

# 2011 Spinach Weed Control: Fennimore Research Program Update

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# Collaborators

- ◆ Steve Fennimore, UC Davis
- ◆ Richard Smith, UCCE Monterey
- ◆ John Rachuy, UC Davis

# Objectives

- ◆ Evaluate RoNeet (cycloate) and Dual Magnum (s-metolachlor), applied separately and in combination, for crop tolerance and weed control in spinach.
- ◆ Evaluate early preplant application of Dual Magnum for crop tolerance and weed control in spinach.

# RoNeet / Dual Magnum Trial

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# Trial Design

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- ◆ Located at USDA Hartnell Research Farm
- ◆ RCB design, w/ 4 reps per treatment
- ◆ Rep = single 40" bed x 20ft
- ◆ Spinach (cv. Whale) direct seeded 8/10/11
- ◆ Pre-emergence (PRE) herbicide treatments applied on 8/11/11.
- ◆ Untreated Control included in trial

<b>Treatments</b>	<b>Rate in lb ai /Ac (pts prod)</b>	<b>Timing</b>
RoNeet 6EC	3.0 (4 pts)	PRE
RoNeet	1.5 (2 pts)	PRE
RoNeet	0.75 (1 pt)	PRE
Dual Magnum 7.62EC	0.63 (2/3 pt)	PRE
Dual Magnum	0.32 (1/3 pt)	PRE
Dual Magnum	0.16 (1/6 pt)	PRE
RoNeet + Dual Magnum	3.0 + 0.63	PRE
RoNeet + Dual Magnum	1.5 + 0.63	PRE
RoNeet + Dual Magnum	0.75 + 0.63	PRE
RoNeet + Dual Magnum	1.5 + 0.32	PRE
RoNeet + Dual Magnum	1.5 + 0.16	PRE
Control	----	---

# Evaluations

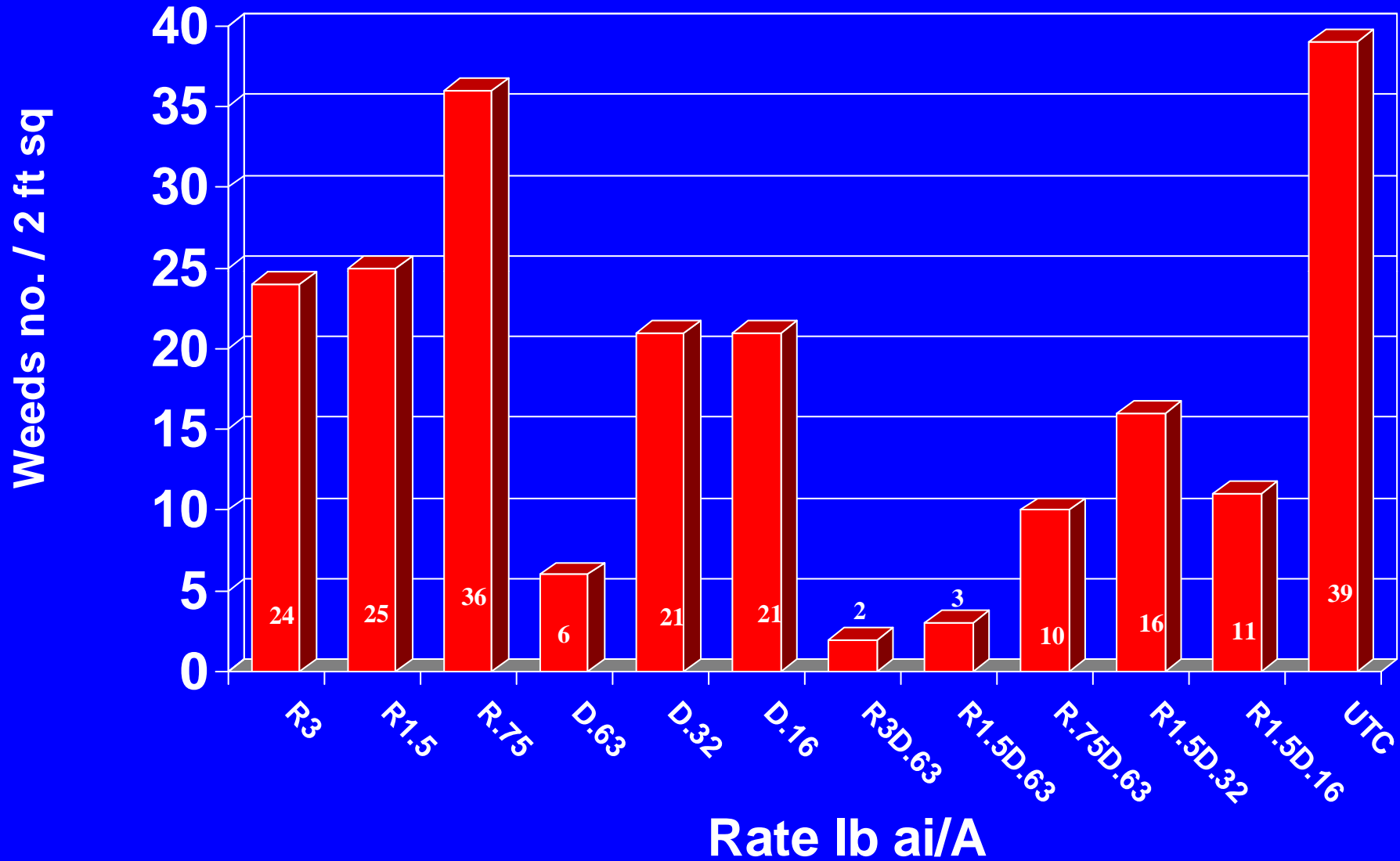
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- ◆ **Weed counts on 8/26/11 @ 15DAA**
- ◆ **Crop stand on 8/25/11 @ 14DAA**
- ◆ **Crop injury on 9/1/11 @ 20DAA (visual rating: 0-10; 0 = no injury, 10 = dead plants)**
- ◆ **Crop Yield on 9/16/11 @ 35DAA**

