



Broadleaf Weeds and Yellow Nutsedge Control in Onions

**Richard Smith
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Monterey County**

Preplant

Post plant

**Postemergence
2nd true leaf**

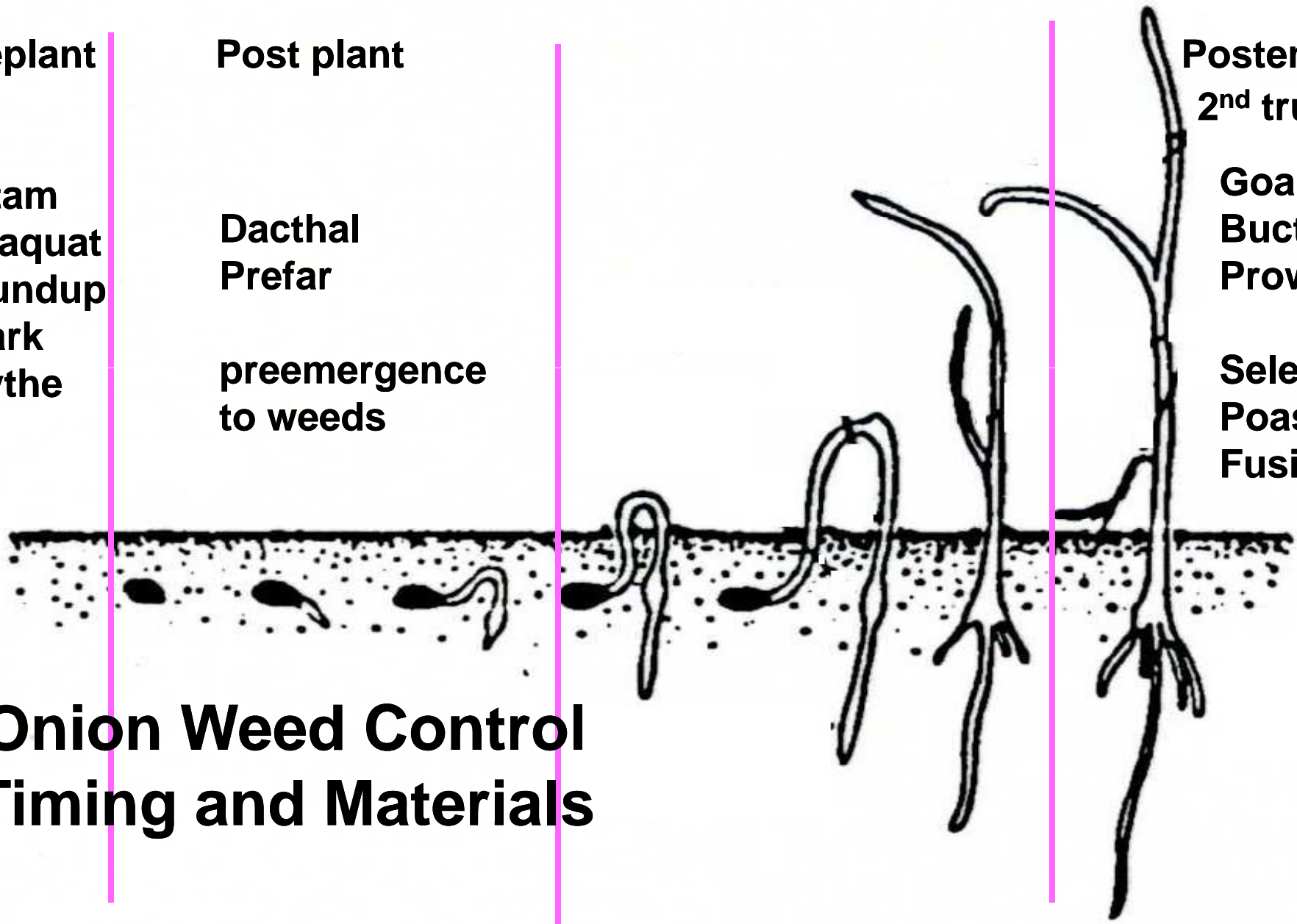
**Metam
Paraquat
Roundup
Shark
Scythe**

**Dacthal
Prefar**

**preemergence
to weeds**

**Goal
Buctril
Prowl**

**Select Max
Poast
Fusilade**



**Onion Weed Control
Timing and Materials**

2007 Season

Metam
Paraquat
Roundup
Shark
Scythe

Dacthal
Prefar

preemergence
to weeds

1st true leaf

Goal Tender

Loop

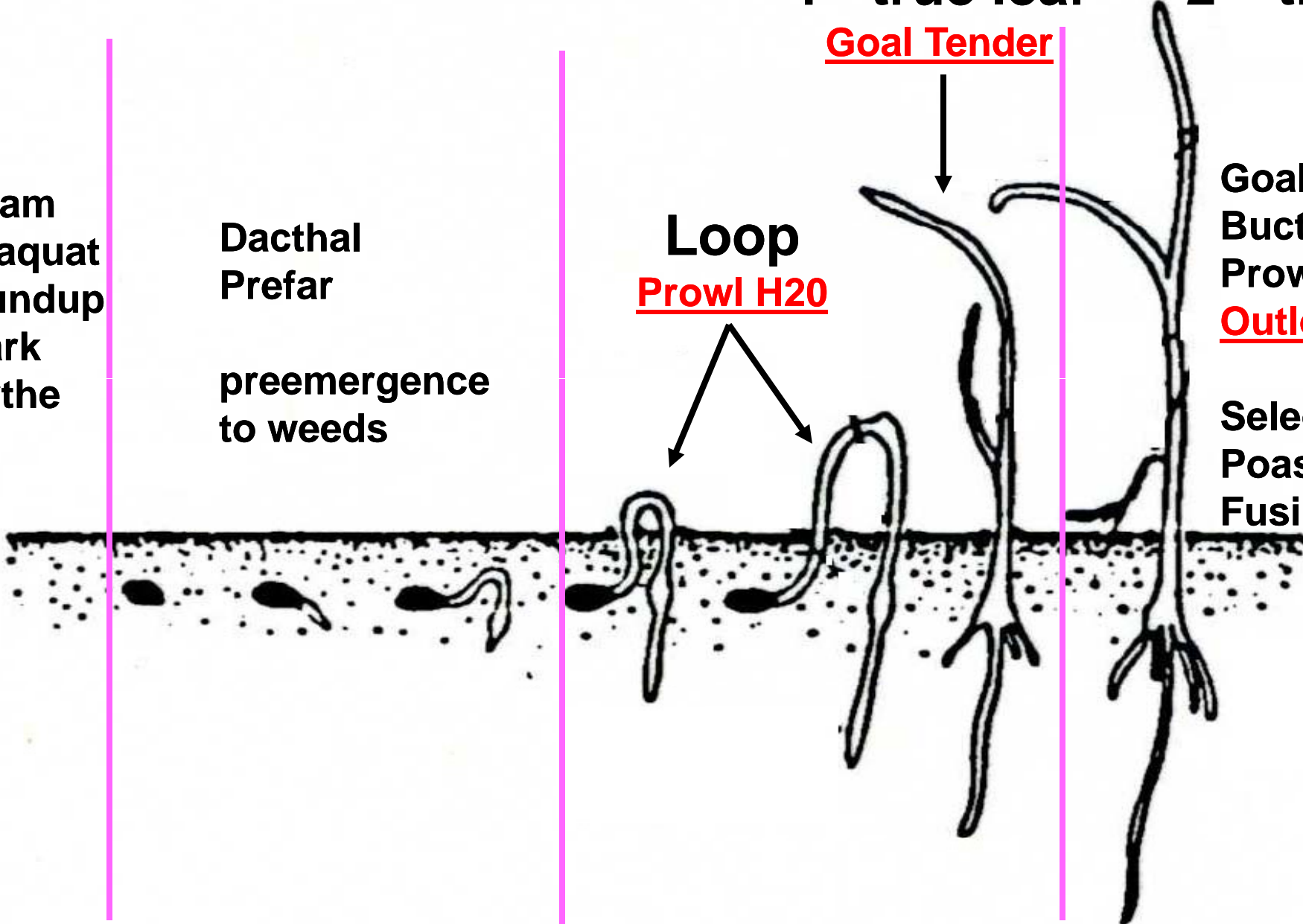
Prowl H20

2nd true leaf

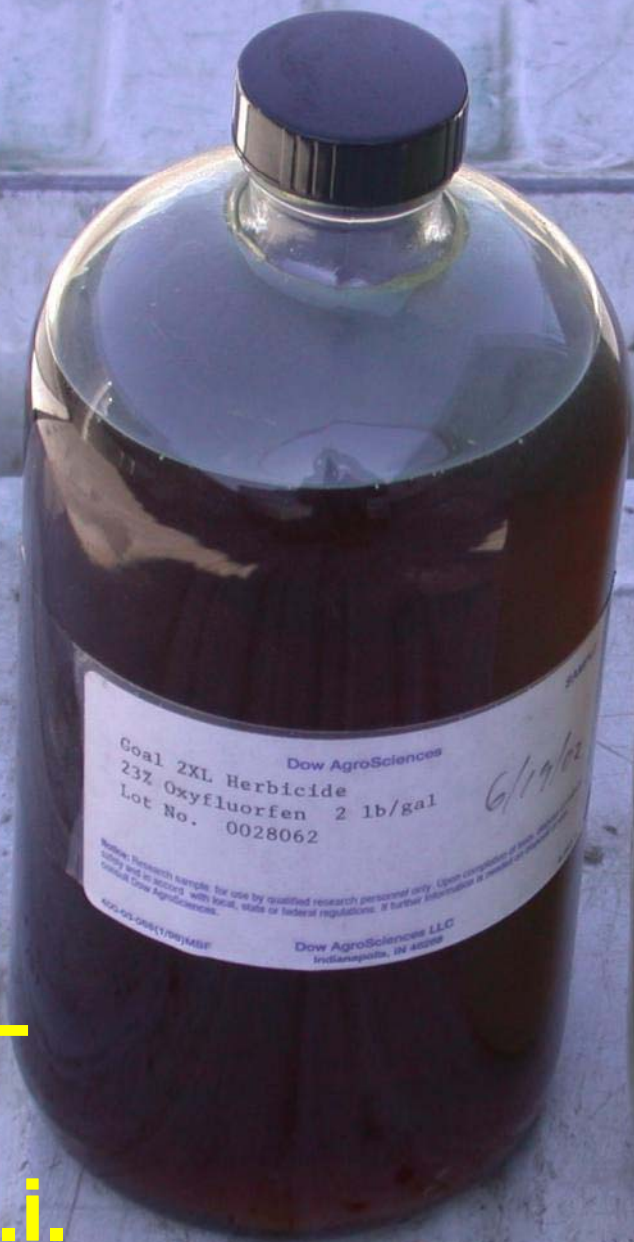
Goal
Buctril
Prowl

Outlook

Select Max
Poast
Fusilade



Goal 2XL
1 pint =
0.25 lb a.i.



