Giant Ragweed and Horseweed Management

Chris Boerboom
Extension Weed Scientist
University of Wisconsin

Giant Ragweed

Native plant

Early emerger

< 5,000 seeds/plant

35-86% seed not viable

Up to 90% seed may not survive 1 year in soil

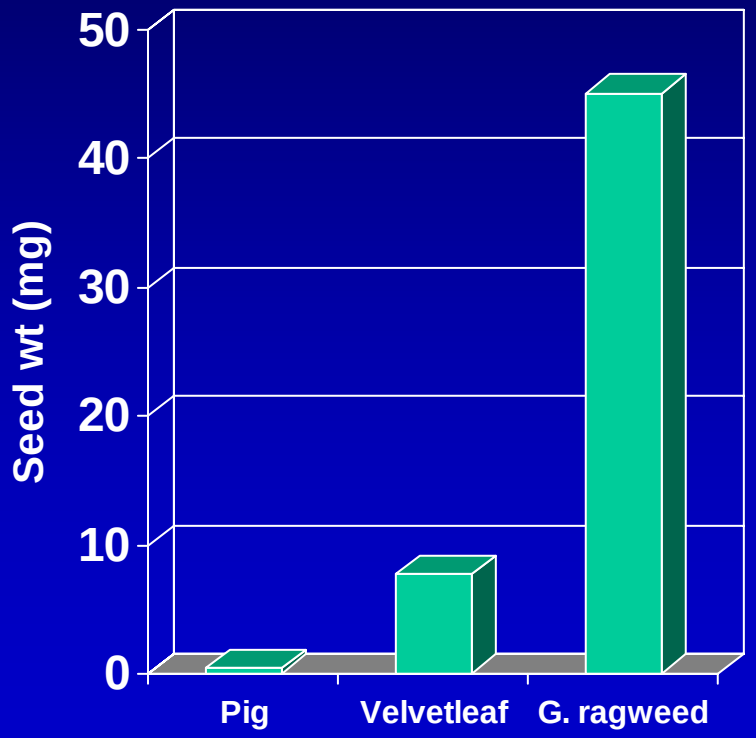
The difficulties start early

Seed size

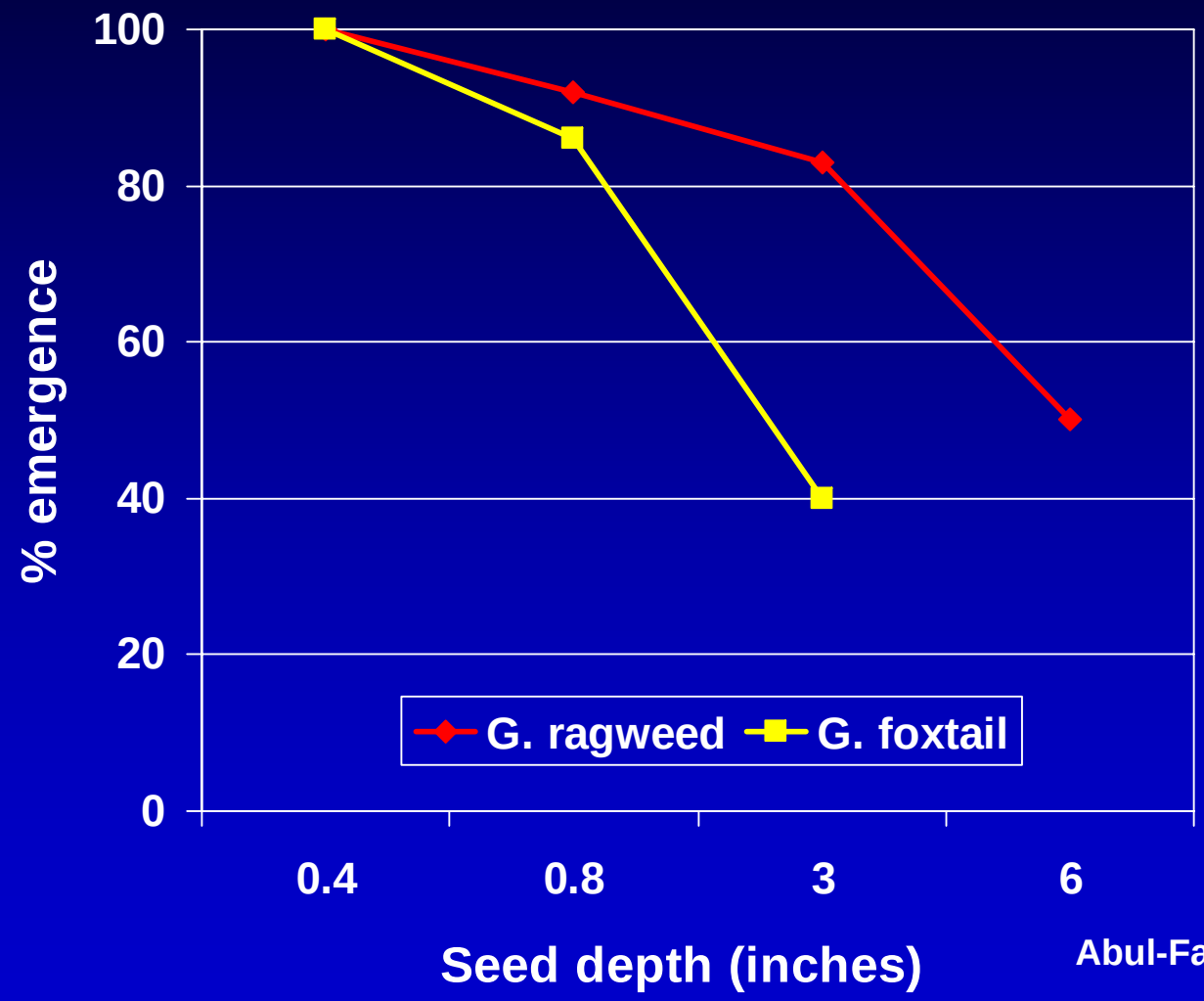
- Depth of emergence
- Rapid establishment
- Herbicide tolerance

