



# **Weed Control Studies in Onions – Focus on 2007 Yellow Nutsedge Trials**

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**Preplant**

**Post plant**

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

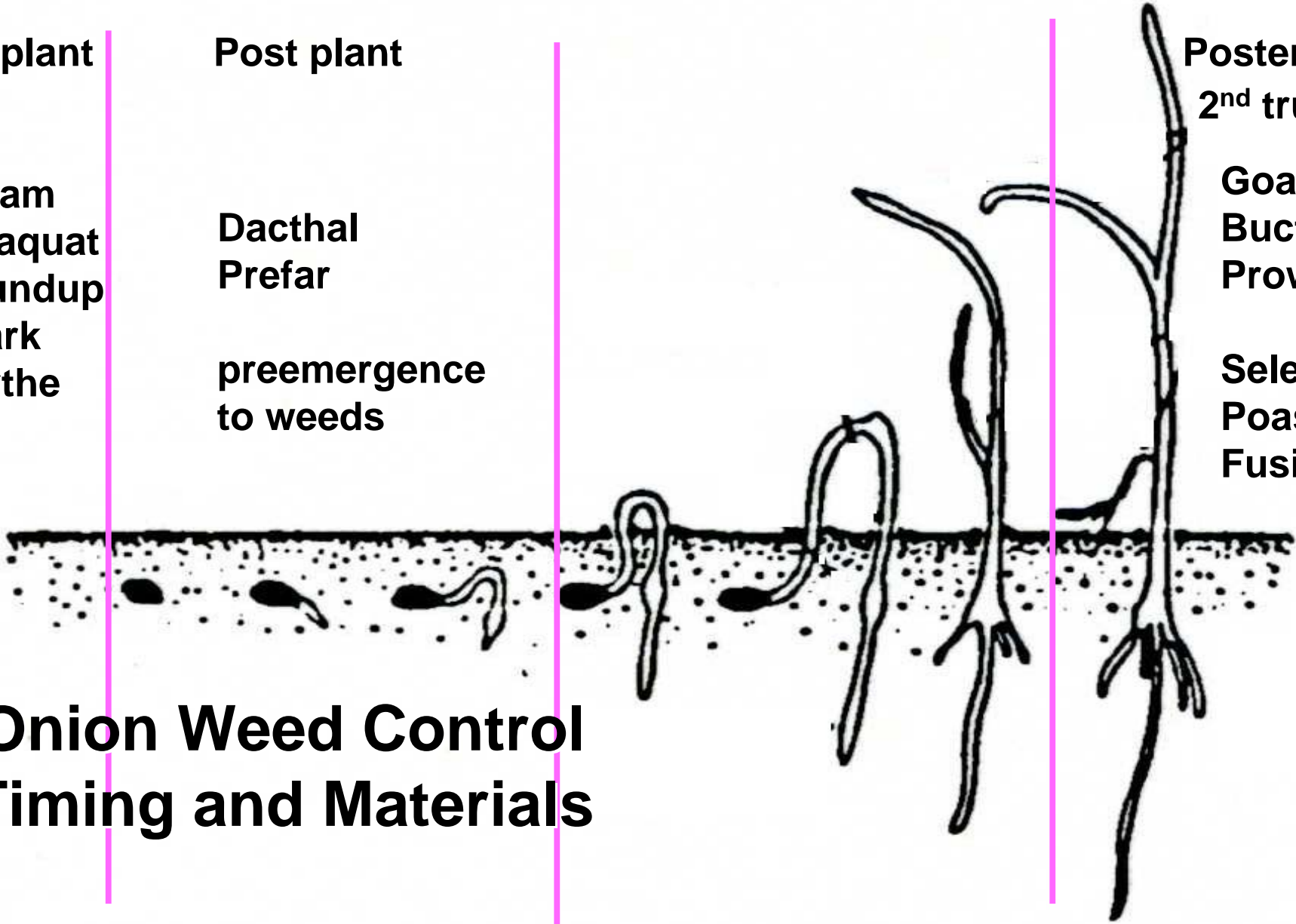
**Metam  
Paraquat  
Roundup  
Shark  
Scythe**

