

A photograph of an onion field. The onions are planted in rows, with black plastic mulch visible between the plants. The soil is dry and cracked, indicating a lack of water. There are some weeds growing in the field, particularly in the left side of the image. The overall scene is a typical agricultural setting for onion production.

Nutsedge and Broadleaf Weed Control in Onions

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Metam
Paraquat
Roundup
Shark
Scythe

Dacthal
Prefar
Nortron
preemergence
to weeds

1st true leaf

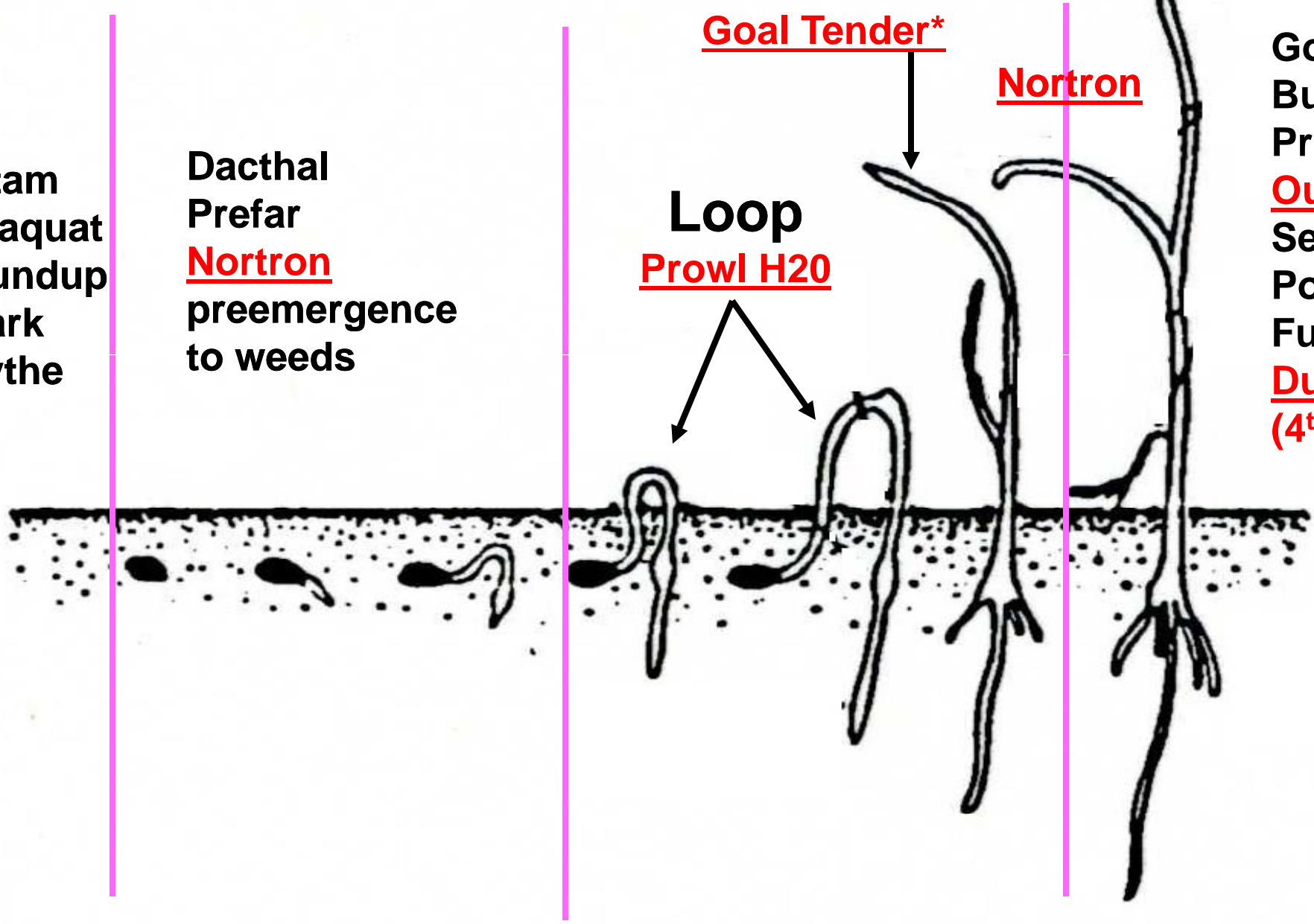
Goal Tender*

Loop
Prowl H20

Nortron

2nd true leaf

Goal
Buctril
Prowl
Outlook
Select Max
Poast
Fusilade
Dual Magnu
(4th True Leaf



Weed Control in Onions

- **We have minimal ability to effectively cultivate weeds in onion production**
- **However, the ability to apply preemergence followed by post emergence materials can provide excellent weed control**
- **This can make subsequent hand weeding more efficient and economical**

Early Post Emergence Application

- **Goal Tender**

- **Can be applied at the first true leaf stage*;
this concept is to try to kill weeds at an earlier stage in order to more effectively kill them.
This helps reduce hand weeding costs.**

*** This label is being revised and the new wording will stipulate minimum temperatures at which this material can be applied as well as the growth stage. There will also be indemnification wording. This is a powerful tool for onion production and we need to safeguard this use pattern.**

Shepherds Purse

1st True Leaf

2nd True Leaf

**Regrowth of weeds
not completely killed**



**Many of these
weeds not killed
initially end up
having to be
removed by hand**

Post Emergence Applications of Preemergence Herbicides

Onions are a long-season crop and it is important to apply a preemergence material later in the growth cycle:

- Goal 2XL
- Nortron
- Prowl H2O
- Nutsedge Herbicides
 - Outlook, Dual Magnum

Weed Control in Onions