Early emergence

Competitiveness

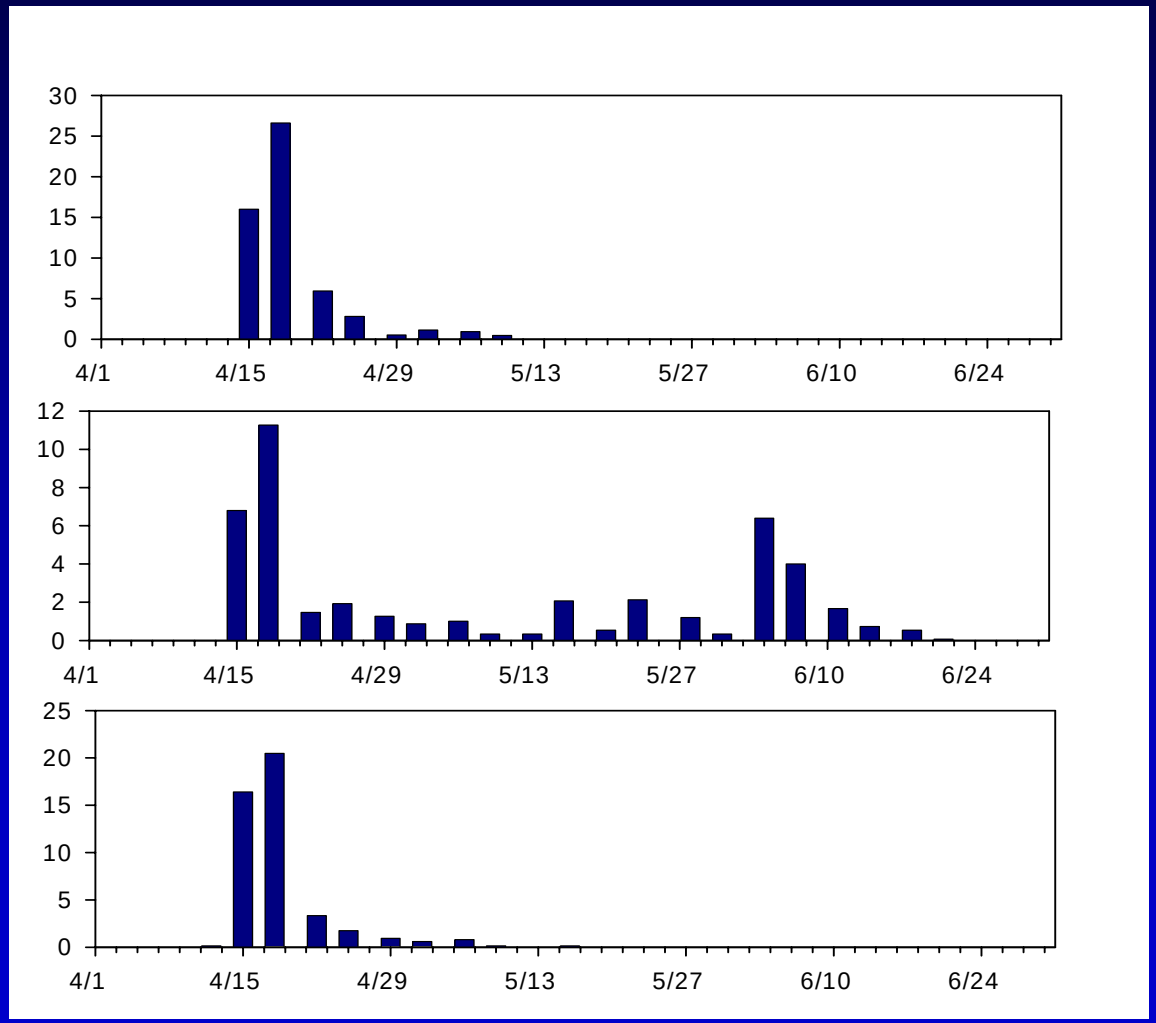


Seed Depth vs Emergence



Abul-Fatih and Bazzaz. 1979.

