



# Broadleaf Weeds and Yellow Nutsedge Control in Onions

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**Preplant**

**Post plant**

**Postemergence  
2<sup>nd</sup> true leaf**

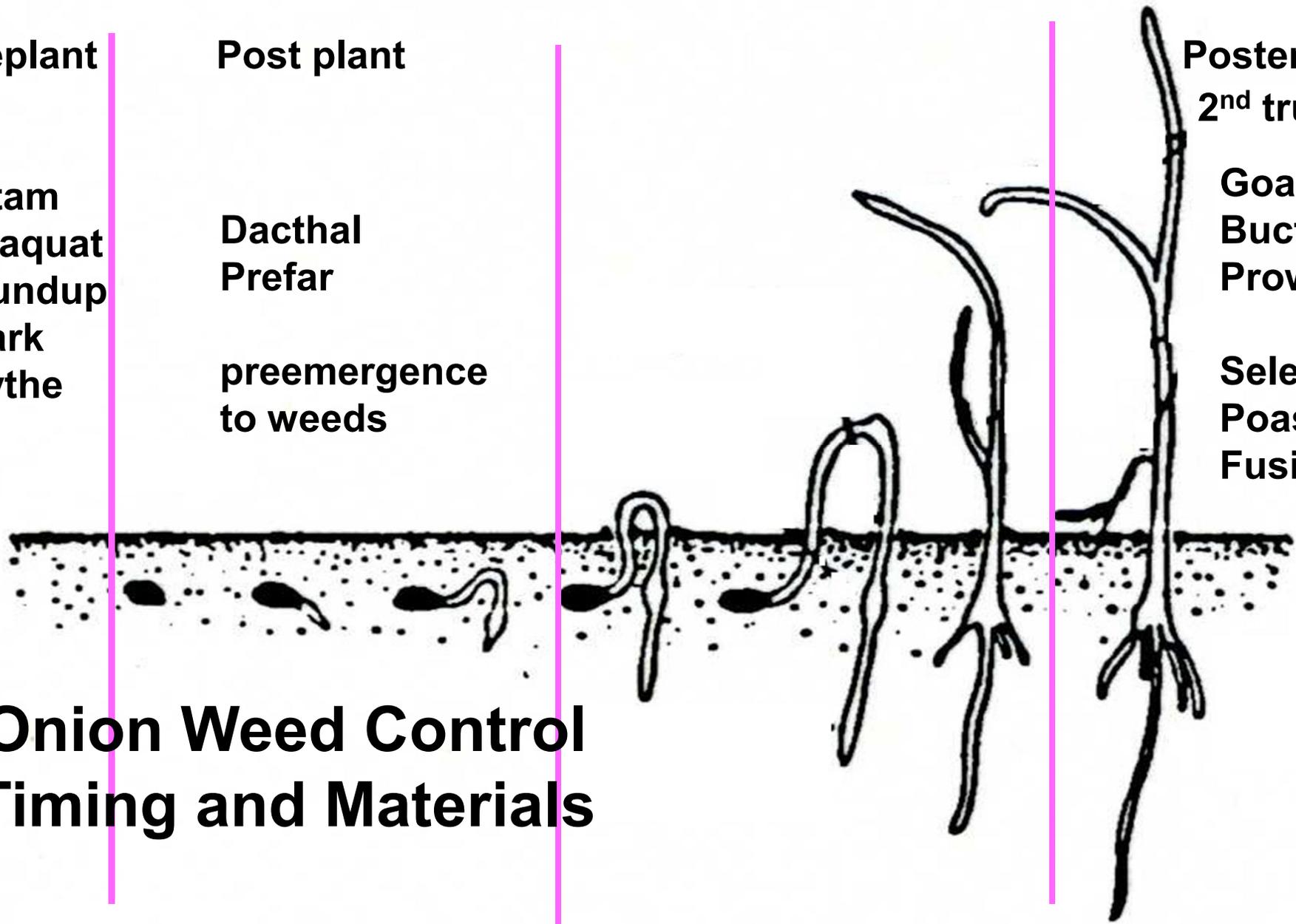
**Metam  
Paraquat  
Roundup  
Shark  
Scythe**

**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

1<sup>st</sup> true leaf

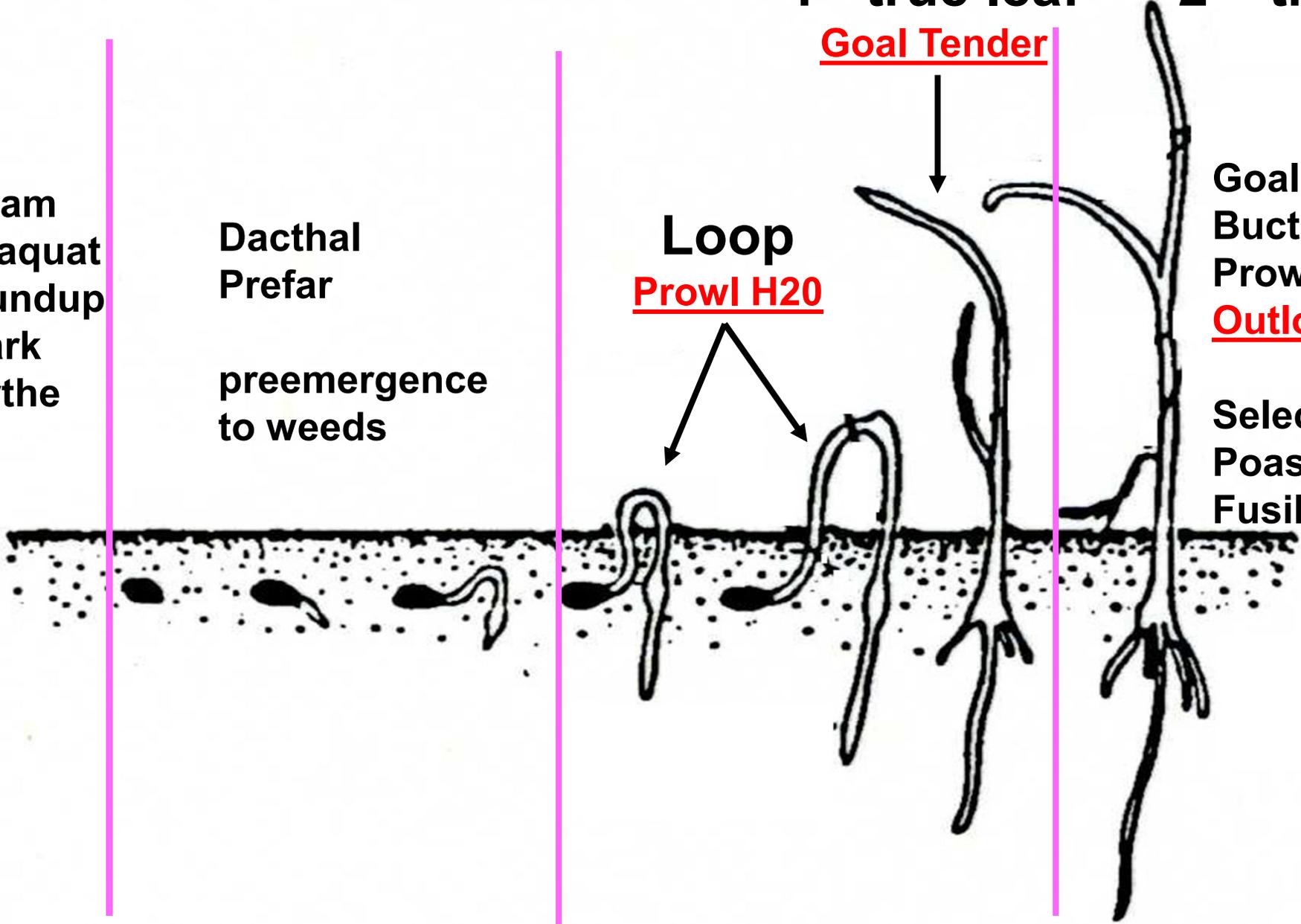
Goal Tender

Loop  
Prowl H20

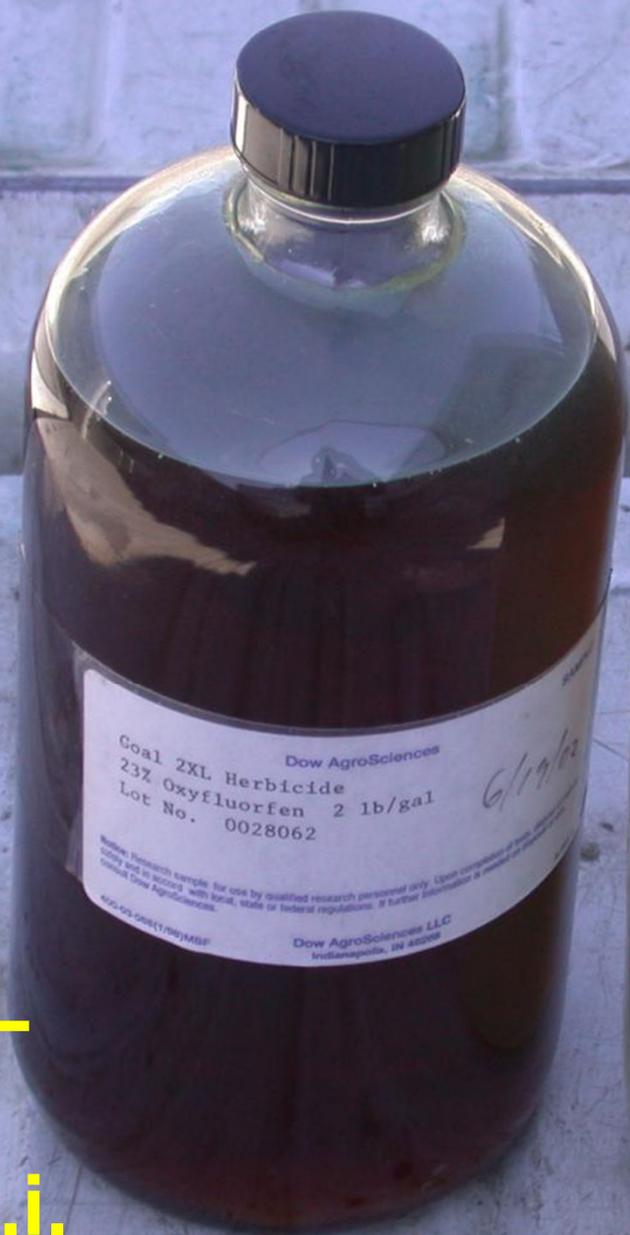
2<sup>nd</sup> true leaf

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.**





**1<sup>st</sup> true leaf**



**2<sup>nd</sup> true leaf**



**Goal 2XL**



**Goal Tender**

**1<sup>st</sup> true leaf**



**Shepherds Purse**  
**1<sup>st</sup> true leaf**



**2<sup>nd</sup> 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 <sup>2</sup>	Hours/A to Weed
Goal Tender	1 <sup>st</sup>	2.5	2.4
Goal Tender	2 <sup>nd</sup>	10.0	4.1
Goal 2XL	1 <sup>st</sup>	1.8	2.4
Goal 2XL	2 <sup>nd</sup>	6.3	3.3
Untreated	---	81.8	20.7