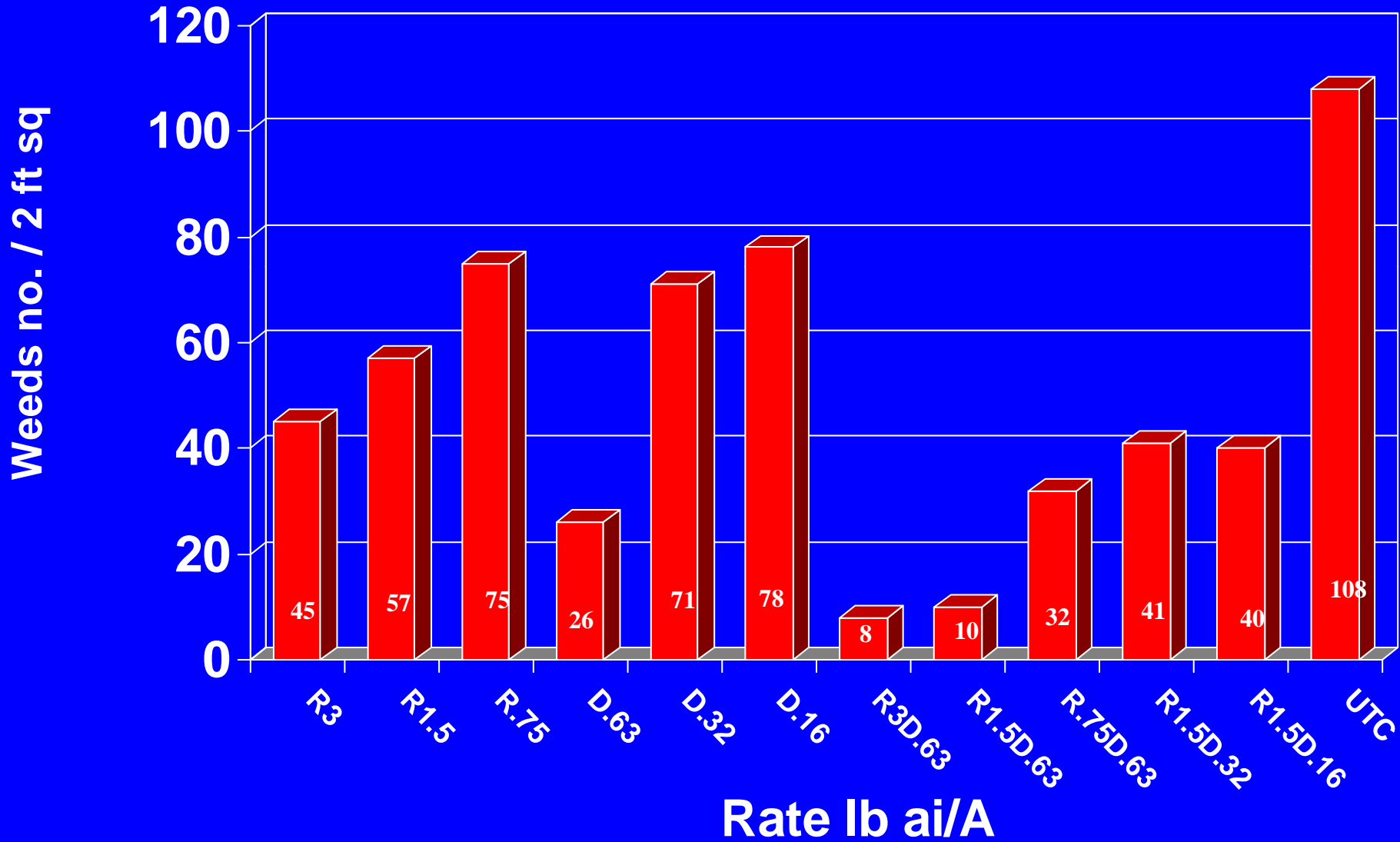
# Weed Control

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# Purslane Densities



