Physical, chemical and thermal nutsedge control

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Herbicides	Injury	Yield reduction	Weed Control			
	1-10	*%*	*Little Mallow*	*Sweet and burclover*	*Other broadleaf*	*Grasses/ sedges*
Oxyfluorfen (Goal XL, Goaltender)	<1 + tarp 4-7 no tarp	<1% + tarp 8-20% no tarp	90-100%	45-95%	95-100%	Partial ex. nutsedge
Napropamide (Devrinol)	<1 < max rate	<1 < max rate	50%	partial	82%	good, ex. nutsedge
DCPA (Dacthal)			partial	poor	partial	good, ex. nutsedge
Sethoxydim (Poast)			poor	poor	poor	good, ex. nutsedge
Clethodim (Prism)			poor	poor	poor	good, ex. nutsedge
Pendimethalin* (Prowl)	<1	<1	86%		95%	good, ex. nutsedge
Flumioxazin (Chateau)	1.5 – 4 Rate dependent	<10	90-95%	93-99%	75-100%	Partial ex. nutsedge

* Not currently registered

Nutsedge

- MeBr controls it but alternative fumigants – only partially
- Non-fumigated zones and organic fields = nutsedge proliferation
- Failure to control and spread = severe infestations

Hand-weeding nutsedge?

fall

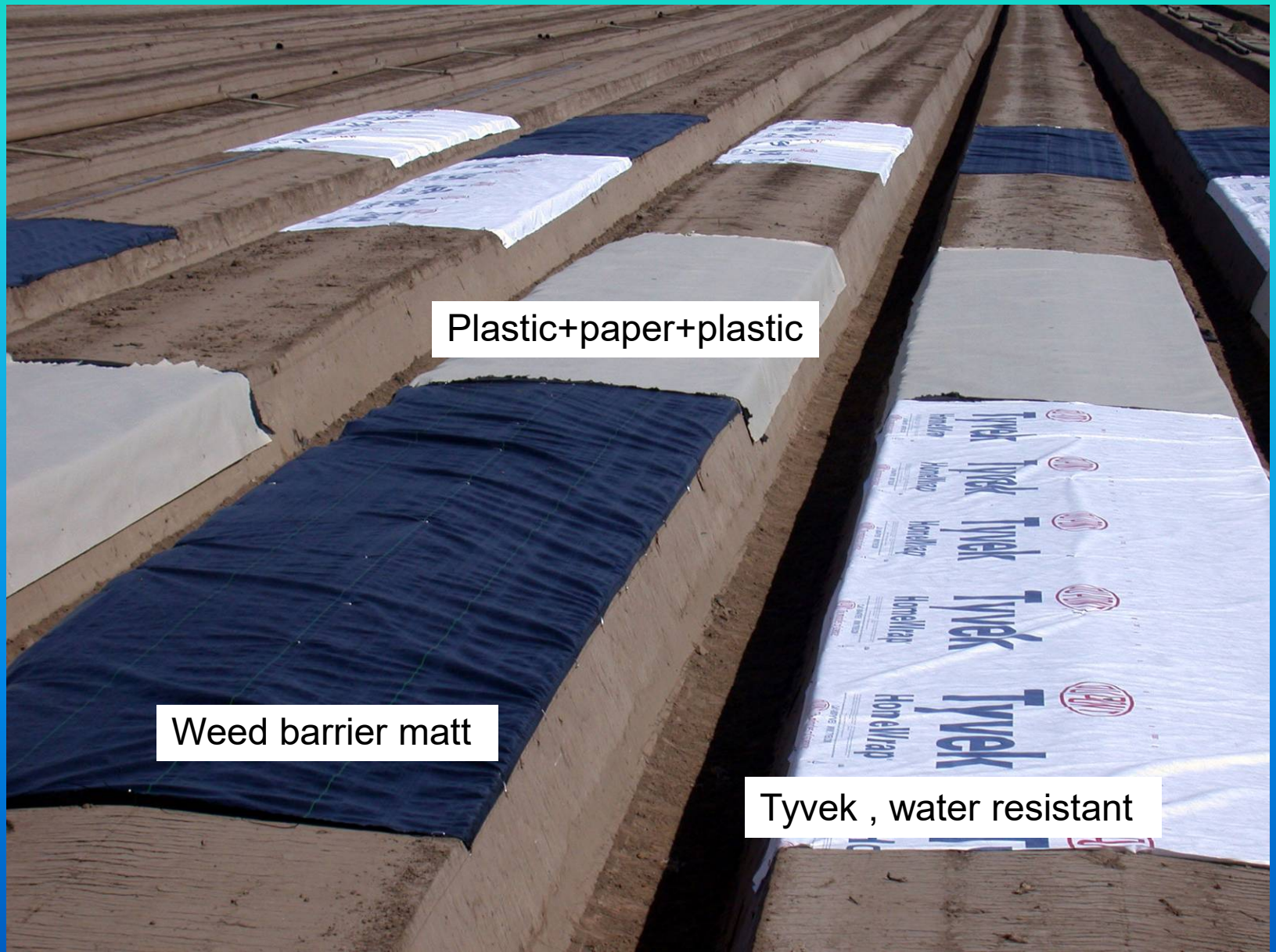
Hand-weeding nutsedge?