# Onion Yield - Goal Tender vs Goal 2XL

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

All treatments @ 0.25 lb a.i./A

# Loop Stage Prowl H2O Applications







# 2006 Onion Weed Evaluations

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

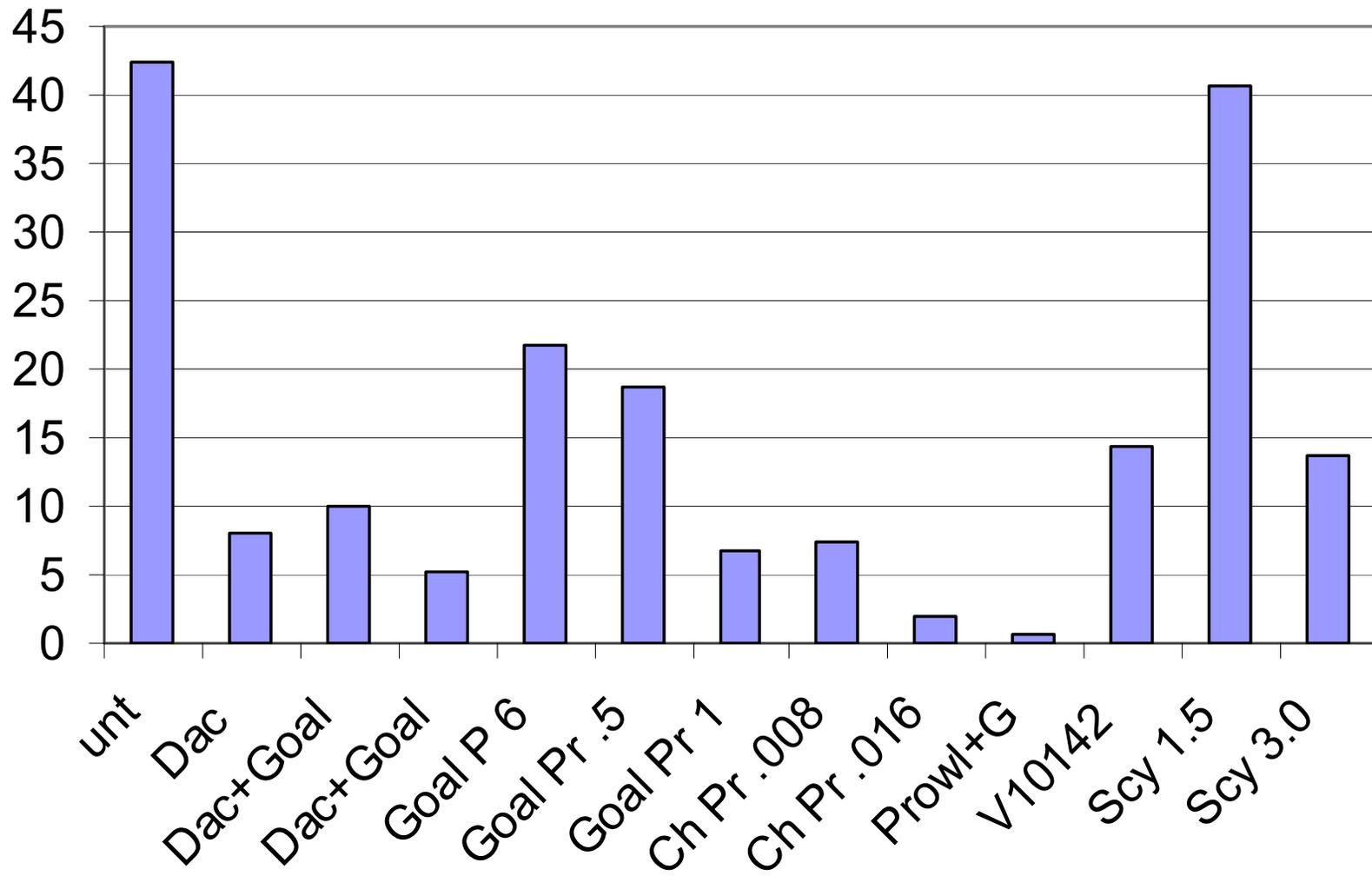
# 2006 Onion Weed Evaluations

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 <sup>st</sup>	24 oz 4 oz	110.7	50.7
Dacthal	10.5	83.9	43.4
FB Goal 2XL 2 <sup>nd</sup>	8 oz		