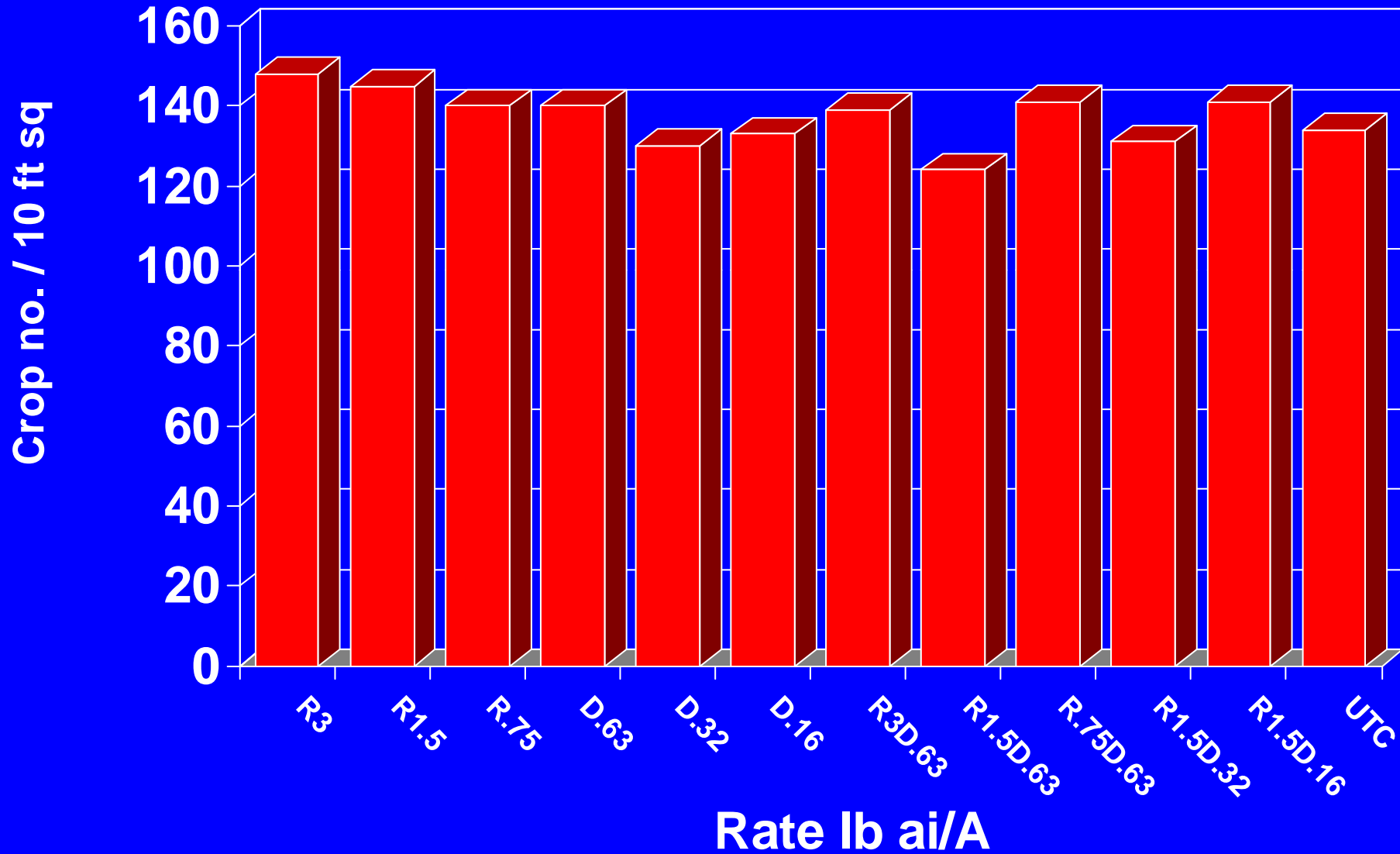
# Total Weed Densities



# Crop Stand

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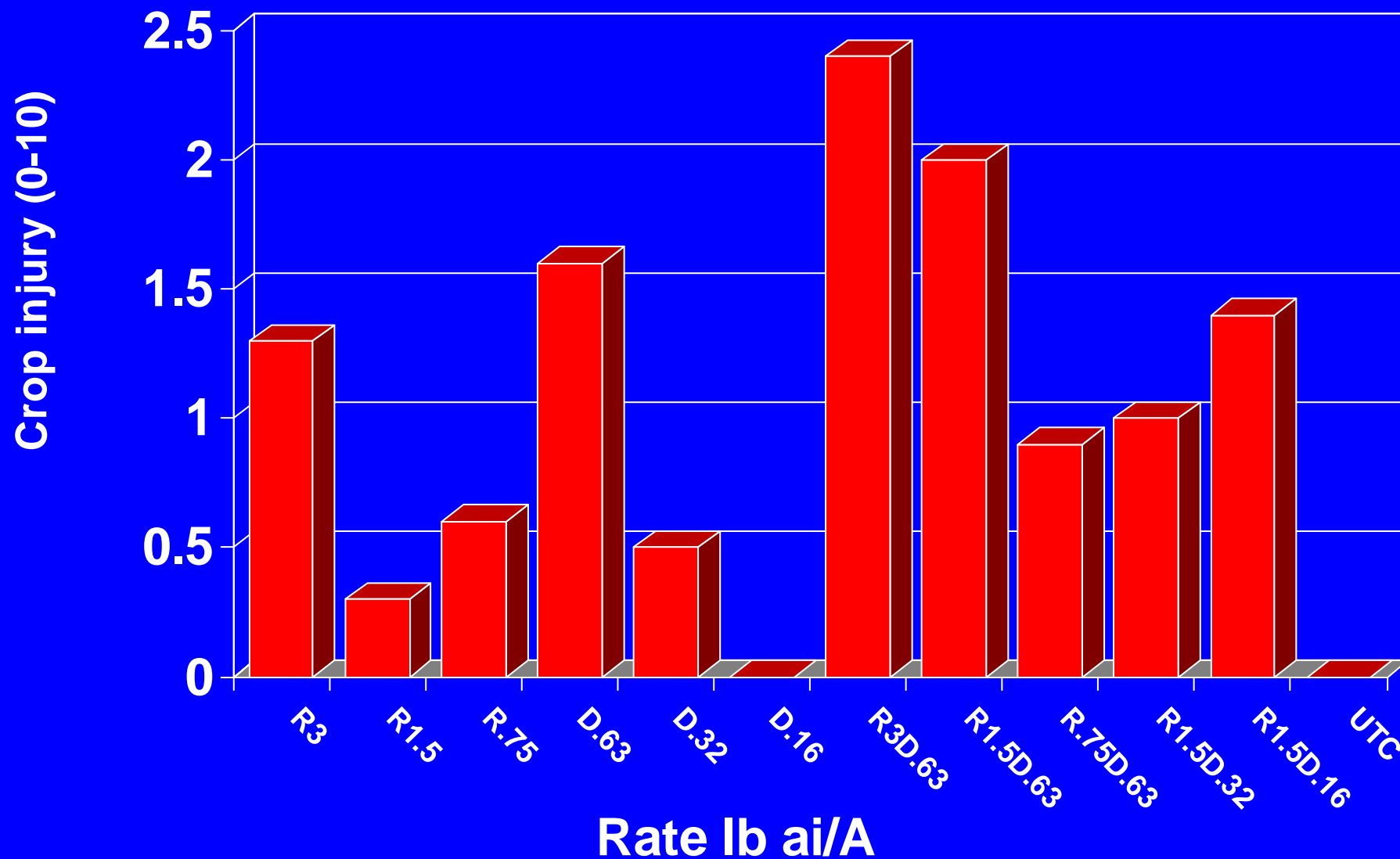
