

2012 Salinas Valley Weed School

- **Meeting Code:**
 - **M-1105-12**
 - **4.0 credits, all other category**
- **Thank you Monterey Bay Chapter of CAPCA the refreshments**
- **CAPCA Session in afternoon**
- **Please put phones on silent mode**

- 8:00 Registration and Refreshments. Weed Identification Exhibit**
- 8:30 Vegetable weed control update**
Richard Smith, Vegetable Crop and Weed Science Farm Advisor, Monterey County
- 9:15 The impact of anaerobic soil disinfestation on weeds**
Joji Muramoto, Associate Researcher, Center for Agroecology & Sustainable Food Systems, UCSC
- 9:45 Herbicide persistence in the soil, when you want it and when you don't**
Steve Fennimore, Extension Vegetable Weed Specialist, U.C., Davis, Salinas
- 10:15 Break and Weed Identification Exhibit**
- 10:30 Symptoms of various classes of herbicides on crops**
Tom Lanini, Extension Weed Specialist, U.C., Davis
- 11:00 An explanation of how robotic weed control technology works**
Ben Chostner/ Jorge Heraud, Blue River Technology
- 11:30 An overview of field evaluations of robotic weed control**
Steve Fennimore, Extension Vegetable Weed Specialist, U.C., Davis, Salinas
- 12:00 Conclusion**

Monterey Bay CAPCA Entomology Meeting

- **Tuesday, December 11, 2012**
- **8:00 am to 12:00 noon**
- **CE hours requested including laws and regulations**
- **Shimat Joseph, John Palumbo (Bagrada bug), Krishna Subbarao, Lisa Lurie, Sarah Lopez, Cara Brent**

Vegetable Weed Control Update



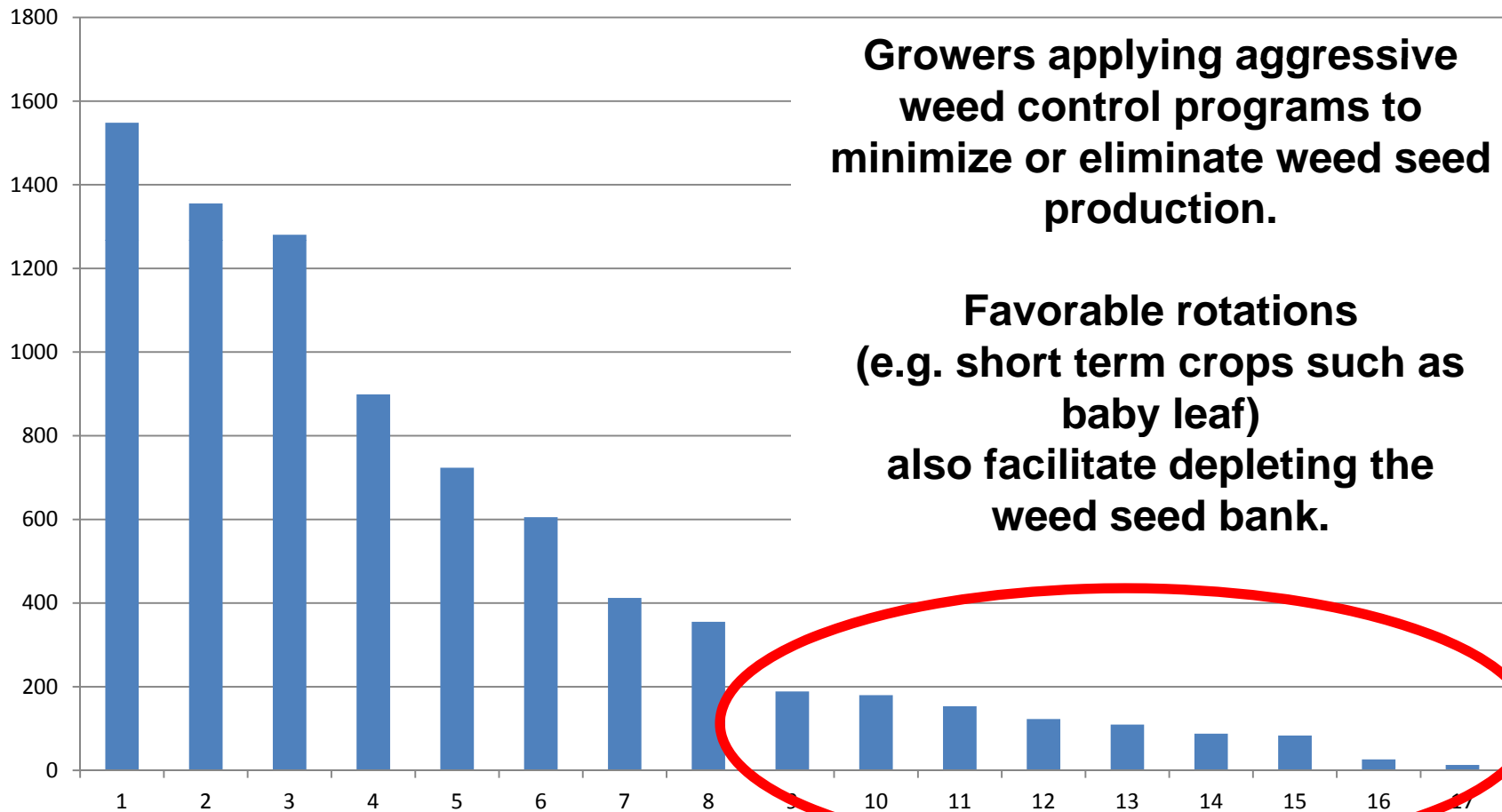
**Richard Smith, Vegetable Crops and Weed Science Farm Advisor
Monterey, Santa Cruz and San Benito Counties**

Basic Factors Affecting Vegetable Weed Control

- **Importance of cultural practices**
 - **Zero weed seed tolerance**
 - **Minimizing weed seed set**
 - **Favorable rotations**
 - **Preirrigation**
 - **Location of fields**
- **Role of mechanical control**

Impact of the Total Weed Management Program

Germable Seeds/m²



Spinach Weed Control

Registered Herbicides

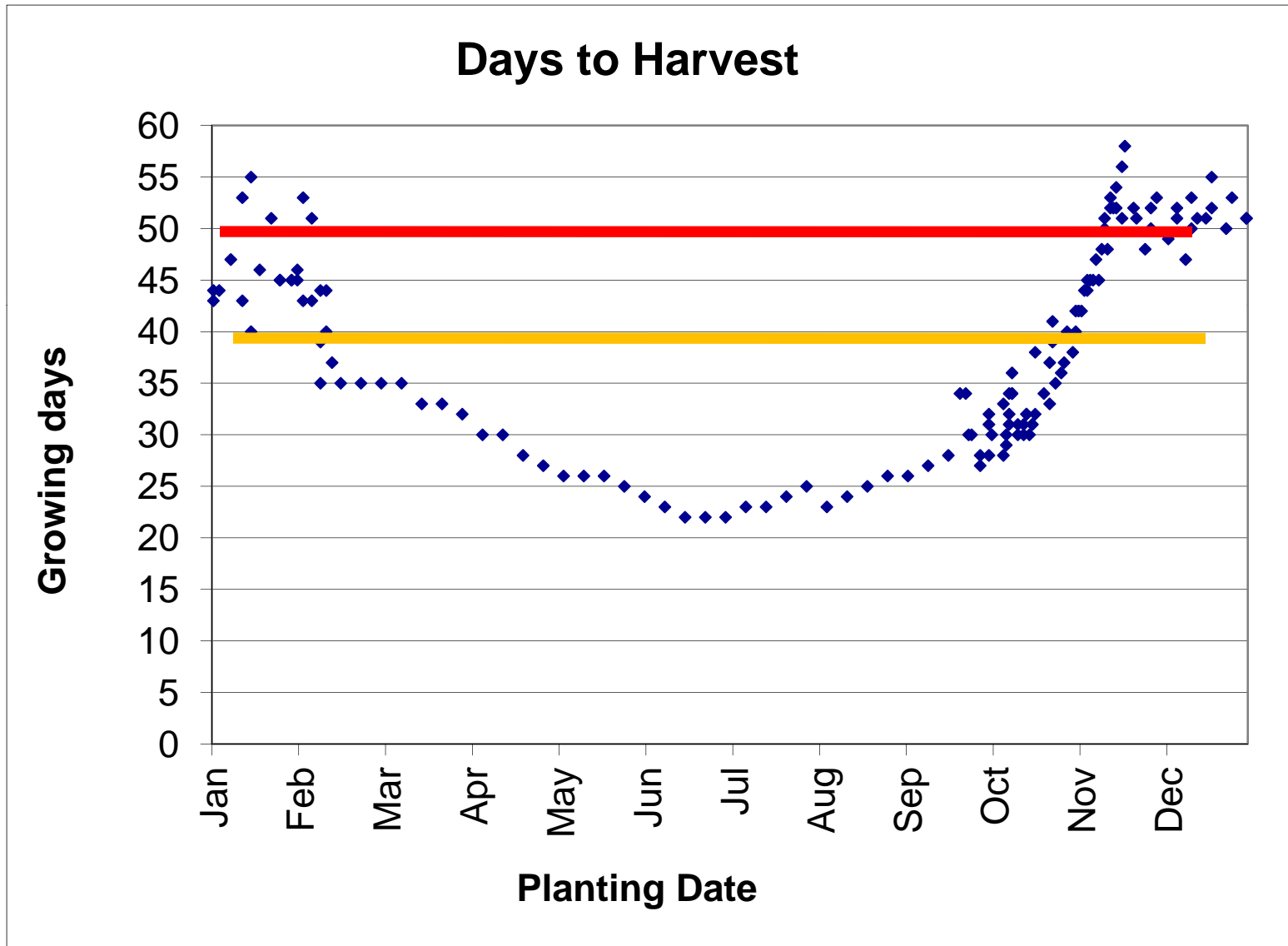
- **Preplant**
 - Fumigation (Vapam)
 - Glyphosate
 - Scythe
- **Post plant preemergence**
 - RoNeet
 - Dual Magnum*
- **Post plant**
 - Spin-Aid
 - Poast
 - Select Max



Issues in Spinach Weed Control

- **Challenges**
 - Use of 80 inch beds
 - Mechanical harvest
 - No effective cultivation
 - Limited choice of herbicides
 - No new herbicides in the registration hopper
- **Issues with registered herbicides**
 - RoNeet – 48 hour REI following application increases the ‘hassle factor’
 - Dual Magnum
 - 12 month plant back to lettuce
 - 50 day PHI