# 2007 Onion Weed Screen

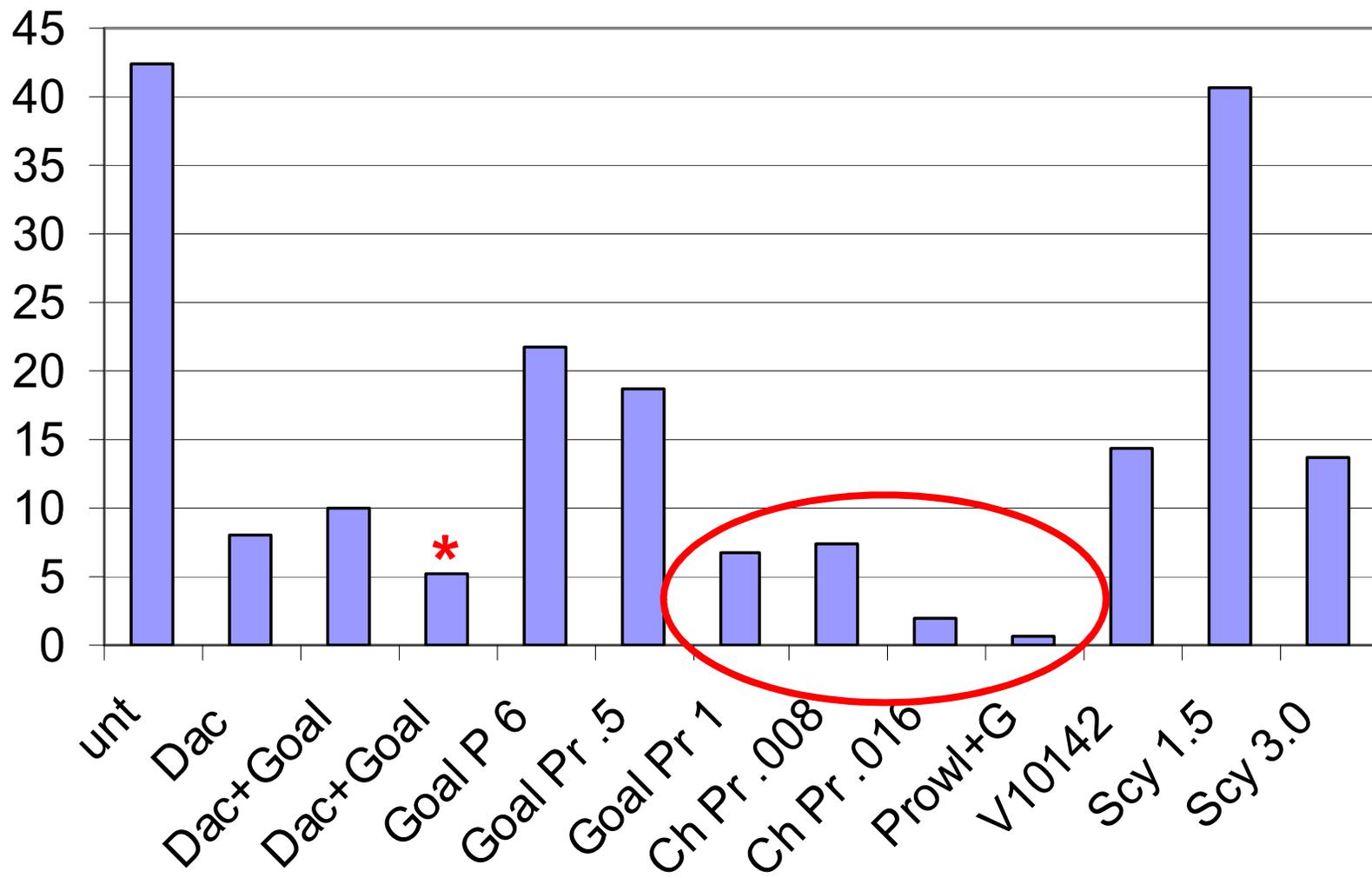
# 2007 Weed Control Screen

## Total Weeds

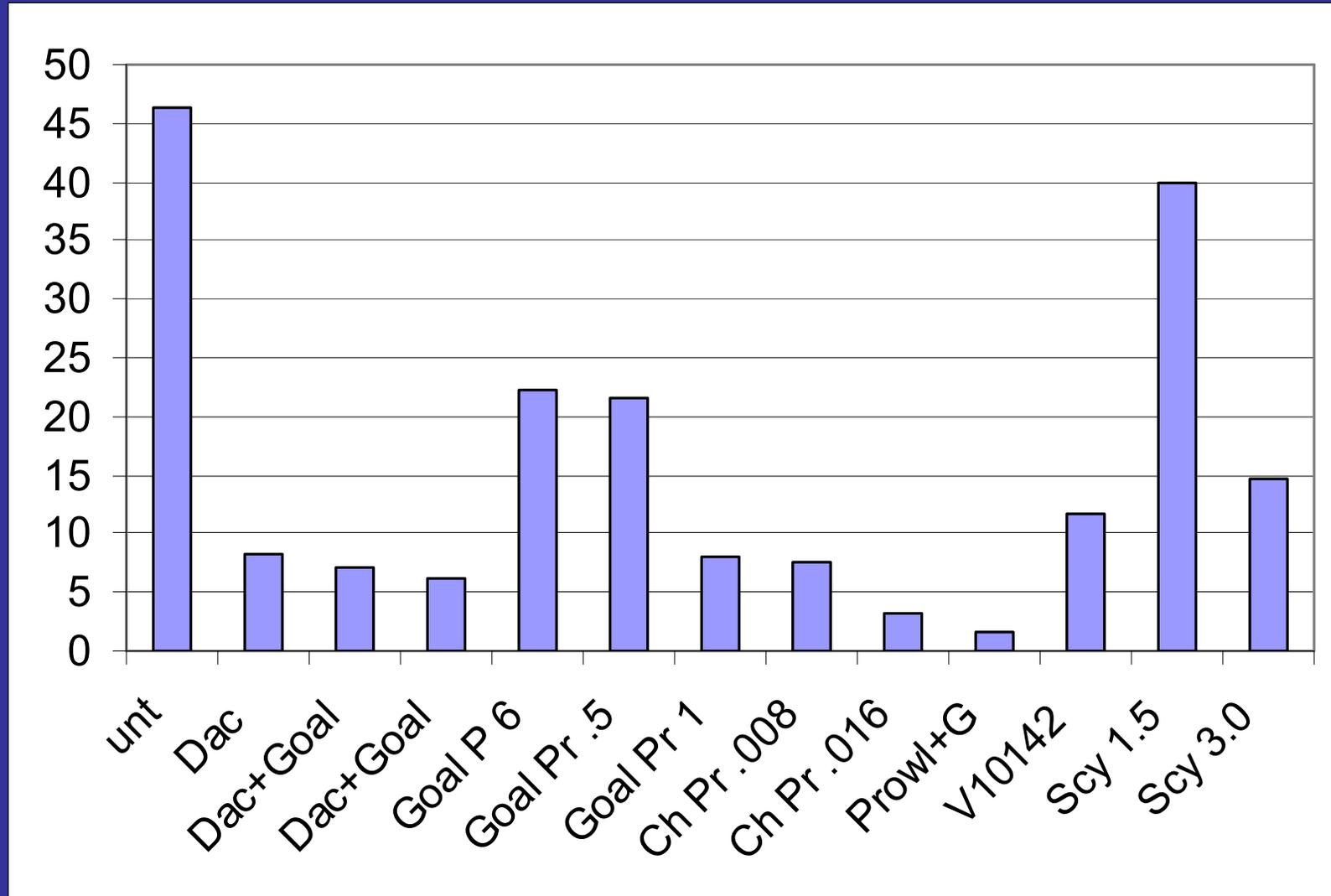


# 2007 Weed Control Screen

## 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 1<sup>st</sup> 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