Giant Ragweed Emergence Patterns



Iowa ag

Ohio ag

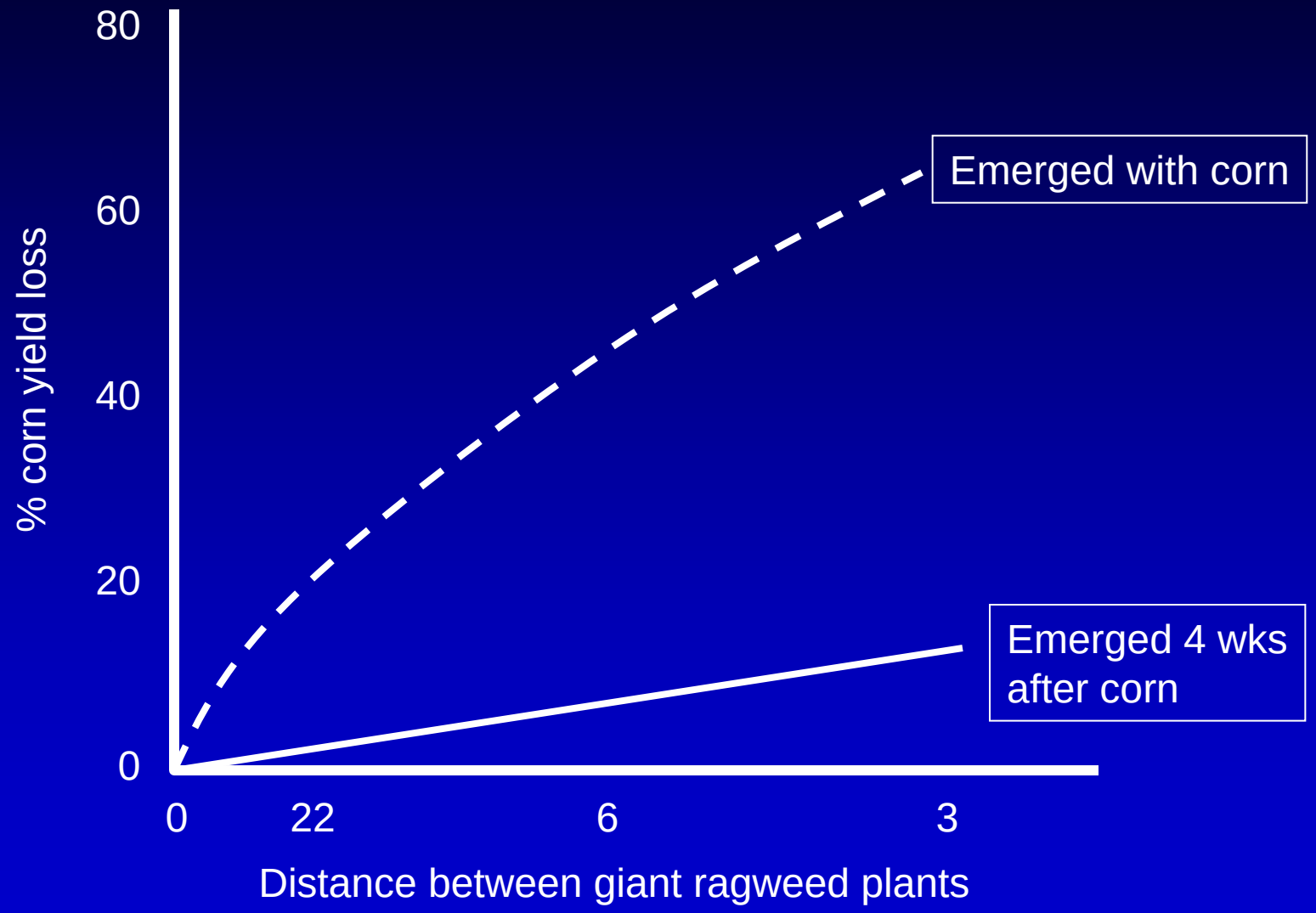
Iowa undis

UW Extension

Rapid growth and competition

Dille, A. 2003. WeedSoft Symposium

Effect of giant ragweed on corn yield



Harrison et al. 2001

UW Extension

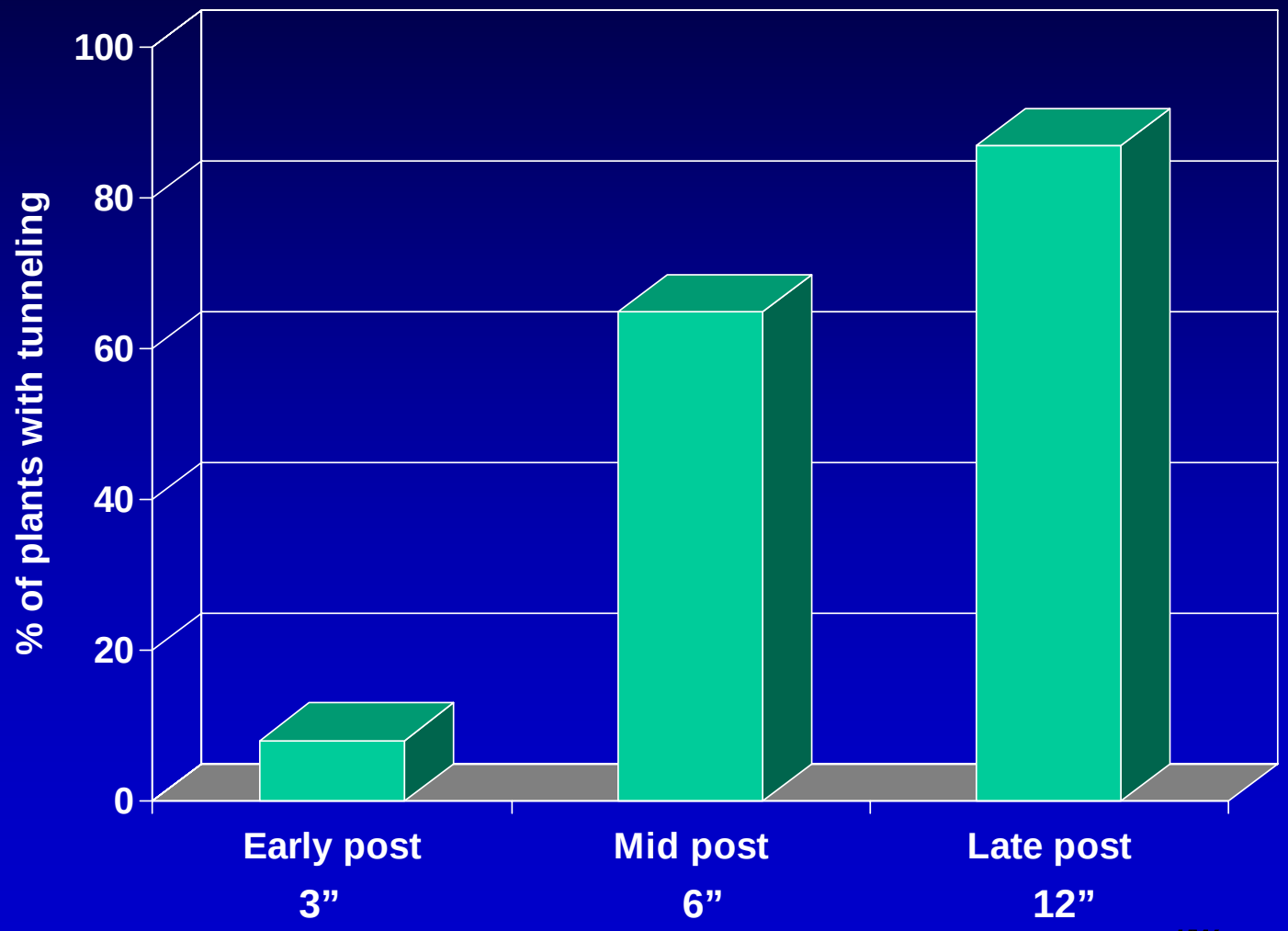
Control giant ragweed before planting

Insect - Herbicide Interactions

Photos courtesy of Dawn Nordby, U. IL

UW Extension

Effect of Application Timing on Insect Feeding



Nordby. Univ. of Illinois. 2003.

UW Extension

Importance of Insect Feeding

- Not a new phenomenon
- Decreased herbicide activity due to reduced translocation
- Surviving plants competitiveness greatly reduced
- Appropriate application timing will minimize occurrence