Goal 4F
0.5 pint =
0.25 lb a.i.





Goal 2XL



Goal Tender

1st true leaf



Shepherds Purse
1st true leaf



2nd true leaf



**Goal Tender
Weed Burn Down**



**Goal Tender weed burn down and regrowth
if weed is too big at time of application**

Goal Formulation and Timing 2005 Evaluations

Treatments	Timing True leaves	Total Weeds per 20 ft ²	Hours/A to Weed
Goal Tender	1 st	2.5	2.4
Goal Tender	2 nd	10.0	4.1
Goal 2XL	1 st	1.8	2.4
Goal 2XL	2 nd	6.3	3.3
Untreated	---	81.8	20.7

Onion Yield - Goal Tender vs Goal 2XL

Treatments	True leaves	2003 T/A	2004 T/A	2005 T/A
Goal Tender	1st	31.9	49.7	61.3
Goal 2XL	1st	28.8	44.8	60.6
Goal Tender	2nd	32.2	49.9	62.7
Goal 2XL	2nd	30.4	49.3	62.9

All treatments @ 0.25 lb a.i./A

Loop Stage Prowl H2O Applications







2006 Onion Weed Evaluations

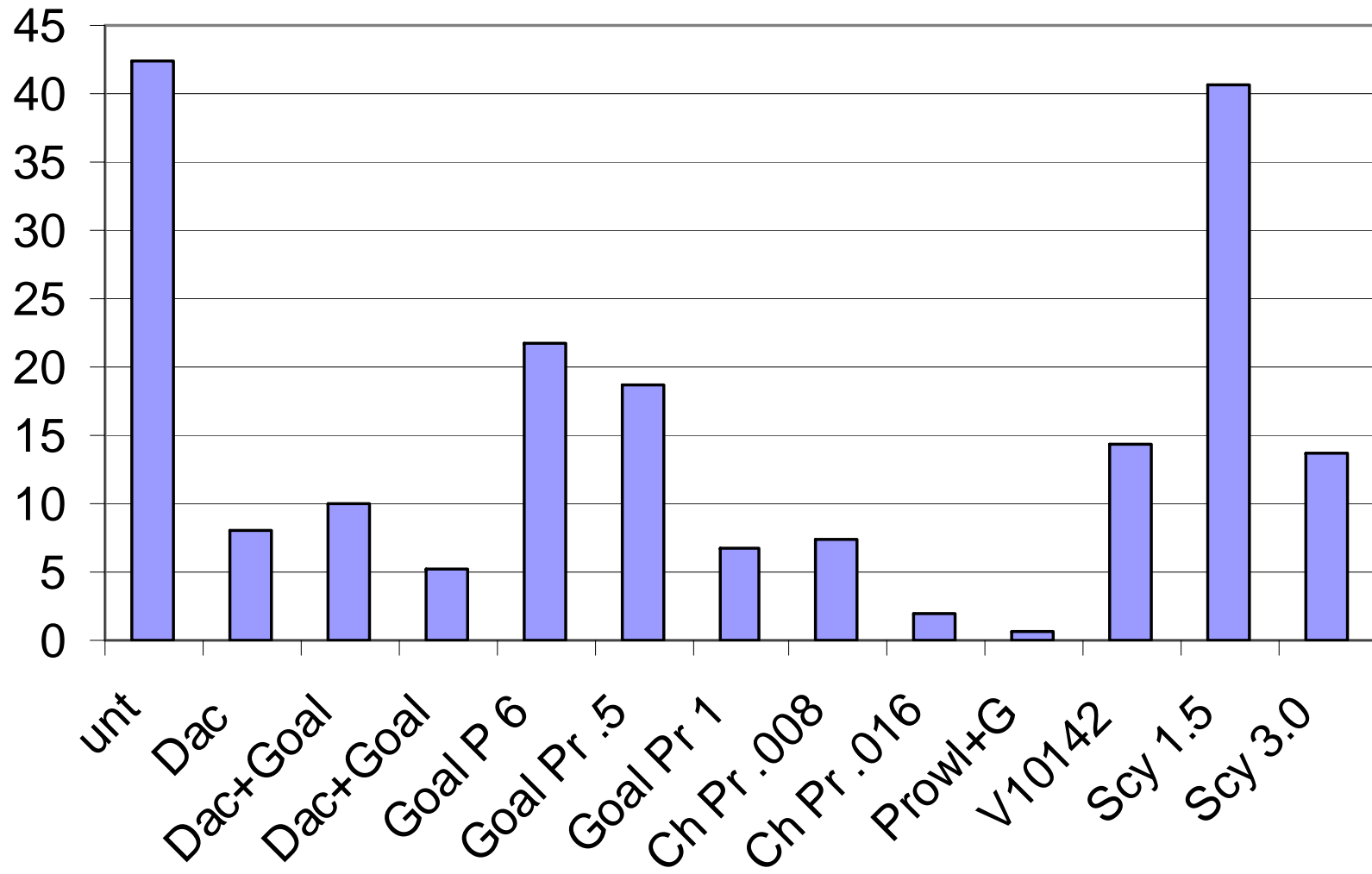
Treatments	Rate	Total Weeds 4 ft²	Weed Time Hrs/A
Untreated	----	36.0	97.3
Prowl H2O Loop	24 oz	16.3	16.3
Prowl H2O Loop FB Goal Tender 1st	24 oz 4 oz	0.3	2.3
Dacthal FB Goal 2XL 2nd	10.5 8 oz	3.3	3.3

2006 Onion Weed Evaluations

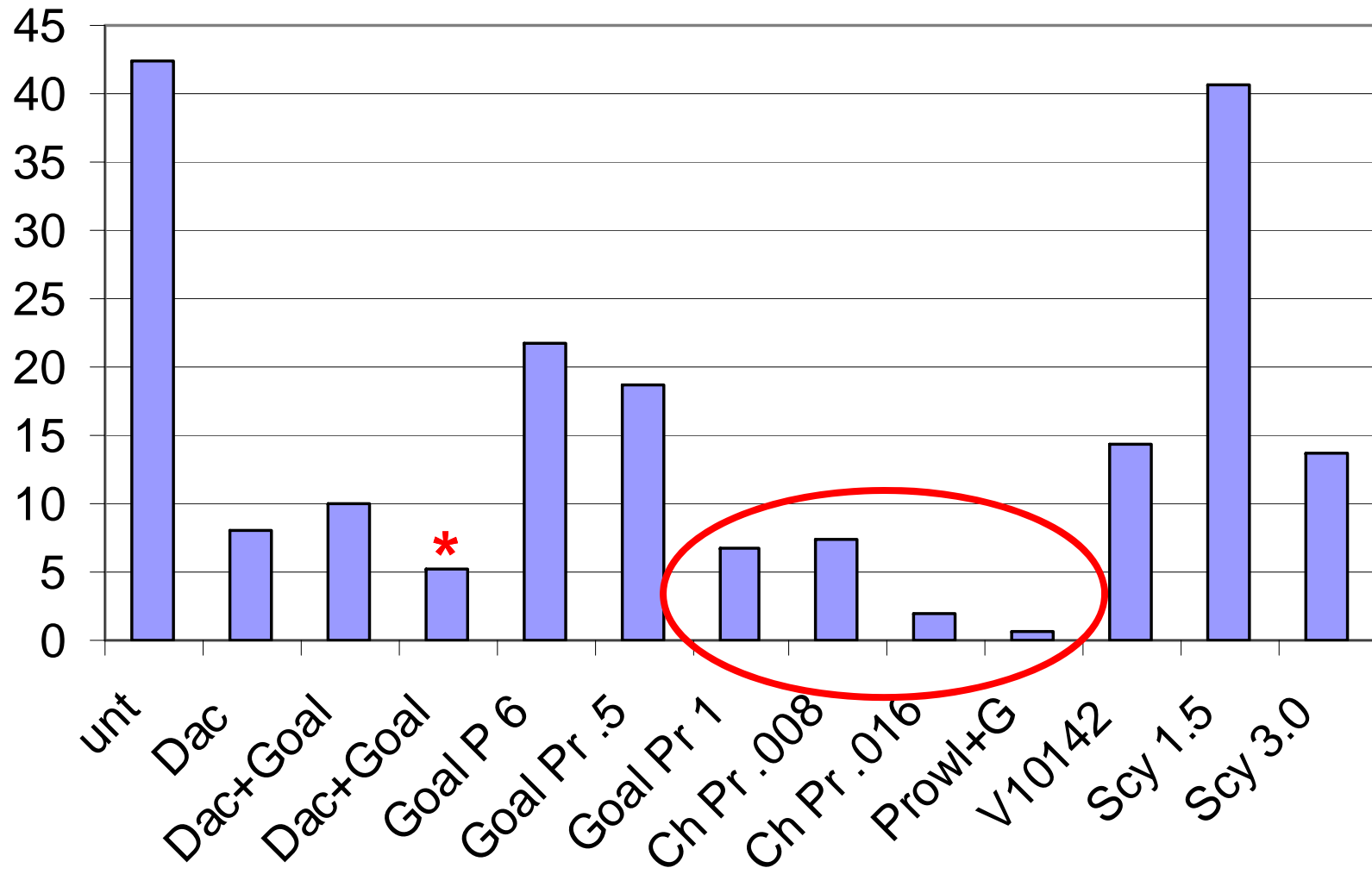
Treatments	Rate	Bulbs 1000's/A	Bulbs T/A
Untreated	----	97.0	42.0
Prowl H2O Loop	24 oz	116.0	49.1
Prowl H2O Loop FB Goal Tender 1 st	24 oz 4 oz	110.7	50.7
Dacthal	10.5	83.9	43.4
FB Goal 2XL 2 nd	8 oz		