Metam  
Paraquat  
Roundup  
Shark  
Scythe

Dacthal  
Prefar

preemergence  
to weeds

1<sup>st</sup> true leaf

Goal Tender

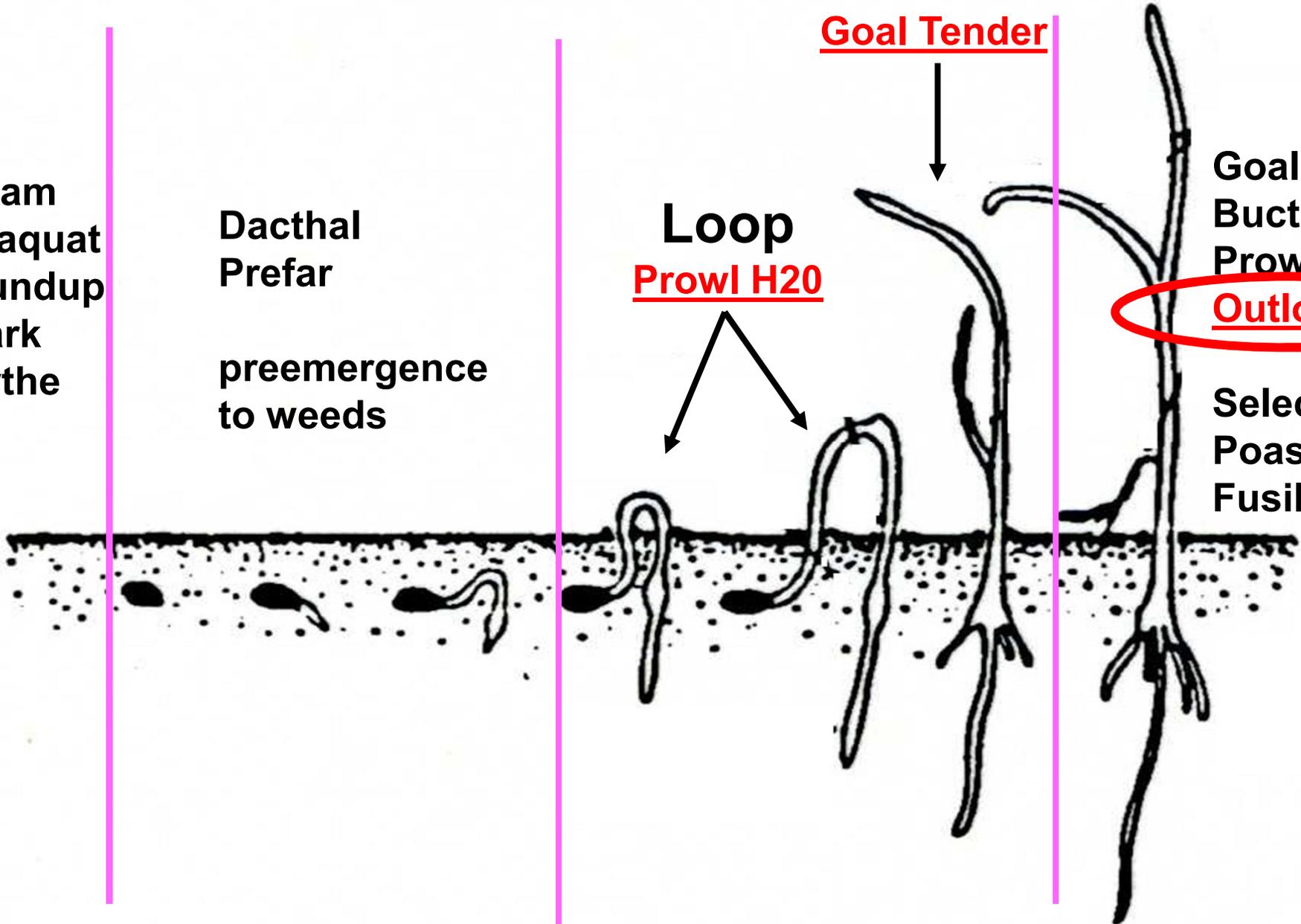
Loop  
Prowl H20

2<sup>nd</sup> true leaf

Goal  
Buctril  
Prowl

Outlook

Select Max  
Poast  
Fusilade



# 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**



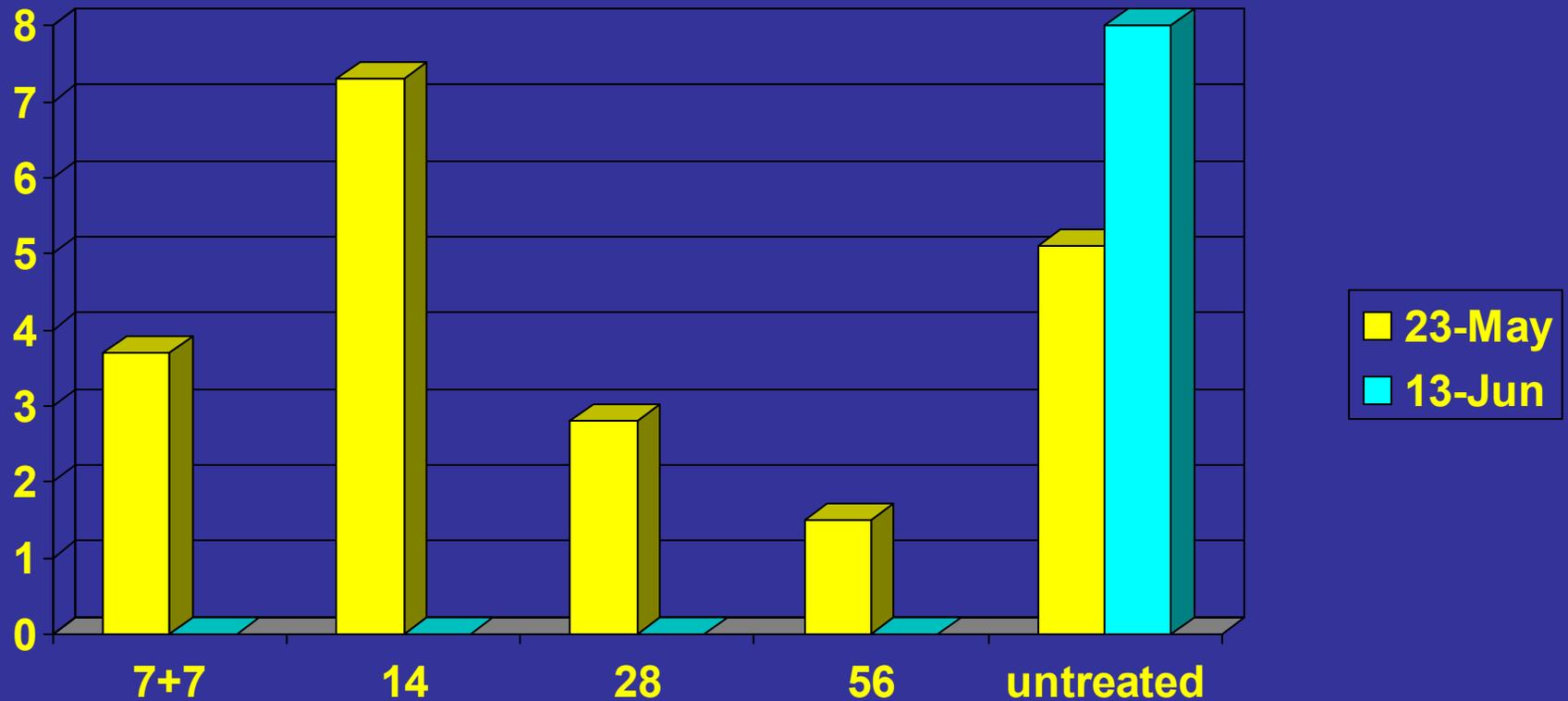
# Background on Outlook

- 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 2<sup>nd</sup> 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 2<sup>nd</sup> true leaf stage caught the nutsedge at an earlier growth stage
- Outlook applications at the 2<sup>nd</sup> 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 2<sup>nd</sup> true leaf stage

# 2007 Nutsedge Trials

- However, the weather was dry in the spring and nutsedge emerged prior to the 2<sup>nd</sup> 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) 1<sup>st</sup> 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 2<sup>nd</sup> true leaf stage the nutsedge was well developed**





NO  
OUTLINE

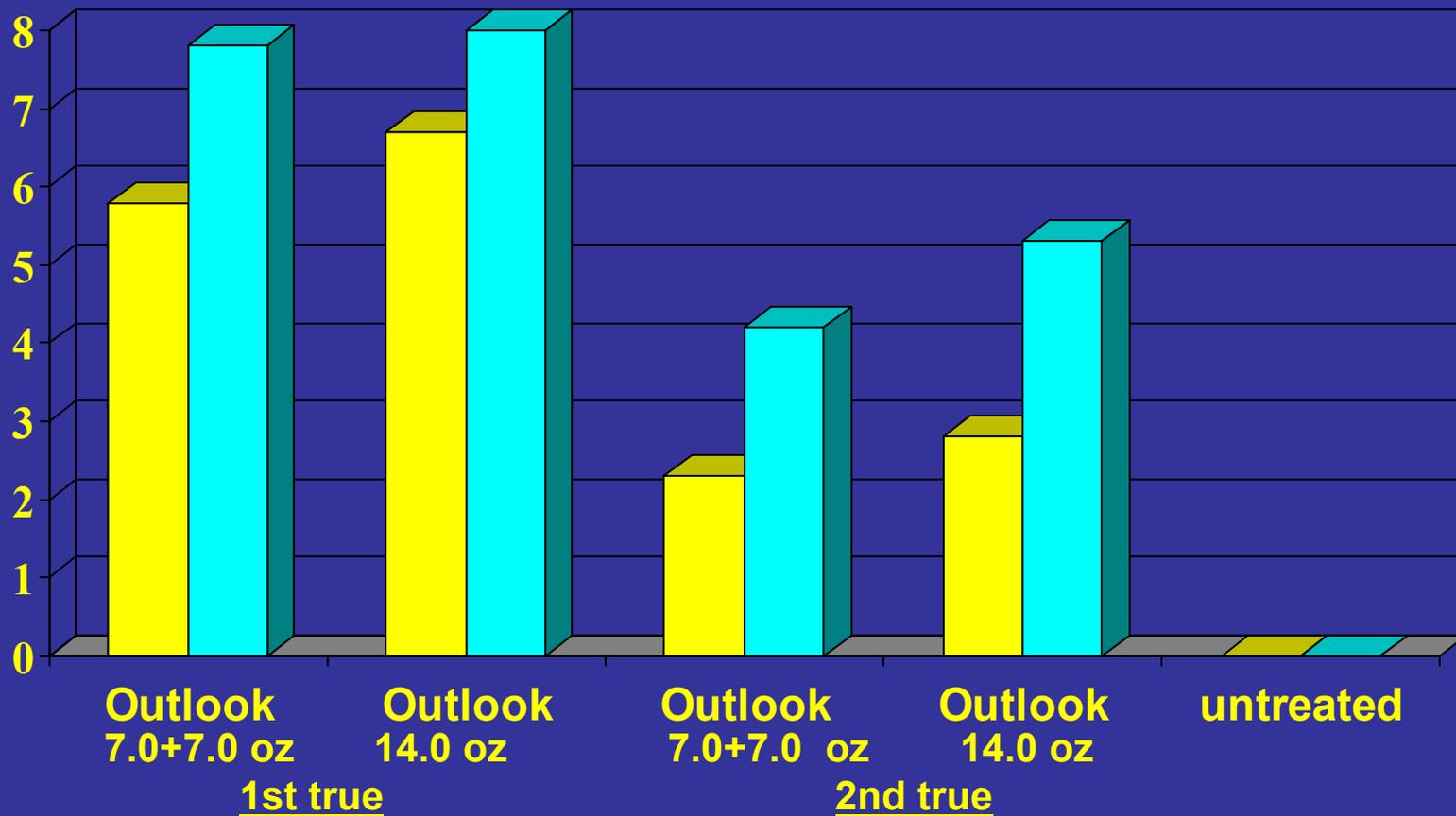
**April 18, 2007**

# 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 <sup>st</sup> True Leaf
7-7-0-7 Fb Outlook 6.0	35 gallons 14.0 oz	1 <sup>st</sup> True Leaf
7-7-0-7 Fb Outlook 6.0 Fb Outlook 6.0	35 gallons 7.0 oz 7.0 oz	2 <sup>nd</sup> True Leaf
7-7-0-7 Fb Outlook 6.0	35 gallons 14.0 oz	2 <sup>nd</sup> True Leaf
Untreated	-----	-----