Days to Harvest Clipped Spinach



Working with the Dual Magnum Label

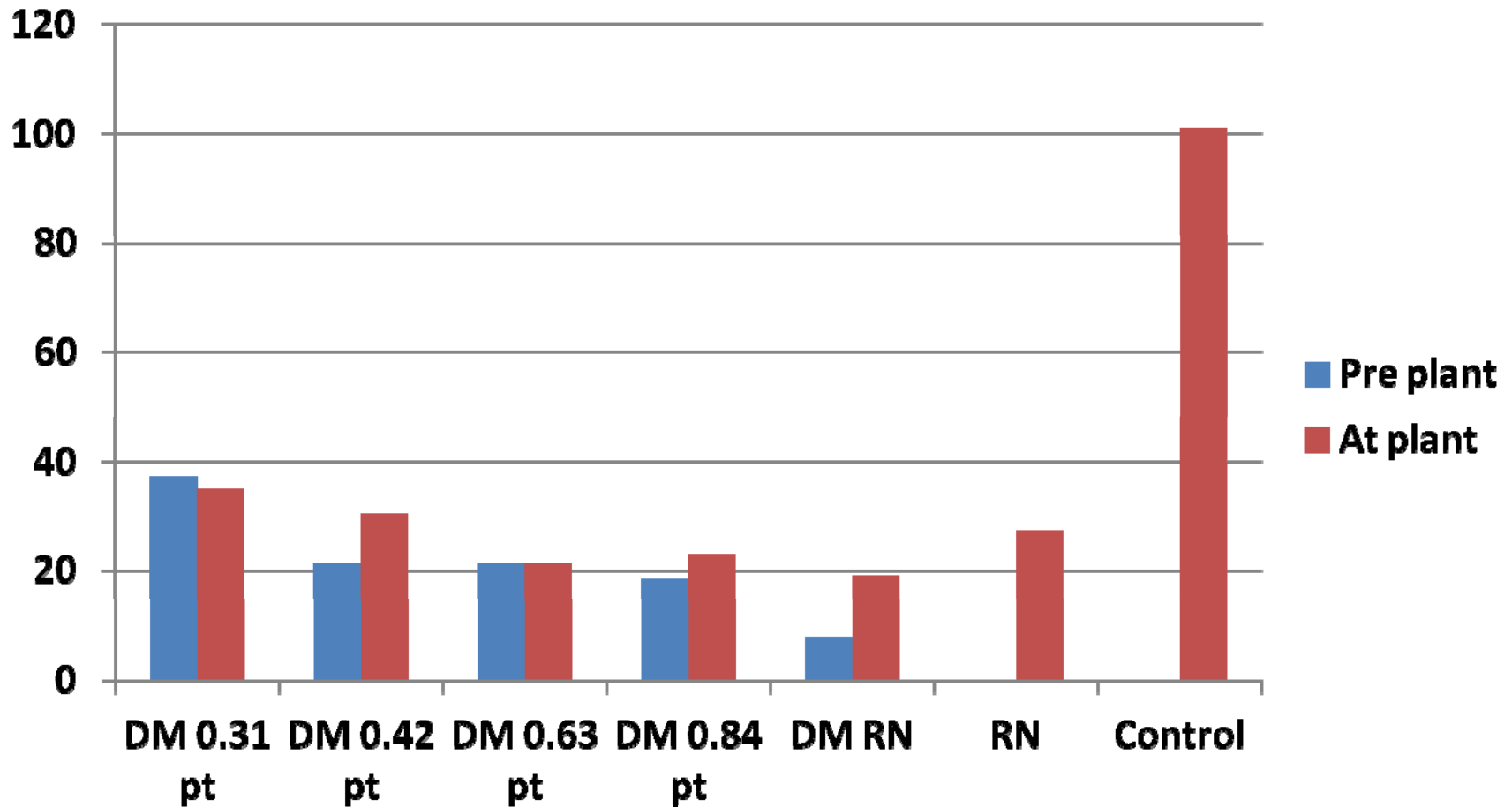
- **Applying Dual Magnum prior to planting is an option to satisfy the PHI**

2012 Weed Control Evaluations

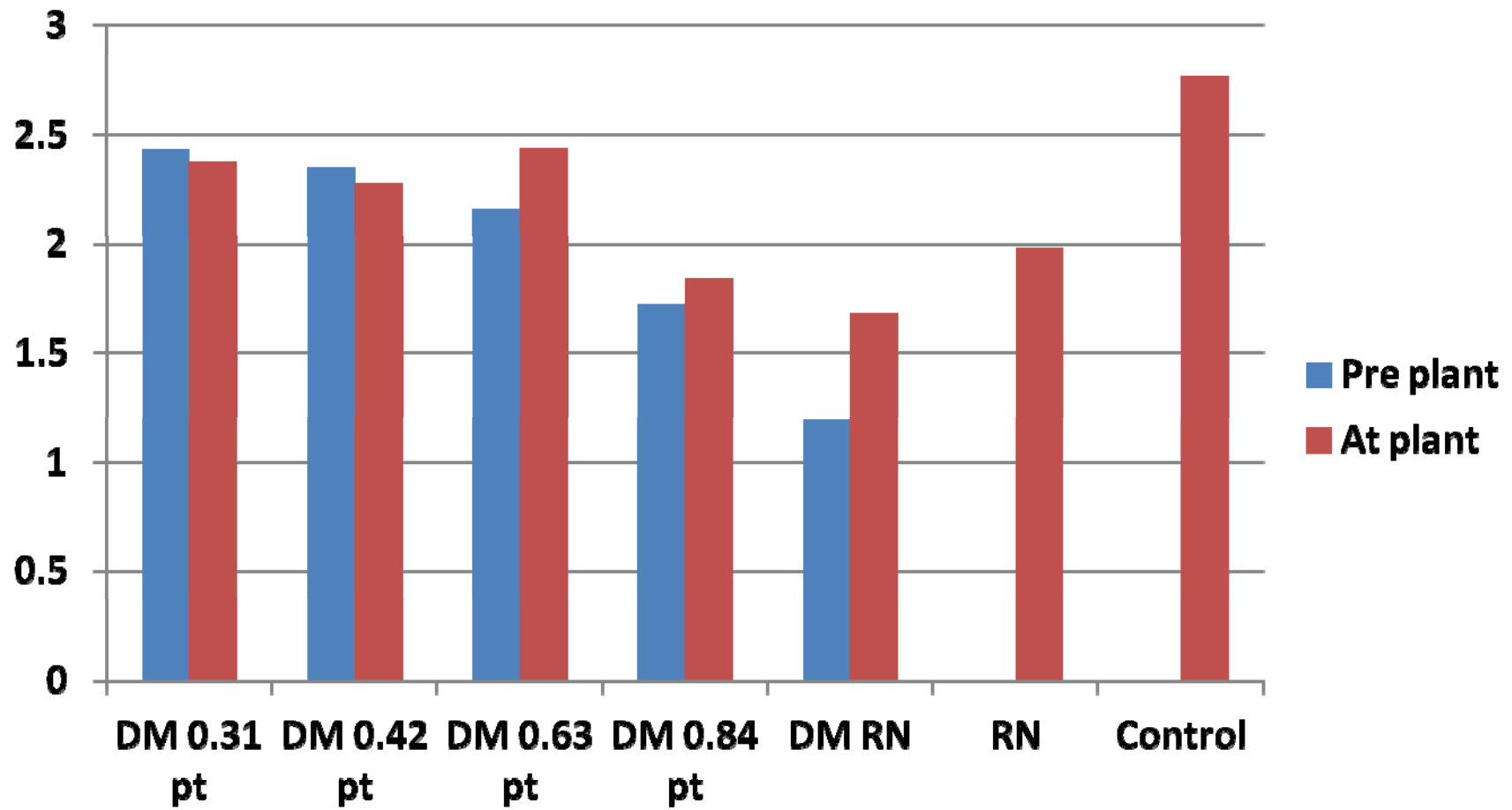
Treatments	Pints/A	Application Timing
Dual Magnum	0.31	21 days preplant
Dual Magnum	0.42	21 days preplant
Dual Magnum	0.63	21 days preplant
Dual Magnum	0.84	21 days preplant
Dual Magnum	0.31	21 days preplant
RoNeet	2.00	At planting
Dual Magnum	0.31	At planting
Dual Magnum	0.42	At planting
Dual Magnum	0.63	At planting
Dual Magnum	0.84	At planting
Dual Magnum	0.31	At planting
RoNeet	2.00	At planting
RoNeet 6E	2.00	At planting
Untreated	---	---