Control giant ragweed seed sources

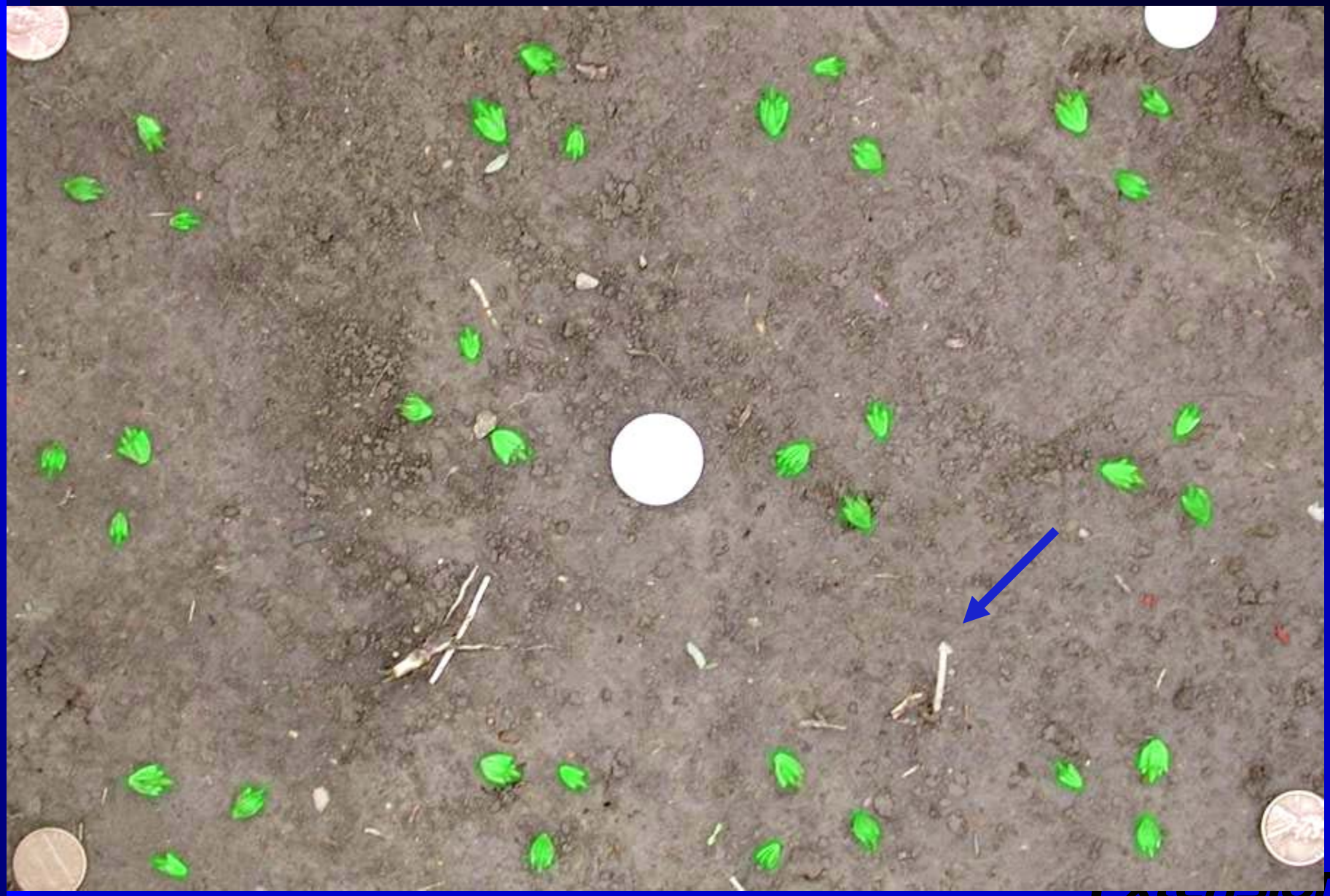
Giant Ragweed Management

	Corn	Soybean
Burndown	atrazine+2,4-D	glyphosate+2,4-D
	glyphosate+2,4-D	FirstRate+2,4-D
Preemergence – inconsistent, but good foundation		
	atrazine	FirstRate*
	Hornet+atrazine	Gangster*
	Lumax	
Postemergence – timing is critical		
	many options (atrazine- or growth regulator-based)	glyphosate, Extreme Cobra, Flexstar FirstRate*, Raptor*