2007 Onion Weed Screen

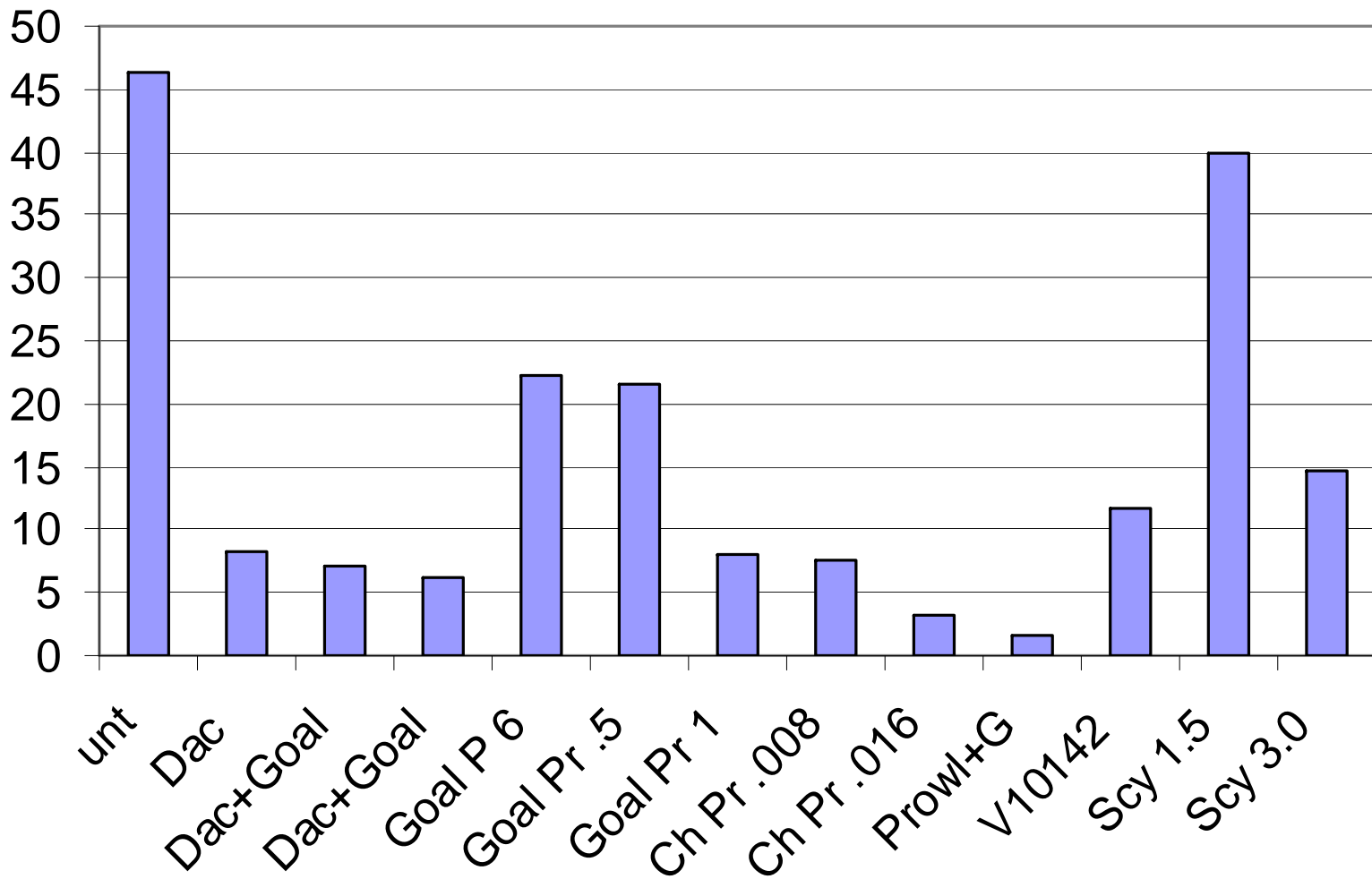
2007 Weed Control Screen Total Weeds



2007 Weed Control Screen Total Weeds



2007 Weed Control Screen Hours per Acre to Weed



Summary Weed Screen

- **Low ultra rates of Goal and Chateau used as a preemergence provided weed control and safety to the onions**
- **Prowl H2O at the loop stage followed by Goal Tender at the 1st true leaf stage continued to look very good**
- **Scythe as an over-the-top use on onions was a bit dicey, but did provide good weed control at 3.0%**

2007 Season

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Roundup
Shark
Scythe

Dacthal
Prefar

preemergence
to weeds

1st true leaf

Goal Tender

Loop

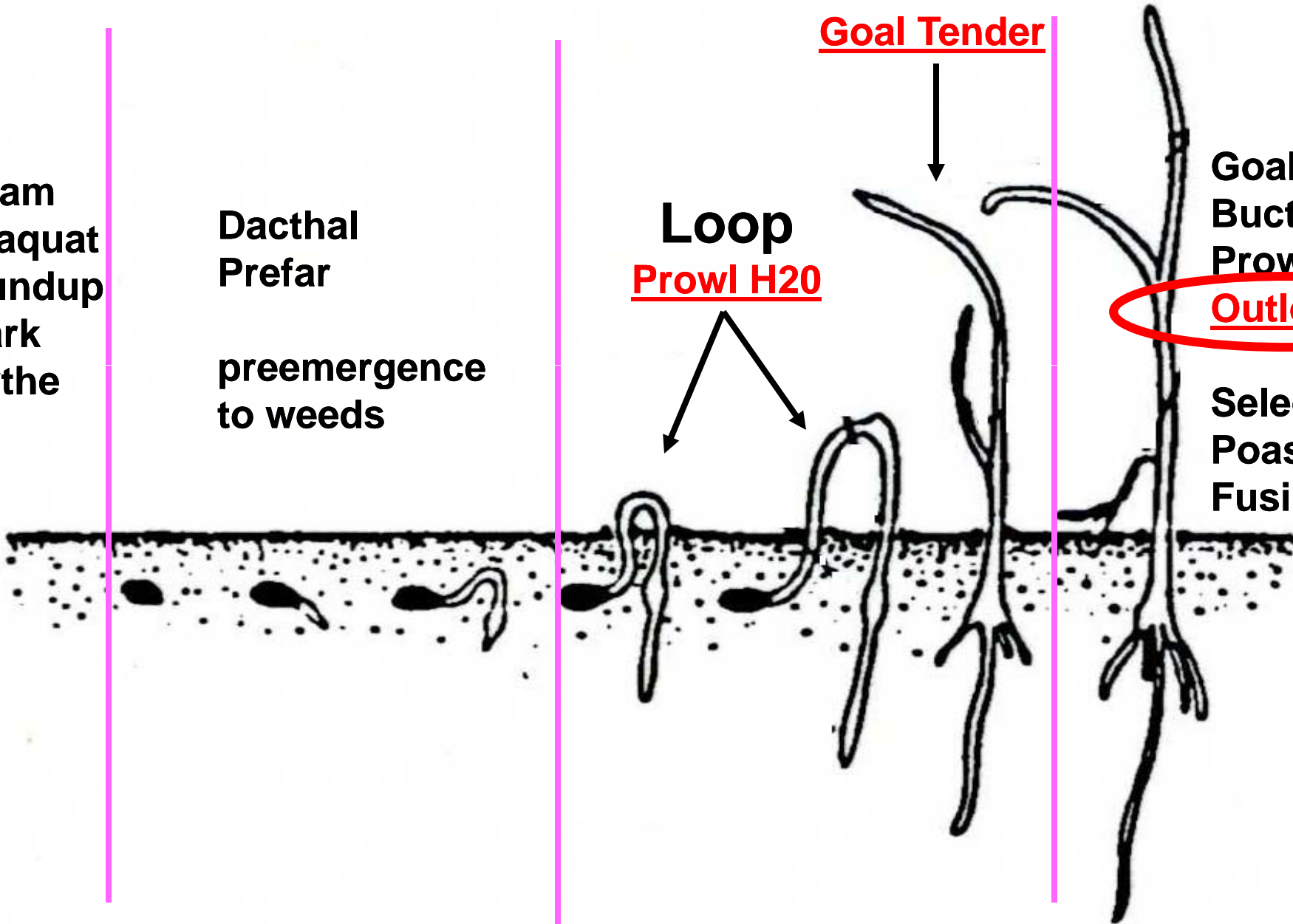
Prowl H20

2nd true leaf

Goal
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Select Max
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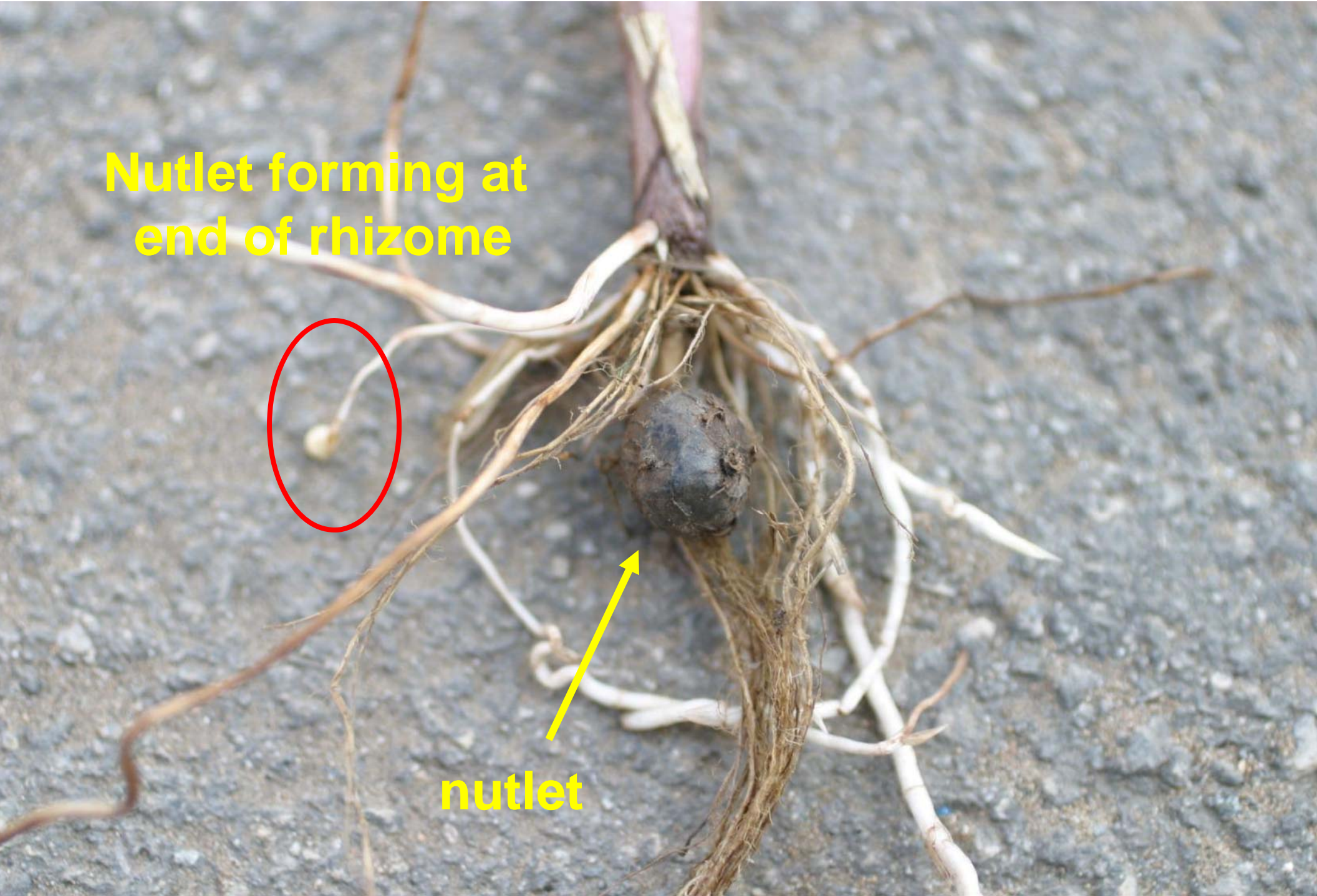