# Weed Control Outlook After Acid Fertilizer

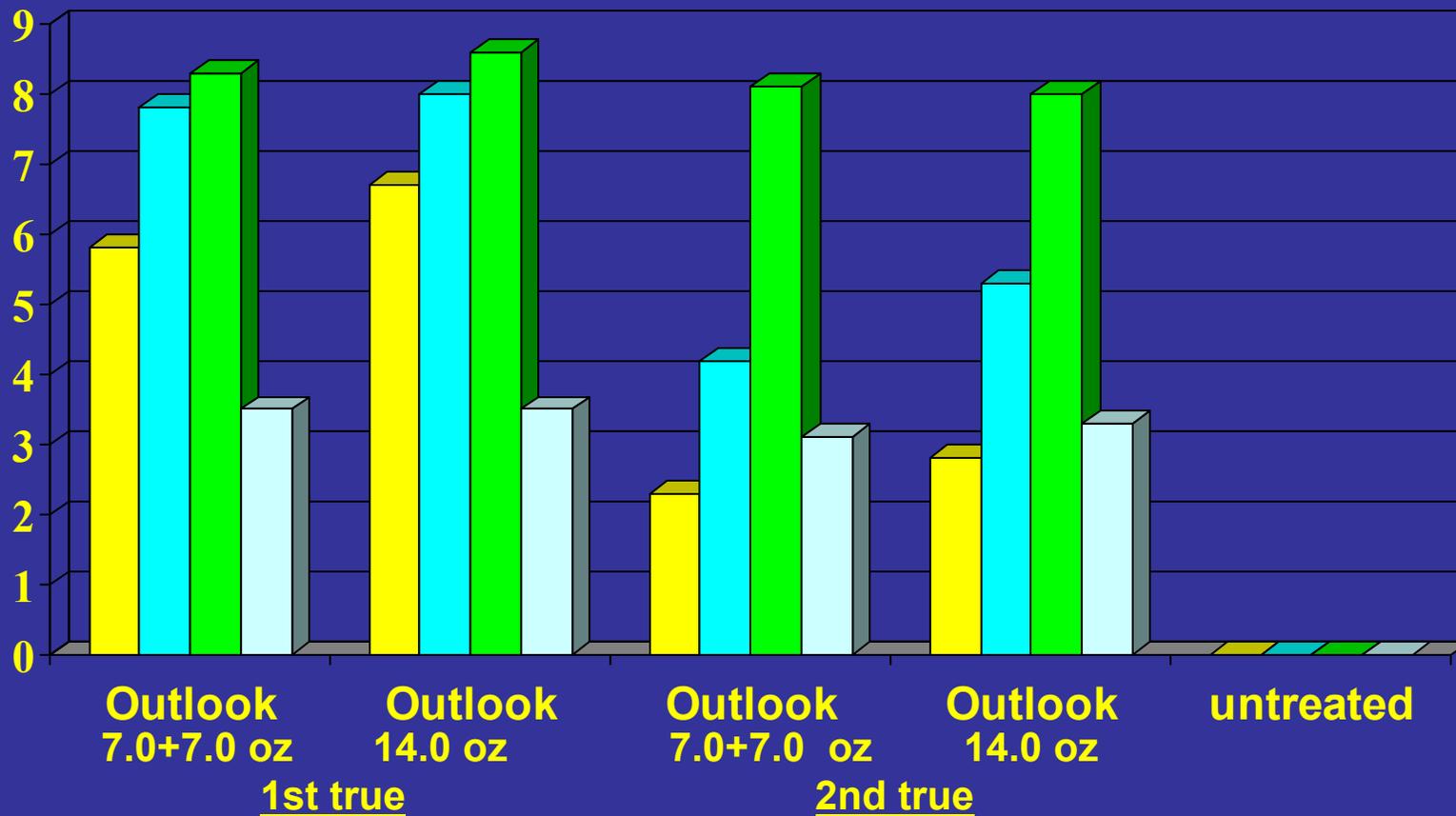
April 23 and May 4



1<sup>st</sup> true leaf April 4; 2<sup>nd</sup> true leaf April 11

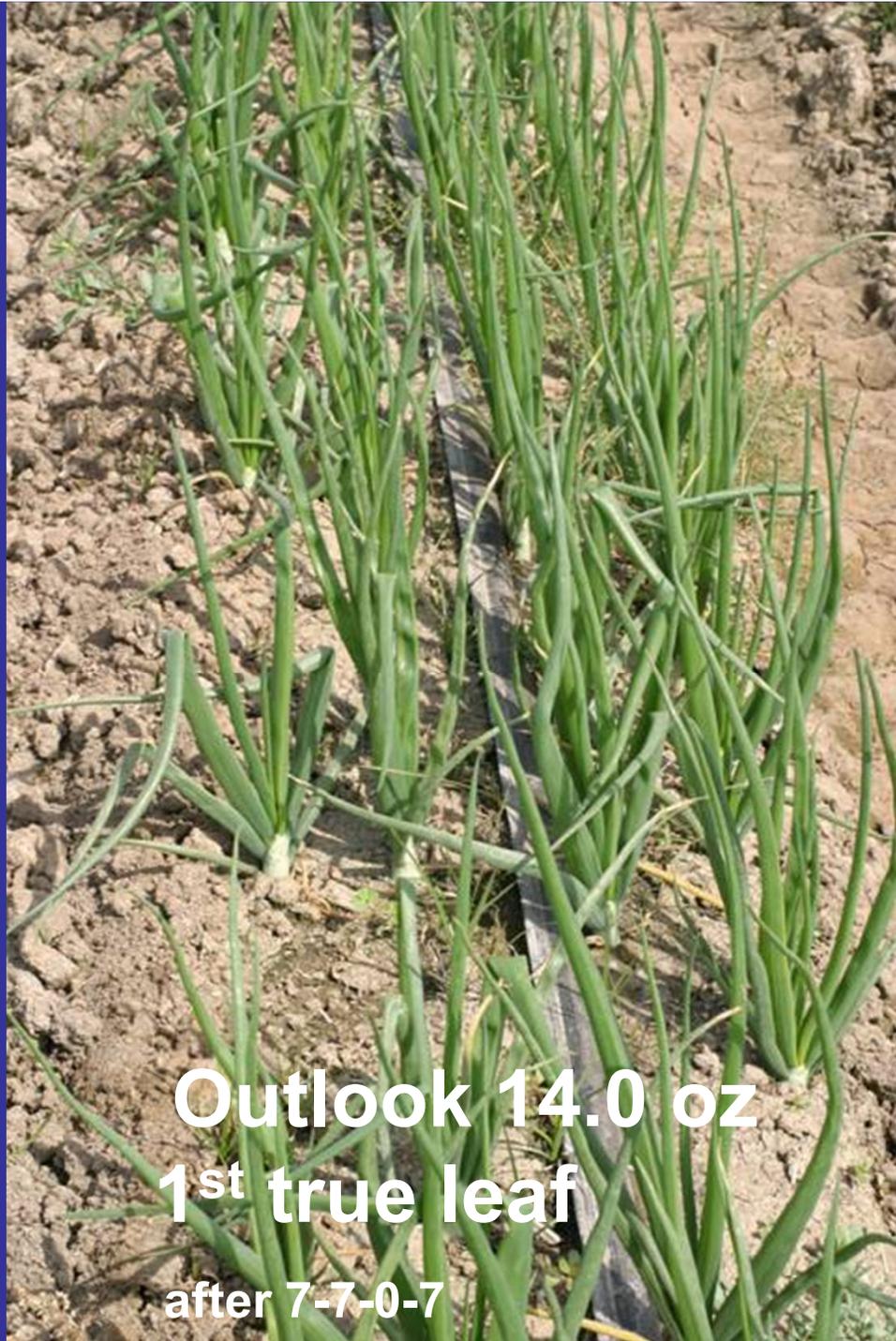
# Weed Control Outlook After Acid Fertilizer

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





**Untreated**



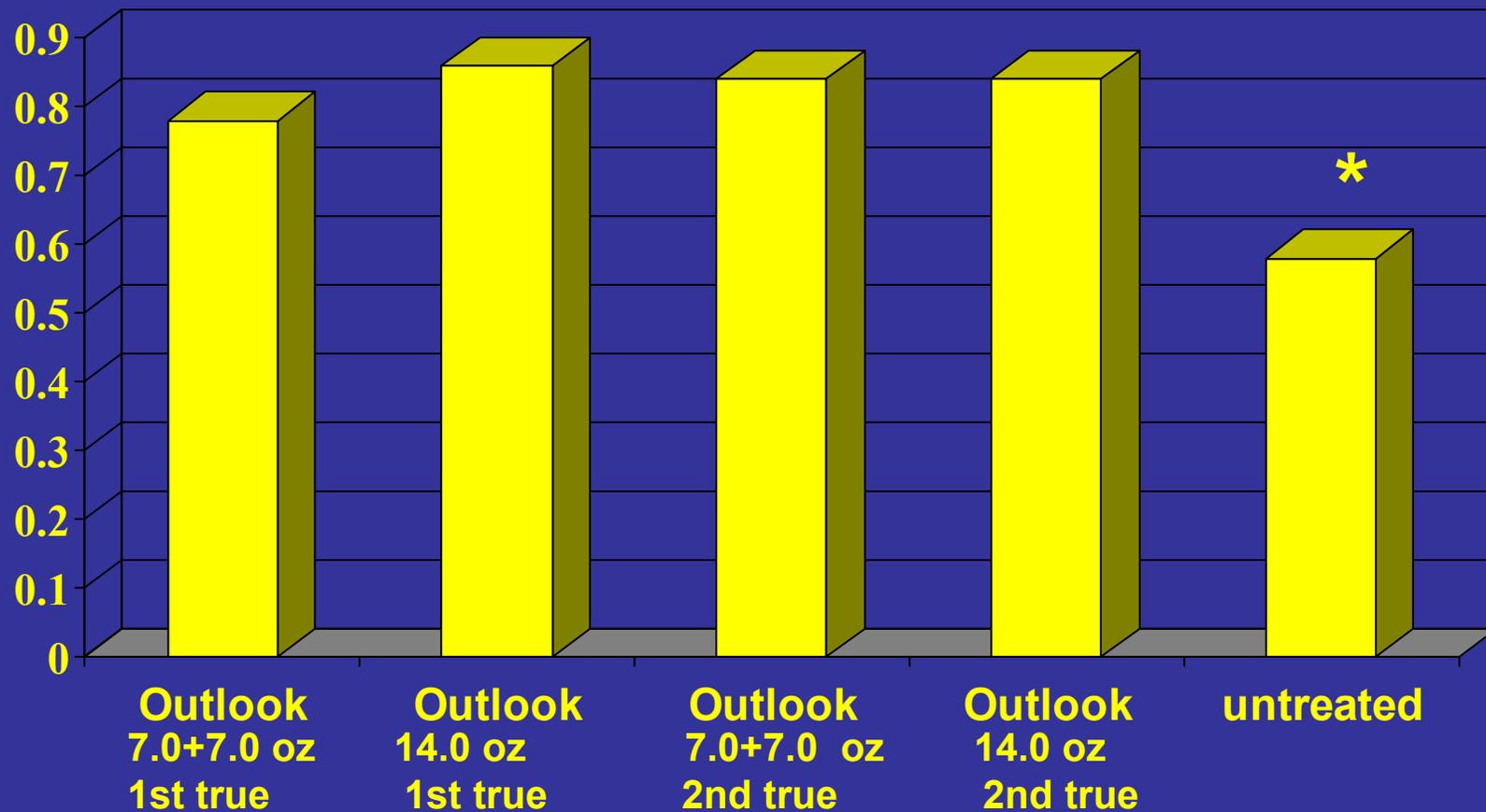
**Outlook 14.0 oz**  
**1st true leaf**  
after 7-7-0-7