***no control if ALS resistant**


1
2
3
4

0 hrs 5/19/01



24 hrs 5/20/01

Horseweed

Native

Winter annual

- 68-95% fall germinate
- 5-32% spring germinate

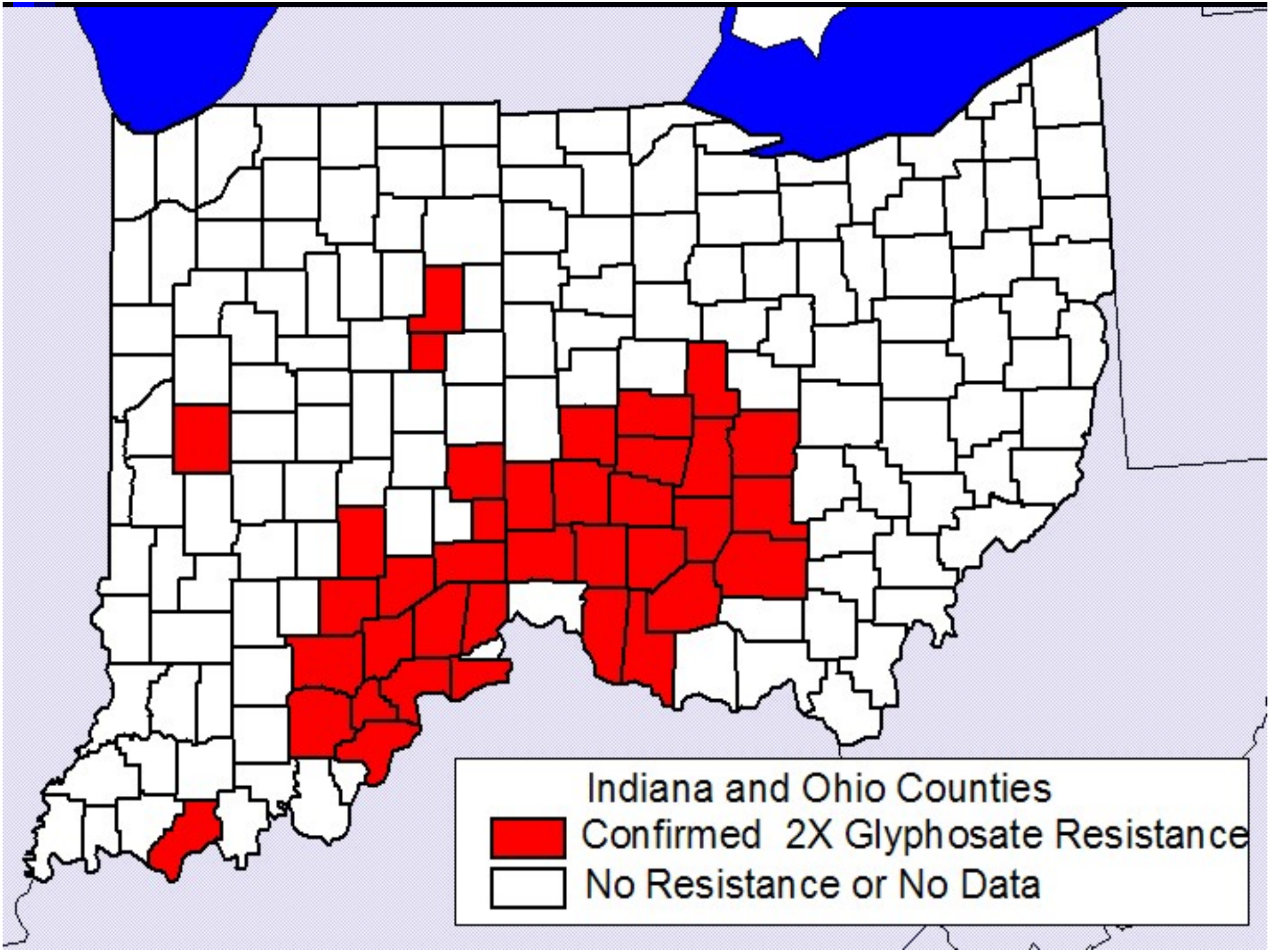
200,000 seeds/plant

Self and cross pollinates

- 1-14% outcrossing

<u>Resistance</u>

- glyphosate
- ALS
- atrazine
- paraquat


Indiana and Ohio Counties
Confirmed 2X Glyphosate Resistance
No Resistance or No Data

21 horseweed populations prior to herbicide application - Indiana

21 horseweed populations 3 weeks after 2X glyphosate

Response of Glyphosate *Resistant* Horseweed to Alternative Herbicides

Population	Region	FirstRate	Classic	Paraquat	2,4-D
56	SE	S	S	R	S
70	SE	R	S	S	S
73	SE	R	S	S	S
83	SE	R	R	S	S
173	SE	R	S	S	S
174	SE	R	S	S	S
260	SE	R	R	S	S
363	SE	R	S	S	R
392	NE	S	R	S	S

W. Johnson, Purdue, 2003

UW Extension

Glyphosate Resistant Horseweed

Indiana 2003 results

Glyposate-resistant populations in 19 counties

Cross resistance to ALS inhibitors >20% of glyphosate-resistant populations

Gramoxone resistance detected <10% of the populations

2,4-D resistance detected in 2 samples

Horseweed Management Keys

1. Control horseweed before planting
2. Treat before plants are 4-6 inches tall
3. Add 2,4-D to all burndown treatments
   - Be cautious of preplant restrictions

Horseweed Management Options

Seedlings or rosettes

- 2,4-D ester (1.0 lb ae/a – 30 day preplant for soybean)
- 2,4-D (0.5 lb ae/a) + glyphosate, Sencor, or Gramoxone
- Gramoxone + Sencor (small seedlings)

Horseweed with stem, but < 6 inches tall

- glyphosate (0.75 lb ae/a) + 2,4-D (0.5 lb ae/a)
- glyphosate (0.75 lb ae/a) + FirstRate (0.3 oz/a)
- Gramoxone (1.7 pt/a) + Sencor + 2,4-D (variable)
- Glyhosate + 2,4-D + FirstRate (for resistant horseweed)

UW Extension

Horseweed Management Options

Horseweed taller than 6 inches

Avoid because of the difficulty in control

glyphosate (1.5 lb ae/a) + 2,4-D + FirstRate

Residual control options in soybean

Authority

FirstRate

Gangster

Python

Sencor

Valor