Background Nutsedge

**Nutlet forming at
end of rhizome**



nutlet



- Once the plant has developed more than 5 leaves it begins to form nutlets



- **Nutsedge does not tolerate shade**
- **Unfortunately onions do not provide sufficient shade to inhibit the growth of nutsedge**



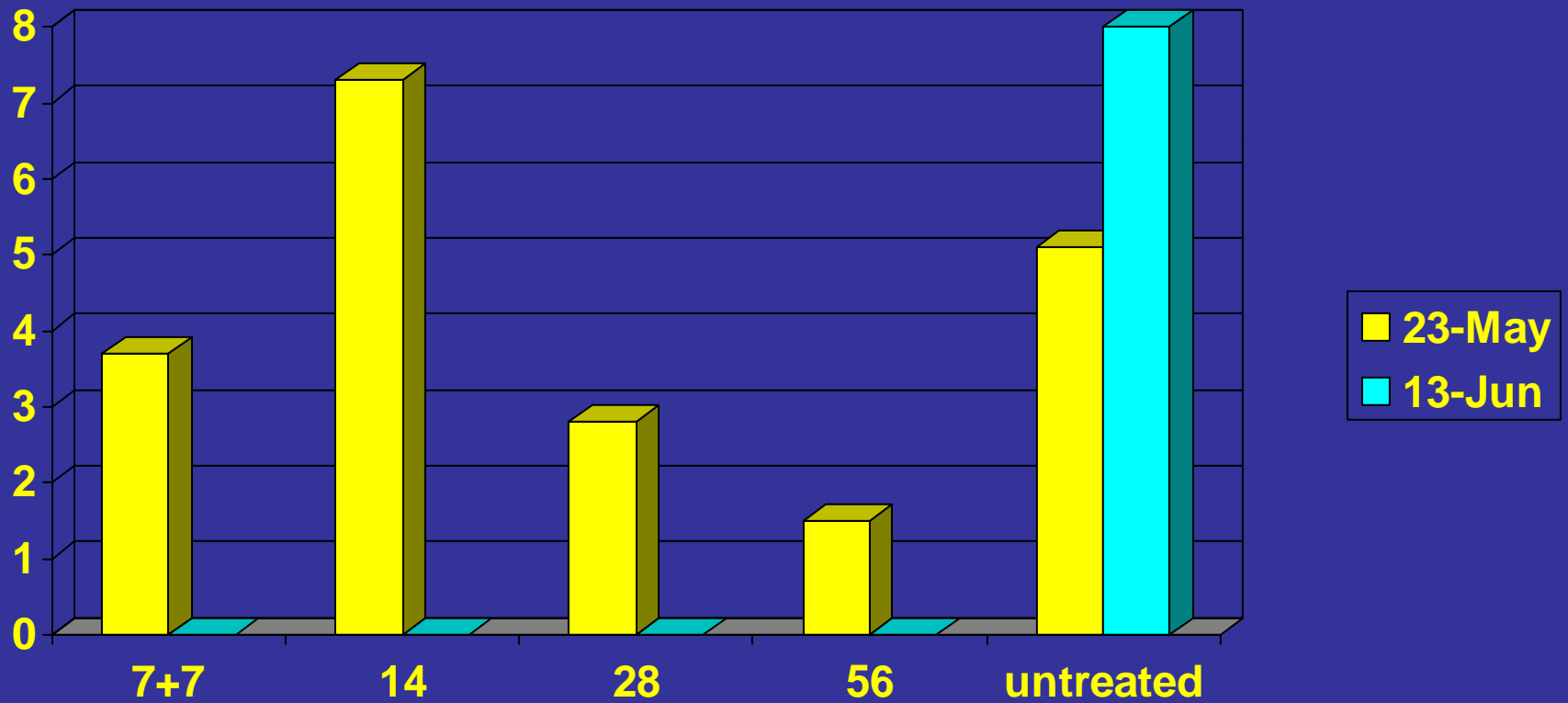
Background on Outlook

- It is a chloroacetamide and has similarities to Dual Magnum
- It needs to be applied prior to the emergence of nutsedge as it has no postemergence activity
- Registered for use at the 2nd true leaf stage
- It can delay tuber sprouting and kill shoots of yellow nutsedge
- It can cause tuber mortality

Nutsedge Control in Onions

- The spring weather was wetter and cooler in 2006 and the nutsedge emerged slowly
- As a result, applying Outlook + Goal at the 2nd true leaf stage caught the nutsedge at an earlier growth stage
- Outlook applications at the 2nd true leaf stage were effective

Number of Young Nutsedge - 2006



Rates of Outlook





Untreated

2006 Nutsedge Trials

- Later applications when the nutsedge was established were not effective



2007 Nutsedge Trials

- In 2007 Outlook (Dimethenamid-p) was registered for the first time in California for use on onions
- It is registered for use at the 2nd true leaf stage

2007 Nutsedge Trials

- However, the weather was dry in the spring and nutsedge emerged prior to the 2nd true leaf stage in most cases
- As a result, we looked for ways to work with the situation and try to make the Outlook work
- Strategies tested:
 - 1) 1st true leaf applications
 - 2) Burn back nutsedge with acid fertilizer then apply Outlook



April 3, 2007

- **Nutsedge emerged more quickly in 2007**
- **By the time we were at the 2nd true leaf stage the nutsedge was well developed**





NO
OUTLINE

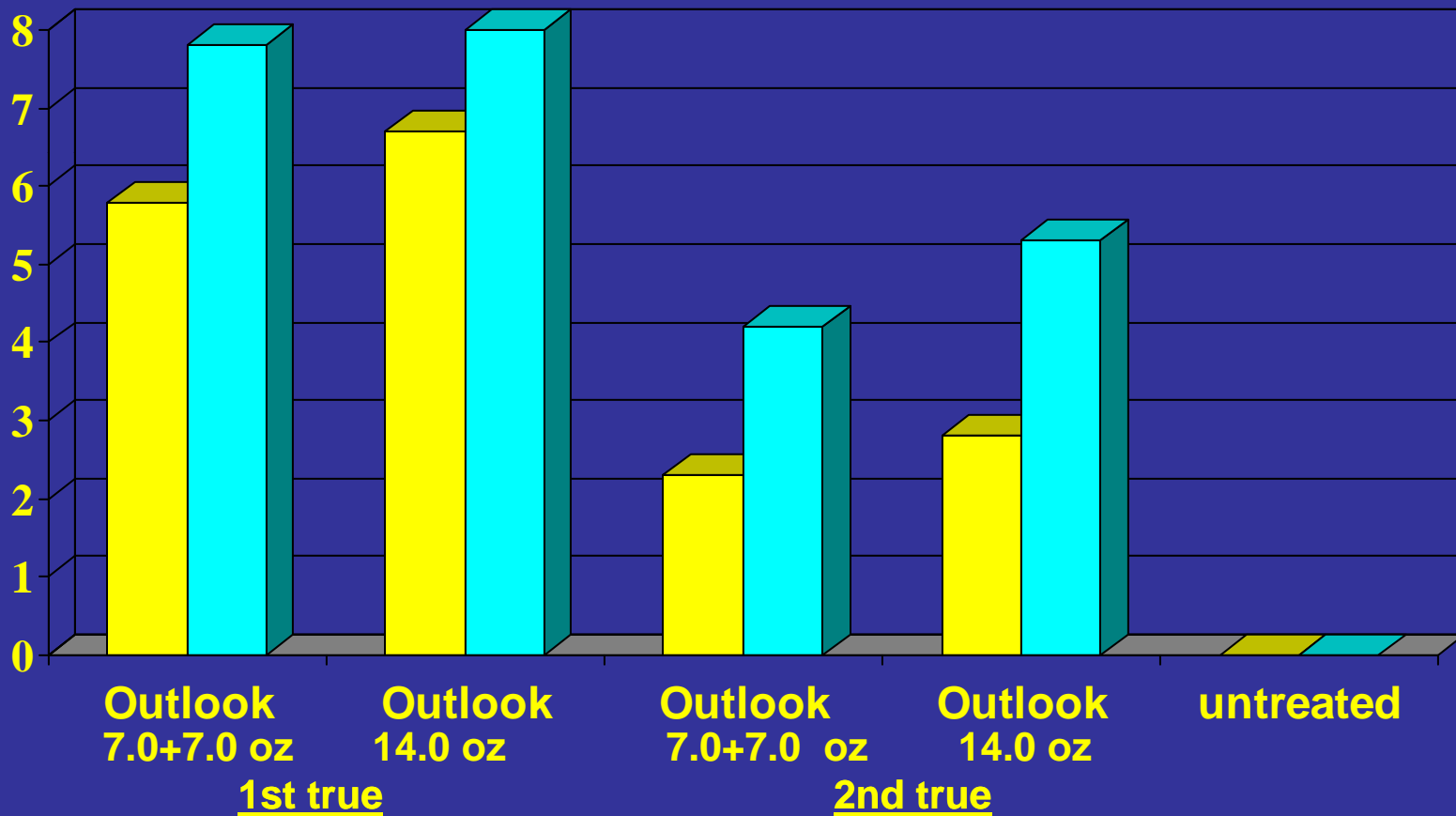
April 18, 2007

Heavily Infested Site

Treatment	Material/A	Application
7-7-0-7 Fb Outlook 6.0 Fb Outlook 6.0	35 gallons 7.0 oz 7.0 oz	1 st True Leaf
7-7-0-7 Fb Outlook 6.0	35 gallons 14.0 oz	1 st True Leaf
7-7-0-7 Fb Outlook 6.0 Fb Outlook 6.0	35 gallons 7.0 oz 7.0 oz	2 nd True Leaf
7-7-0-7 Fb Outlook 6.0	35 gallons 14.0 oz	2 nd True Leaf
Untreated	-----	-----