**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

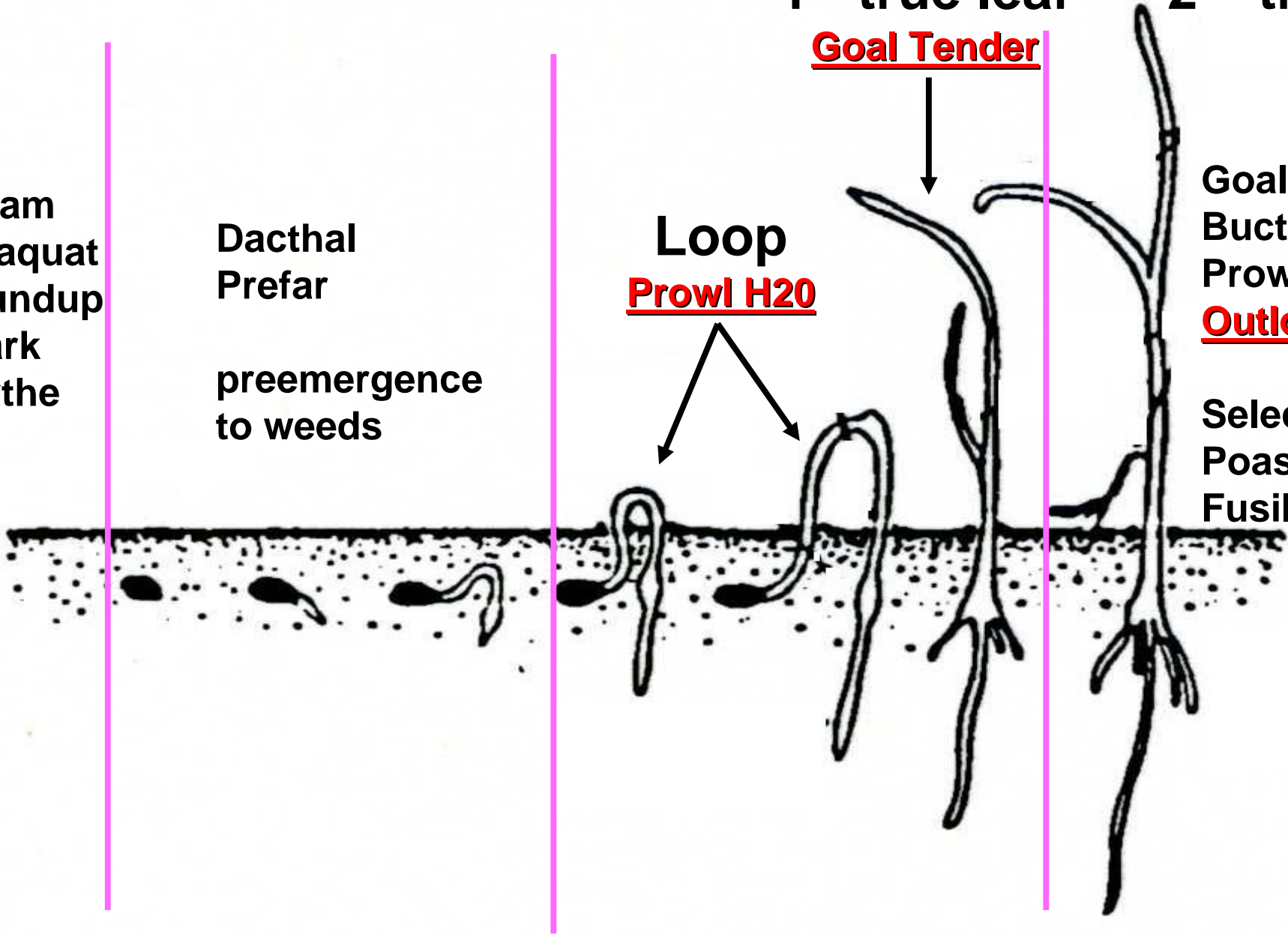
Goal Tender

Loop  
Prowl H20

2<sup>nd</sup> true leaf

Goal  
Buctril  
Prowl  
Outlook

Select Max  
Poast  
Fusilade



# 2007 Season

Metam  
Paraquat  
Roundup  
Shark  
Scythe

Dacthal  
Prefar

preemergence  
to weeds

1<sup>st</sup> true leaf

Goal Tender

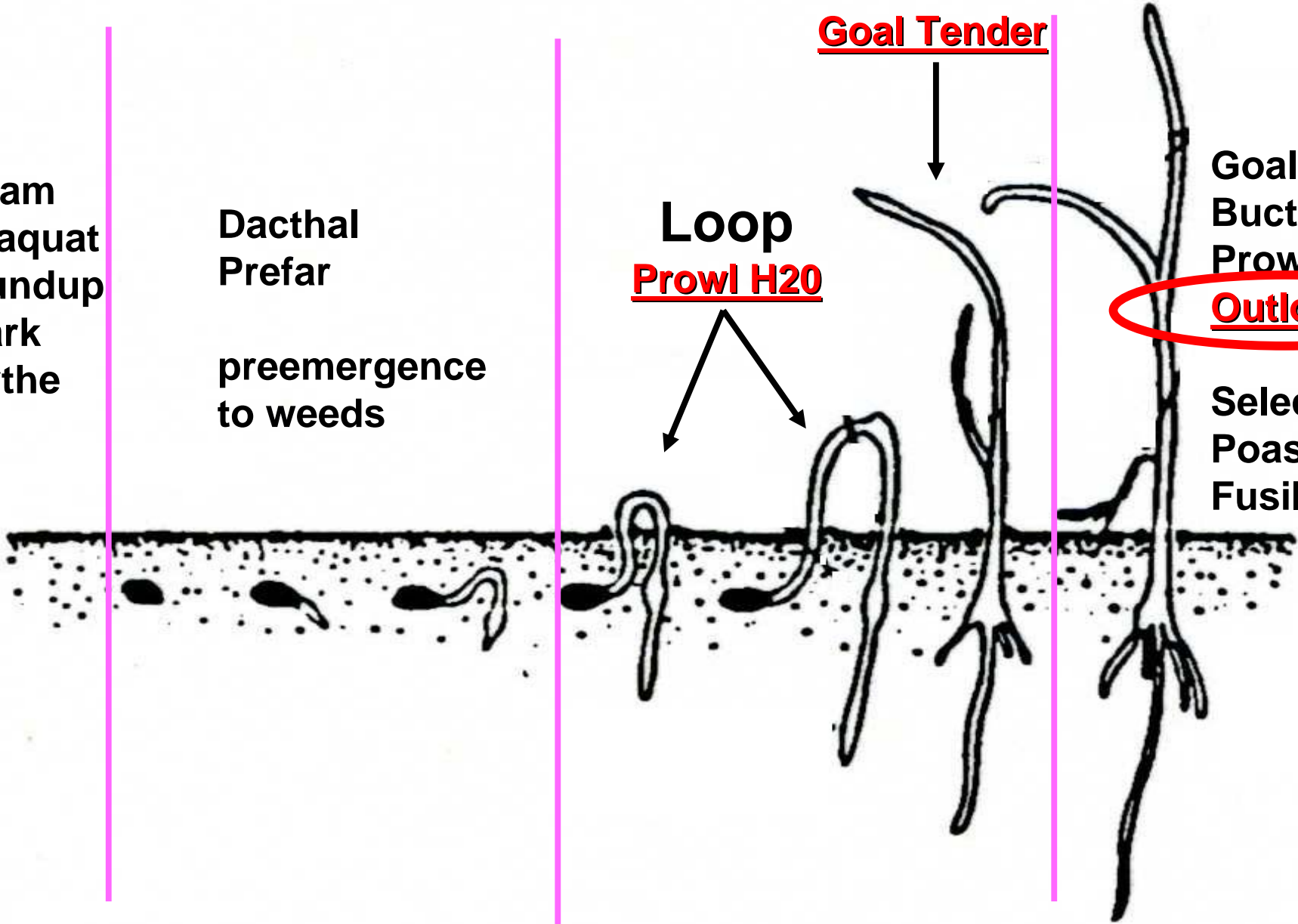
2<sup>nd</sup> true leaf

Loop  
Prowl H2O

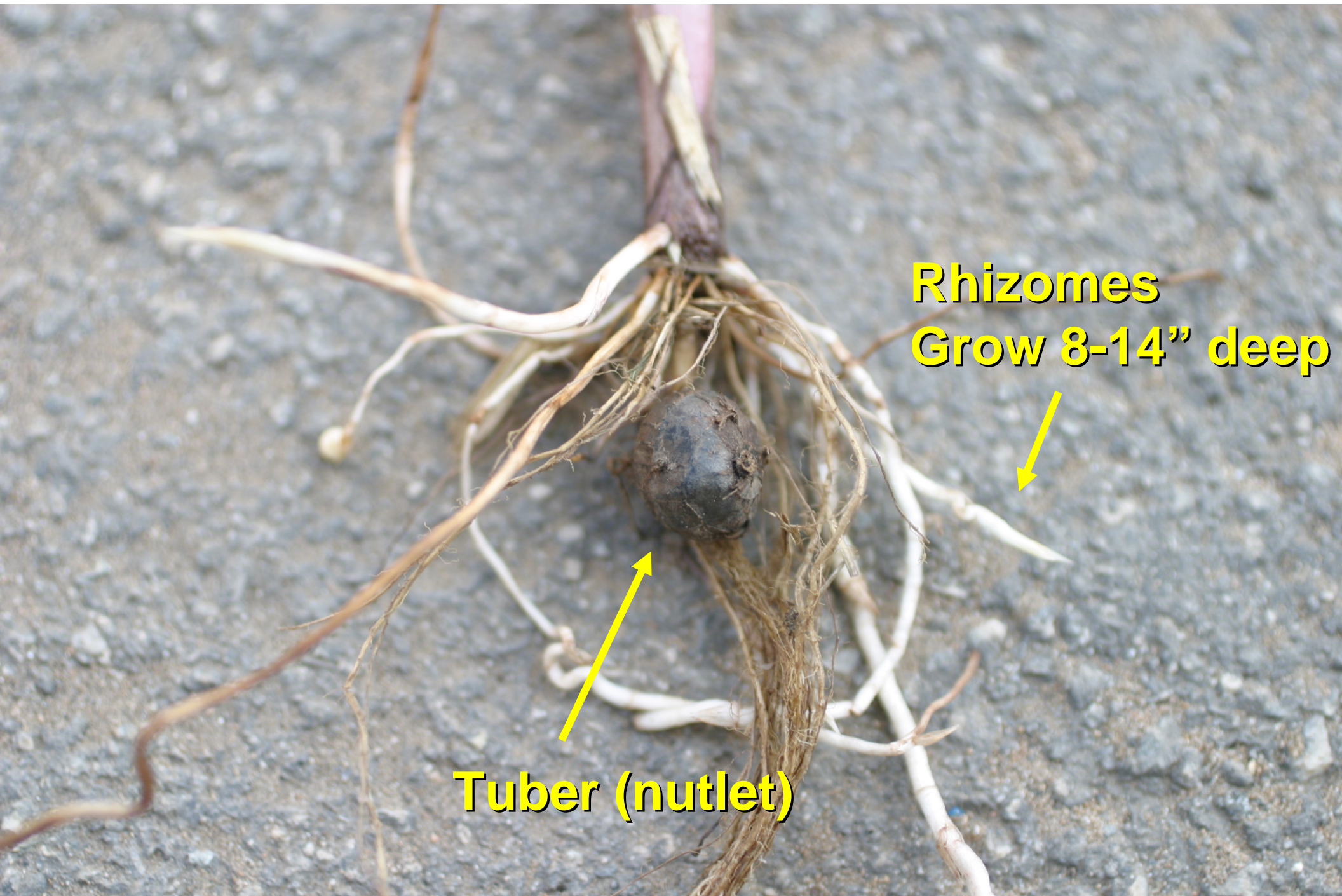
Goal  
Buctril  
Prowl

Outlook

Select Max  
Poast  
Fusilade



# Background Nutsedge



**Rhizomes  
Grow 8-14" deep**

**Tuber (nutlet)**

**Nutlet forming at  
end of rhizome**

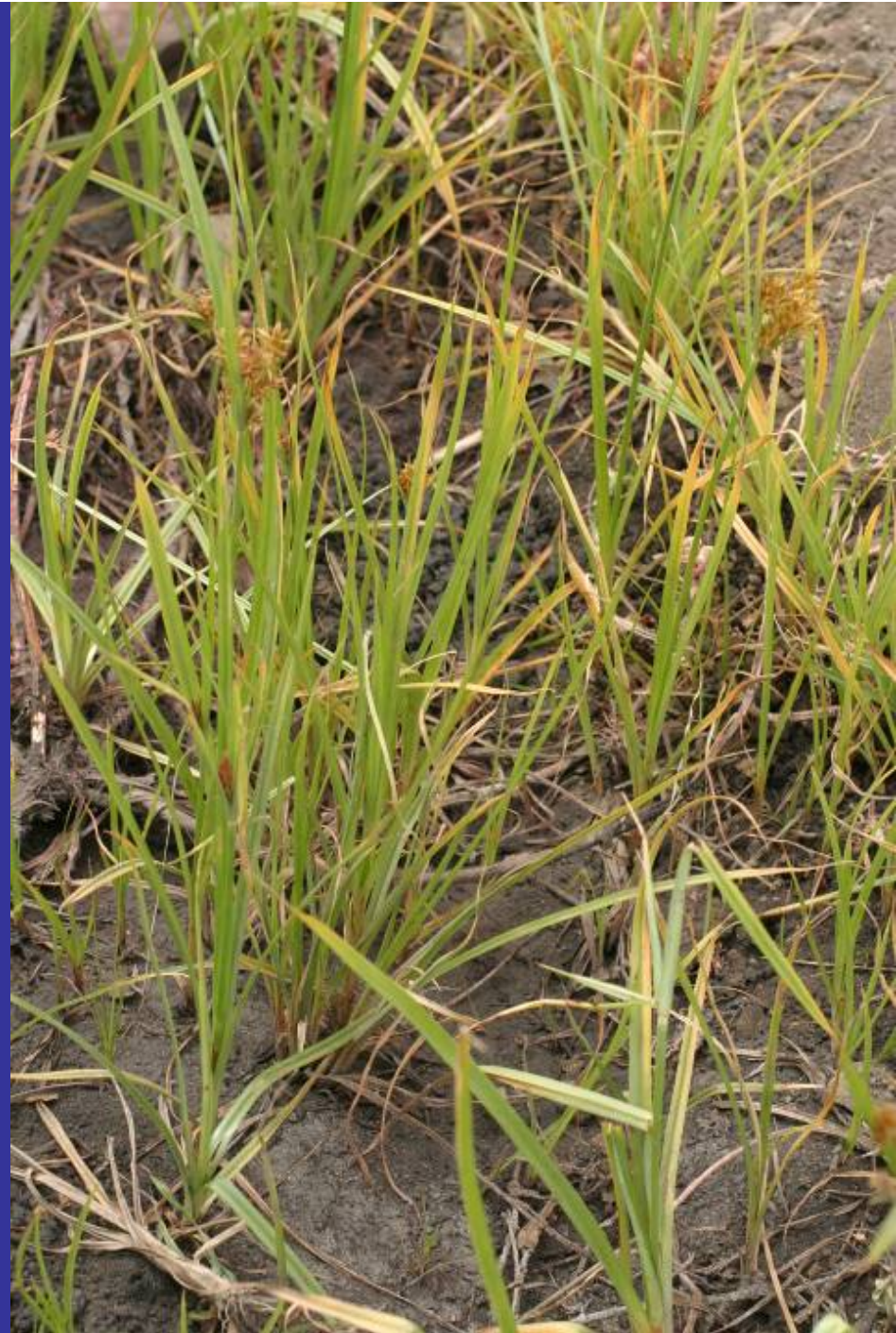


**nutlet**

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



- They reproduce from the nutlets from the mother plant
- Under ideal conditions, a mother plant can make 1,900 daughter plants and 7,000 tubers in one year
- They can form spreading masses 10 feet or more in diameter