# Spinach Stand



# Crop Injury

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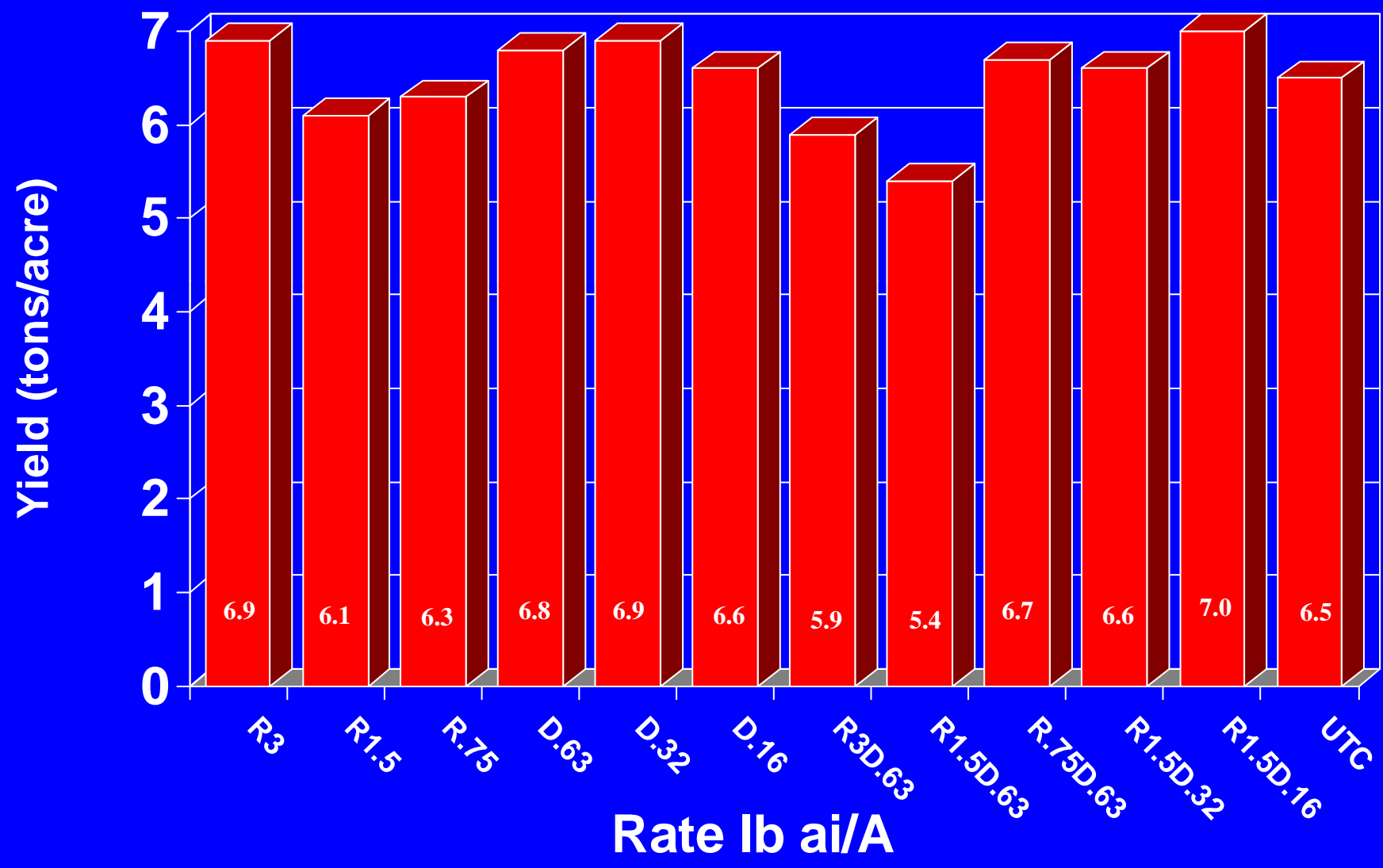
# Crop Injury (20DAA)