Weed Control Outlook After Acid Fertilizer

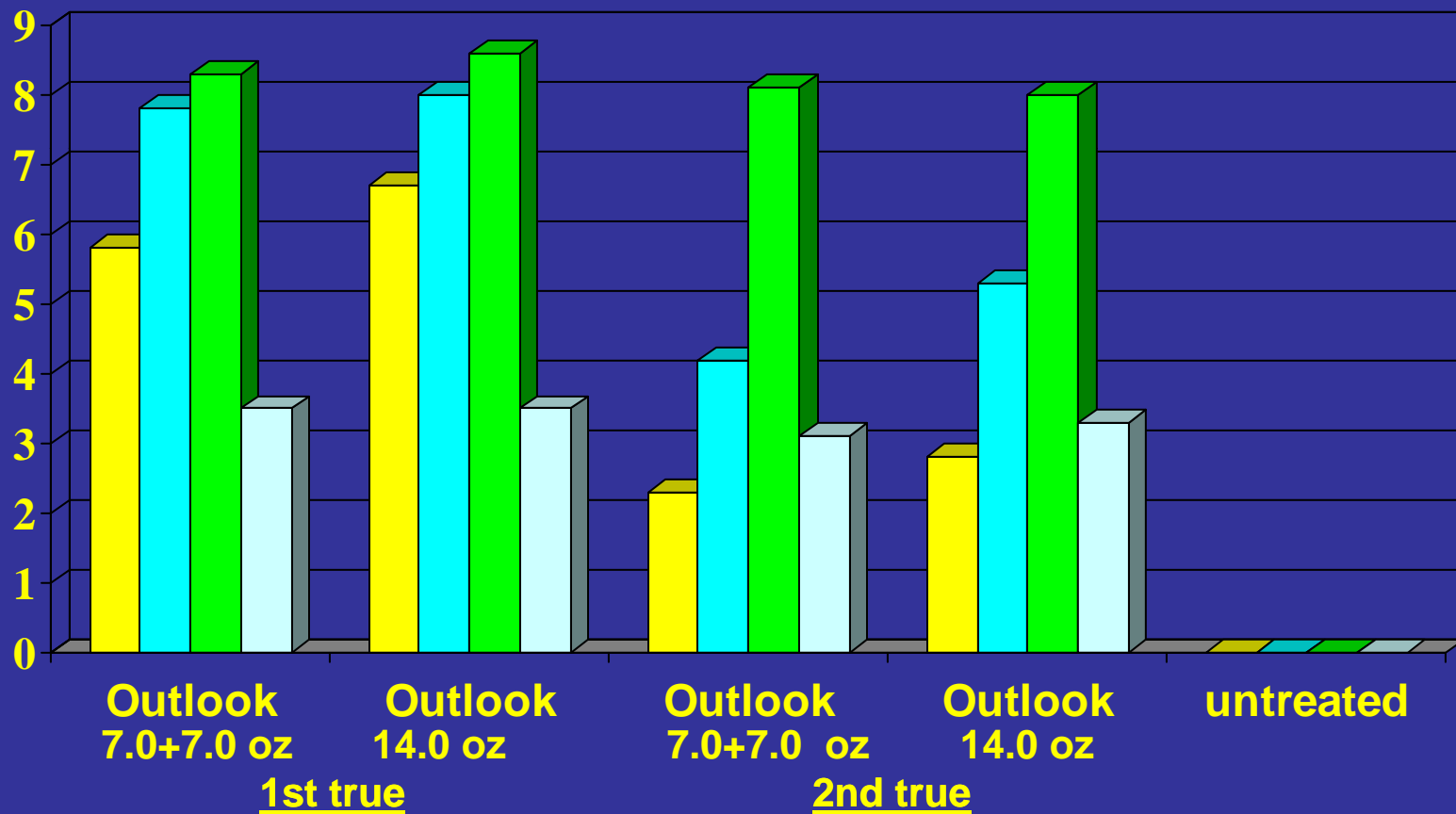
April 23 and May 4



1st true leaf April 4; 2nd true leaf April 11

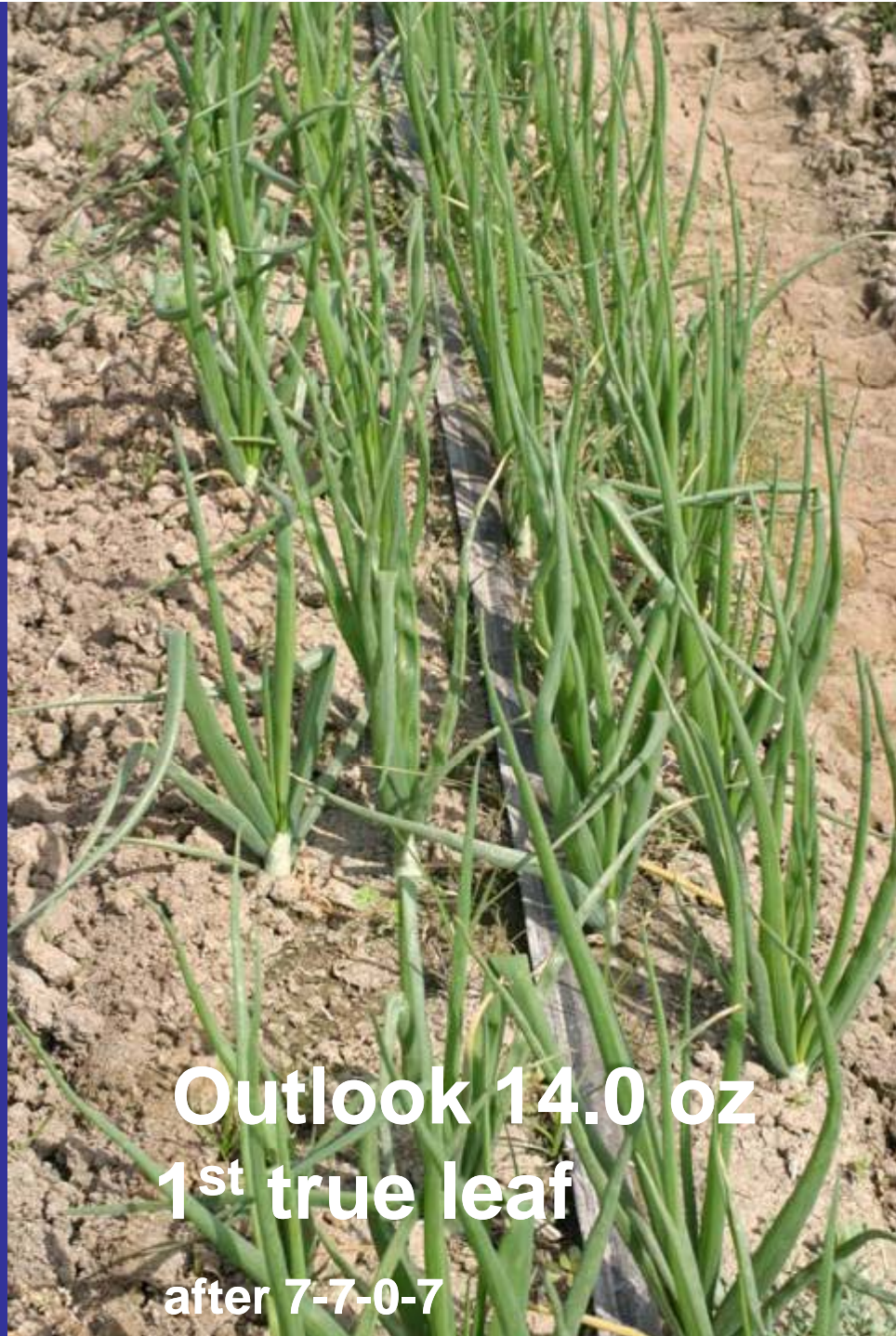
Weed Control Outlook After Acid Fertilizer

April 23; May 4; June 1; and August 9





Untreated



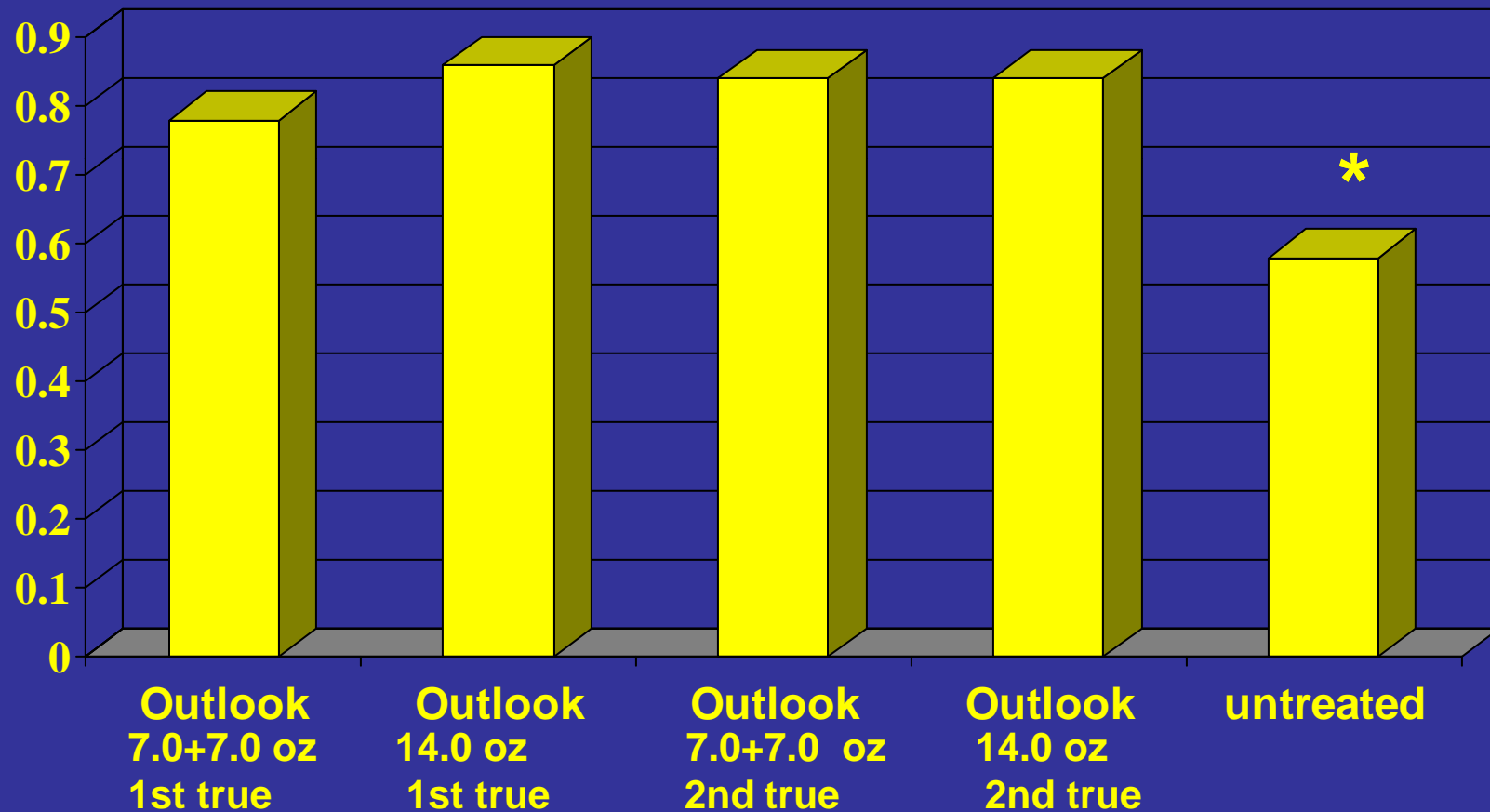
**Outlook 14.0 oz
1st true leaf
after 7-7-0-7**