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



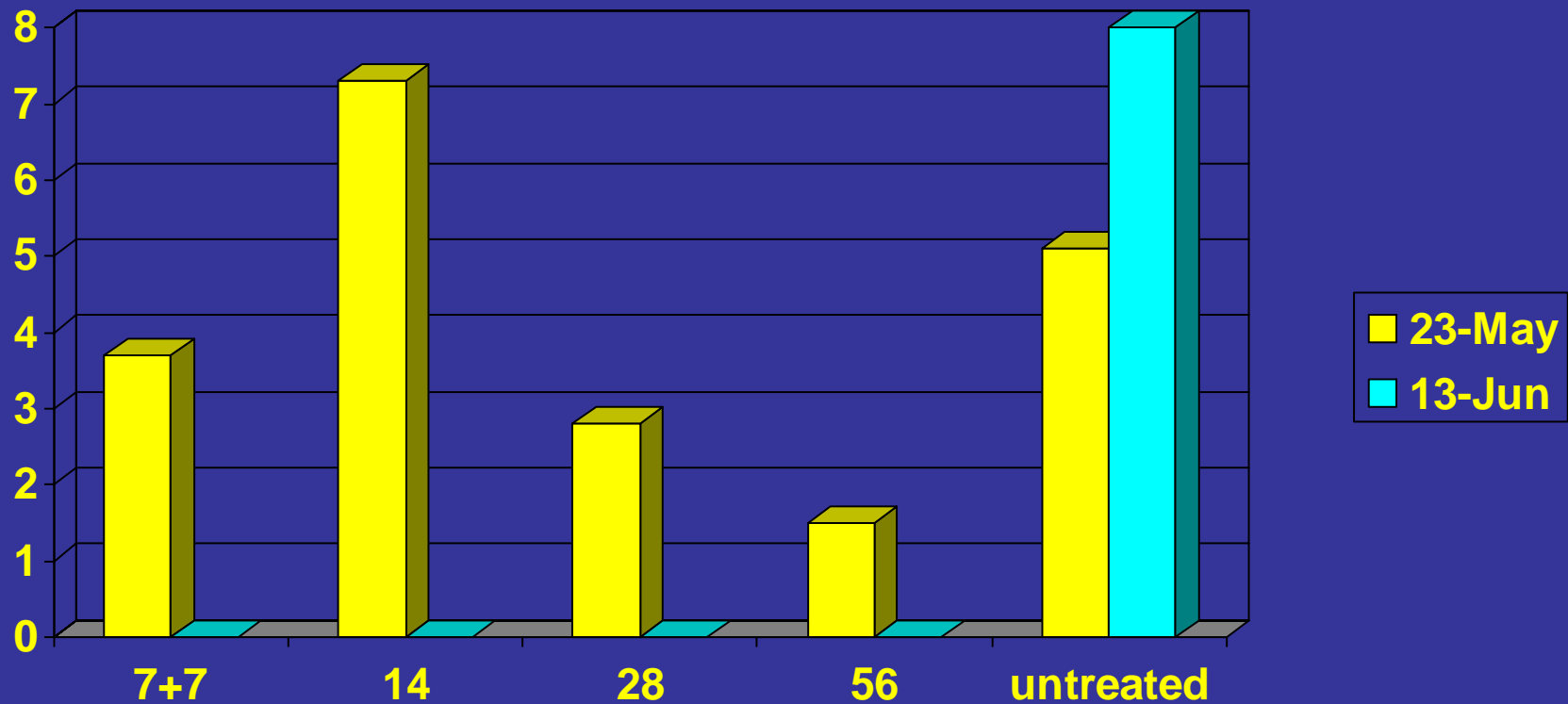
# Background on Outlook

- 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

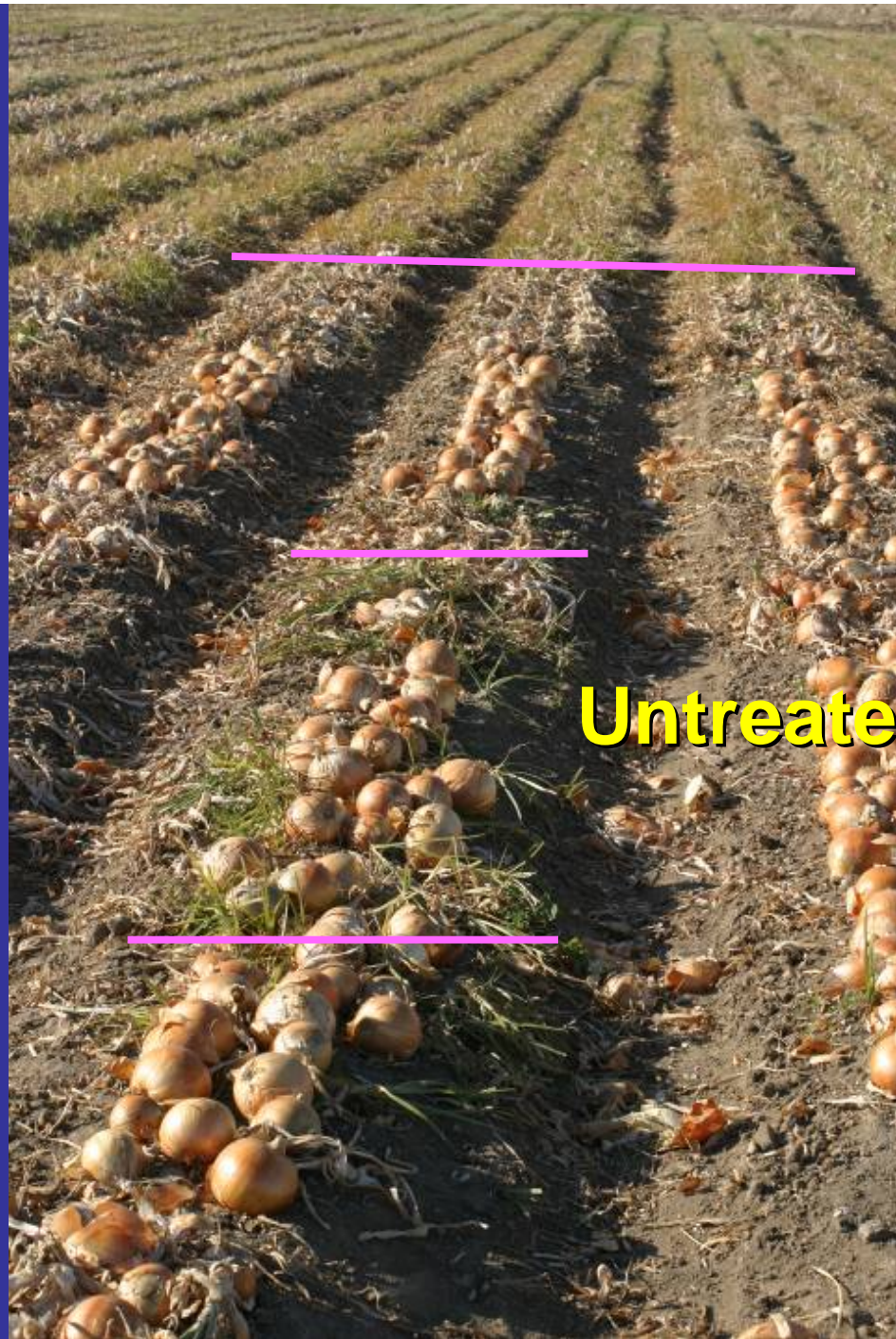


**Rates of Outlook**



# 2006 Onion Weed Evaluations

Treatments	Rate	72 DAP	120 DAP
Dacthal FB Goal 2XL	----	<b>82.0</b>	<b>89.0</b>
Outlook Dacthal FB Goal 2XL	14 oz	<b>2.0</b>	<b>2.3</b>
Outlook Dacthal FB Goal 2XL	28 oz	<b>0.0</b>	<b>1.3</b>
Outlook Dacthal FB Goal 2XL	7 oz + 7 oz	<b>0.0</b>	<b>1.3</b>
Dual Magnum Dacthal FB Goal 2XL	1 pint	<b>0.3</b>	<b>4.3</b>



**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**
- **Three strategies tested:**
  - 1) 1<sup>st</sup> true leaf applications
  - 2) Burn back nutsedge with acid fertilizer then apply Outlook
  - 3) Apply Basagran



**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**



**April 18, 2007**

**Test plot**

**Grower Acid Fertilizer  
Application**

NO  
OUTLOOK









NO  
OUTLOOK

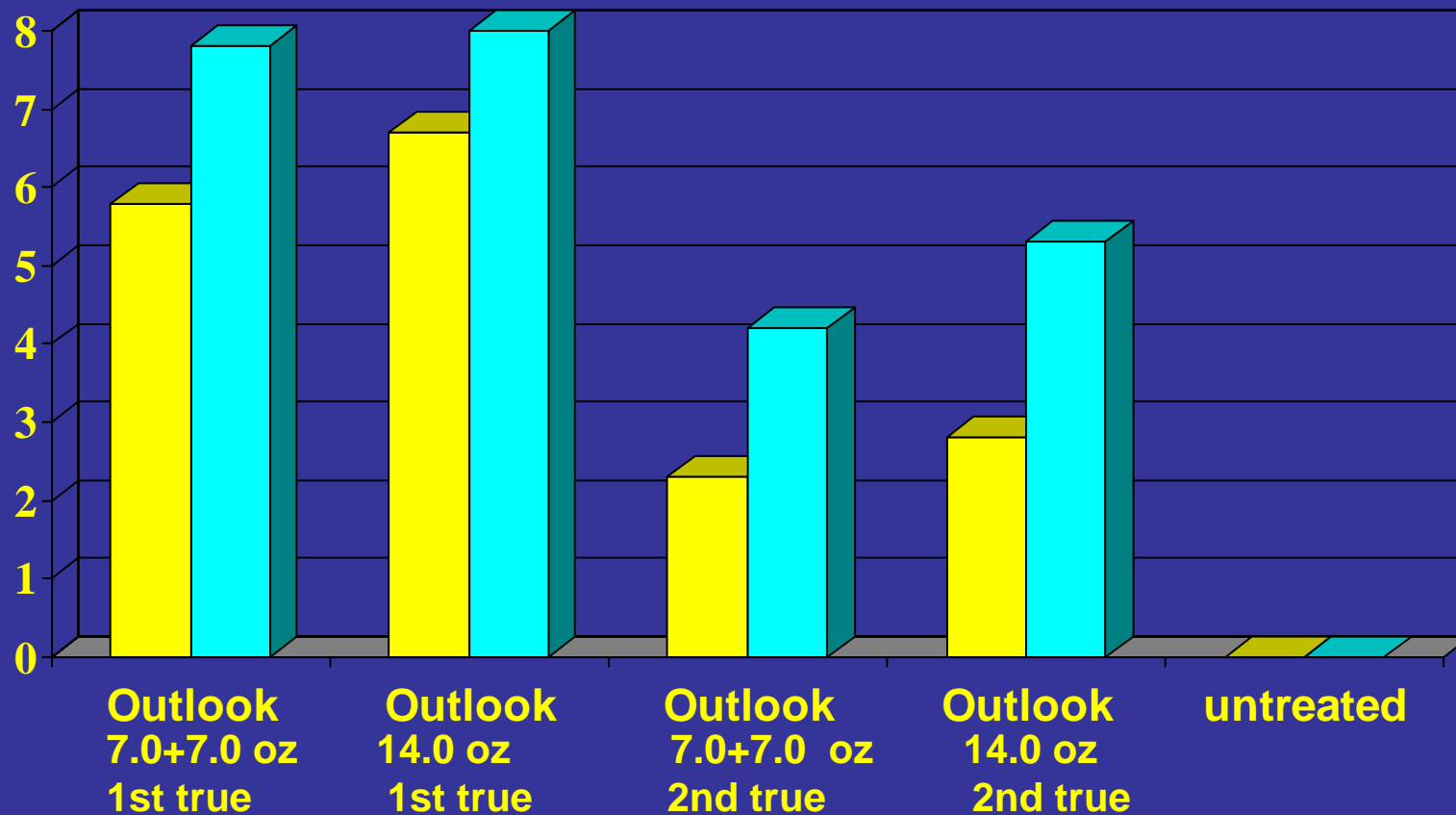
**April 18, 2007**

## Heavily Infested Site

<b>Treatment</b>	<b>Material/A</b>	<b>Application</b>
<b>7-7-0-7 Fb Outlook 6.0 Fb Outlook 6.0</b>	<b>35 gallons 7.0 oz 7.0 oz</b>	<b>Post 1 t. leaf 14 days later</b>
<b>7-7-0-7 Fb Outlook 6.0</b>	<b>35 gallons 14.0 oz</b>	<b>Post 1 t. leaf</b>
<b>7-7-0-7 Fb Outlook 6.0 Fb Outlook 6.0</b>	<b>35 gallons 7.0 oz 7.0 oz</b>	<b>Post 2 t. leaf 14 days later</b>
<b>7-7-0-7 Fb Outlook 6.0</b>	<b>35 gallons 14.0 oz</b>	<b>Post 2 t. leaf</b>
<b>Untreated</b>	<b>----</b>	<b>----</b>