# Crop Yield

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# Spinach Yield



# Preliminary Conclusions

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1. Dual Magnum applied at 0.63, alone and tank mixed with RoNeet at 1.5 & 3.0 lb ai/ac provided the best weed control.
2. Dual Magnum at 0.63 seems to increase crop injury when tank mixed with RoNeet.
3. NOTE: There is a 50-Day plant back restriction for Dual Magnum

# Dual Magnum : Time of Application Trial

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# Trial Design

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- ◆ Located at USDA Hartnell Research Farm
- ◆ RCB design, w/ 4 reps per treatment
- ◆ Rep = single 40" bed x 20ft
- ◆ Spinach (cv. Whale) direct seeded 9/21/11
- ◆ Herbicide treatments
  - Dual Magnum @ early preplant & pre-emergence
  - RoNeet @ pre-emergence
- ◆ Untreated Control included in trial

Treatments	Rate in lb ai/Ac (pints product)	Timing
Dual Magnum 7.62EC	0.16 (1/6 pt)	20 days before planting
Dual Magnum	0.32 (1/3 pt)	20 days before planting
Dual Magnum	0.63 (2/3 pt)	20 days before planting
Dual Magnum	0.95 (1 pt)	20 days before planting
Dual Magnum	0.16	PRE
Dual Magnum	0.32	PRE
Dual Magnum	0.63	PRE
Dual Magnum	0.95	PRE
RoNeet 6EC	1.5 (2 pts)	PRE
Control	----	---