Total Weeds

Mainly Burning Nettle

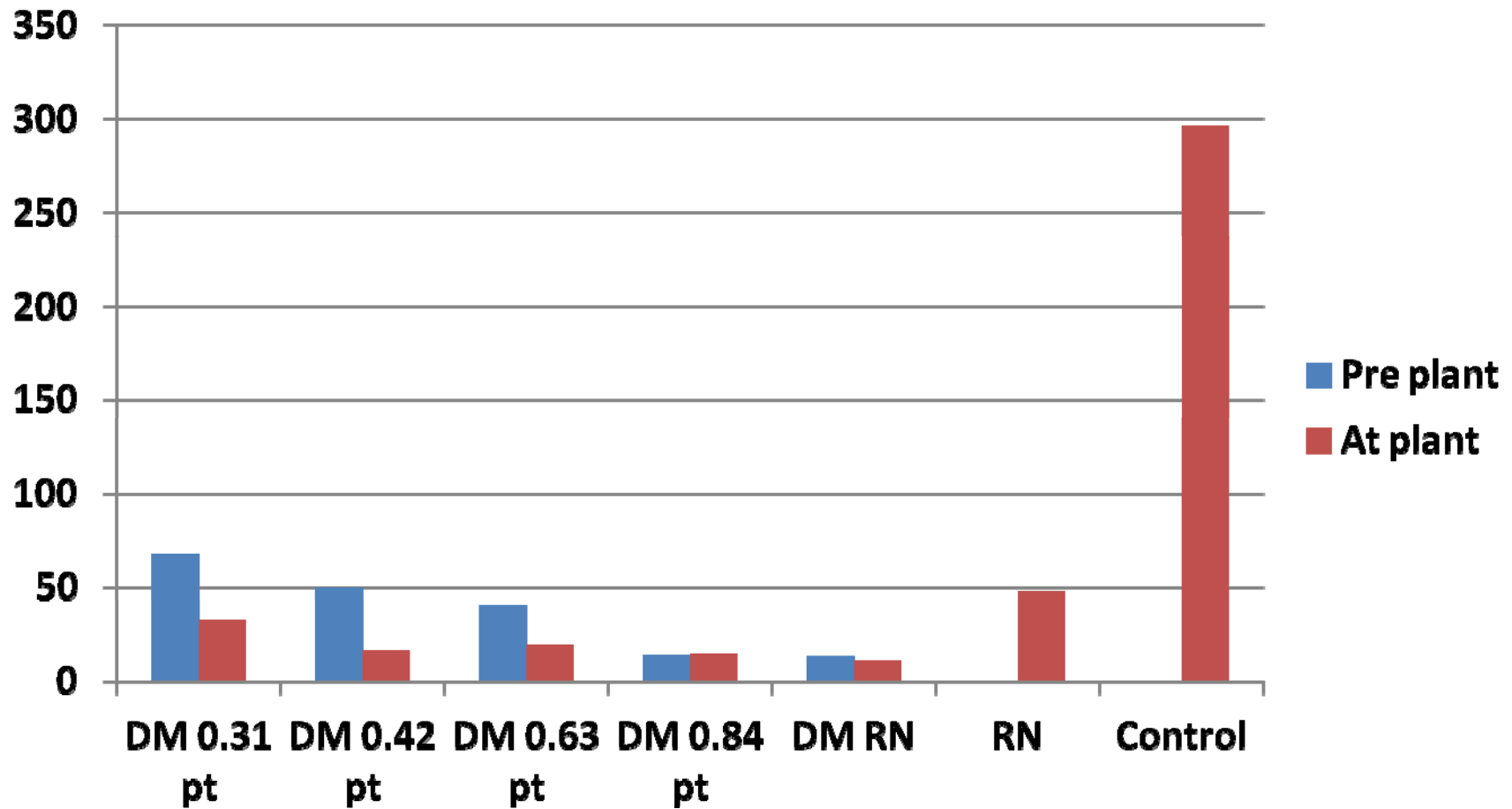


Yield T/A

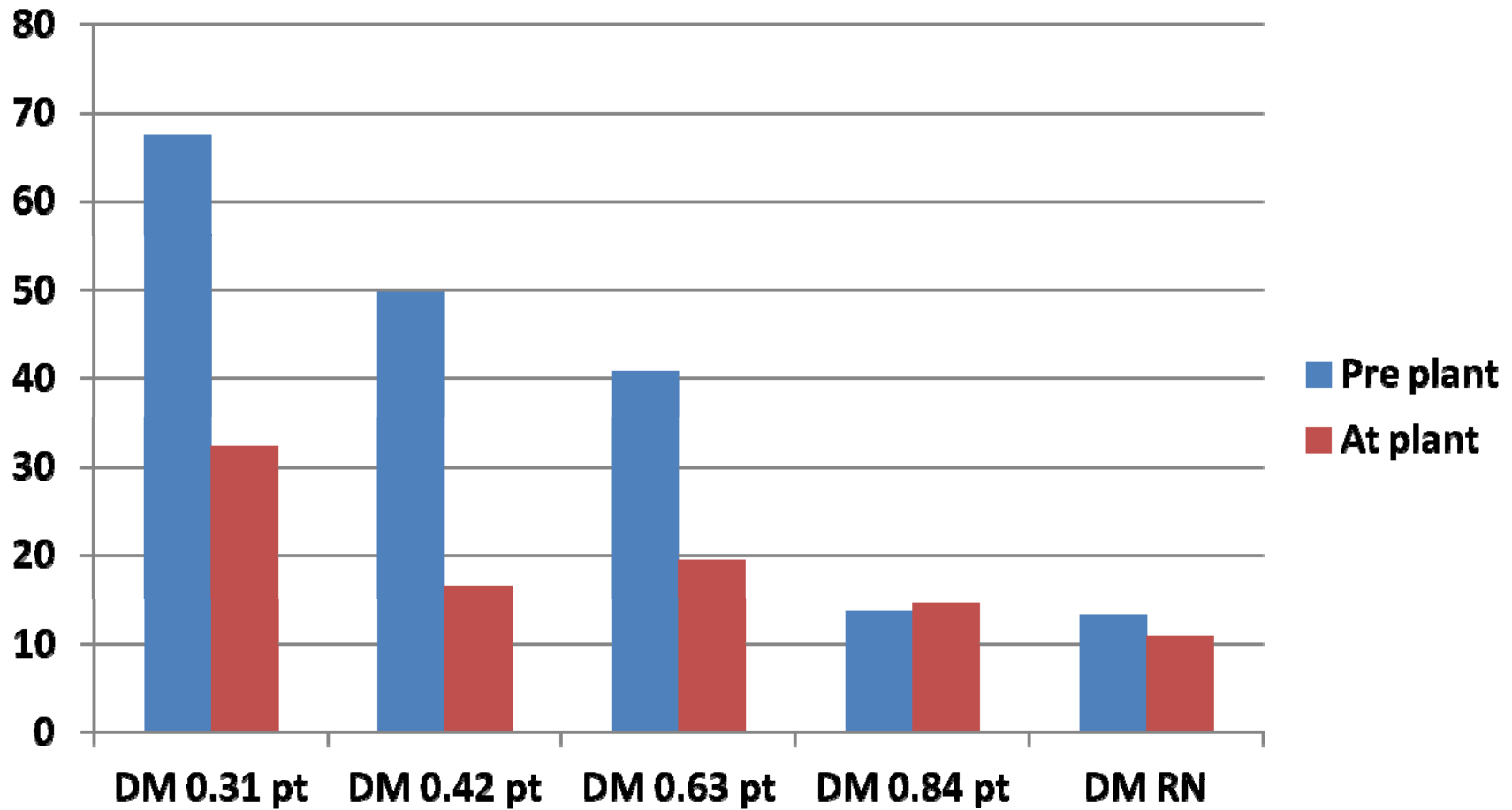


Time to Hand Weed

Hrs/A



Time to Hand Weed Hrs/A



Dual Magnum 0.42 pint/A

21 days preplant



At planting



At planting

Rate Impacts on Crop Safety

0.31 pint Dual Magnum



0.63 pint Dual Magnum



0.31 pint Dual Magnum
2.0 pint RoNeet

Untreated Control

296 hours/A to hand weed



2012 Spinach Weed Control Trial Summary

- **At this site with a loam texture, moderate to high organic matter, and nettle as the main weed**
- **No difference in number of weeds controlled between 21 days preplant and at plant**
- **Weed vigor did seem to be higher in the 21 day preplant treatment and increased weeding time**
- **The combination of Dual Magnum and RoNeet is more phytotoxic than either alone**

Onion Weed Control



Issues in Onion Weed Control

- **Challenges**
 - **Yellow Nutsedge**
 - **Long season that spans from cool to warm season weeds**
 - **Crop is subject to multiple flushes of weeds**
 - **No effective mechanical cultivation strategies**
 - **Hand weeding can be very expensive**

**Prior
to
planting**

Metam
Paraquat
Roundup
Shark
Scythe

**At
planting**

Dacthal
Prefar

preemergence
to weeds

1st true leaf

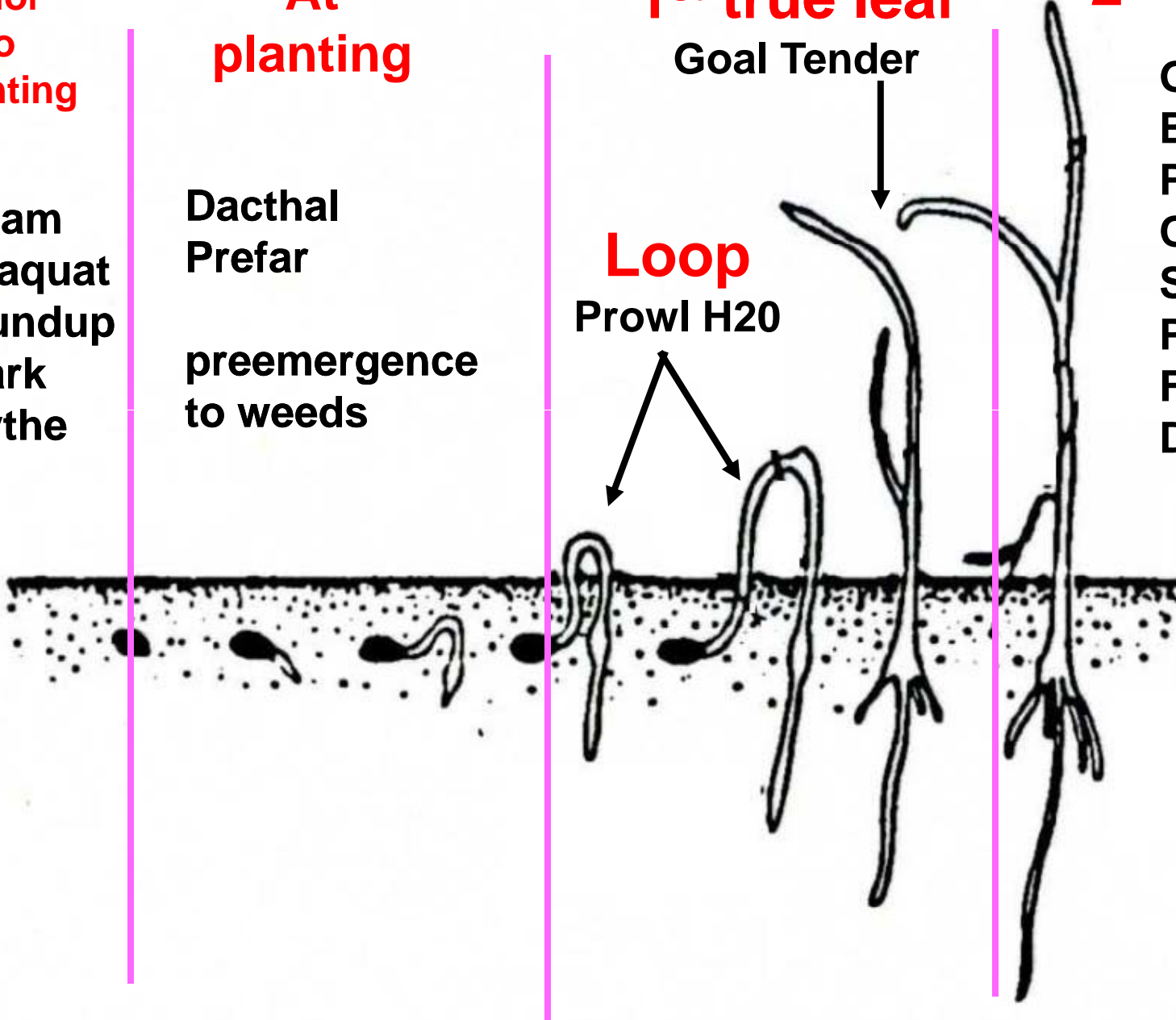
Goal Tender

Loop

Prowl H20

2nd true leaf

Goal
Buctril
Prowl
Outlook
Select Max
Poast
Fusilade
Dual Magnum



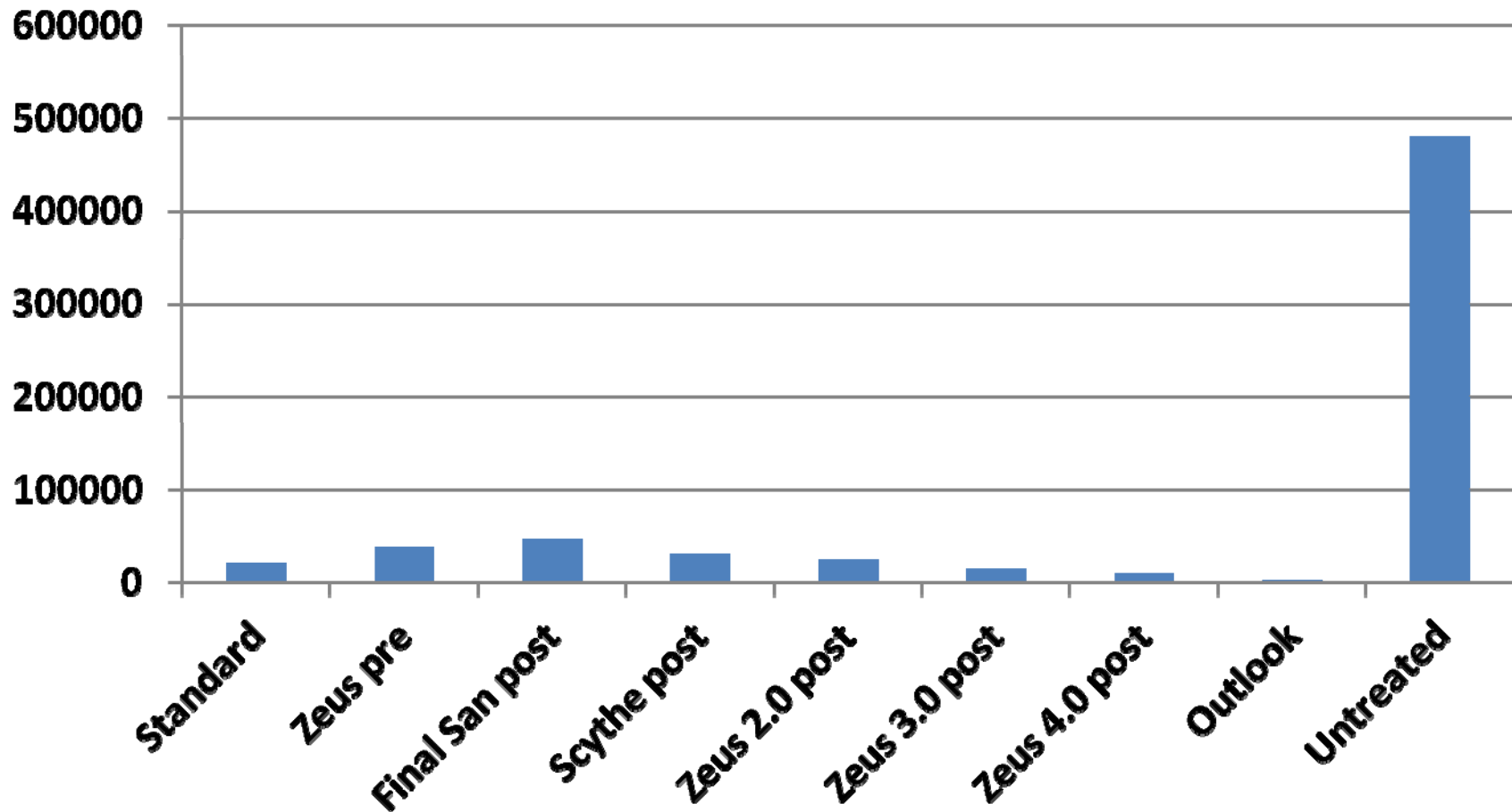
2012 Weed Control Evaluations

Conducted on a site with Yellow Nutsedge

Untreated	----	----	
Dacthal 6F Fb Goal Tender Fb Buctril	1.33 gals 6.0 fl oz 16.0 fl oz	Pre Post 2 t. leaf Post 3 t. leaf	Standard
Zeus 4 Fb Goal Tender Fb Buctril	2.0 fl oz 6.0 fl oz 16.0 fl oz	Pre Post 2 t. leaf Post 3 t. leaf	Zeus post plant preemergence: comparison with Dacthal
Dacthal 6F Fb Final-San-O	1.33 gals 20% v/v	Pre Post 2 t. leaf	Evaluation of the organic post material
Dacthal 6F Fb Scythe	1.33 gals 9% v/v	Pre Post 2 t. leaf	Included for comparison with the organic material
Dacthal 6F Fb Zeus 4	1.33 gals 2.0 fl oz	Pre Post 2 t. leaf	Zeus post treatment low rate to evaluate YNS control
Dacthal 6F Fb Zeus 4	1.33 gals 3.0 fl oz	Pre Post 2 t. leaf	Zeus post treatment medium rate to evaluate YNS control
Dacthal 6F Fb Zeus 4	1.33 gals 4.0 fl oz	Pre Post 2 t. leaf	Zeus post treatment high rate to evaluate YNS control
Dacthal 6F 7-7-0-7 Fb Goal Tender 4F Fb Outlook 6.0	1.33 gals 72 gals 6.0 oz 14.0 oz	Pre Post 2 t. leaf Post 2 t. leaf Post 2 t. leaf	Standard YNS control program with Outlook for comparison