# Weed Control Outlook After Acid Fertilizer

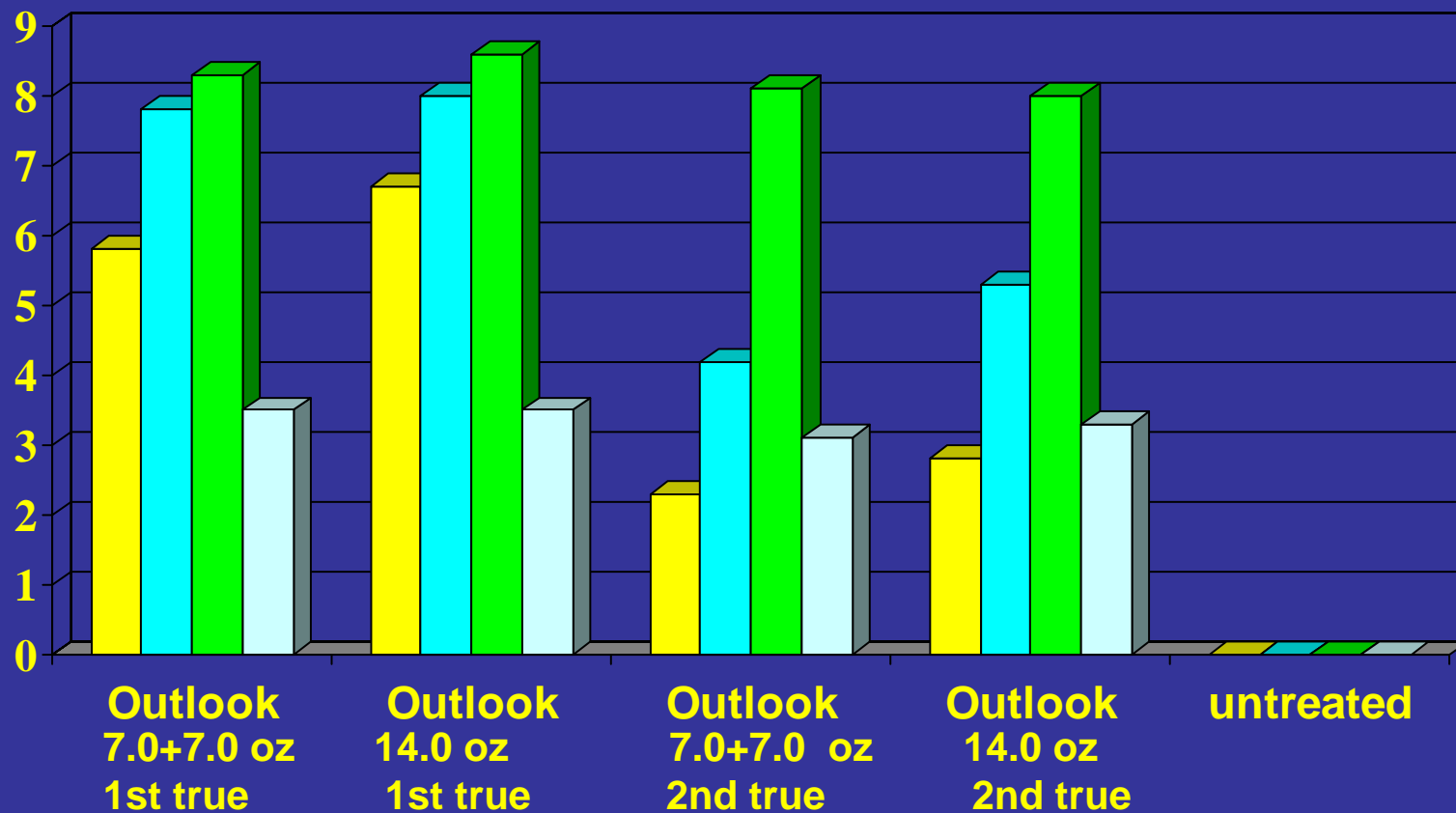
April 23 and May 4



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





**7-7-0-7**

**Outlook 7.0 + 7.0**

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



**May 8, 2007**



**7-7-0-7**  
**Outlook 14.0 oz**  
**1<sup>st</sup> true leaf**



**7-7-0-7**  
**Outlook 7.0 + 7.0**  
**2<sup>nd</sup> true leaf**



**May 8, 2007**

**7-7-0-7**  
**Outlook 7.0 + 7.0**  
**2<sup>nd</sup> true leaf**



**May 8, 2007**

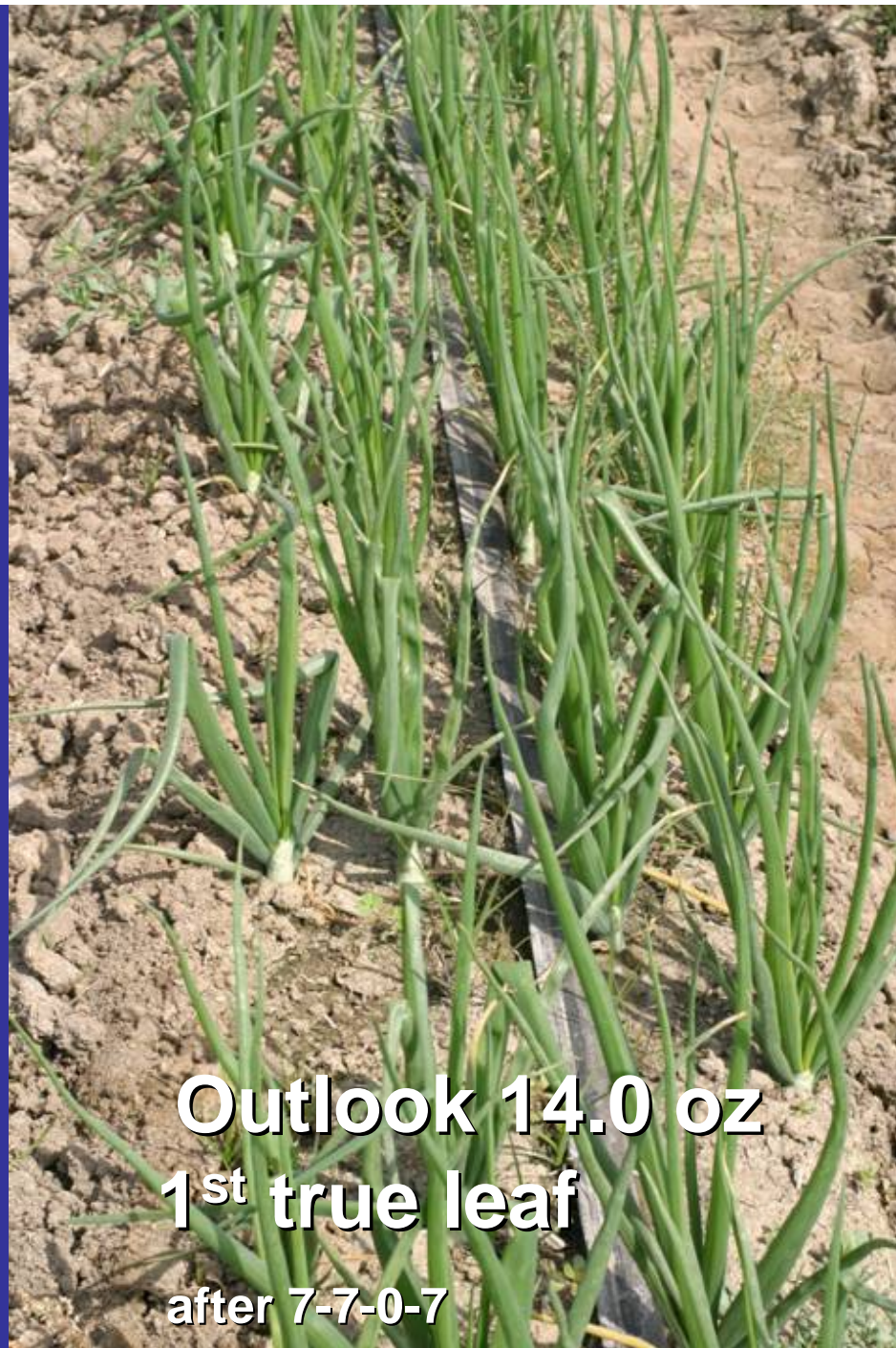