- **At this point there is a good array of registered materials that can provide good control of a wide spectrum of weeds in onions**
- **The challenge now is to work with manufactures to retain these registrations and to expand registrations for materials that can provide control of specific weeds**

Broadleaf Weed Control

- **Nortron was the new registration in 2008 and we have conducted trials to evaluate its efficacy and safety**

Treatment	Rate/A	Timing	% Weed Control
Untreated	----	----	0
Dacthal FB Goal Tender	1.3 gal 6.0 oz	Pre post	99
Goal Tender	0.5 ounce	Preemergence	76
Goal Tender	1.0 ounce	Preemergence	85
Goal Tender	2.0 ounce	Preemergence	95
Nortron	16 ounces	Preemergence	53
Nortron	24 ounces	Preemergence	51
Nortron	32 ounces	Preemergence	55
Nortron FB Nortron	16 oz 16 oz	Pre post	44
Nortron FB Nortron	32 oz 16 oz	Pre post	67
Nortron FB Goal Tender	16 oz 6.0 oz	Pre post	98
Nortron Fb Goal Tender	32 oz 6.0 oz	Pre post	99

Treatment	Rate/A	Timing	% Weed Control
Untreated	----	----	0
Dacthal FB Goal Tender	1.3 gal 6.0 oz	Pre post	99
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Nortron FB Goal Tender	16 oz 6.0 oz	Pre post	98
Nortron Fb Goal Tender	32 oz 6.0 oz	Pre post	99

Effectiveness of Nortron

- **Nortron preemergence at 24 and 32 ounces/A was nearly as effective as Dacthal in a trial where lambsquarter was the main weed**
- **It was not effective on lambsquarter post emergence**
- **When followed by post emergence applications of Goal Tender (1st true leaf) it provided excellent weed control**
- **32 ounce had reduced yields in 2008 and 2009 trials**

Nutsedge Weed Control Studies



**New nutlet forming at
end of rhizome start to grow
when plant has five leaves**



**original
nutlet**



- **Nutsedge cannot tolerate shade**
- **Unfortunately onions do not provide sufficient shade to inhibit the growth of nutsedge**
- **Traditional ways of dealing with this weed were multiple applications of acid fertilizer**