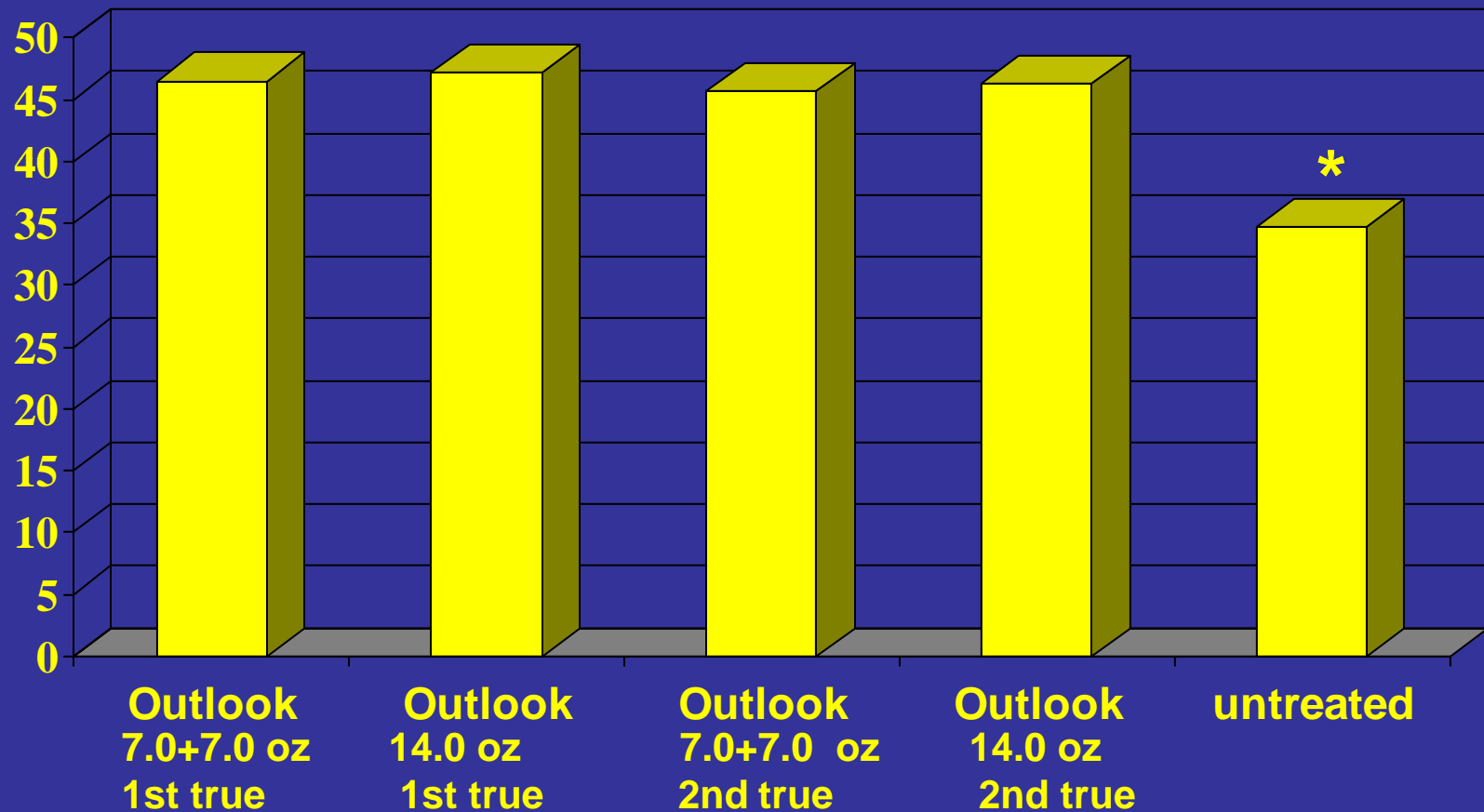
Onion Trial Heavy Infestation

With 7-7-0-7

Yield - Mean Head Wt (lbs)



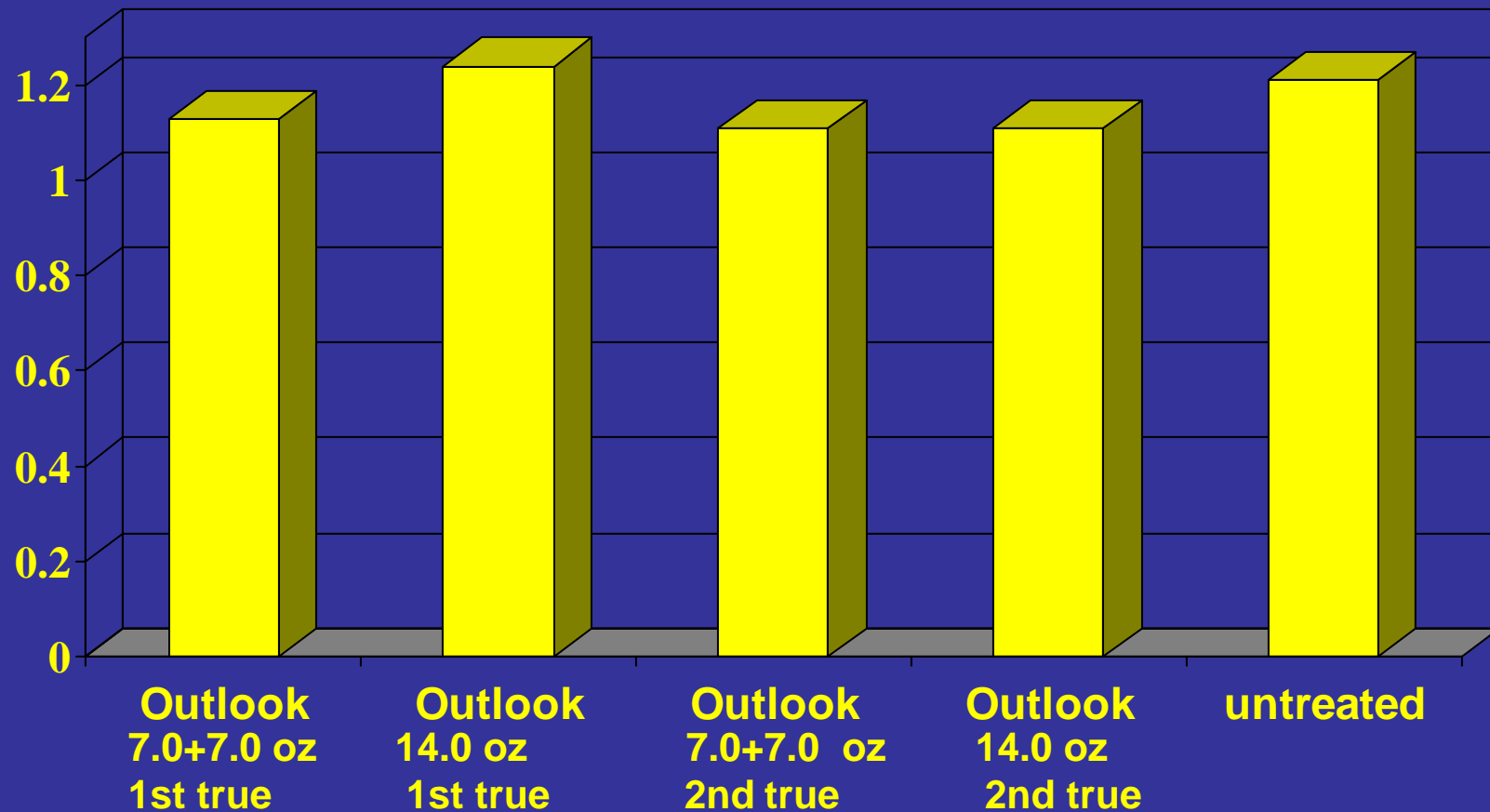
Onion Trial Heavy Infestation With 7-7-0-7 Yield – Tons/A



Onion Trial Light Infestation

No 7-7-0-7

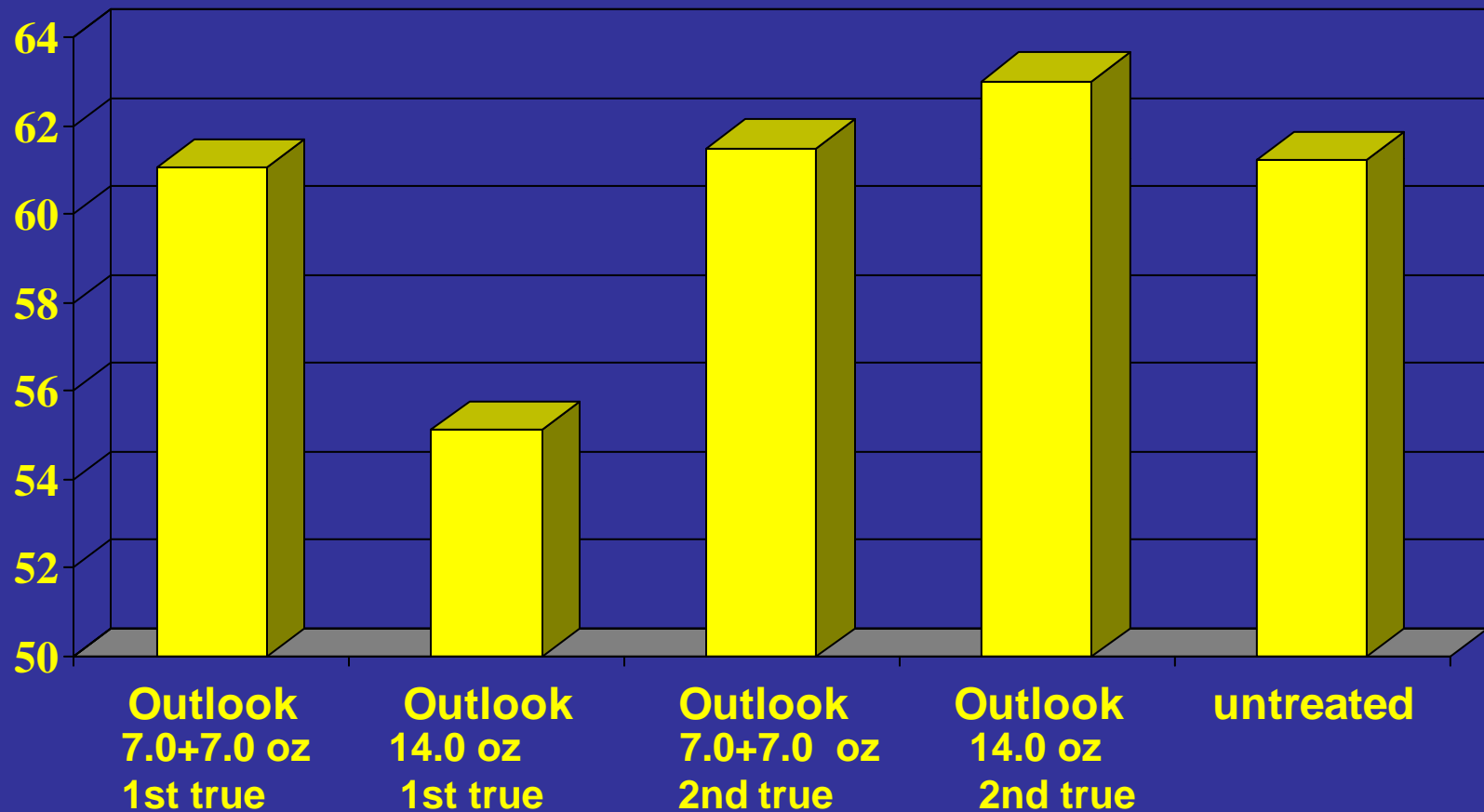
Yield - Mean Head Wt (lbs)