**7-7-0-7**  
**Outlook 14.0 oz**  
**2<sup>nd</sup> true leaf**



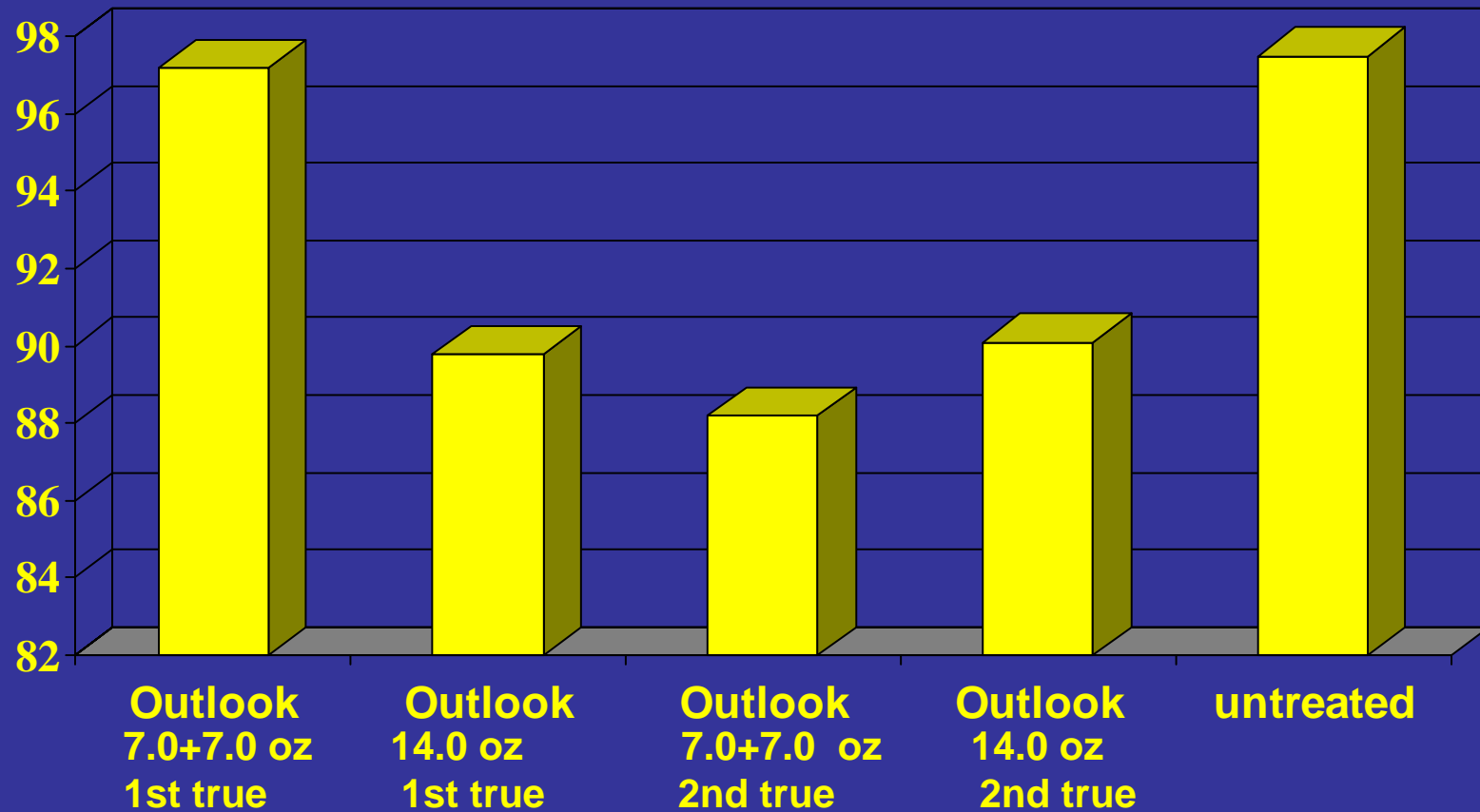


**Untreated**



**Outlook 14.0 oz**  
**1<sup>st</sup> true leaf**  
**after 7-7-0-7**

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

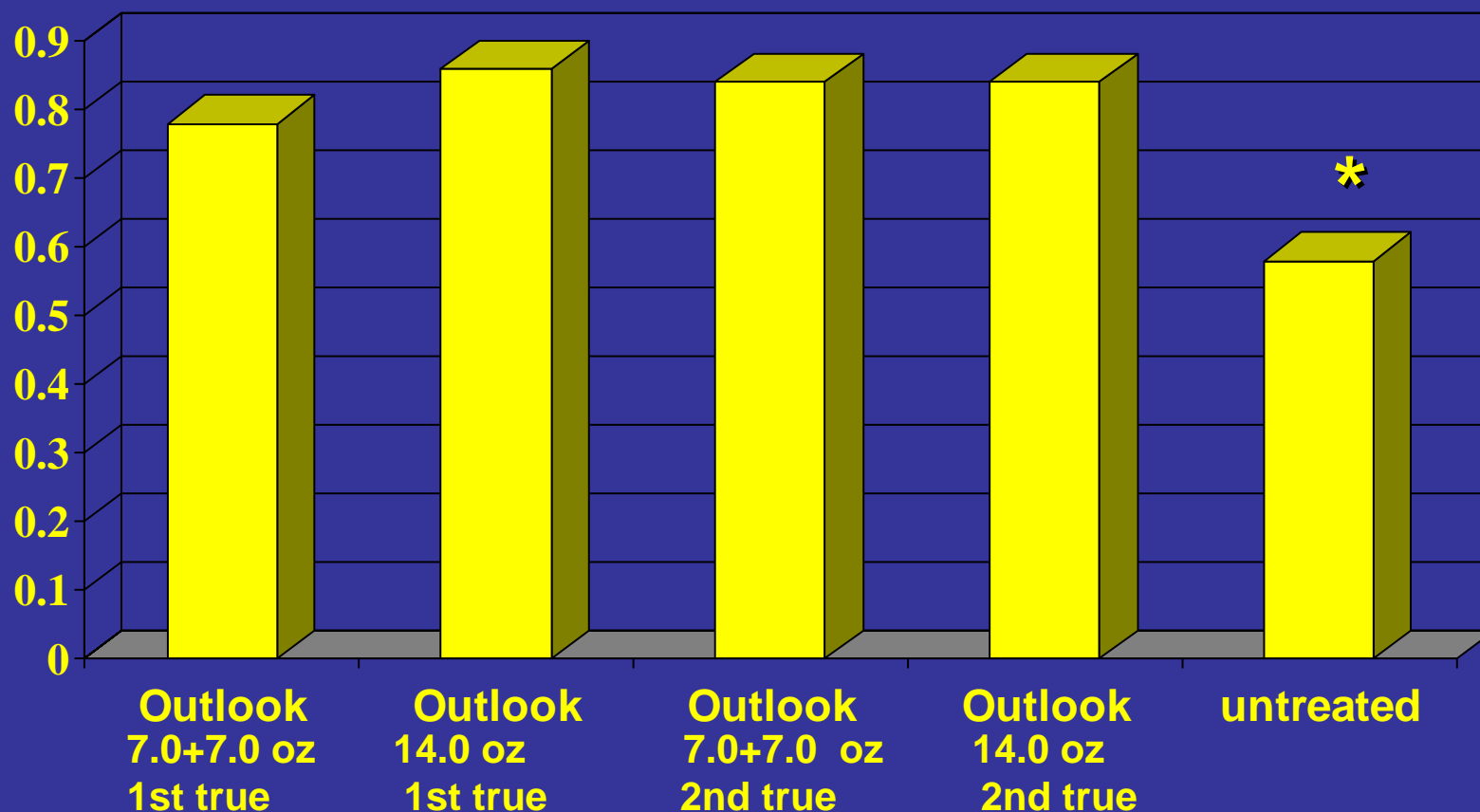


No. x 1,000

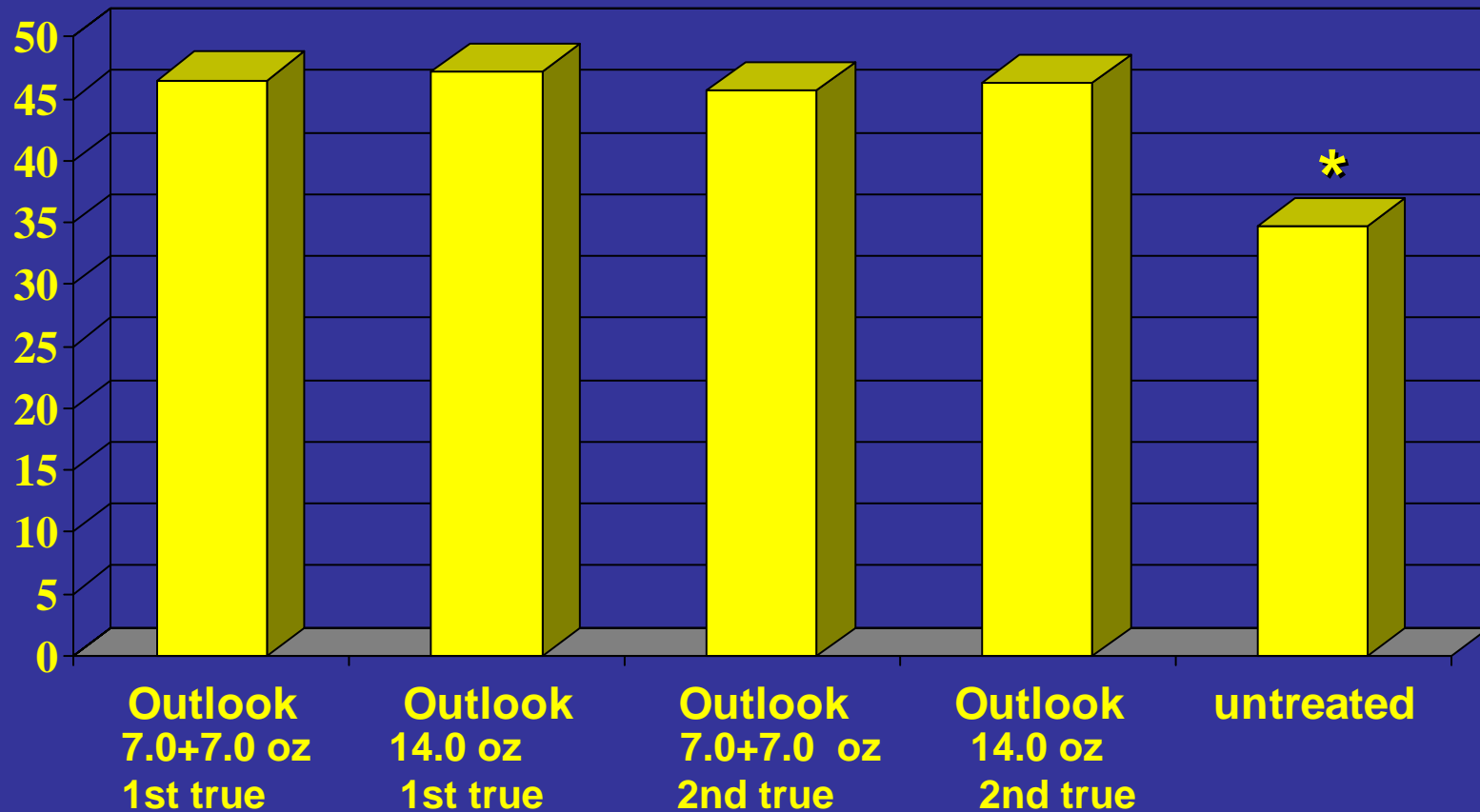
# Onion Trial Heavy Infestation

With 7-7-0-7

## Yield - Mean Head Wt (lbs)



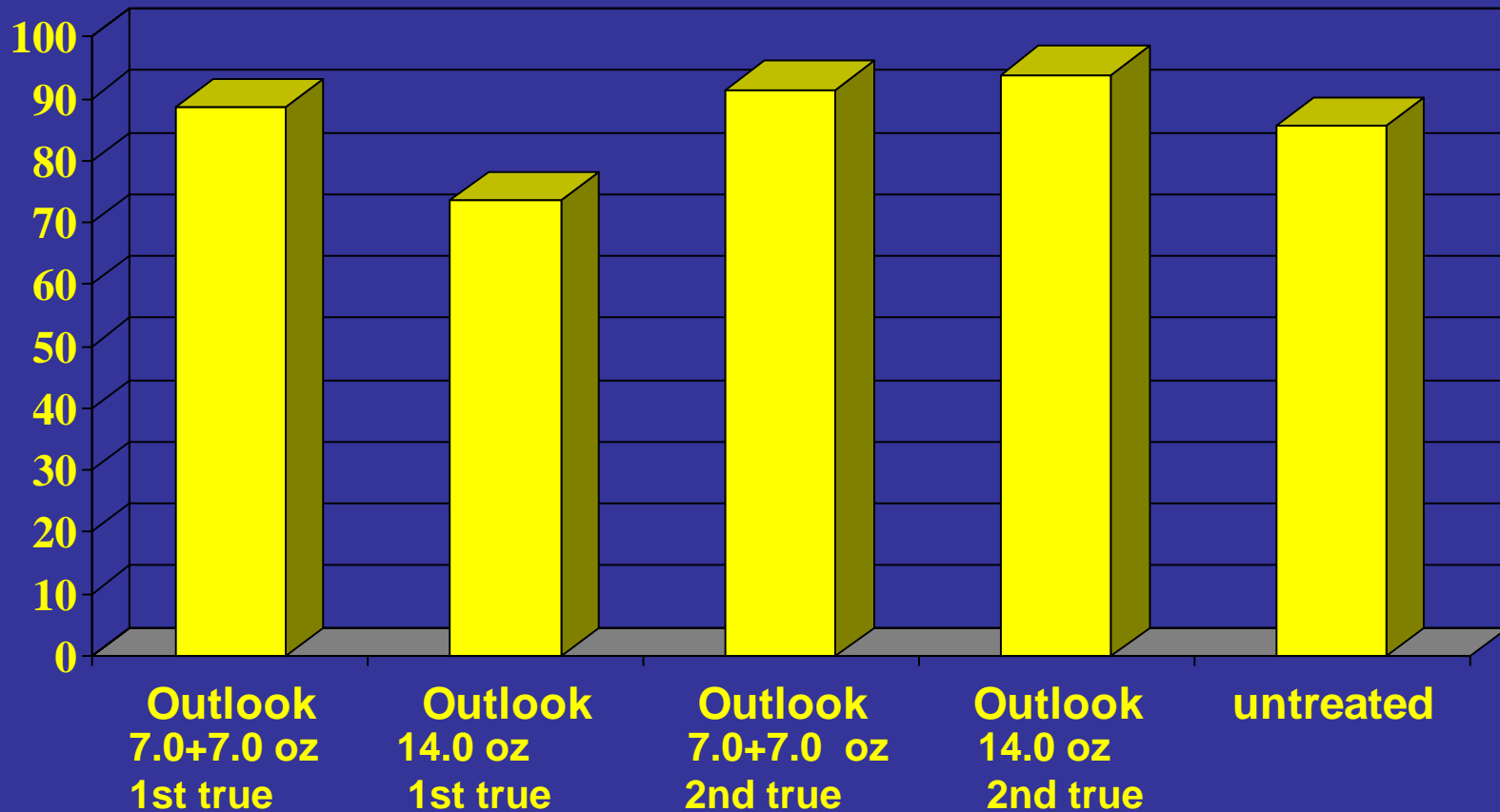
# Onion Trial Heavy Infestation With 7-7-0-7 Yield – Tons/A