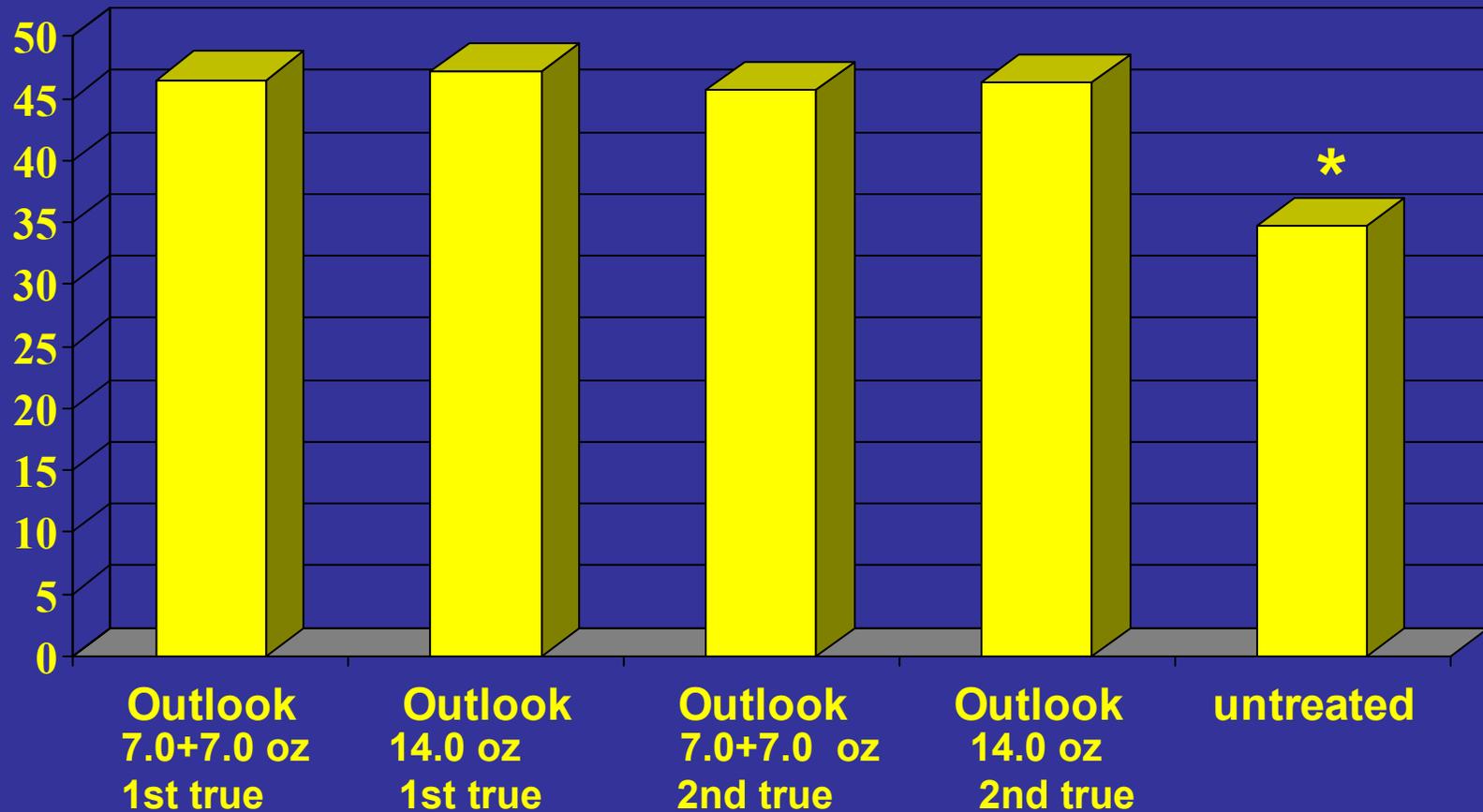
# Onion Trial Heavy Infestation

With 7-7-0-7

## Yield - Mean Head Wt (lbs)



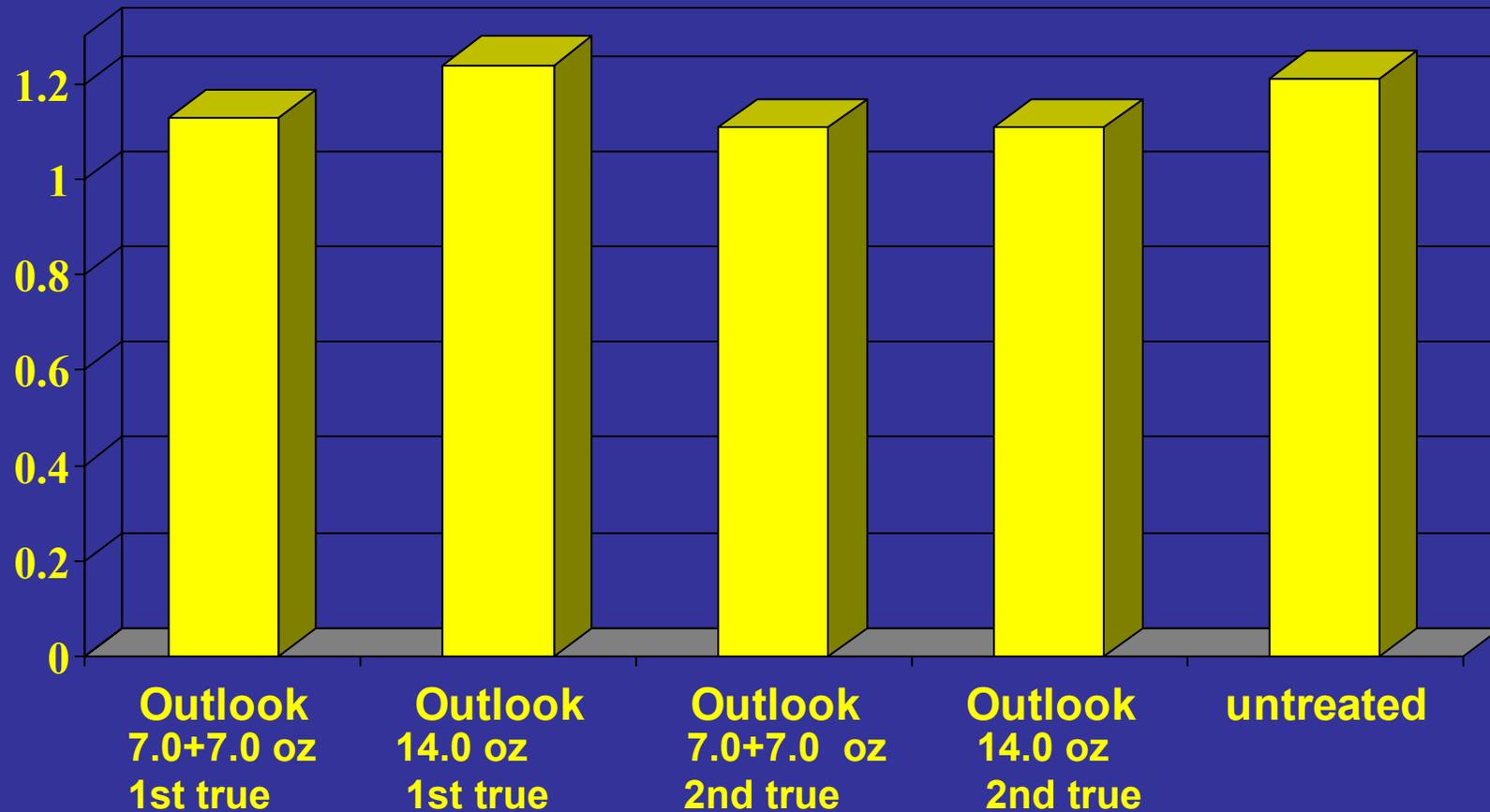
# Onion Trial Heavy Infestation With 7-7-0-7 Yield – Tons/A



# Onion Trial Light Infestation

No 7-7-0-7

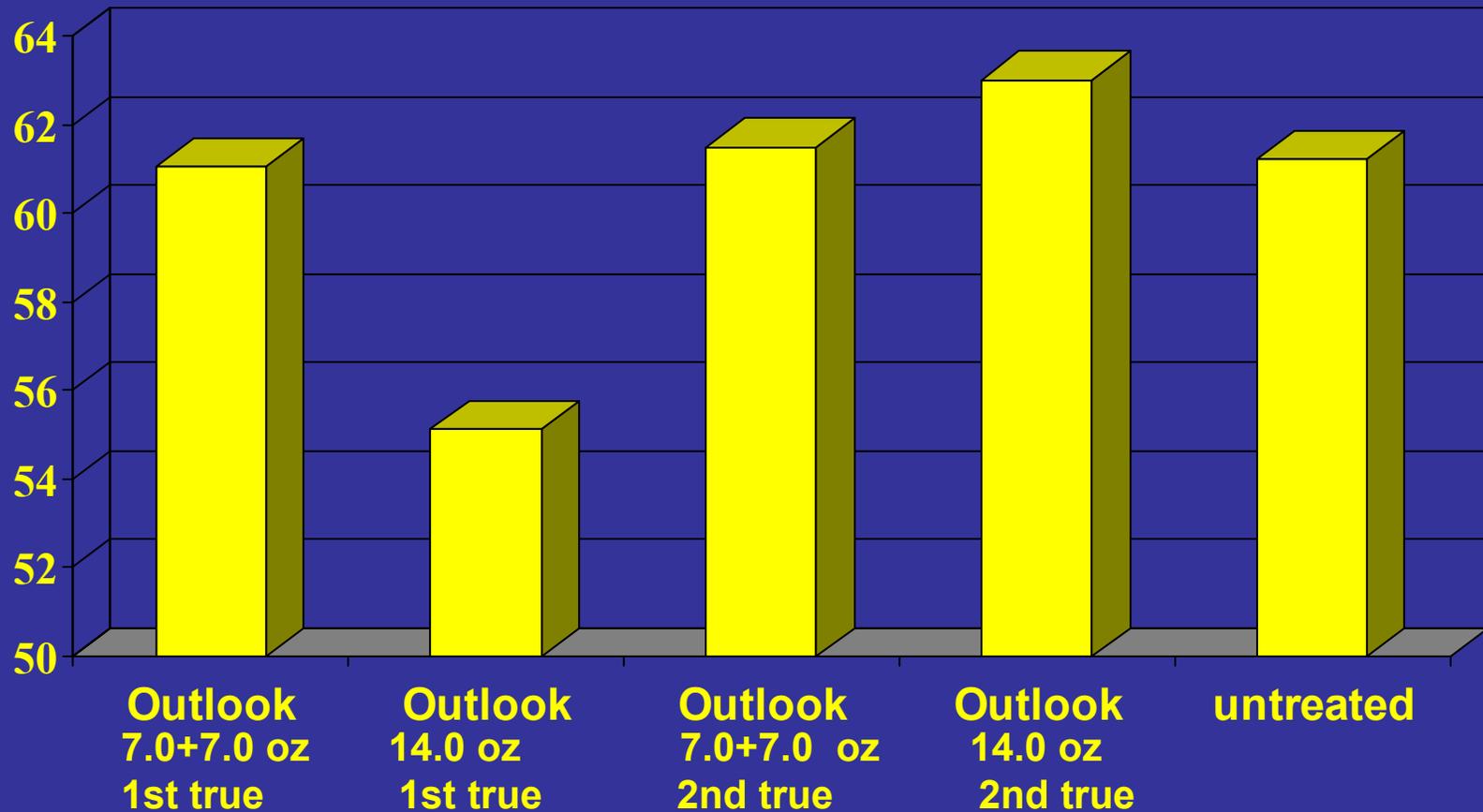
## Yield - Mean Head Wt (lbs)