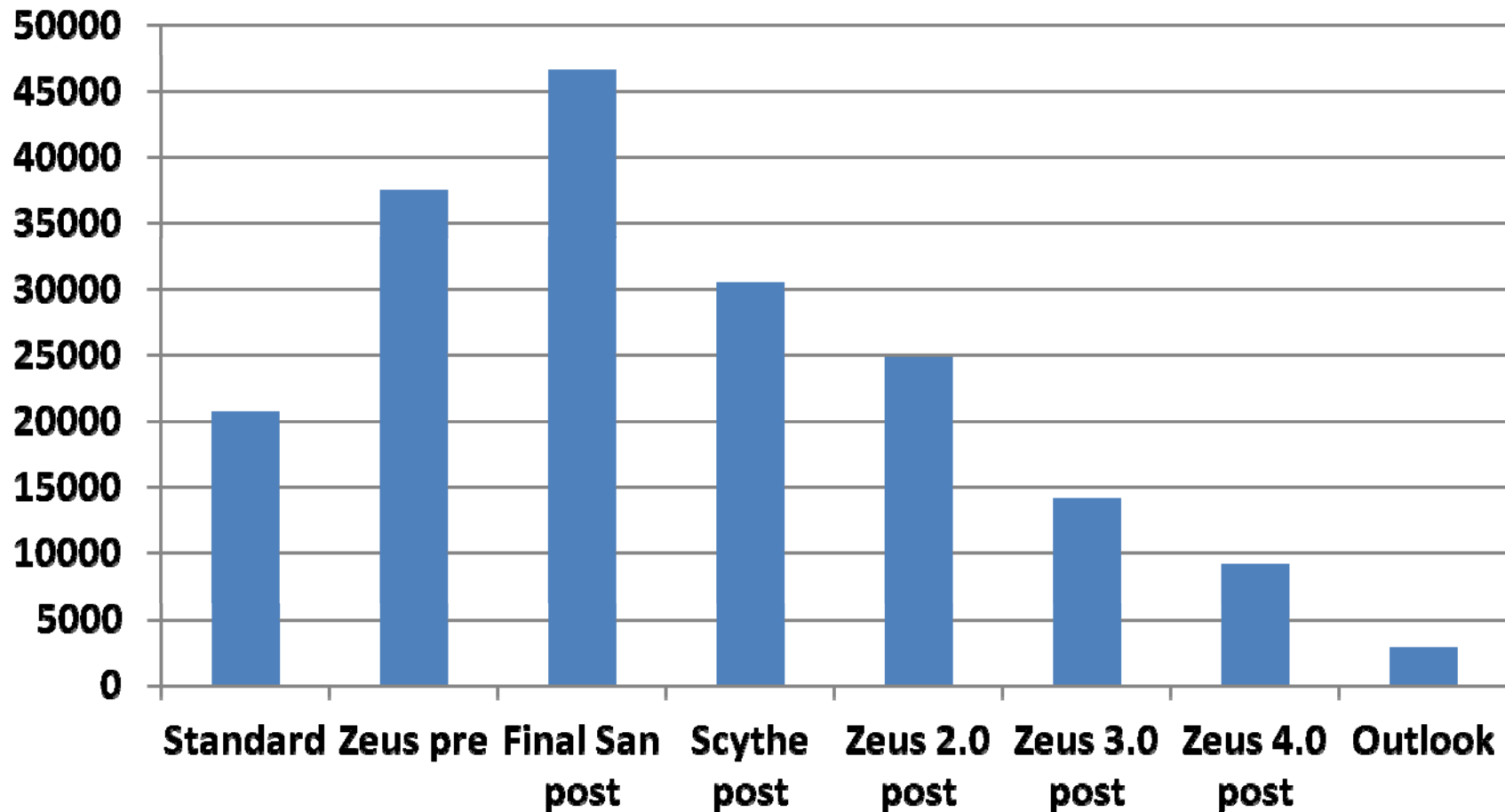
Total Weeds/A

Including the Untreated



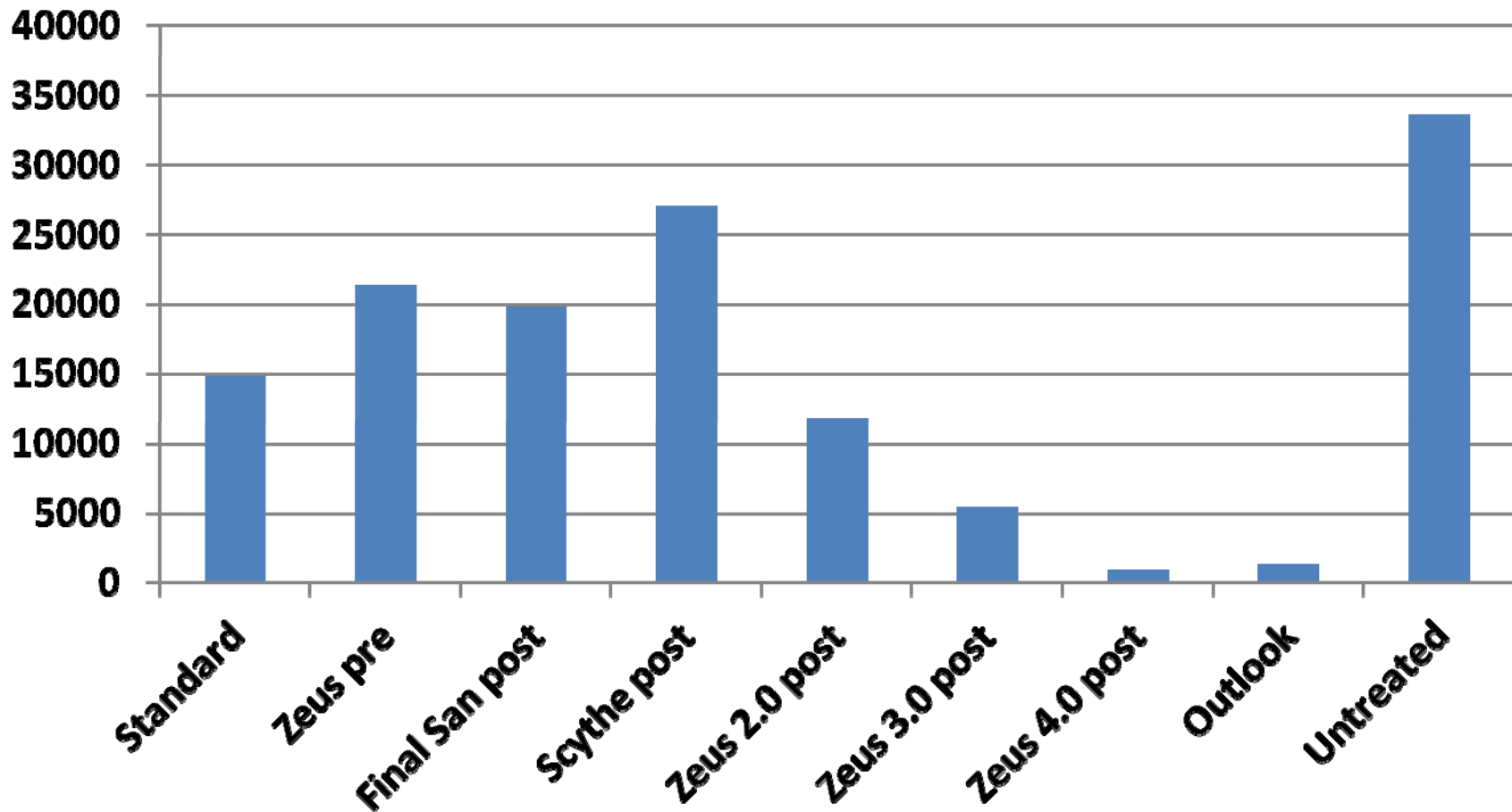
Total Weeds/A

Not including the Untreated

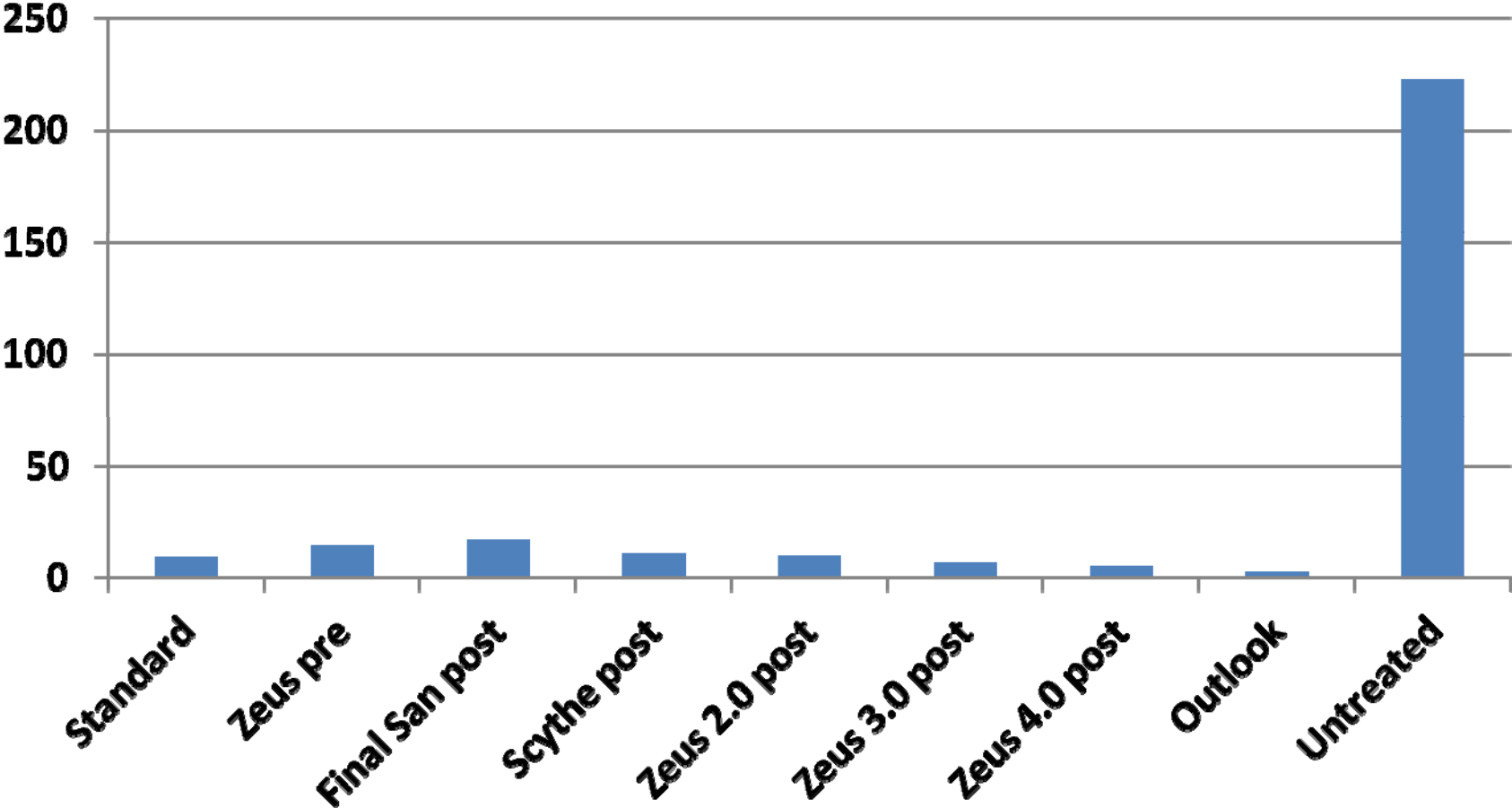


Yellow Nutsedge/A

Including the Untreated

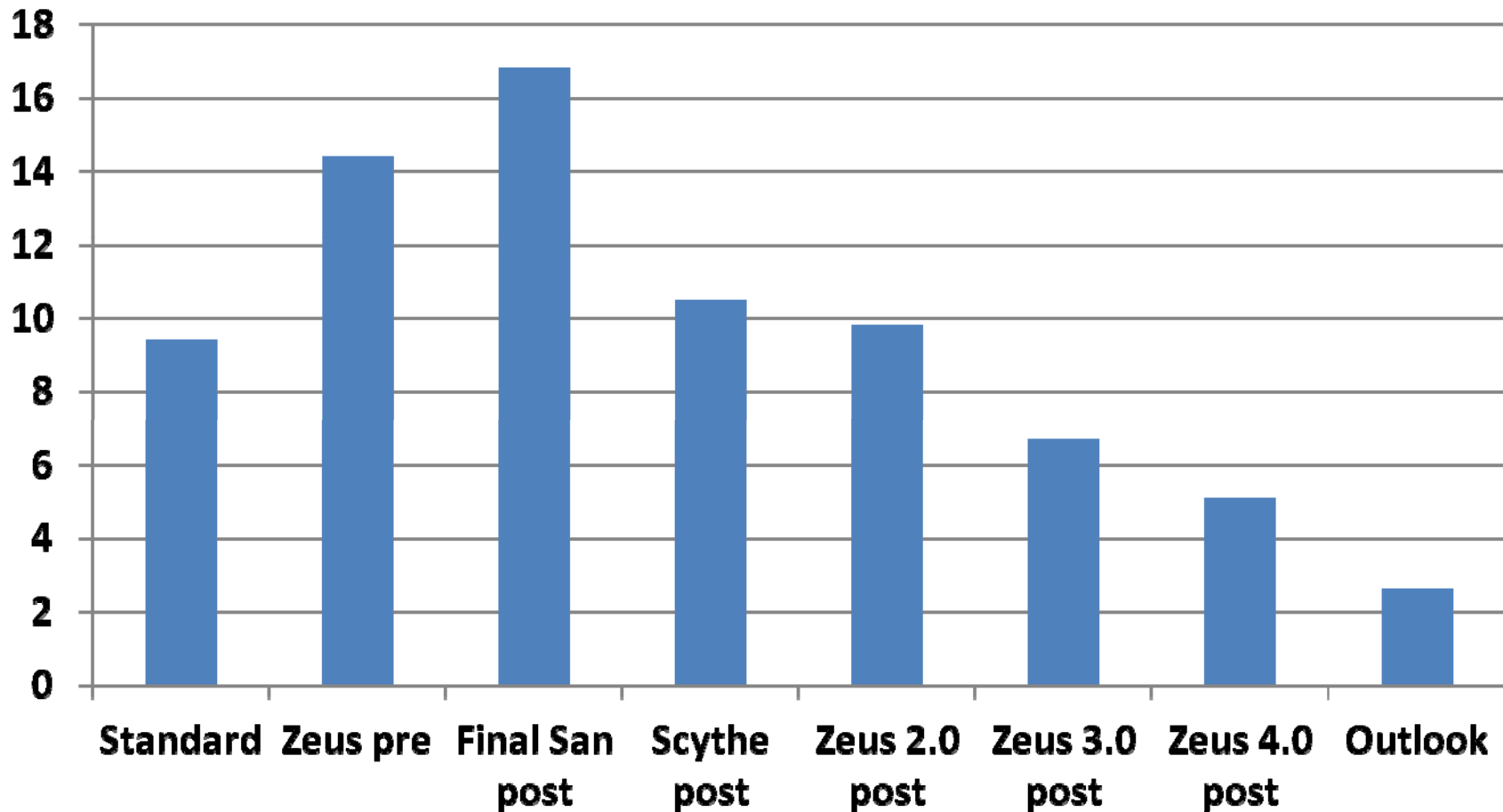


Weed Time Hours/A Including the Untreated

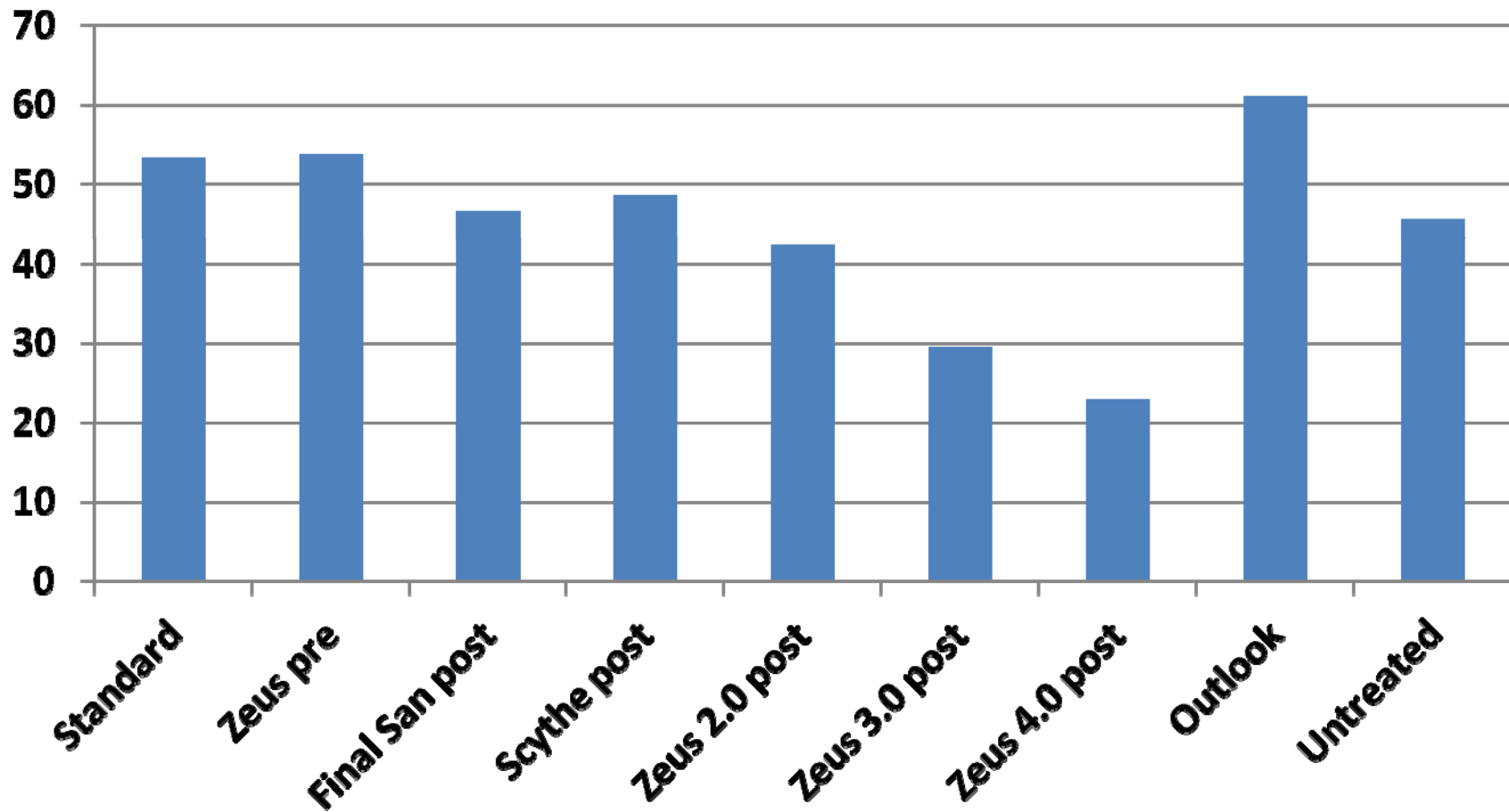


Weed Time Hours/A

Not including the Untreated



Yield T/A



Untreated



Standard



Post Plant Preemergence Comparisons

**Zeus 2.0 fl oz followed by
Goal Tender/Buctril**



**Dacthal followed by
Goal Tender/Buctril**



Nutsedge Treatments

Outlook Program



Zeus 3.0 fl oz Post emergence



2012 Onion Weed Control Trial Summary

- **This trial gave us a great opportunity to evaluate Zeus under high nutsedge pressure**
- **Post emergent applications of Zeus are too phytotoxic to the onions**
- **Preemergent applications of Zeus look promising and should be further tested**
- **Final-San-O provided some burn back of weeds in onions, but weeds regrew**

Broccoli Weed Control

- **Preplant**
 - Glyphosate
 - paraquat
 - Scythe
 - Shark
- **Post plant preemergence**
 - Dacthal
 - Devrinol
 - Prefar
- **Post plant**
 - Goal Tender
 - Poast
 - Select Max