# Onion Trial Light Infestation

No 7-7-0-7

## Yield - Number/A

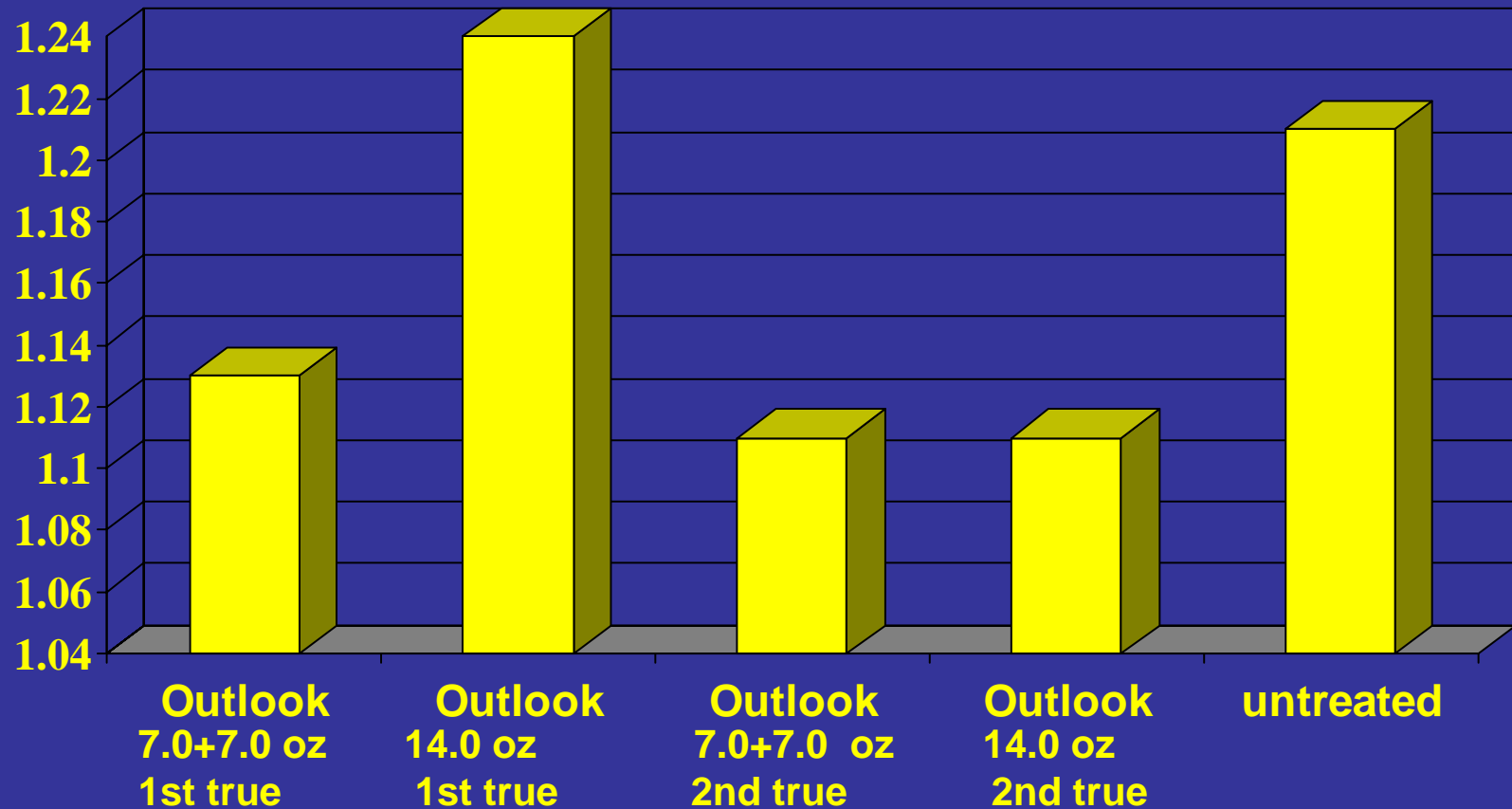


No. x 1,000

# Onion Trial Light Infestation

No 7-7-0-7

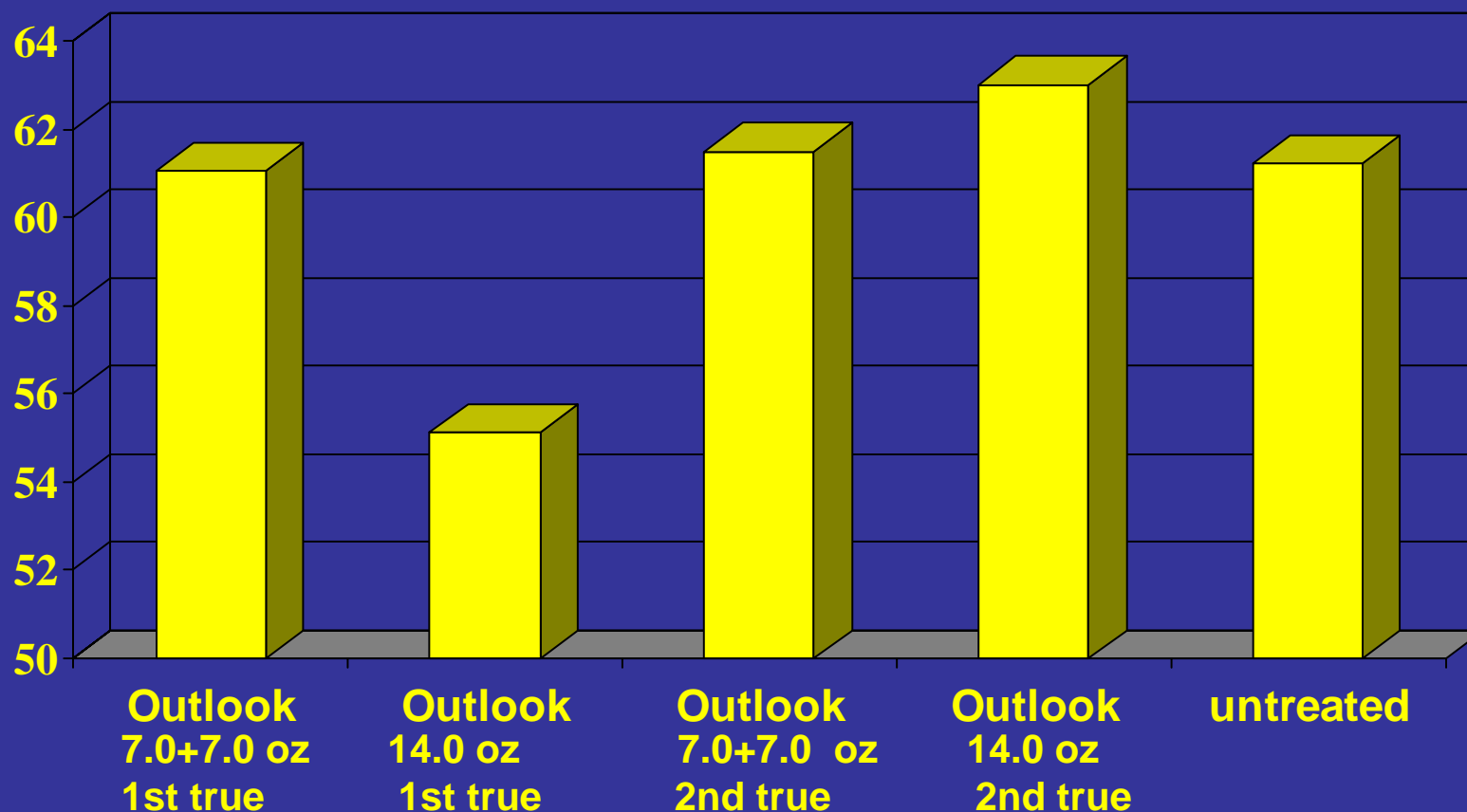
## Yield - Mean Head Wt (lbs)



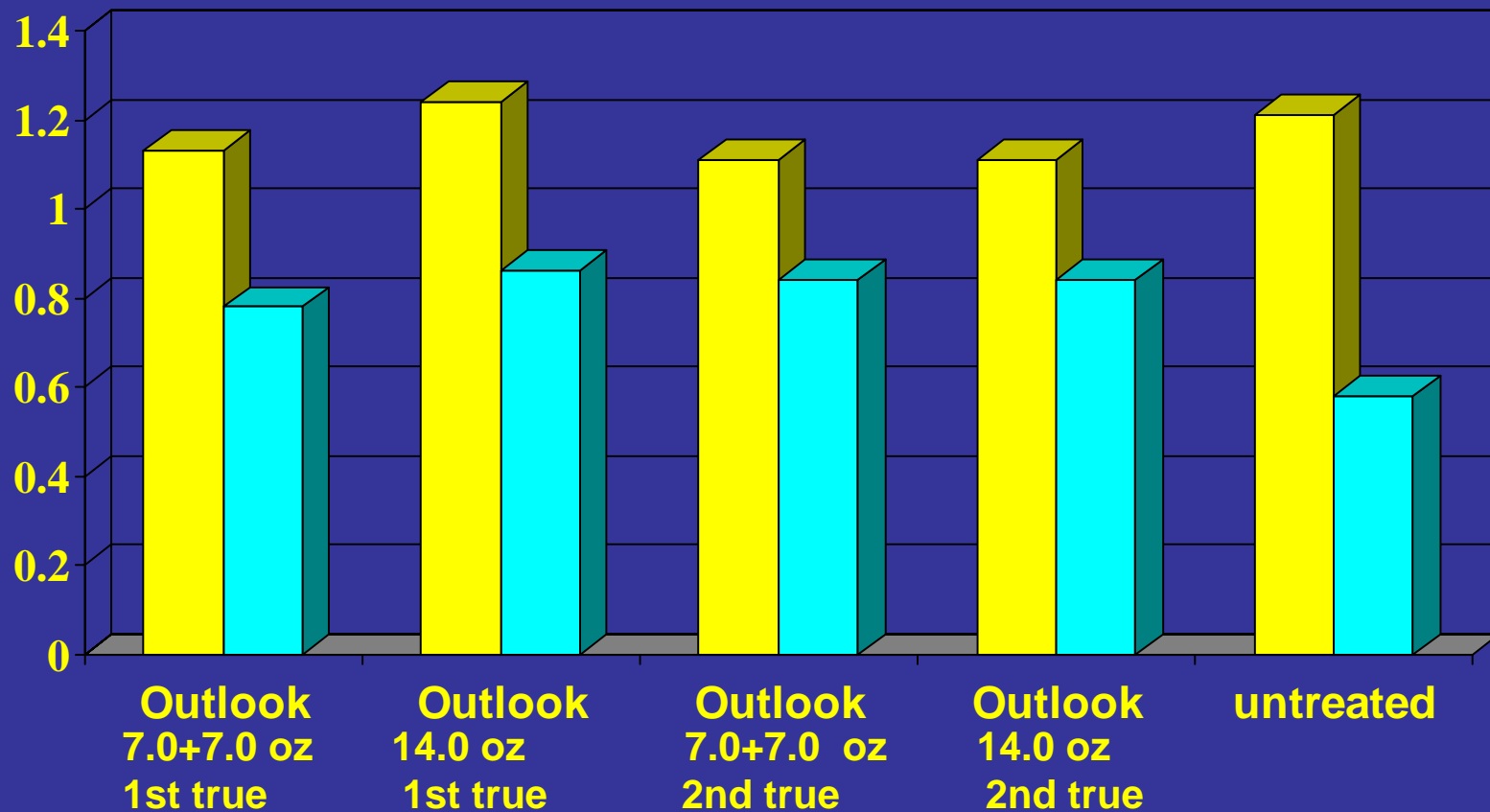
# Onion Trial Light Infestation

No 7-7-0-7

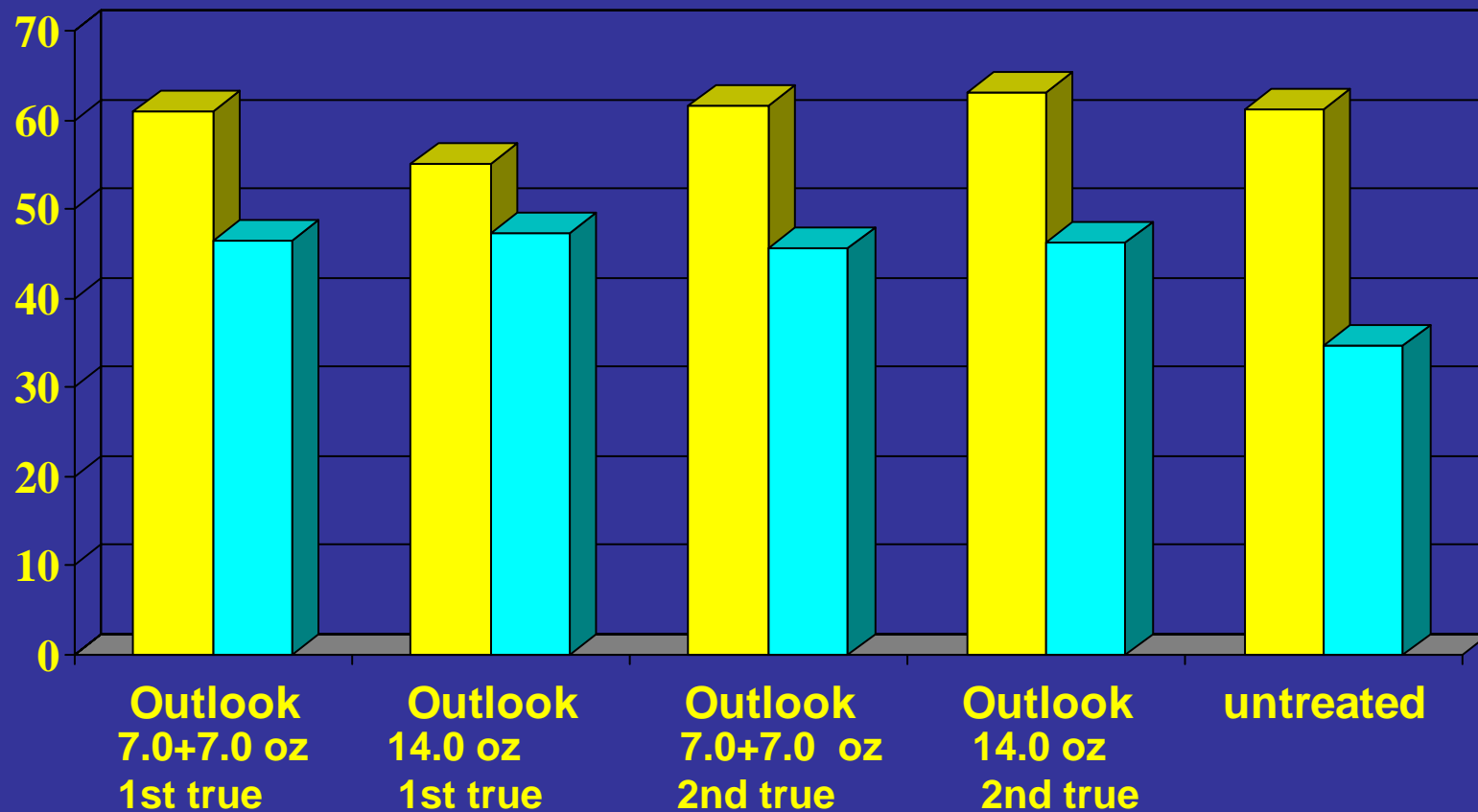
## Yield – Tons/A



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



# Comparison of Light vs Heavy Yield – Tons/A



# 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**

# Basagran Study

- **Two applications:**
- **made at the 2<sup>nd</sup> and 3<sup>rd</sup> true leaf stage (April 11 and 23)**