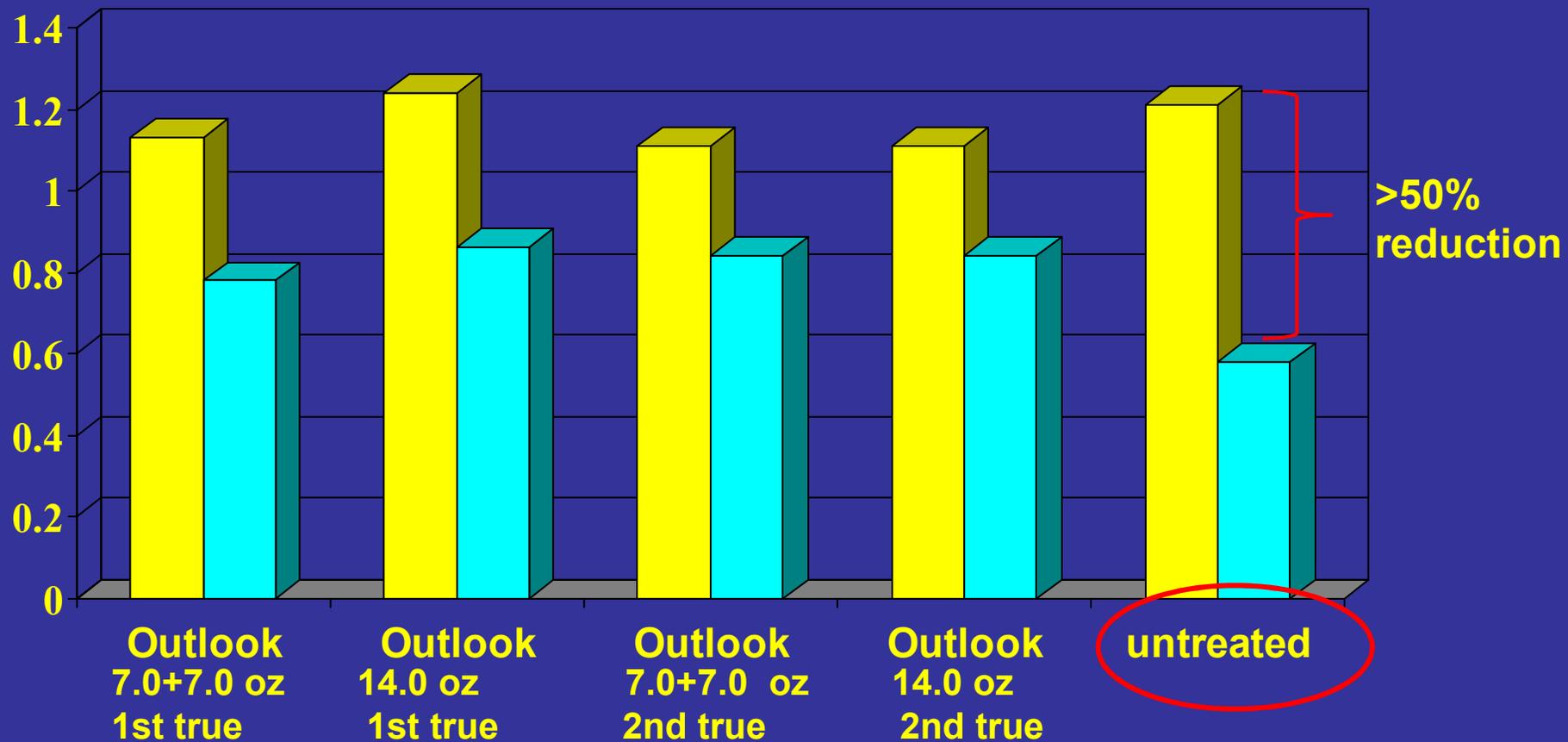
# Onion Trial Light Infestation

No 7-7-0-7

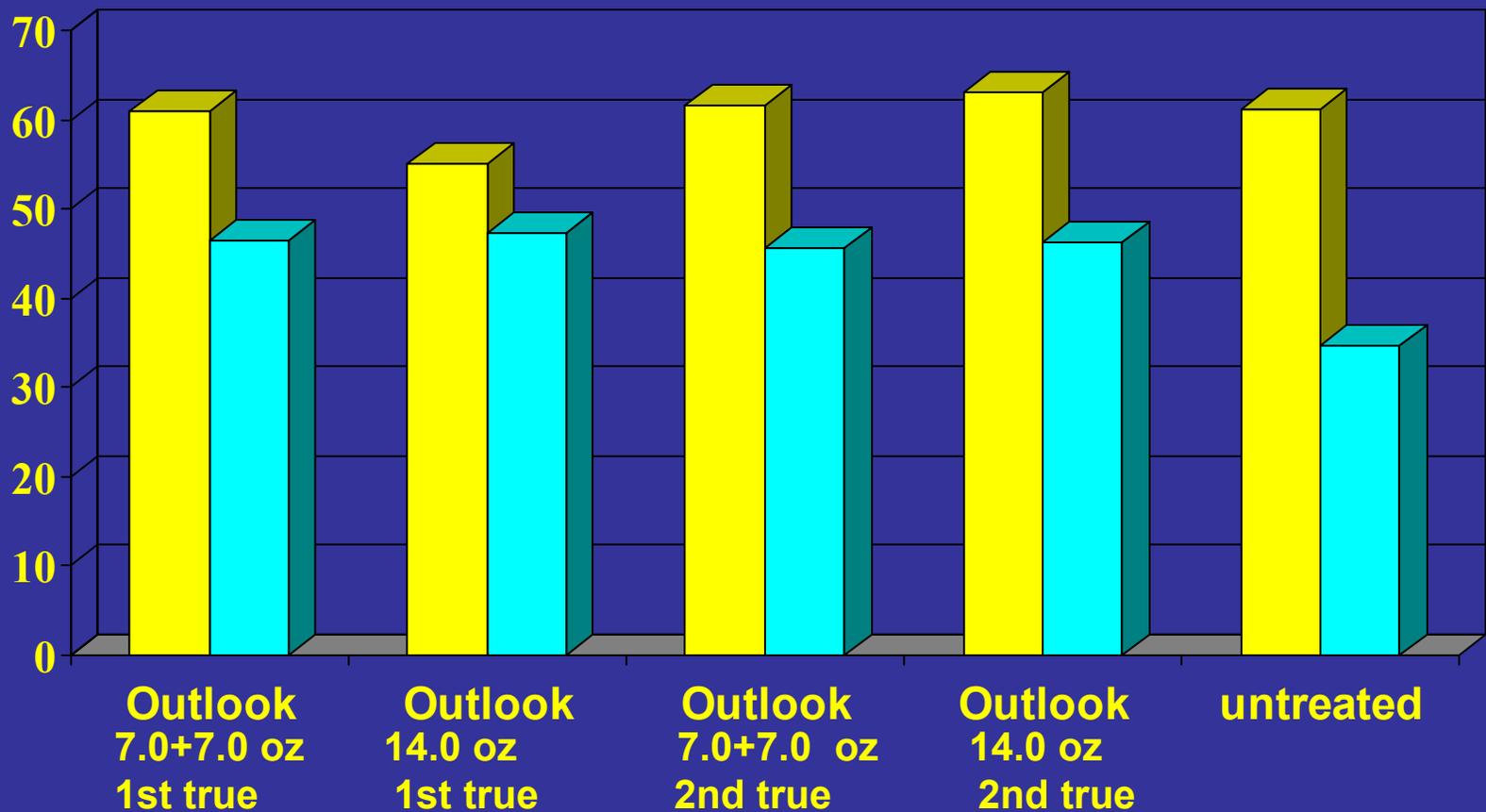
## Yield – Tons/A



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



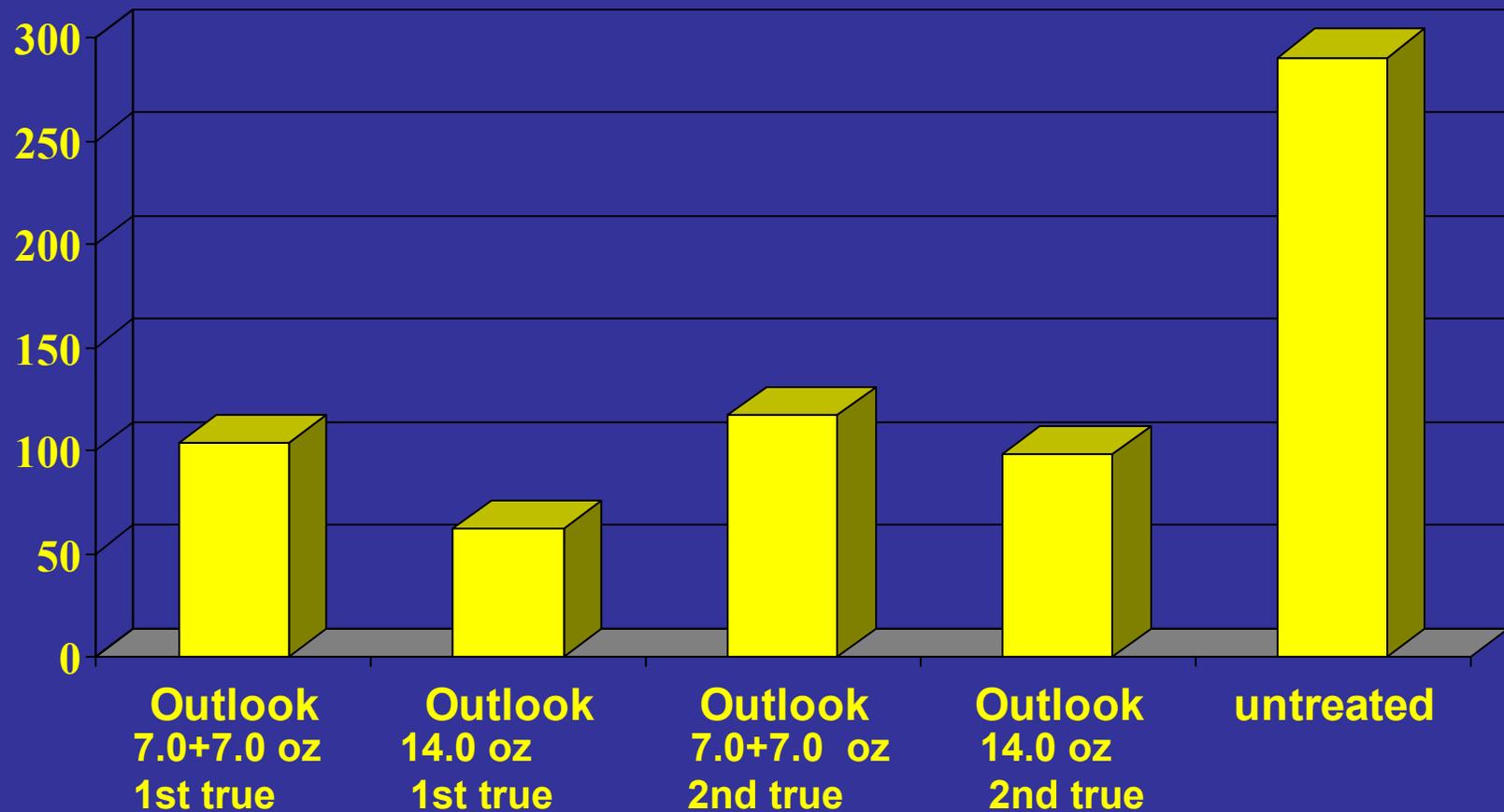
# Comparison of Light vs Heavy Yield – Tons/A