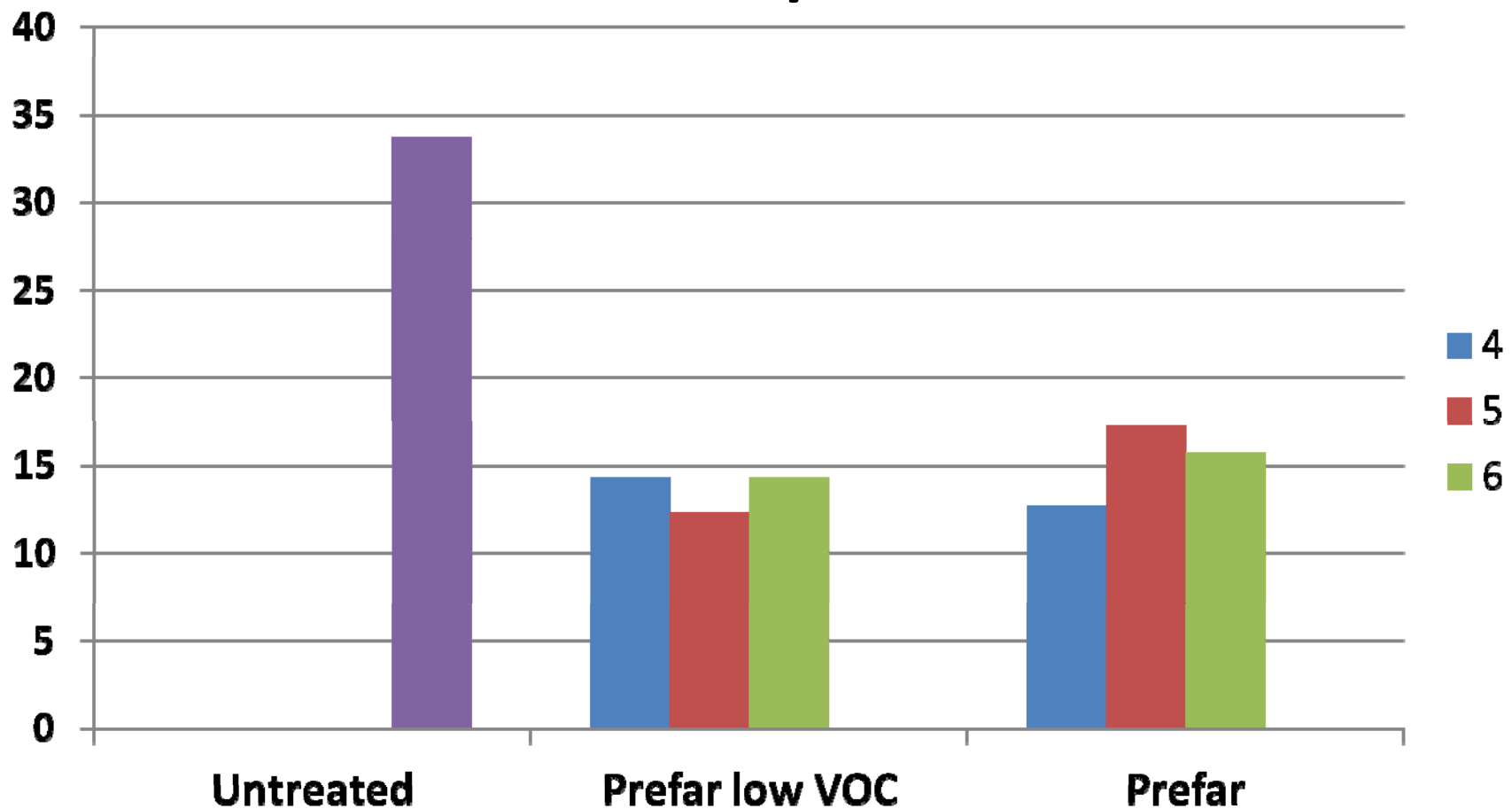


2012 Weed Control Evaluations

Conducted on a site with Yellow Nutsedge

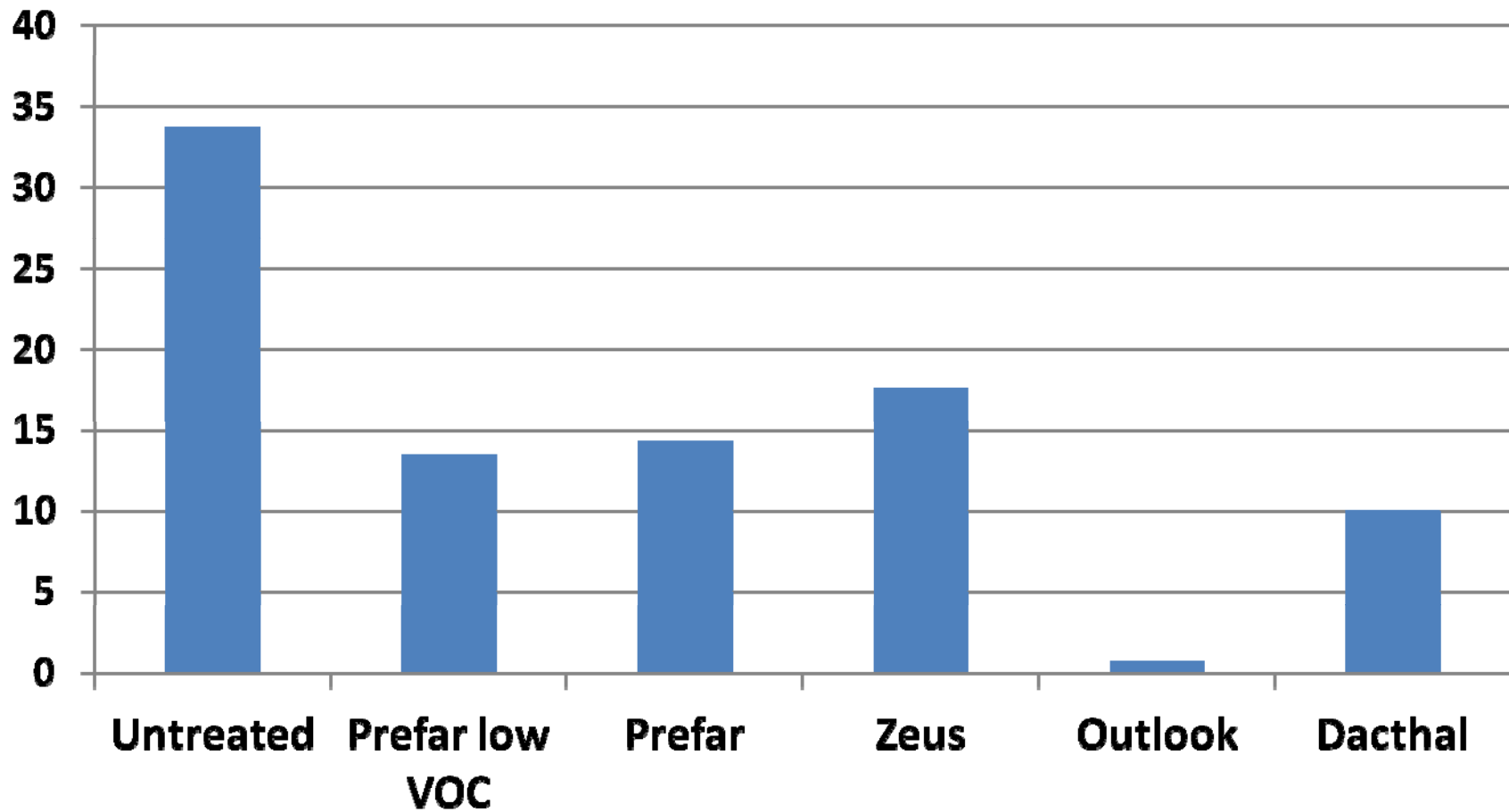
Untreated	---	---
Prefar low VOC formulation	4.0	4.0 quarts
Prefar low VOC formulation	5.0	5.0 quarts
Prefar low VOC formulation	6.0	6.0 quarts
Prefar 6.0	4.0	4.0 quarts
Prefar 6.0	5.0	5.0 quarts
Prefar 6.0	6.0	6.0 quarts
Zeus 4.0	0.0 31	1.0 fl oz
Zeus 4.0	0.0 62	2.0 fl oz
Outlook 6.0	0.3 3	7.0 fl oz
Dacthal 6.0	1.5	2.0 qt

Comparison of the Low VOC Formulation of Prefar and Standard Weeds/Plot



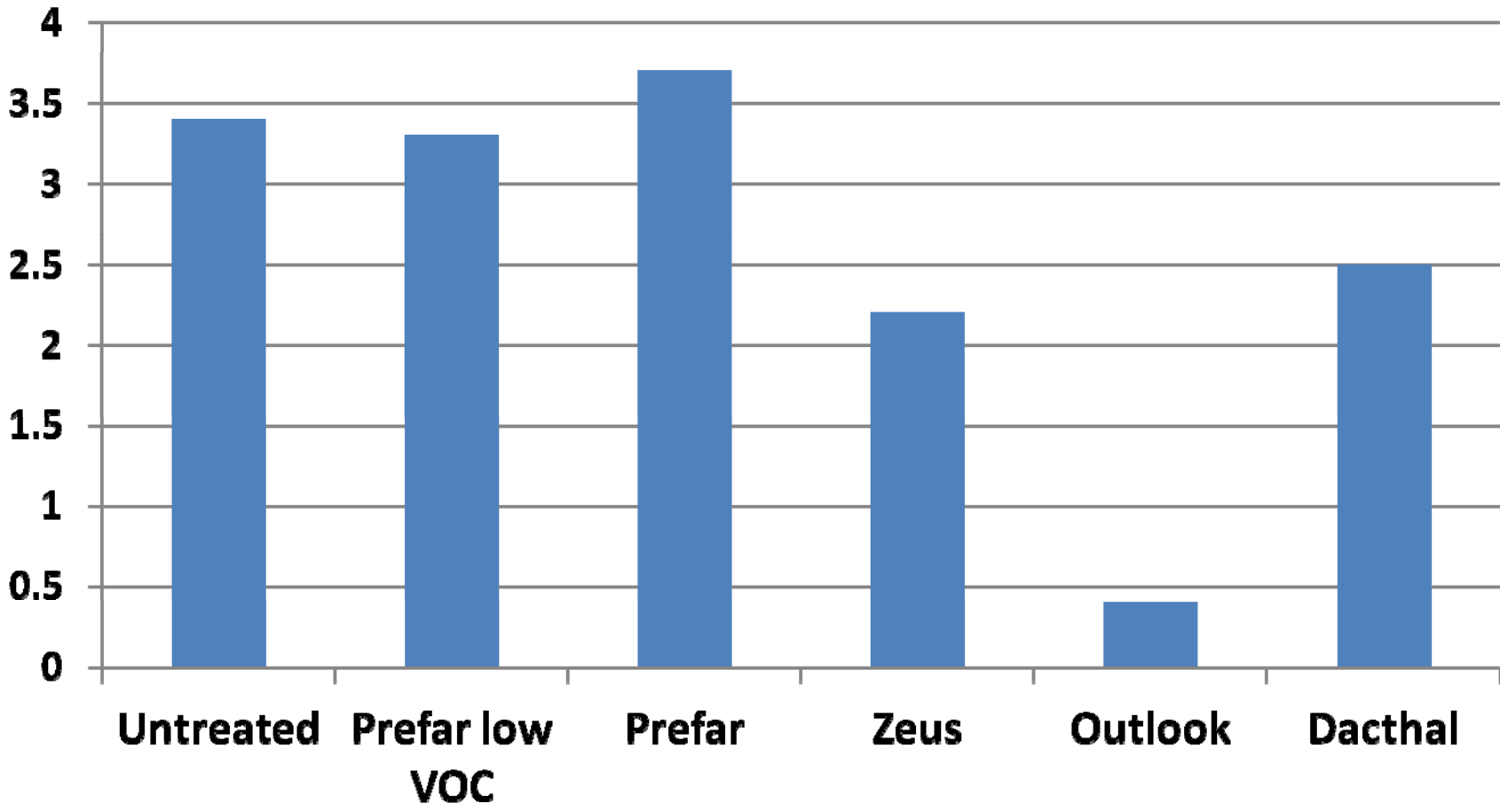
Weed Control Comparison of All Materials

Weeds/Plot



Yield

lbs/Plot



2012 Broccoli Weed Control Trial Summary

- **This trial gave us a great opportunity to get a first look at Zeus for use as a post plant preemergent application for use on broccoli**
- **The preliminary data are not entirely encouraging as there was a depression in the yield of the broccoli at yields that are pretty low**

Cilantro Weed Control

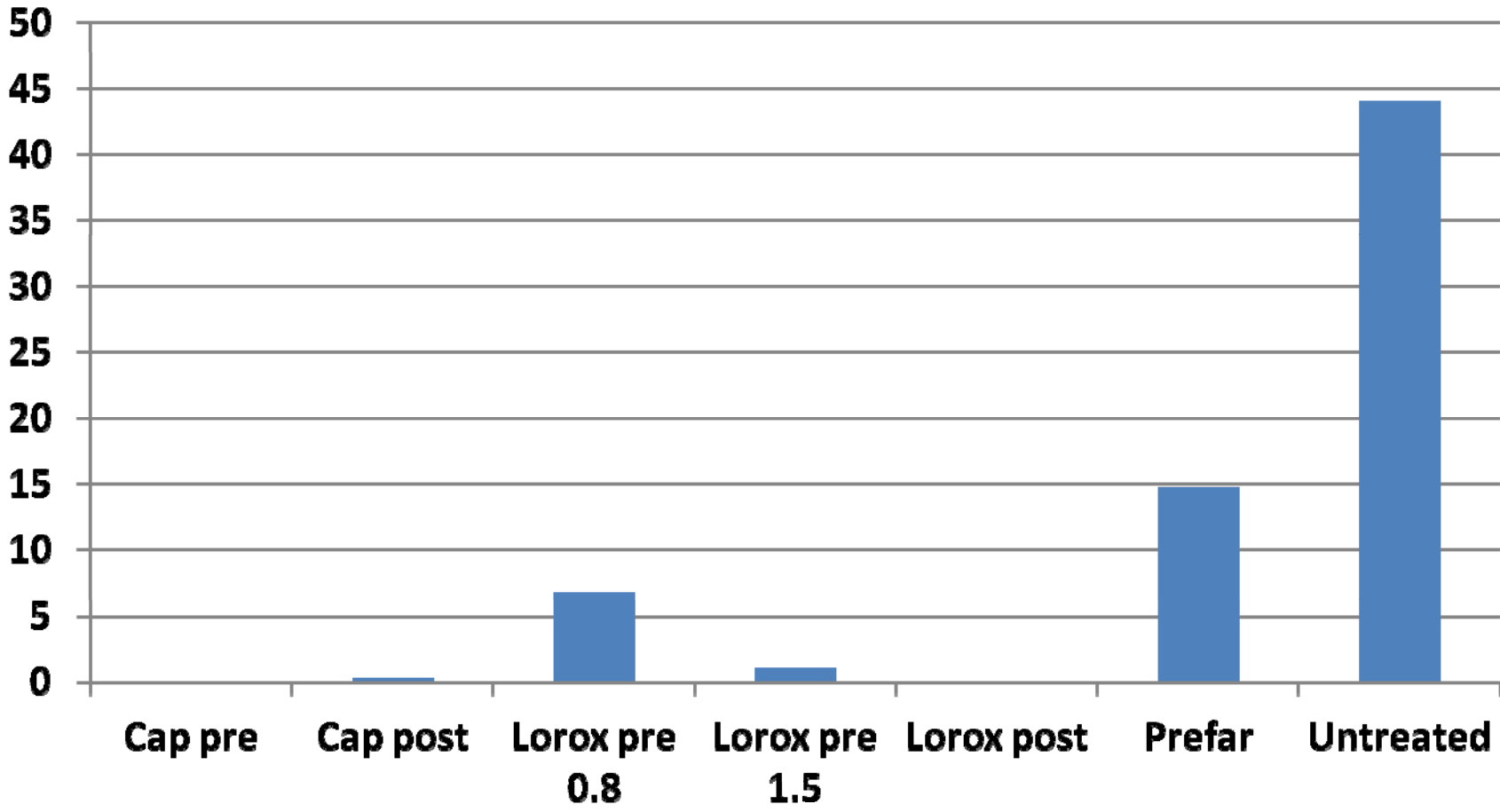
- **Preplant**
 - Glyphosate
 - Scythe
- **Post plant preemergence**
 - Prefar
 - Caparol
- **Post plant**
 - Poast
 - Select Max