**Basagran 8.0 oz**



**Basagran 8.0 oz  
+ COC @ 1.0%**



**Basagran 32.0 oz**



**Basagran 32.0 oz  
+ COC @ 1.0%**



**Basagran 32 oz  
+COC +Outlook 14.0 oz**



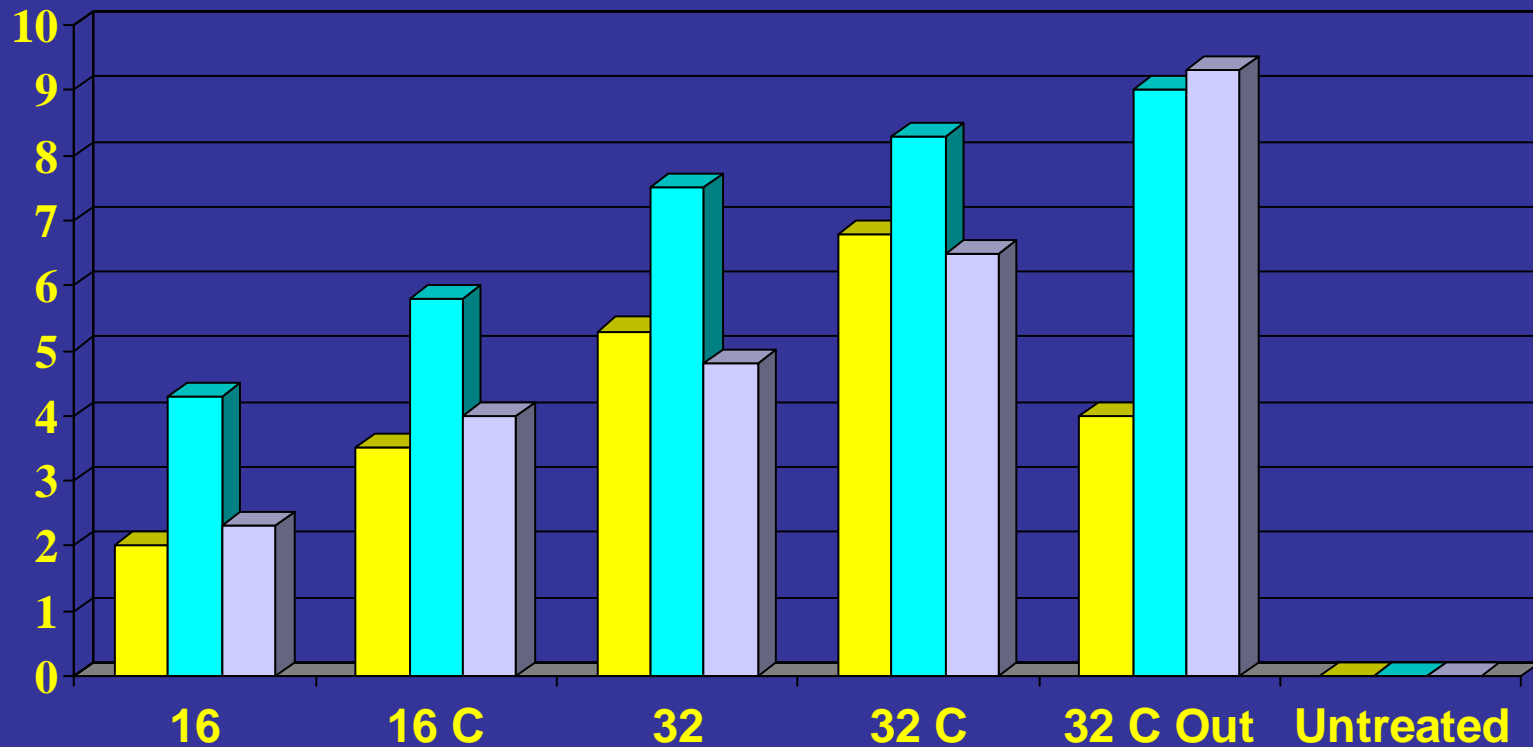
**Untreated**



**Untreated**

**Basagran  
+ Outlook**

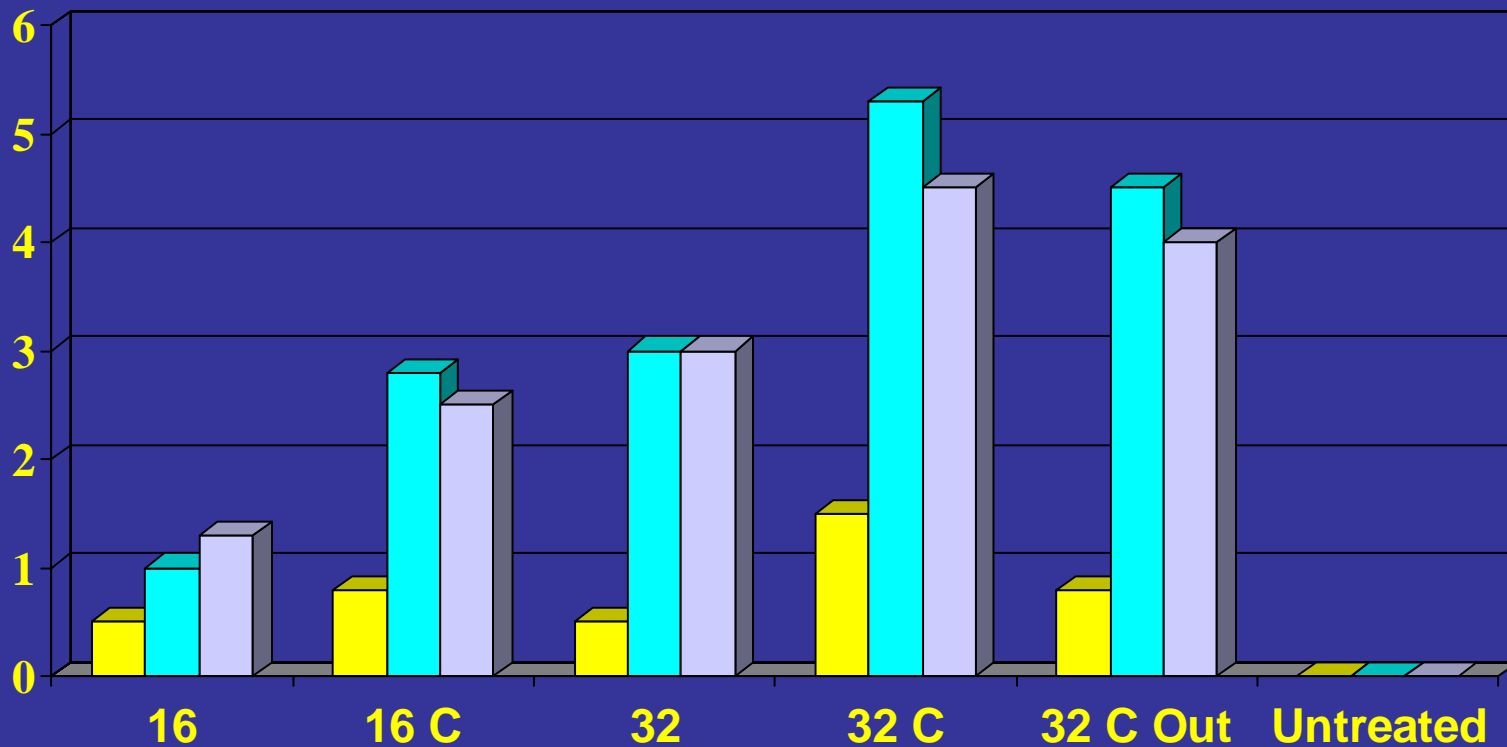
# Basagran Trial Weed Ratings April 23; May 4; June 1