# Evaluations

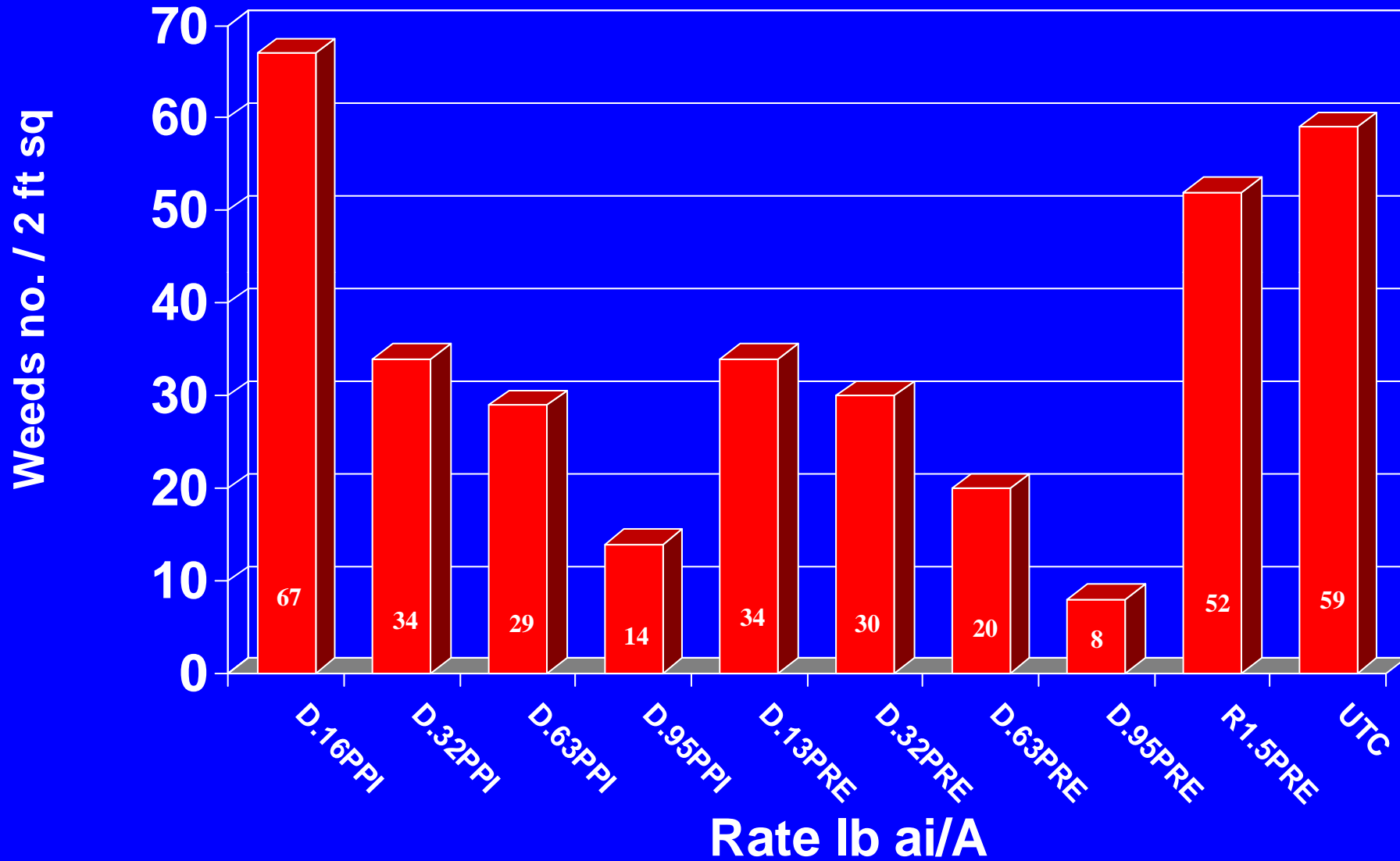
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- ◆ Weed counts on 10/10/11 @ 18DAA
- ◆ Crop stand on 10/7/11 @ 15DAA
- ◆ Crop injury (Phyto) on 11/3/11 @ 42DAA  
(visual rating: 0-10; 0 = no injury & 10 = dead plants)
- ◆ Crop Yield: Not yet taken