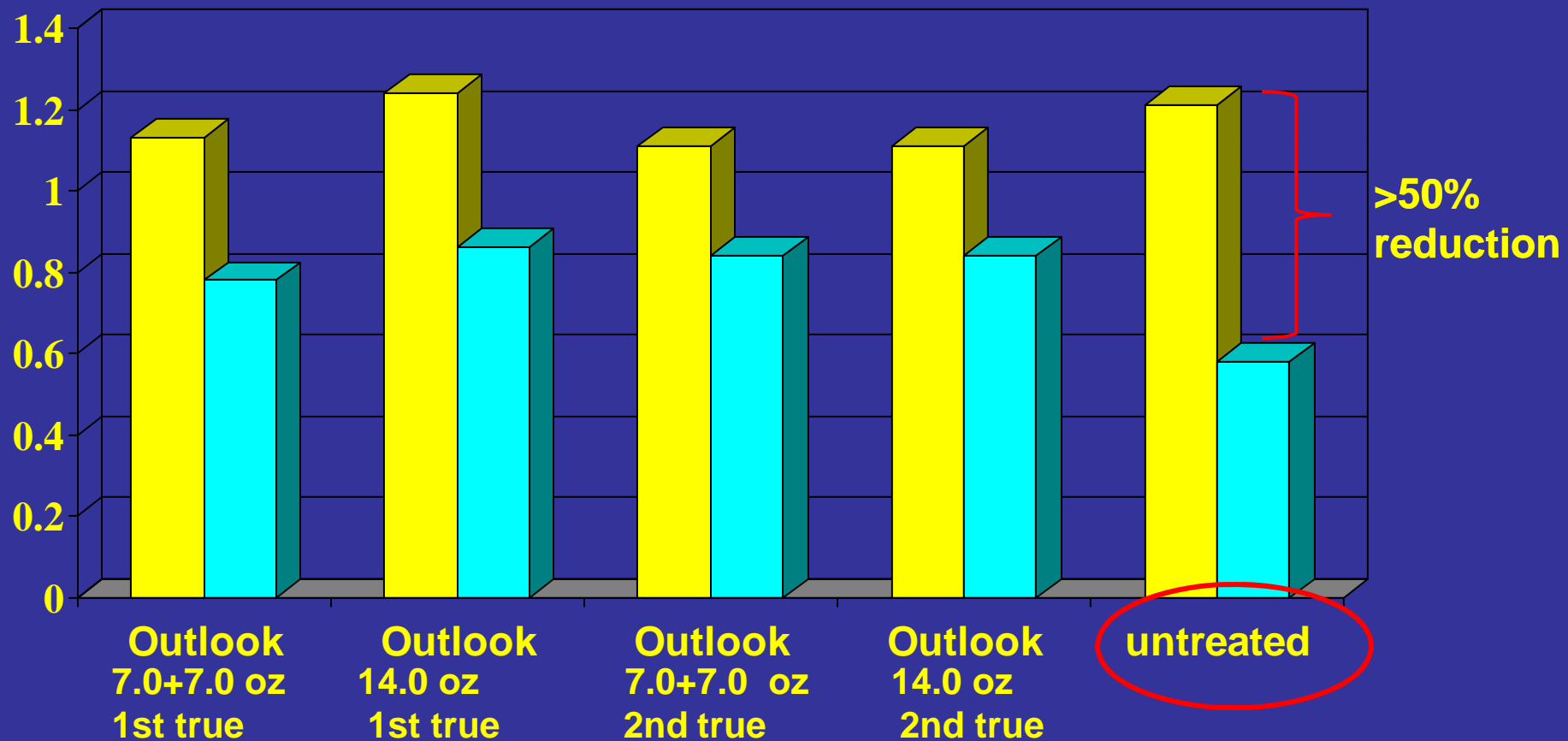
Onion Trial Light Infestation

No 7-7-0-7

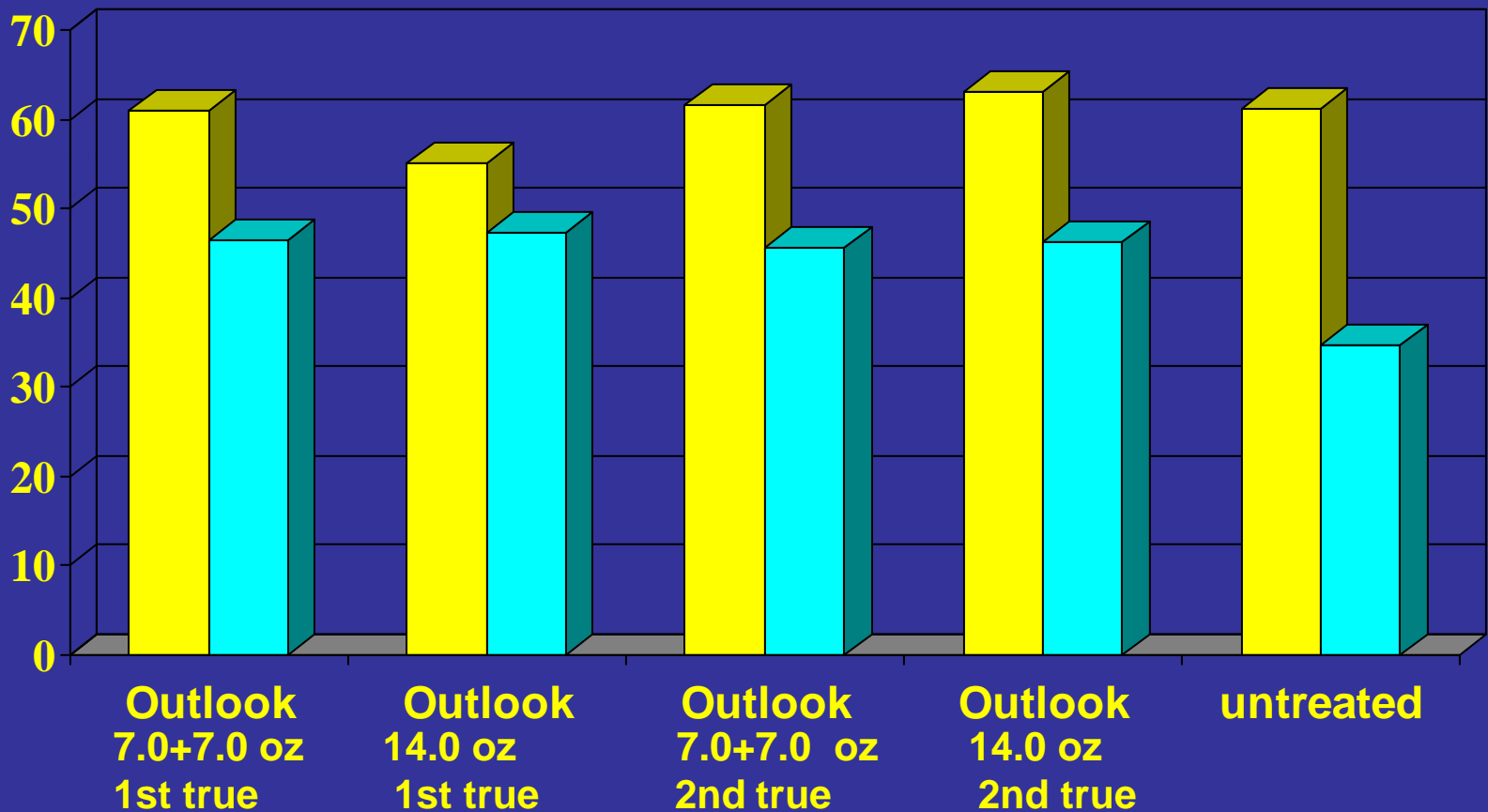
Yield – Tons/A



Comparison of Light vs Heavy Yield – Mean Head Wt (lbs)