# Basagran Trial

## Phytotoxicity Ratings

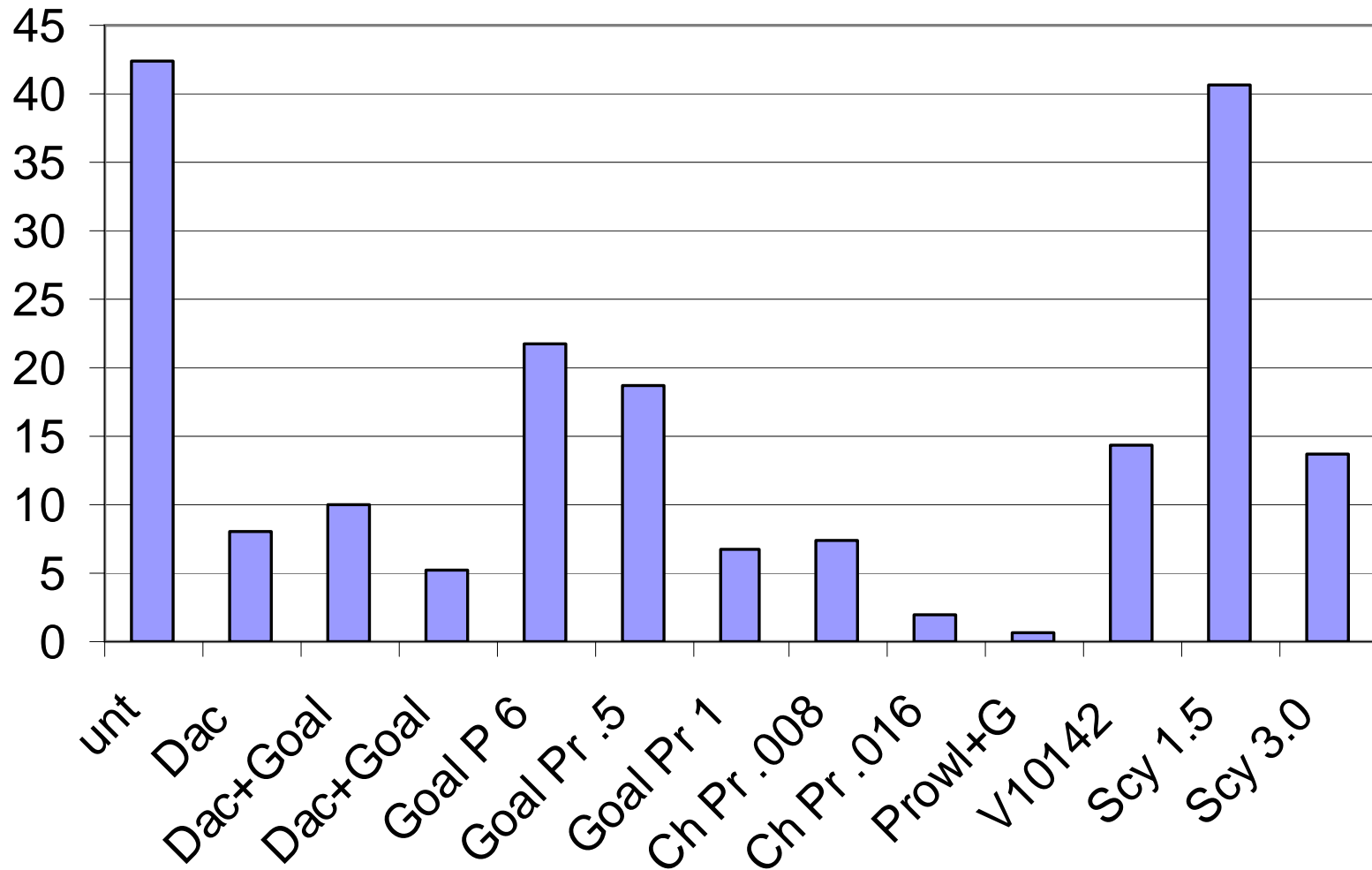
April 23; May 4; June 1



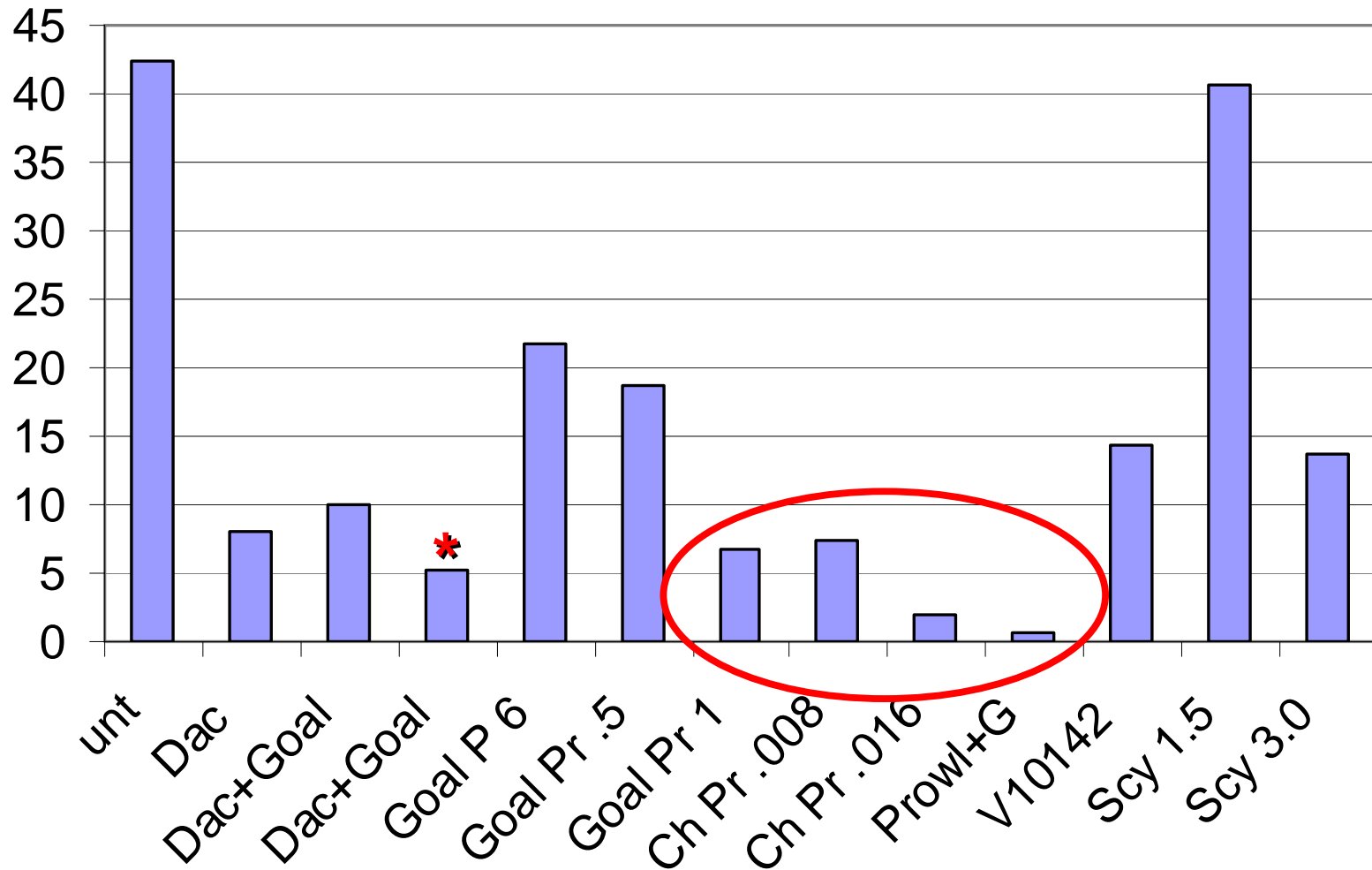
# **2007 Onion Weed Screen**

# 2007 Weed Control Screen

## Total Weeds

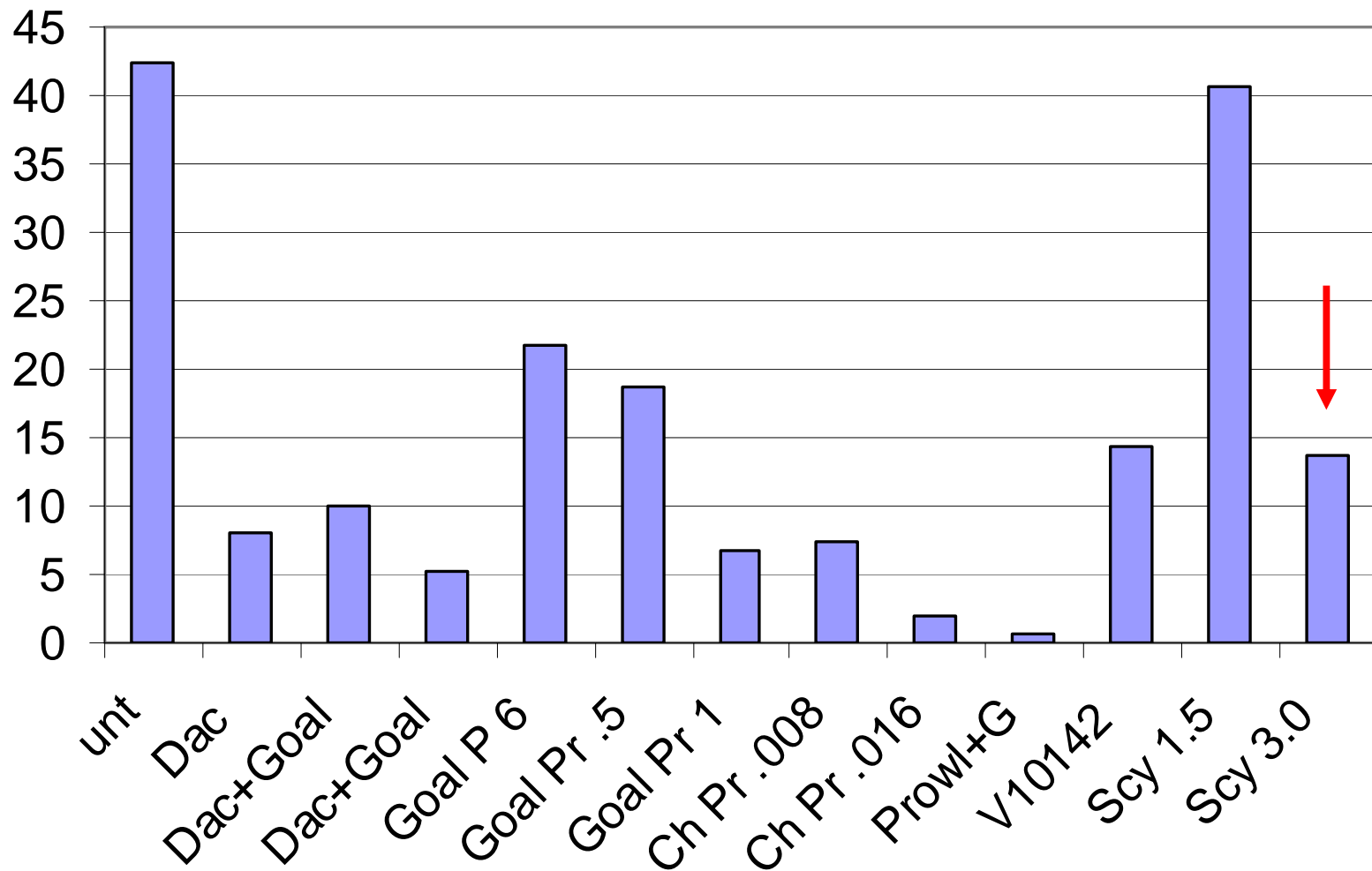


# 2007 Weed Control Screen Total Weeds

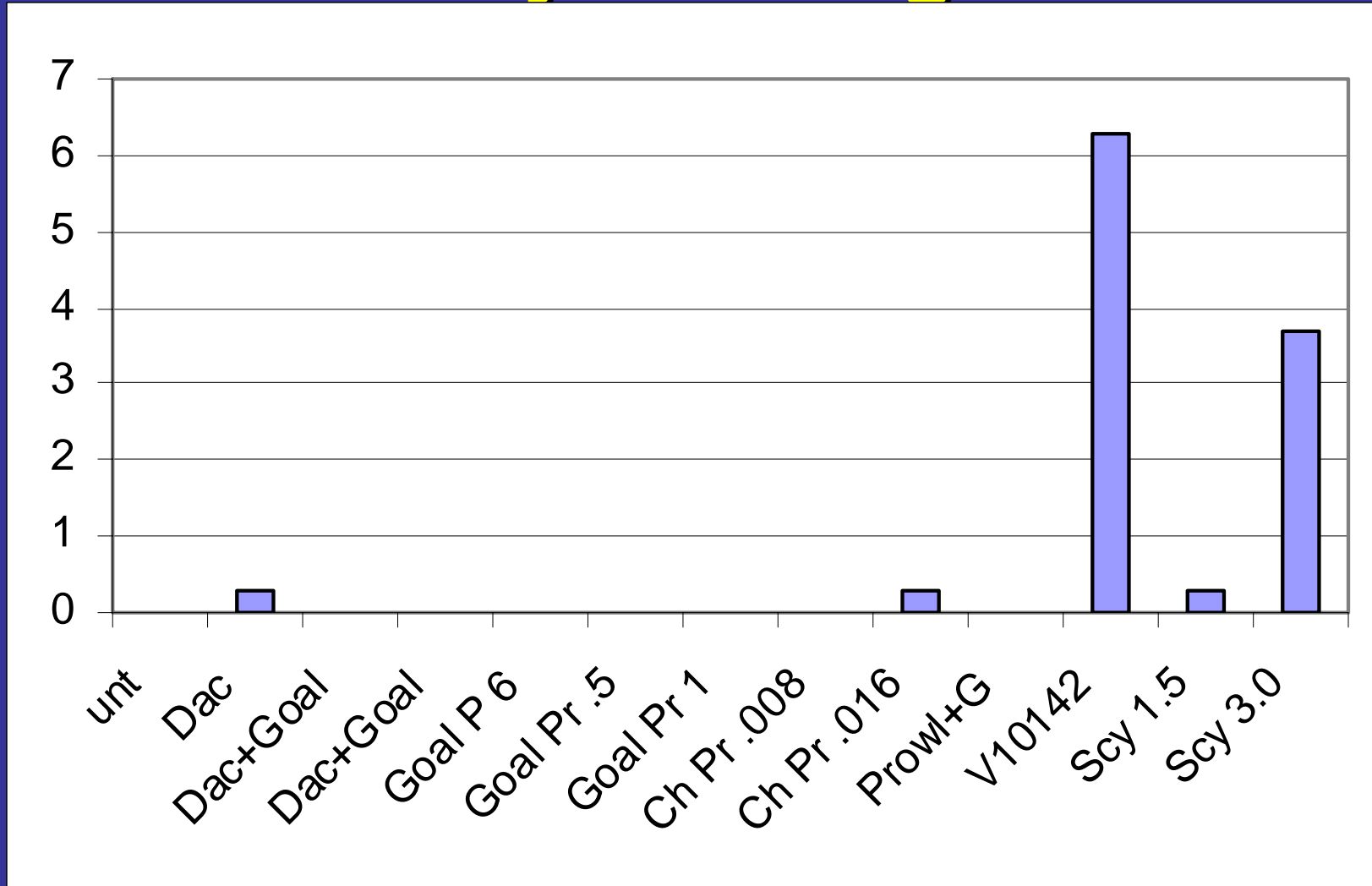


# 2007 Weed Control Screen

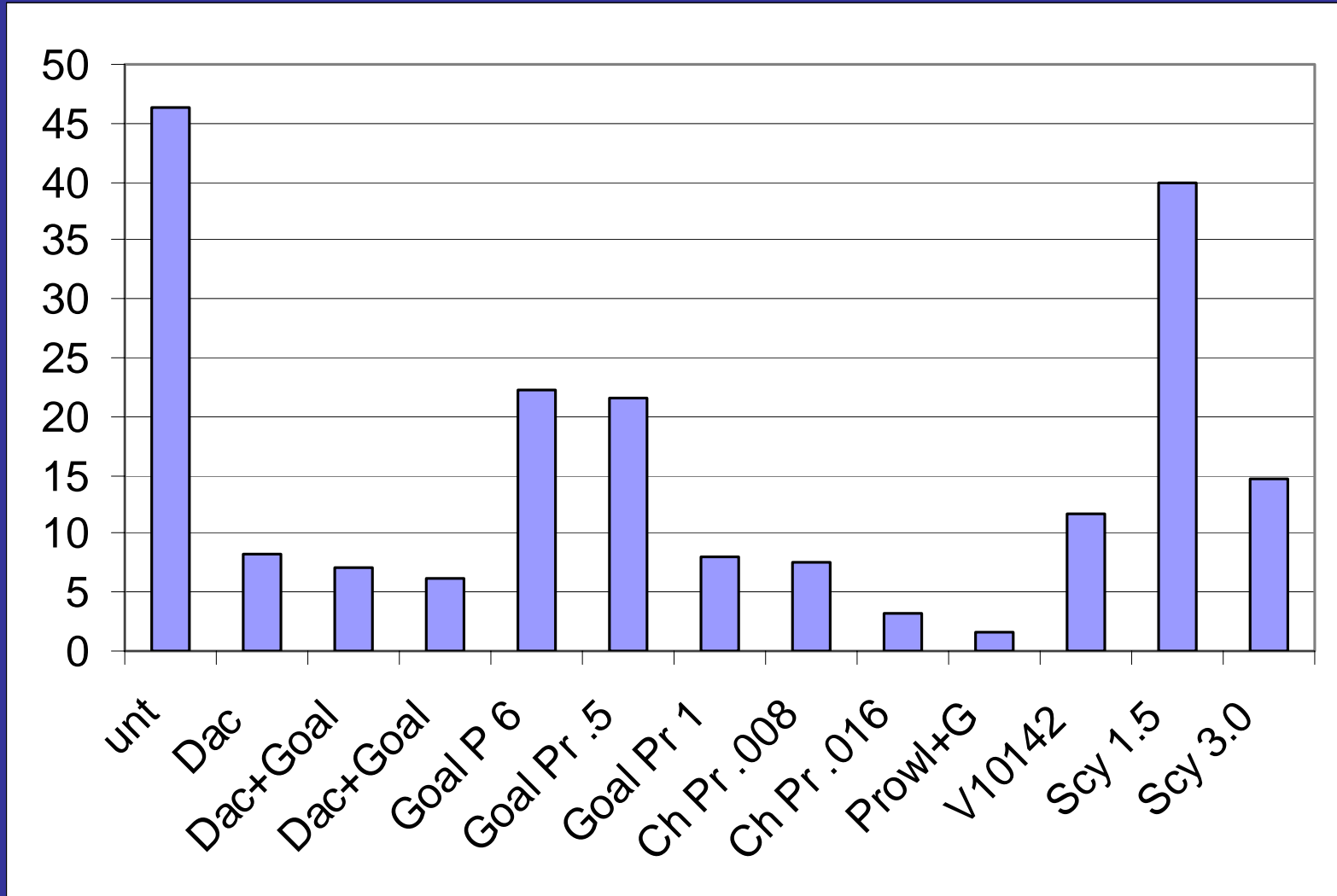
## Total Weeds



# 2007 Weed Control Screen Phyto Ratings



# 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%**

## **2008 Season**

- **Nortron (Bayer Corp) will be registered in 2008**
- **This was a bit of surprise and there none of the UC researchers have worked with this material on onions**
- **One piece of research indicated that it was too phytotoxic on sandy soils**

# Acknowledgements

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