2012 Weed Control Evaluations

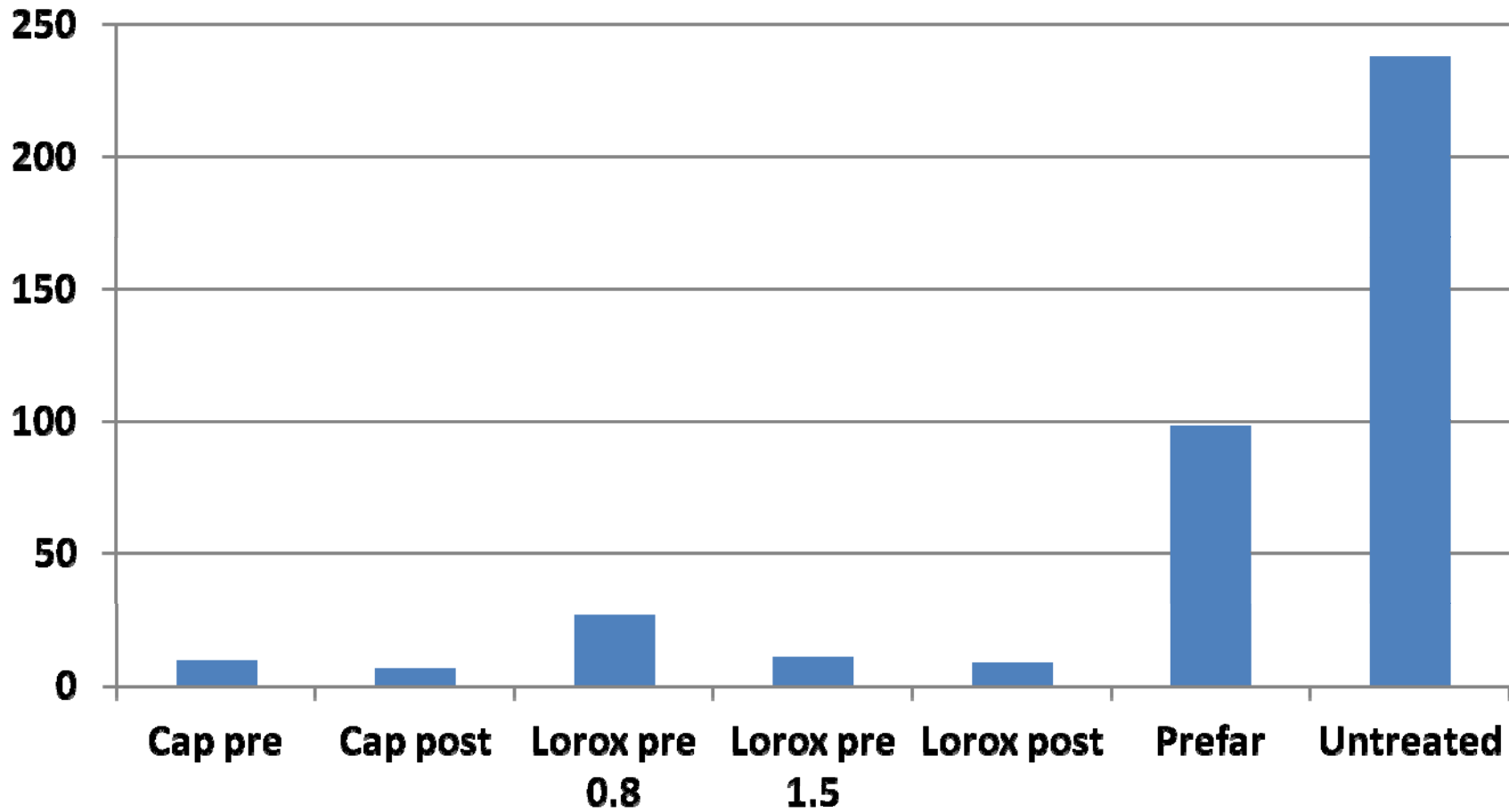
Material	lbs a.i./A	Material/A	Application
Caparol 4L	1.5	3 pints	Pre
Caparol 4L	1.0	2 pints	Post
Lorox	0.75	1.5 lbs	Pre
Lorox	1.5	3.0 lbs	Pre
Lorox	0.5	1.0 lbs	Post
Prefar low VOC	4.0	4 qt	Pre
Untreated	---	---	---

Total Weeds per plot



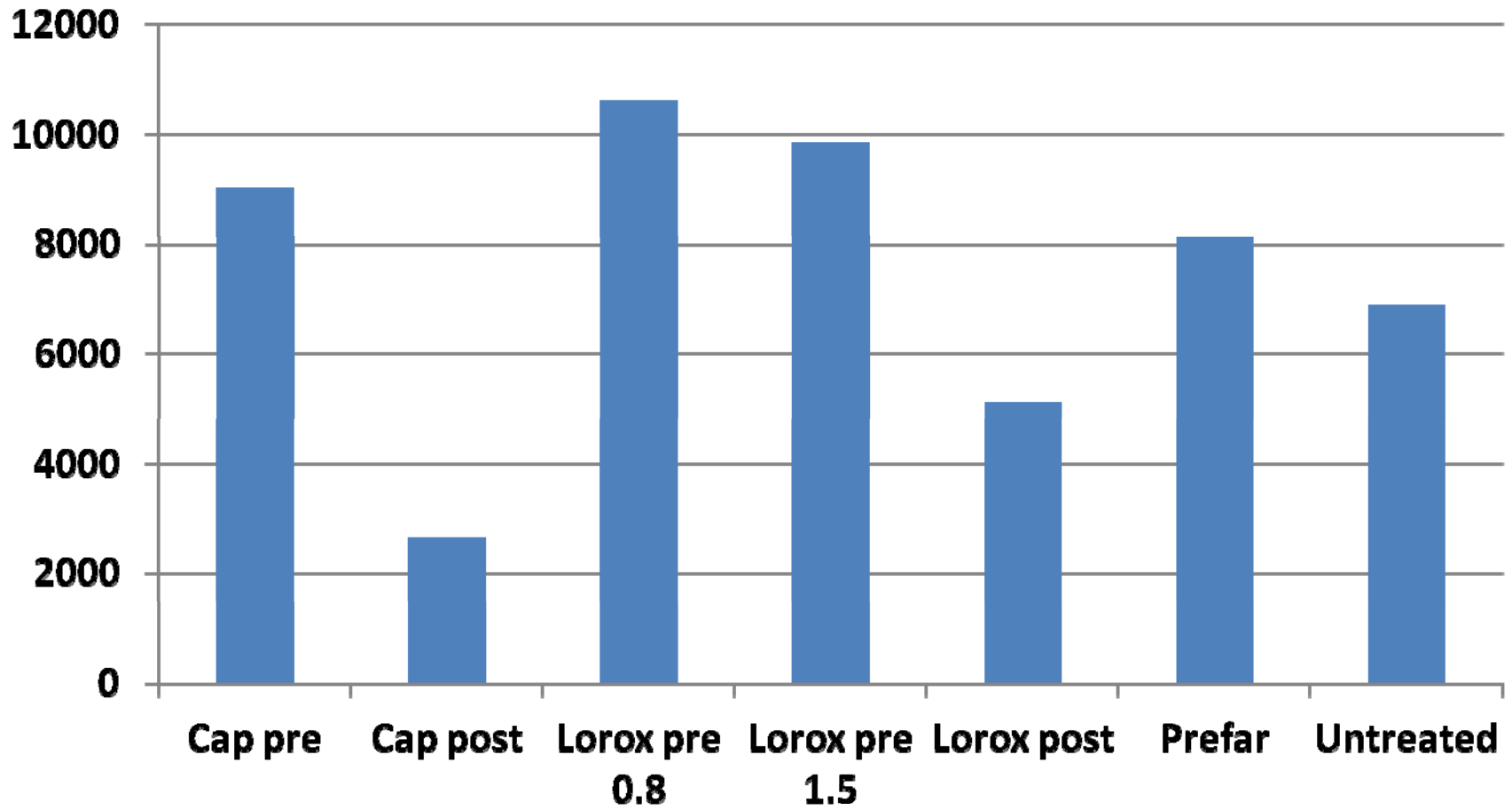
Time to Weed

Hrs/A



Yield

Ibs/A



Untreated Plot



Caparol for Use on Cilantro

Preemergent Application



Post Emergent Application



Lorox 1.5 lbs pre



Lorox 3.0 lbs pre



Lorox 1.0 lbs post

Prefar Missed Hairy Nightshade



2012 Cilantro Weed Control Trial Summary

- **Given the spectrum of weeds present at this site, it gave us an opportunity to confirm the great benefit that Caparol brings to cilantro production**
- **The preemergent use controls a wide spectrum of weeds including nightshade and greatly reduces weeding time and does not reduce yield**
- **Lorox also looks promising as a preemergent application**