Nutsedge Control Materials on Onions

- In spring of 2007 Outlook was registered in California for use on dry bulb onions at the 2nd true leaf stage
- In October of 2008 Dual Magnum was registered for use at the 4th true leaf stage

Nutsedge Control Materials on Onions

- The problem with using Outlook and Dual Magnum is that they do not control emerged nutsedge
- In our area, by the 2nd true leaf, nutsedge is typically well established
- One idea that we examined was burning the nutsedge back and then applying Outlook to see if it could inhibit regrowth of the weed

Nutsedge Control Materials on Onions

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



Test plot

**Grower Acid Fertilizer
Application**

- **At the 2nd true leaf stage nutsedge was well developed**



Treatments

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

1: 14 days later

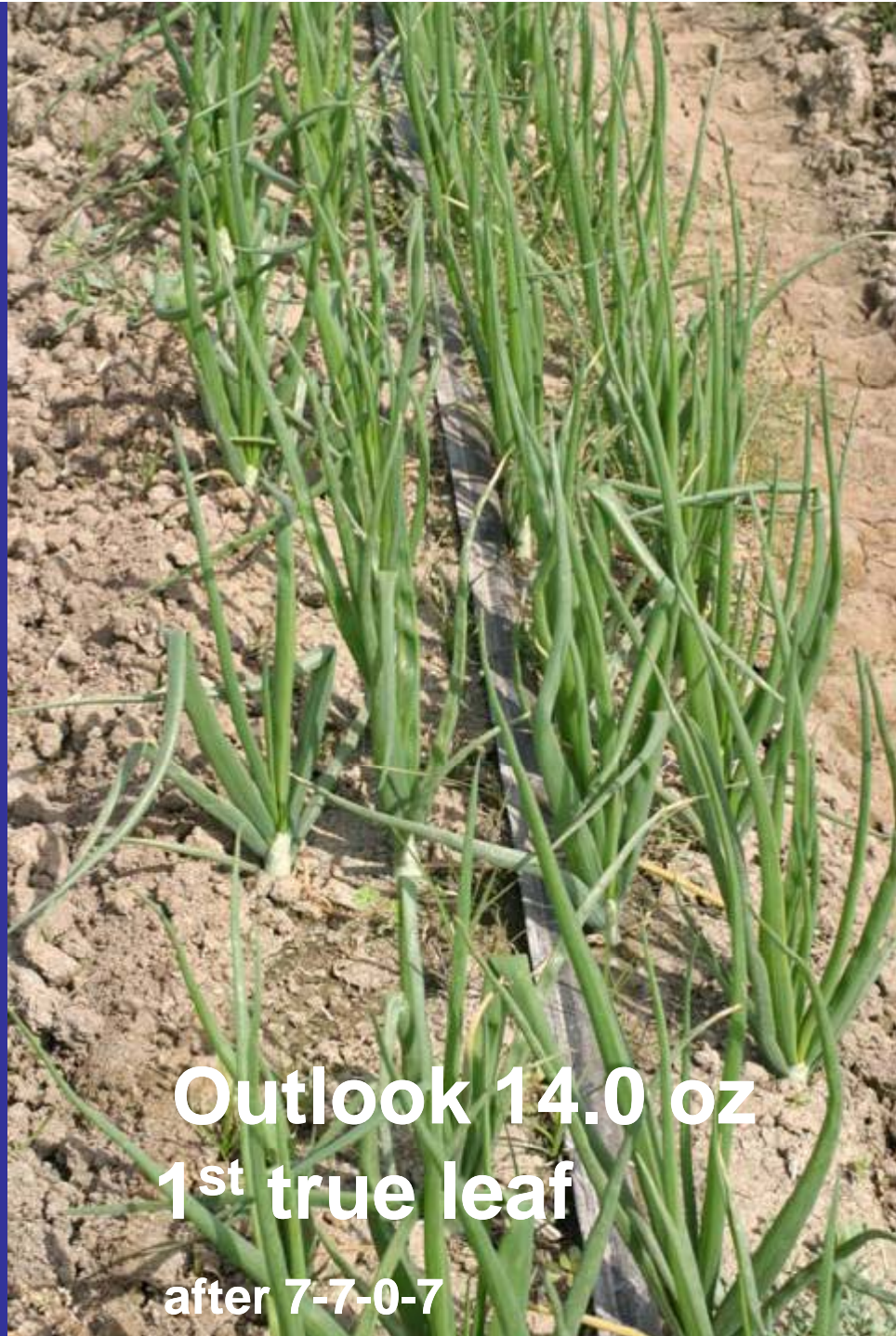
Post Acid Fertilizer Application







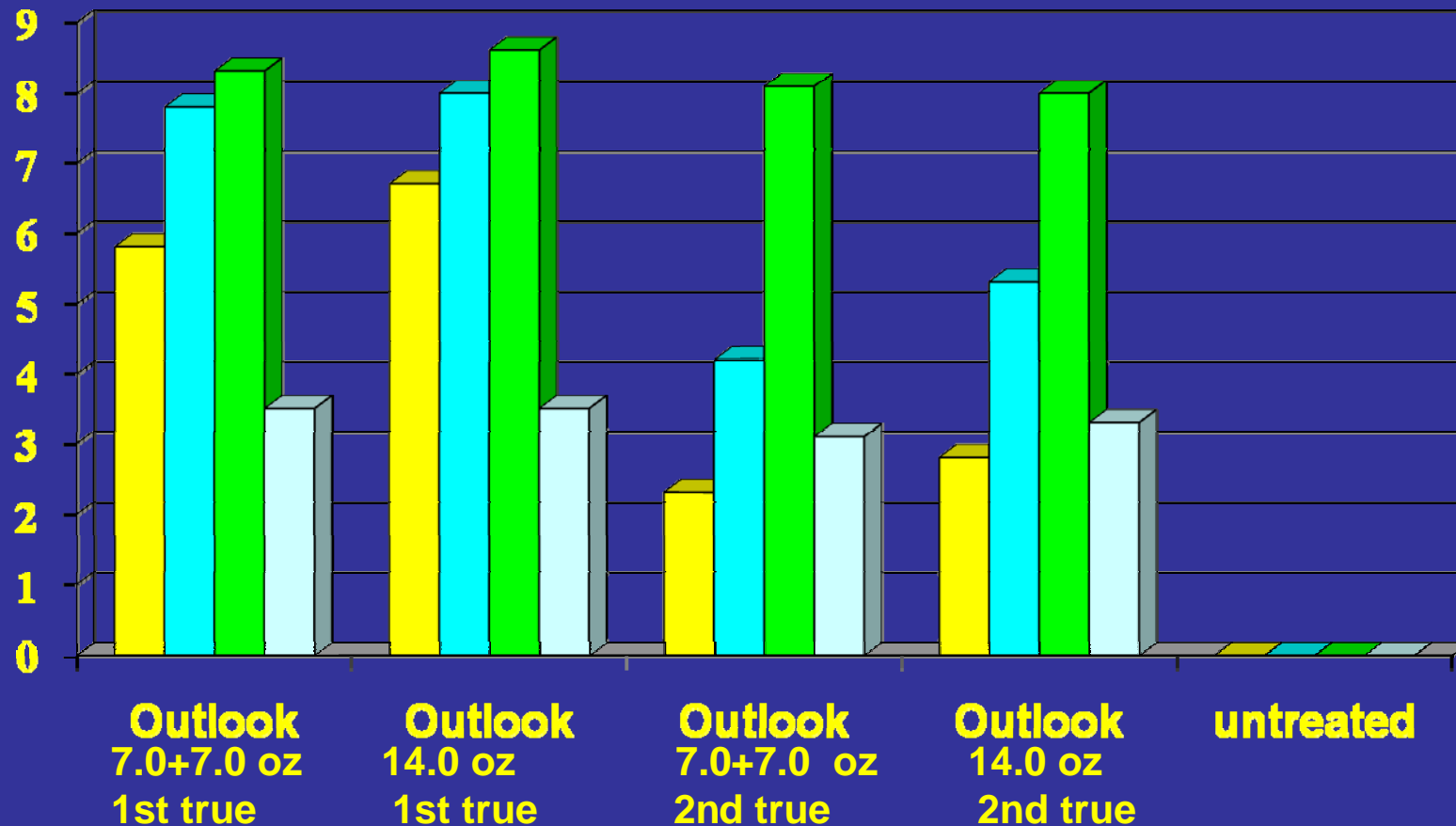
Untreated



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

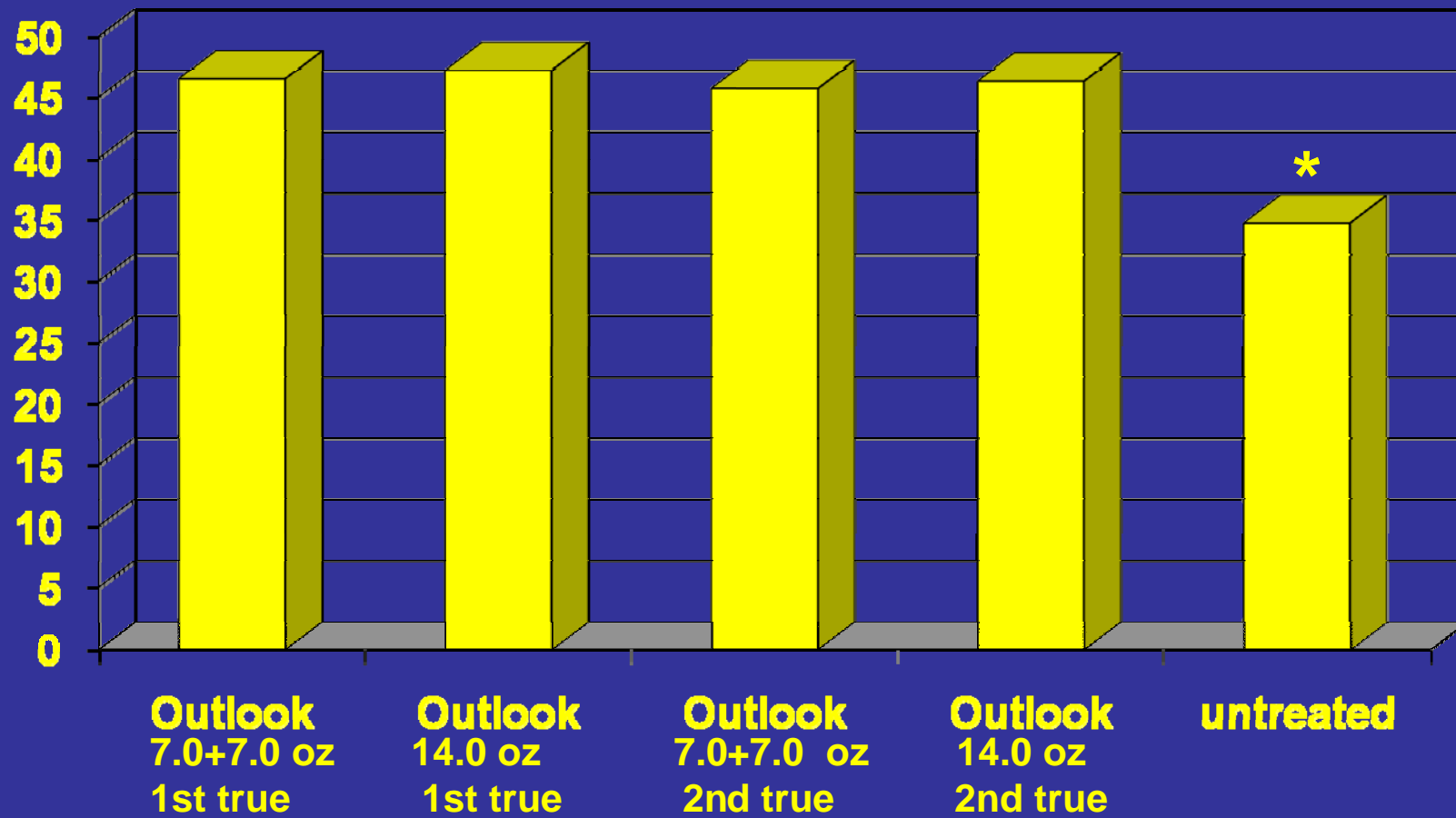
Weed Rating Outlook After Acid Fertilizer