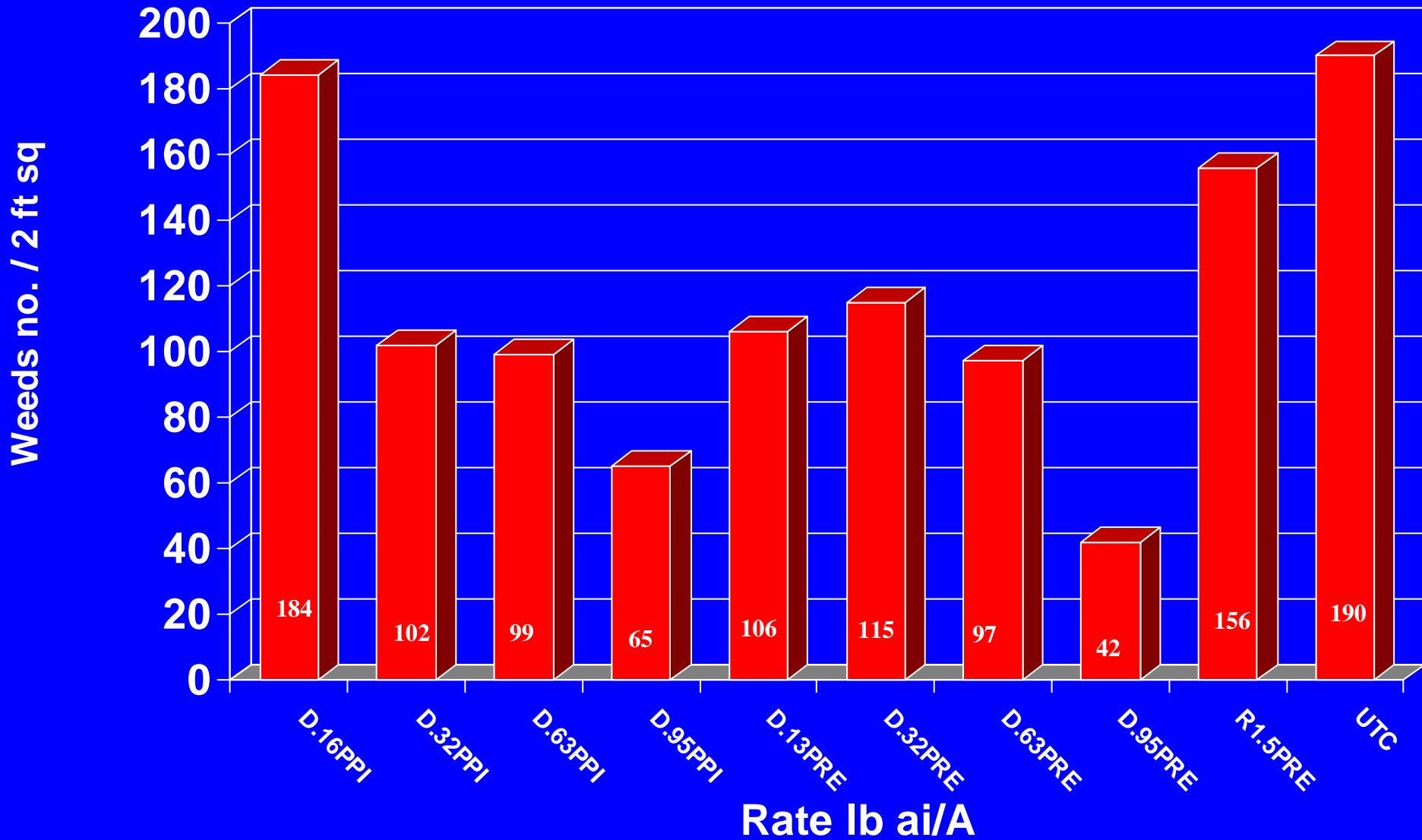
# Weed Control

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# Purslane Densities



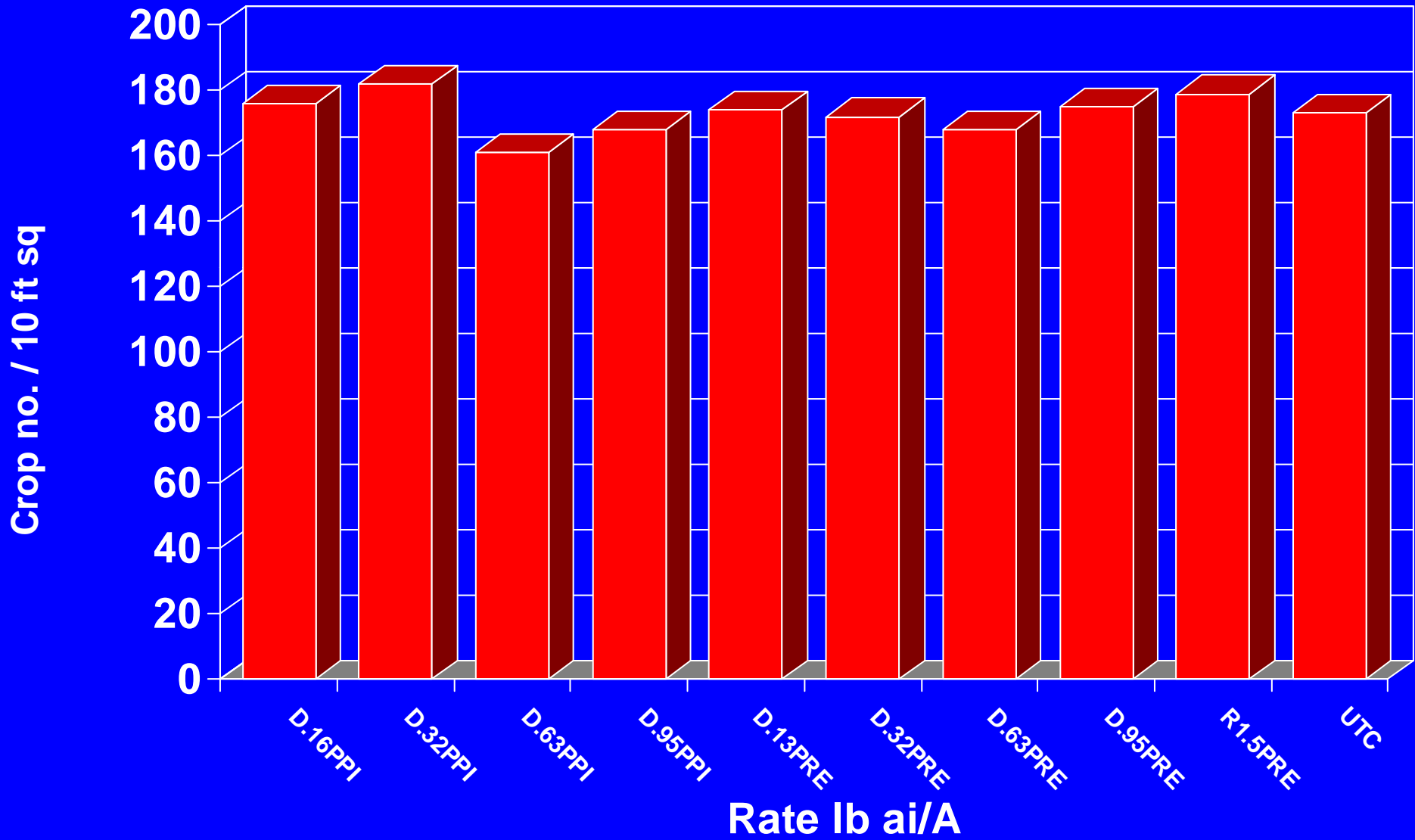
# Total Weed Densities



# Crop Stand

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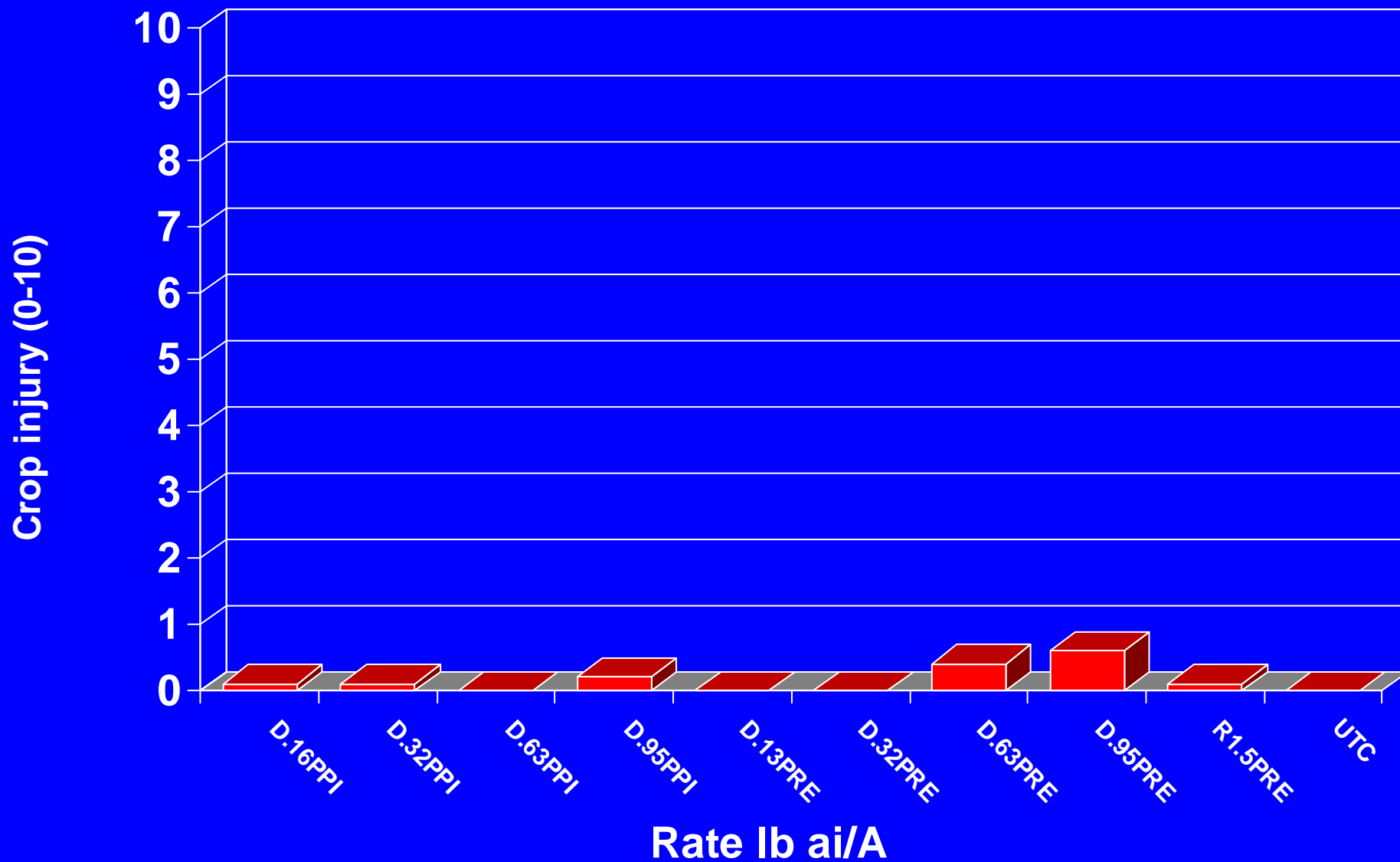
# Spinach Stand



# Crop Injury

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# Crop Injury (42DAA)



# Preliminary Conclusions

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1. Dual Magnum at 0.32 – 0.95 lb ai/ac applied 20-days early preplant appears to provide similar (but slightly less) levels of weed control to the same rates applied pre-emergence.
2. All rates tested appear safe with regards to plant stand.
3. Still waiting on Yield data

# Acknowledgments

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- ◆ Chris Miller, Rijk Zwaan
- ◆ Sharon Benzen, USDA-ARS Agronomist
- ◆ Julio Corona & Alana Miller, Student Assistants