Pepper Weed Control Studies

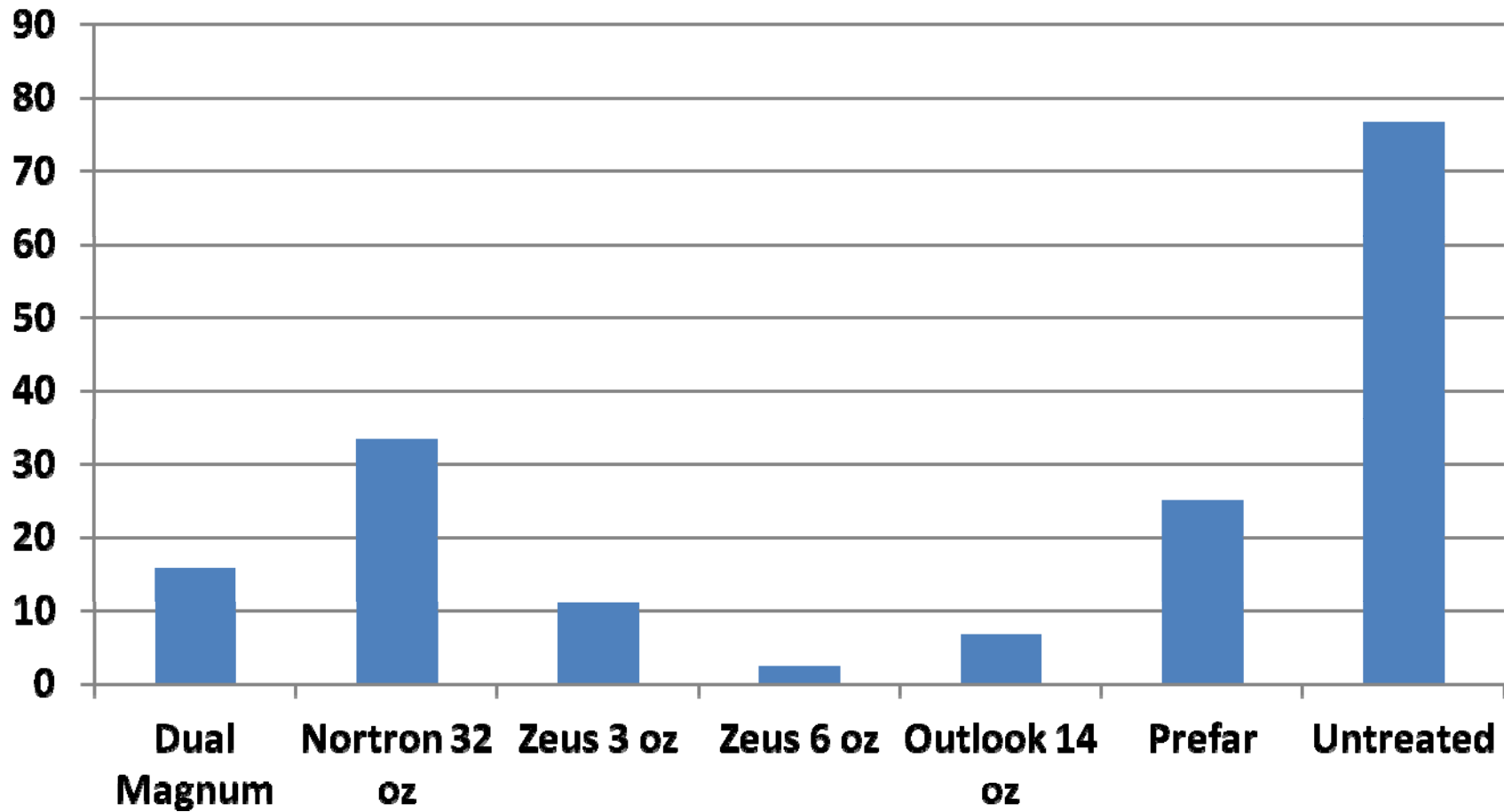


Weed Control Materials Registered for Peppers in California

- **Preplant**
 - Paraquat
 - Roundup
 - Metam Sodium
- **Preemergence**
 - Goal^{1,2}
 - Prefar
 - Devrinol
 - Treflan
 - Dual Magnum
 - Prowl H2O
- **Layby**
 - Dacthal
 - Dual Magnum
 - Prowl H2O
- **Postemergence**
 - Sandea
 - Poast
 - Select Max

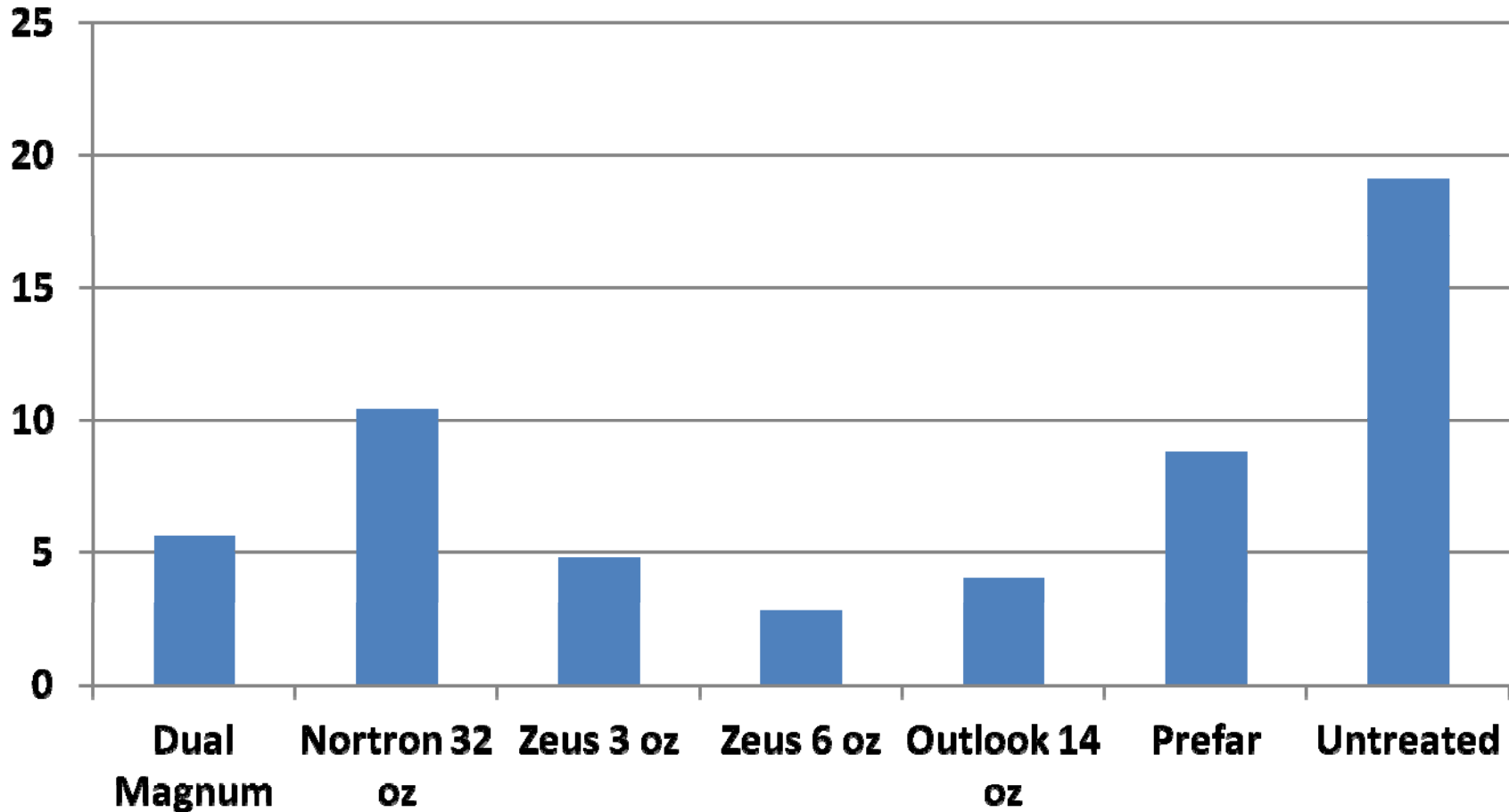
1-Preformed beds up to 30 days prior to transplanting, must work beds;
2-applied to shaped beds and tarped

Total Weeds/Plot



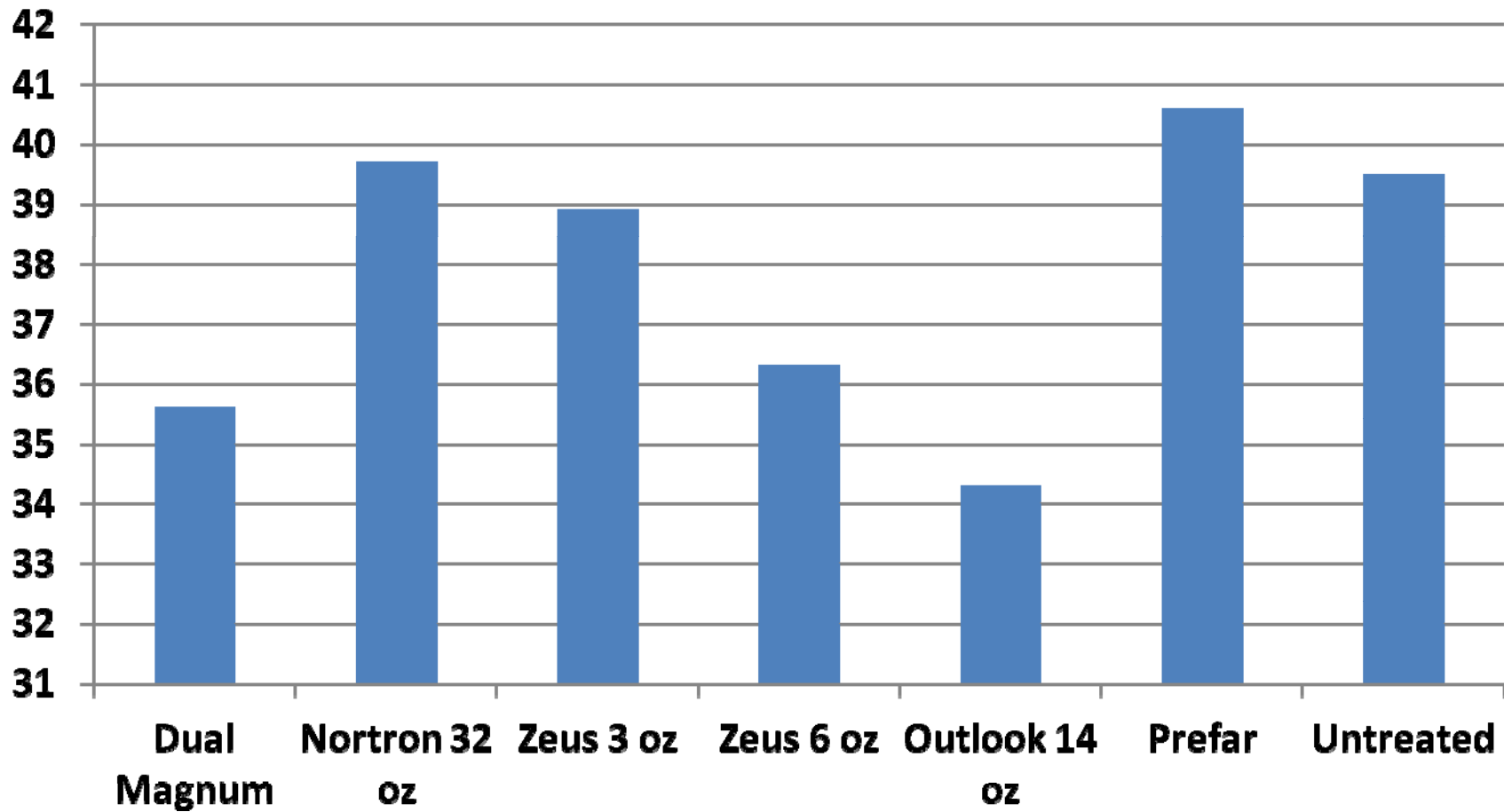
Time to Weed

Hrs/A



Yield

Ibs Marketable Fruit



2012 Pepper Weed Control Trial Summary

- **Zeus at 3.0 fl oz looked promising for use pre transplant on peppers**
- **This use pattern should be further investigated**

Weed Reports On-line

UCCE Monterey County

University of California Cooperative Extension

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About Us - Monterey County

Monterey County is recognized as the Salad Bowl of the World. Its temperate climate, rich soils, and unparalleled infrastructure support system make this the ideal growing area for cool season vegetables, wine grapes, strawberries and flowers. The County is also the home of the packaged salad and pre-cut fresh vegetables, representing 90% market share of the fresh vegetable value added industry. Because the agriculture here is year round and highly labor intensive, Monterey County has the State's highest agricultural payroll.

Calendar

Event Name	Date
Salinas Valley Weed School 2012	11/13/2012

Salinas Valley Agriculture Blog

University of California
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Making a Difference for California

Make a Gift Online

UCCE MAKE A GIFT Monterey County

County Director

Dr. Maria de la Fuente Ph. D.
Title: County Director Monterey - Farm & Master Gardener Advisor Monterey, San Benito and Santa Clara Counties
Phone: (831) 750-7368

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Vegetable Crops & Weed Science

- 2012 Irrigation & Nutrient Management & Water Quality Field Day
- 2011 Salinas Valley Entomology Meeting
- 2011 Irrigation and Nutrient Management Meeting and Cover Crop and Water Quality Field Day Presentations
- 2010 Salinas Valley Weed School
- 2010 Irrigation & Nutrient Management & Cover Crop & Water Quality Field Day.
- 2009 Irrigation & Nutrient Management & Cover Crop & Water Quality Field Day
- 2008 Irrigation & Nutrient Mgmt. Mtg. - February 19
- 2007 Irrigation & Nutrient Management Meeting Reports
- Conference Presentations
- Cost Studies
- Cultural Practice Reports
- Vegetable Crops & Weed Science Links
- Vegetable Production Series
- Weed Reports

Acknowledgements

- **Tony Alameda, Top Flavor Farms**
- **Ryan Bassetti, Integrated Control**
- **Sharon Bensen, USDA**
- **Wyatt Duncan, Integrated Control**
- **Tim Gilleo, Gilleo Farms**
- **Frank Heffren, Green Valley Farm Supply**
- **Matt Kelly, Rio Farms**
- **Mark Mason, Huntington Farms**
- **Paul Mirassou, B&T Farms**
- **Joel Wiley, Wilbur Ellis**