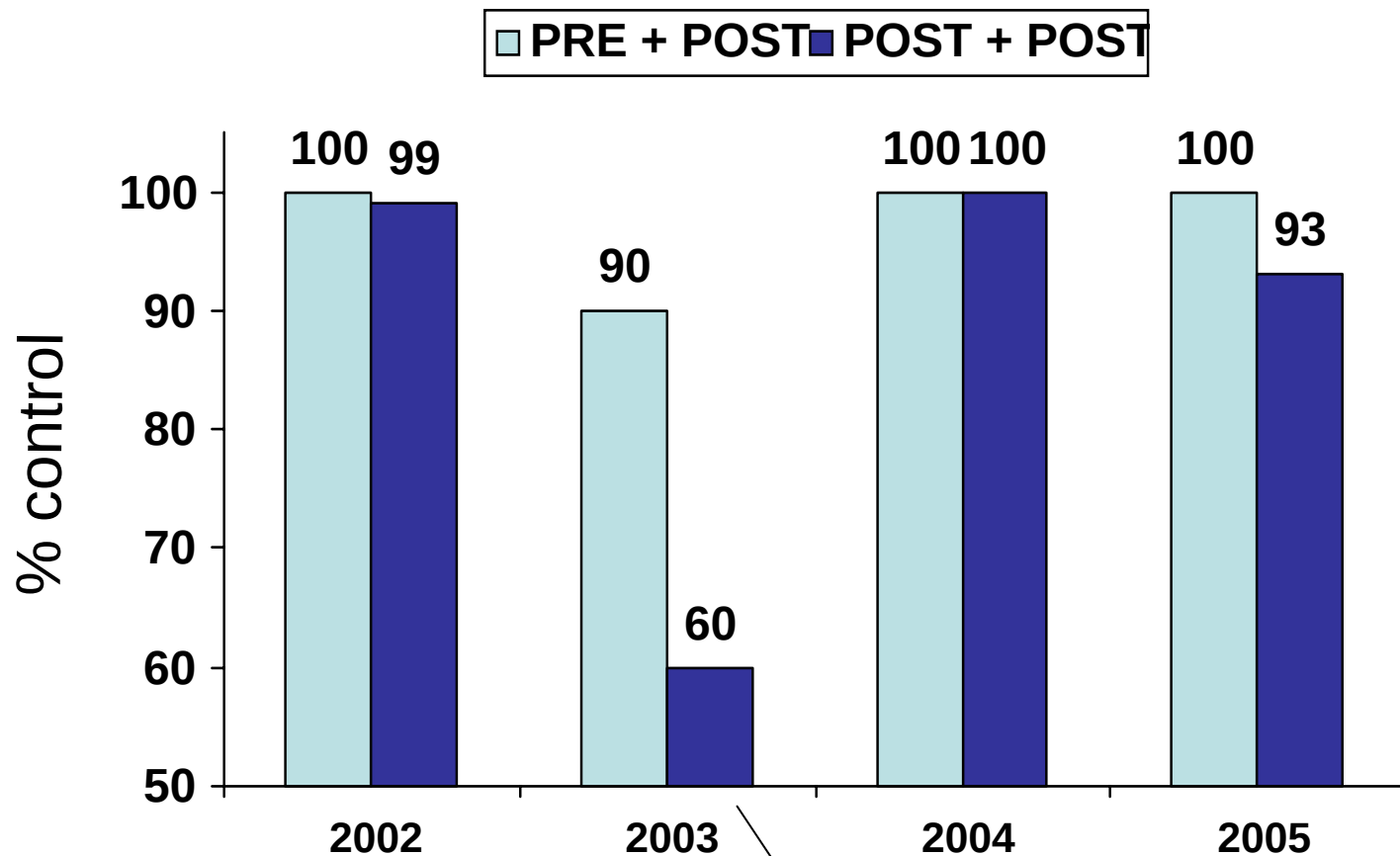
Giant ragweed emergence - 2006 - Western OH



Control of giant ragweed in Roundup Ready soybeans

PRE = Canopy

POST = glyphosate - 0.75 lb ae/A



POST Glyphosate applied only once in 2003

Residual control with fall-applied herbicides
Western OH, 2002/03

	Control on 5/28/2003	
	LBQ	GiRW
CanopyXL (2.5 oz)	100	78
CanopyXL (4.5 oz)	100	77
Sencor (8 oz)	7	0
Python (1 oz)	20	13
FirstRate (0.3 oz)	50	63
Scepter (2.1 oz)	23	23
Valor (2 oz)	70	6

Residual control with fall-applied herbicides Western OH, 2004/05

Control on 6/6/2005

Dan chick LBQ GiRW

Glyphosate + 2,4-D	72	53	0	0
CanopyEX (1.5 oz) + 2,4-D	100	100	100	93
Glyphosate + Scepter + 2,4-D	70	88	10	10
Glyphosate + Firstrate + 2,4-D	78	85	73	97

No-till herbicide treatments

- Fall burndown
 - Dandelions, biennials, dense winter annuals
 - Remediation of dense infestations
 - Prevention of population increase, especially where no plans to use burndown in spring
 - Include residual herbicides?
- Spring burndown
 - Control of sparse stands of winter annuals, biennials, dandelions
 - Early enough to prevent winter annual seed production
 - Essential for effective control of early-emerging summer annuals - maretail, giant ragweed, LBQ

No-till herbicide treatments

- Residual herbicides (preplant/preemergence)
 - Marestalk, giant ragweed, lambsquarters, waterhemp
 - Reduce early-season interference = maximize yield
 - Wider POST application window
 - Reduce selection pressure
 - Minimize need for a second POST application
- POST herbicides
 - Improve control of dandelions, biennials
 - Giant ragweed, waterhemp, grasses
 - Canada thistle
 - Warm-season perennials - dogbane, pokeweed

OSU C.O.R.N. Newsletter

corn.osu.edu

OSU Weed Science Website

agcrops.osu.edu/weeds

Weed Control Guide for OH/IN

[Extension Bulletin 789](#)

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