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



Onion Yield

Tons/A



2008 Nutsedge Control Trial Dehydrator Onions



Onion Yield Evaluation



**Outlook 14 oz
1st True Leaf**



Untreated

Summary

- **Applying Outlook at the 1st true leaf stage was safe to the crop, but it is seems doubtful that BASF will amend the label to allow this earlier use**
- **Burning nutsedge back with acid fertilizer provides a means to make Outlook and Dual Magnum work**

Basagran Evaluations



Basagran 8.0 oz



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



Basagran 32.0 oz



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

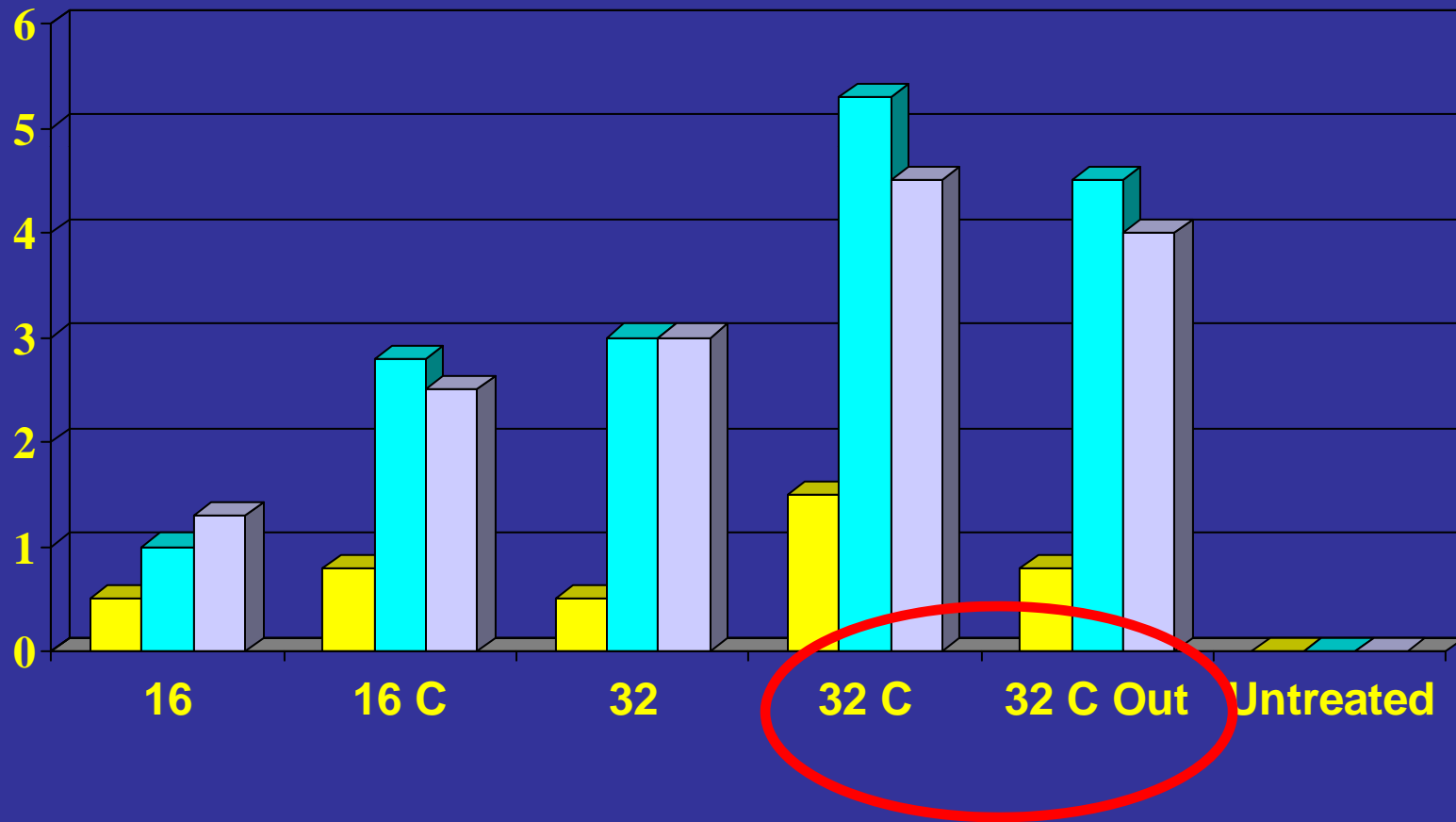


Untreated

**Basagran
+ Outlook**

Basagran Trial Phytotoxicity Ratings

April 23; May 4; June 1



Basagran Trials

- **Basagran was tested as a burnback material for nutsedge**
- **It is effective, but at present, Arysta has no plans to register its use on onions**
- **indemnified labels should be considered for minor crops**

Tips on the use of Outlook

- It needs to be applied and activated within a day or so of the acid fertilizer
- Applying with irrigation is a good strategy to apply it and activate it at the same time
- If it is not activated quickly the nutsedge may regrow and it will not work
- Do test strips of fertilizers to determine the formulation and rate to effectively burn back the nutsedge



Vegetable Crops & Weed Science