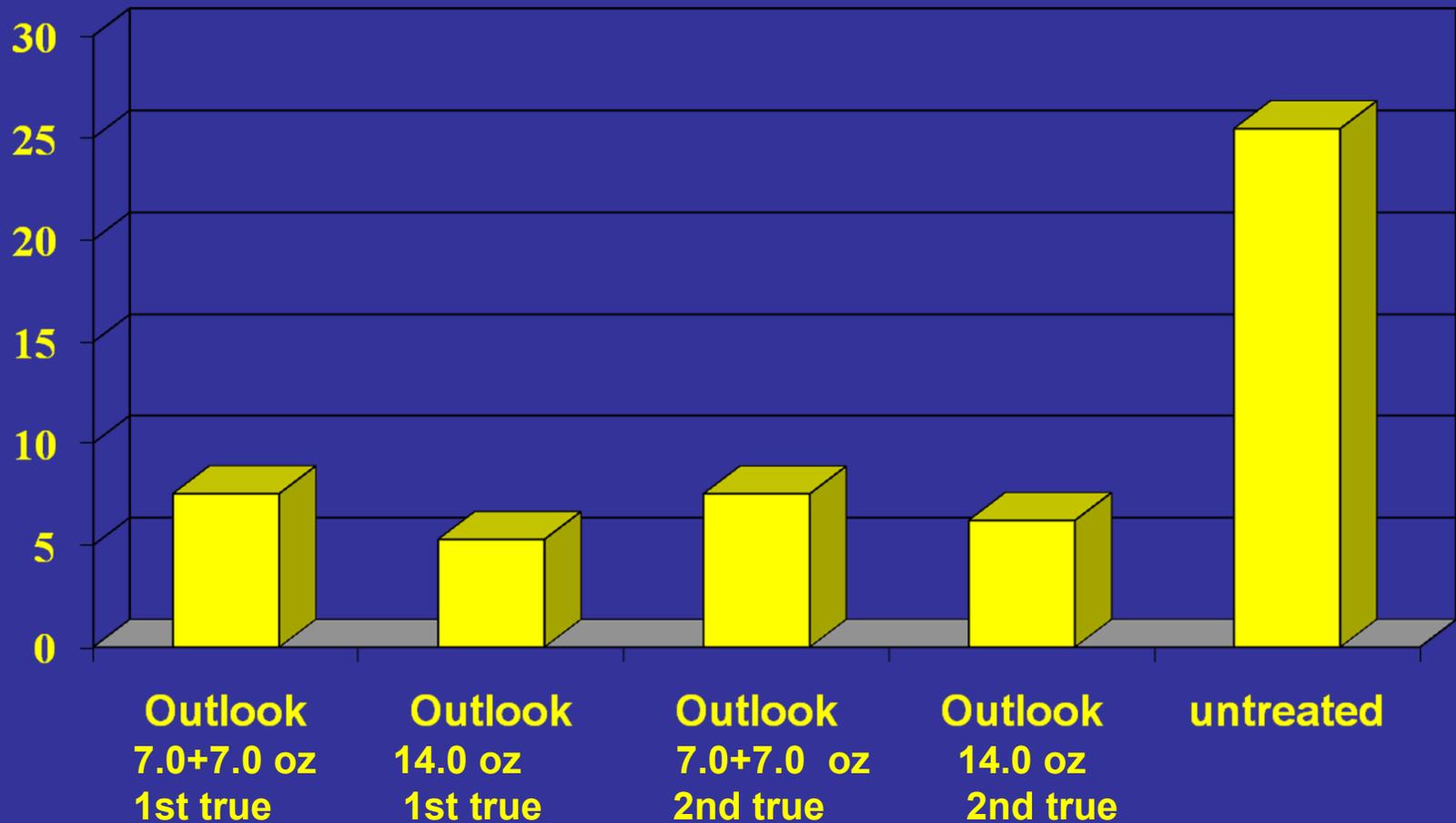
# Nutsedge Nutlets in Soil Following Outlook Treatments



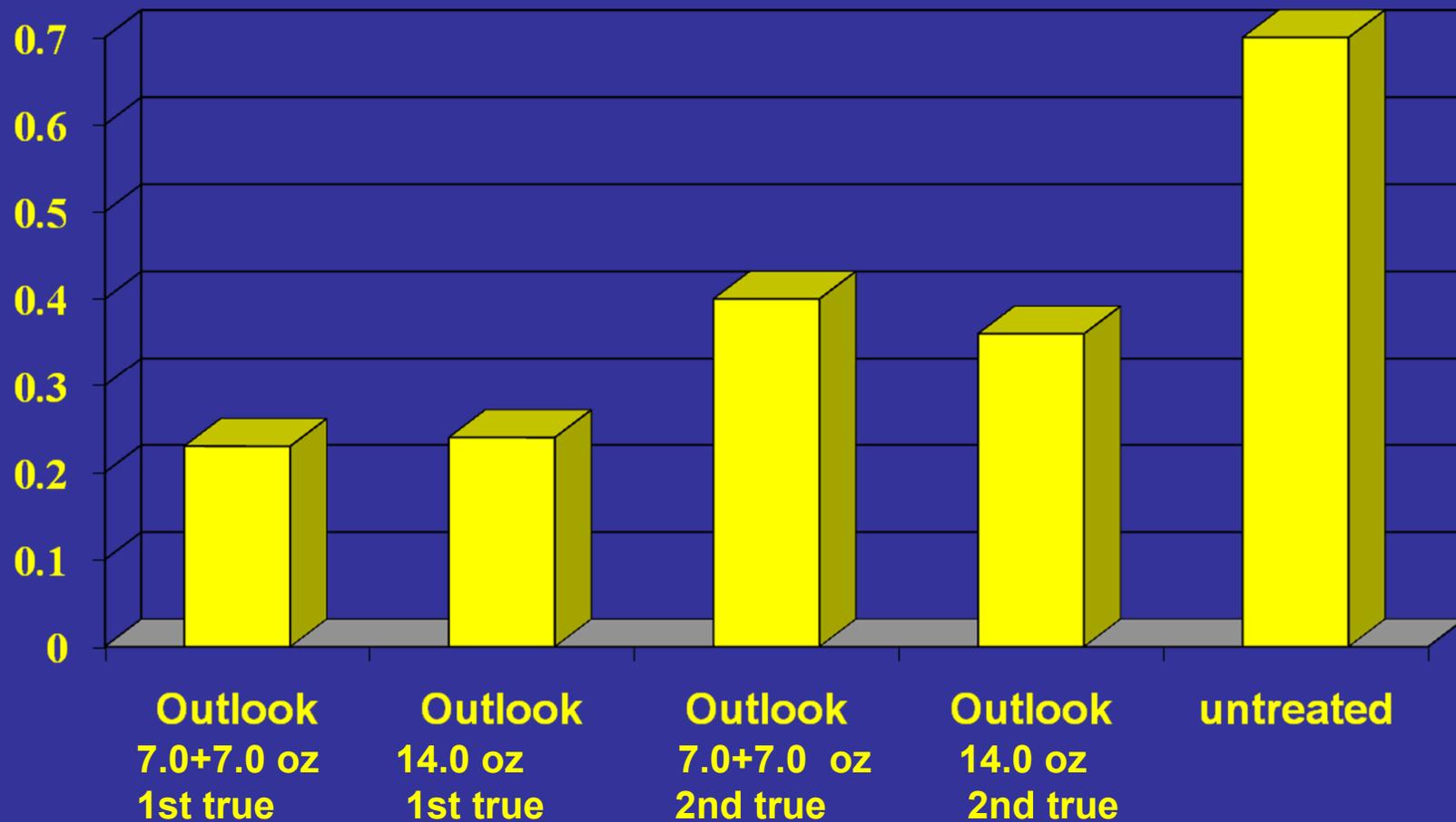
# Nutsedge Tubers Per 1000 cm<sup>3</sup> of Soil



# Nutsedge Tubers Weight (grams) Per 1000 cm<sup>3</sup> 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 2<sup>nd</sup> 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