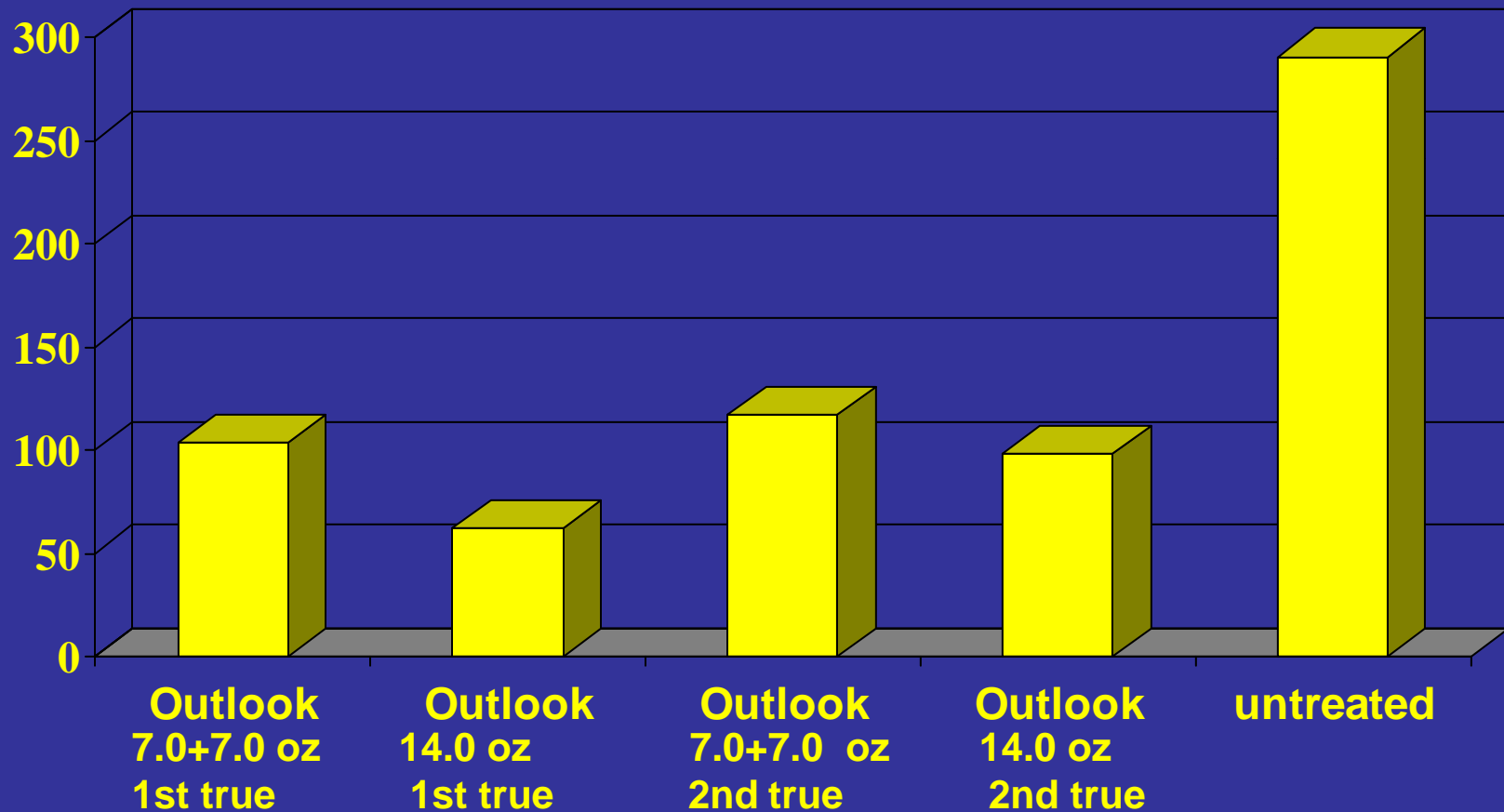
Comparison of Light vs Heavy Yield – Tons/A



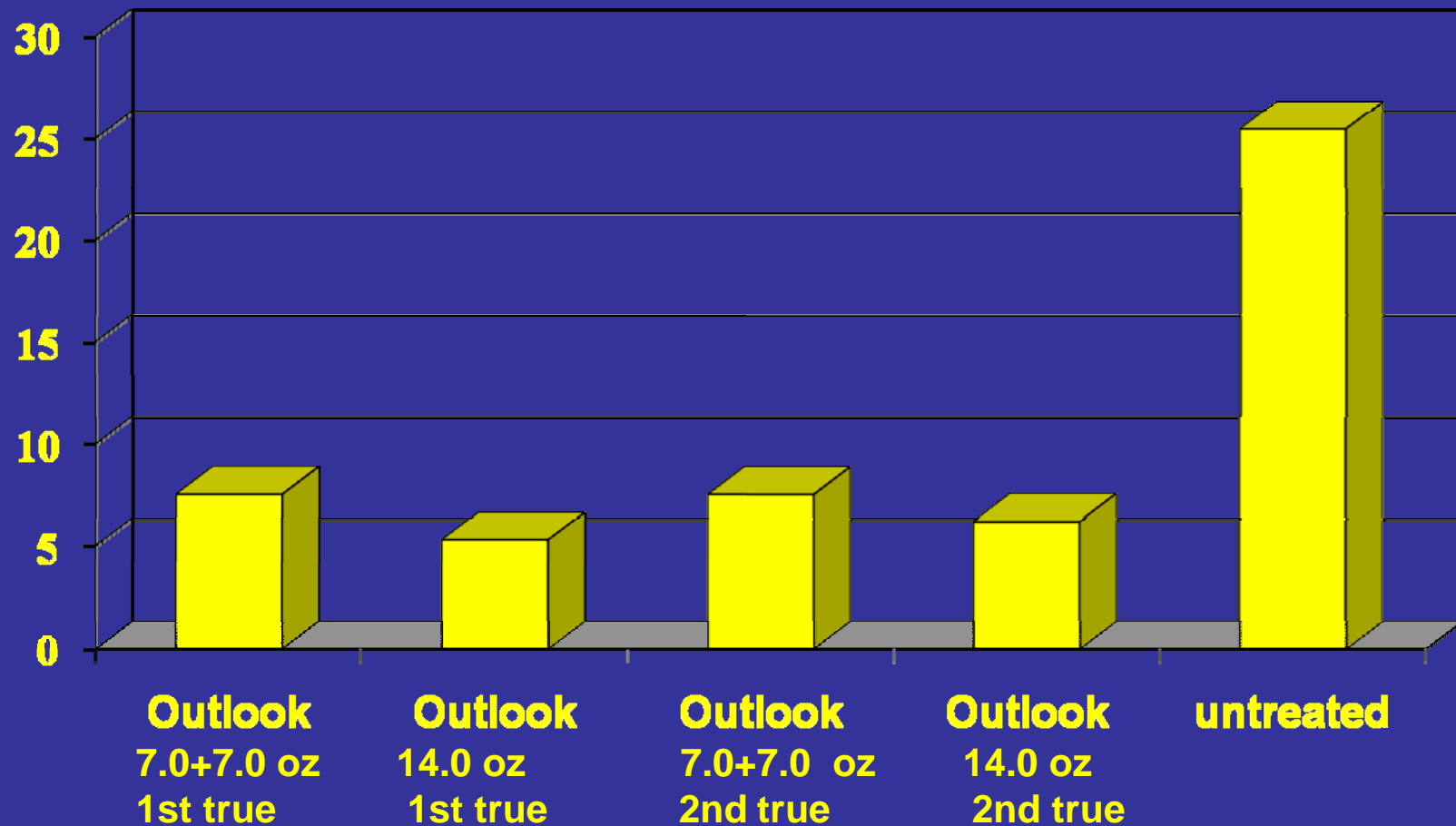
Nutsedge Nutlets in Soil Following Outlook Treatments



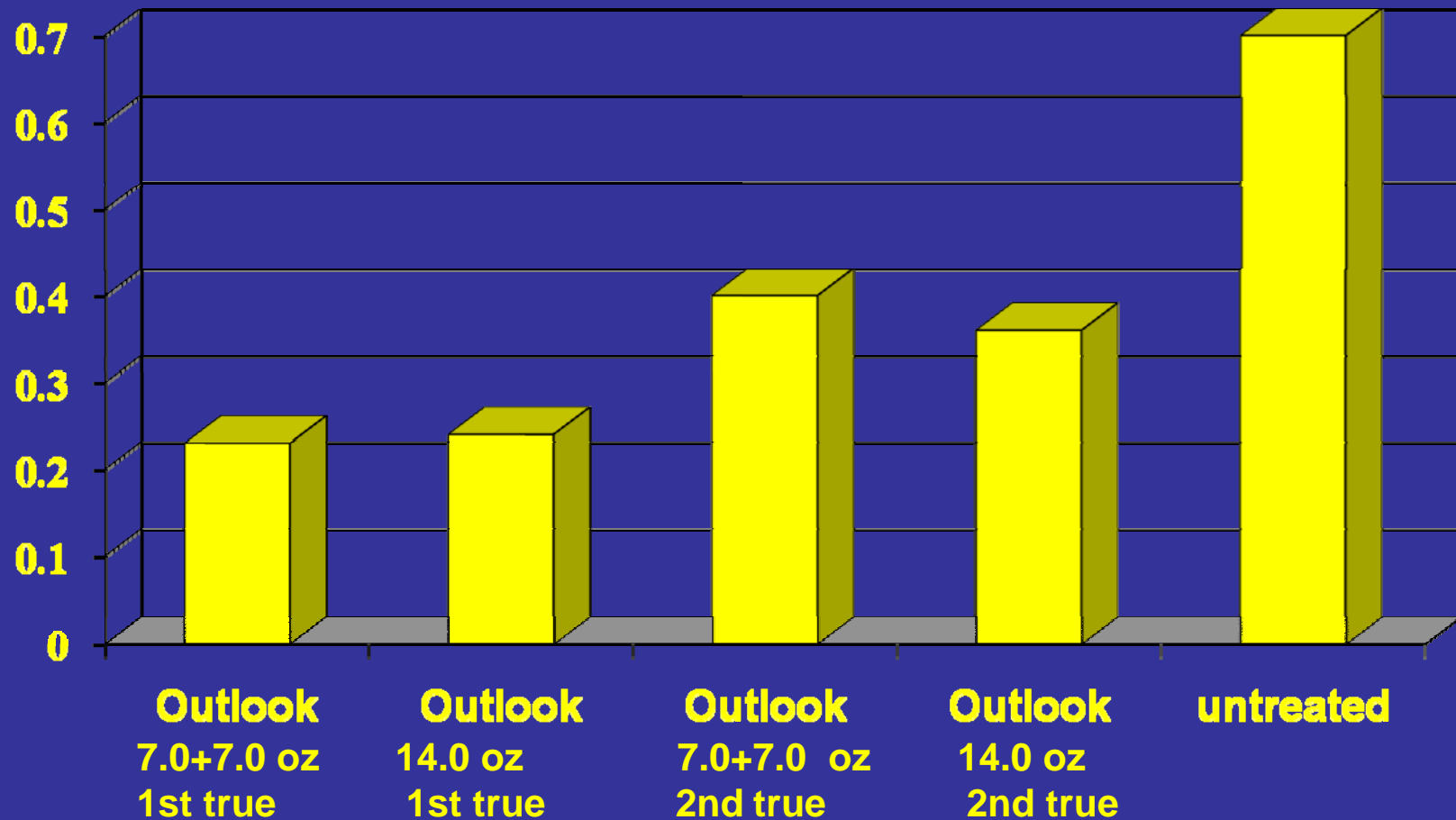
Nutsedge Tubers Per 1000 cm³ of Soil



Nutsedge Tubers Weight (grams) Per 1000 cm³ of Soil



Mean Nutsedge Plant Weight per Pot



Summary

- **Burning back nutsedge with acid fertilizer provides an opportunity to make Outlook work if nutsedge is emerged by the 2nd true leaf stage**
- **There may be a yield reduction, but less than letting the nutsedge go uncontrolled**
- **We will pursue the first true leaf registration**

2008 Season

- **Nortron (Bayer Corp) will be registered in 2008**
- **We have little experience with this material on onions in California**
- **One piece of research indicated that it was phytotoxic on sandy soils**

Acknowledgements

- **Bob Martin, Rio Farms**
- **Wyatt Duncan, Integrated Crop Management**
- **Travis Hill, BASF Corp**
- **Miriam Silva Ruiz; David Miltz; and Salvador Montes**



THANK YOU FOR YOUR ATTENTION