Conduct an applied research and educational program in vegetable crop production and weed science for crops grown in Monterey, Santa Cruz and San Benito Counties. Production issues include soil fertility, abiotic problem diagnosis, cover crop management and new crop development. Weed identification services are provided, as well as research on weed control.



Viticulture

Has cross-county Extension program in Santa Cruz County

industry.



Youth Development

Youth development through youth, youth service organizations in the natural resource education, and

Programs
Vegetable Crops & Weed Science
<i>Monterey County Crop Notes</i>
2009 Irrigation & Nutrient Management & Cover Crop & Water Quality Field Day
2008 Irrigation & Nutrient Mgmt. Mtg. - February 19
2007 Irrigation & Nutrient Management Meeting Reports
Vegetable Crops & Weed Science Links
Conference Presentations
Weed Reports
Cultural Practice Reports
Calendar

Google Cooperative Extension Monterey

Onions - Dry Bulb

- 2009 Dry Bulb Onions Weed Control Studies
- 2008 Dry Bulb Onion Weed Control Studies
- 2007 Dry Bulb Onion Weed Control Studies
- 2006 Dry Bulb Onion Weed Control Studies
- 2005 Dry Bulb Onion Weed Control Studies
- 2004 Dry Bulb Onion Weed Control Studies

Peppers

- 2009 Pepper Weed Control
- 2008 Pepper Weed Control
- 2007 Dual Post Emergence Use on Peppers Evaluation
- 2007 Pepper Weed Control
- 2006 Pepper Weed Control
- 2005 Pepper Weed Control Trials

Acknowledgements

- **Rio Farms**
- **Christensen and Giannini**
- **Integrated Crop Management, Inc**