spring

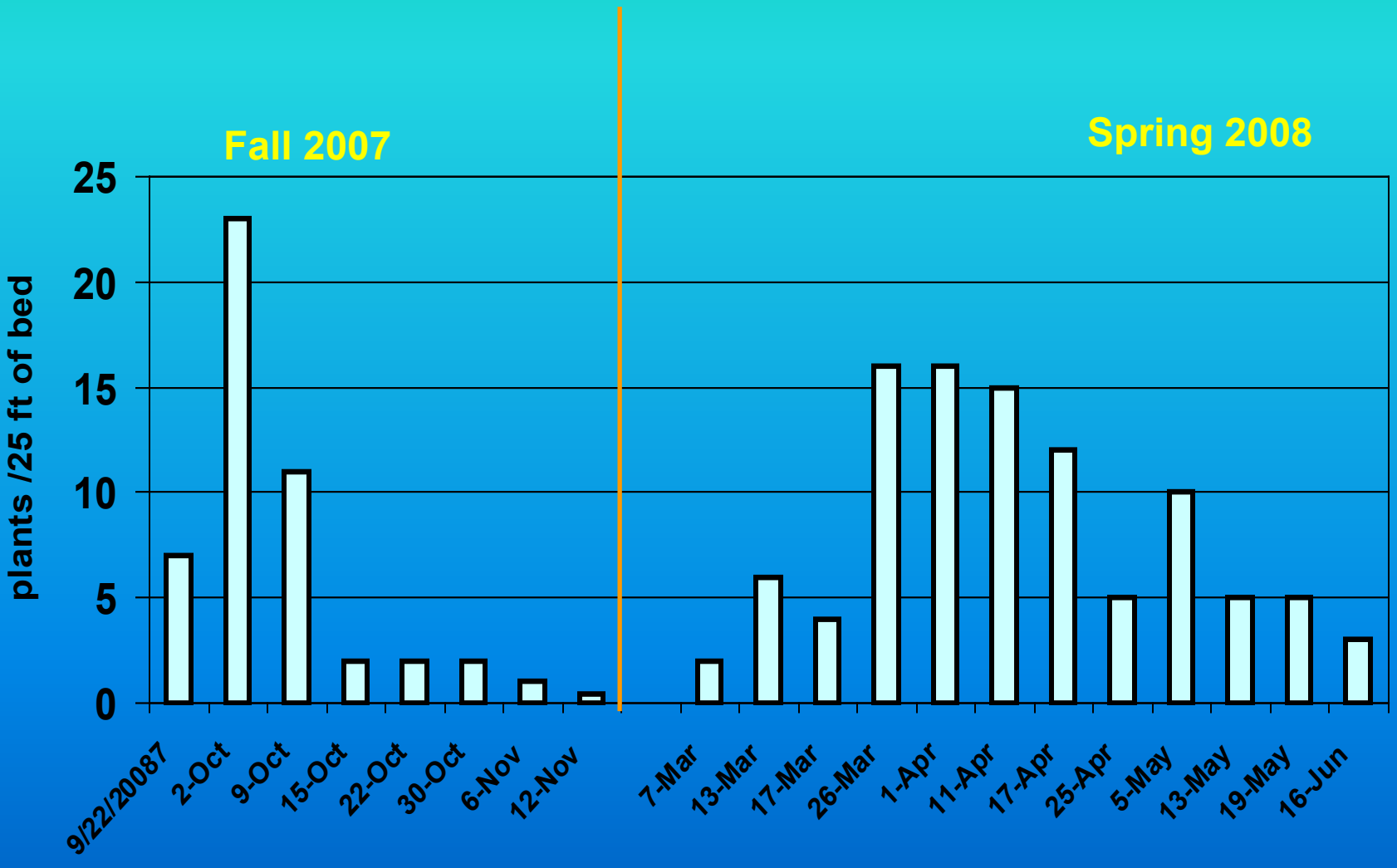
End-season tuber production: 0-12”

1 ft of bed = 400 tubers

2007- 2008: near 100% nutsedge control



Nutsedge germination pattern in untreated control



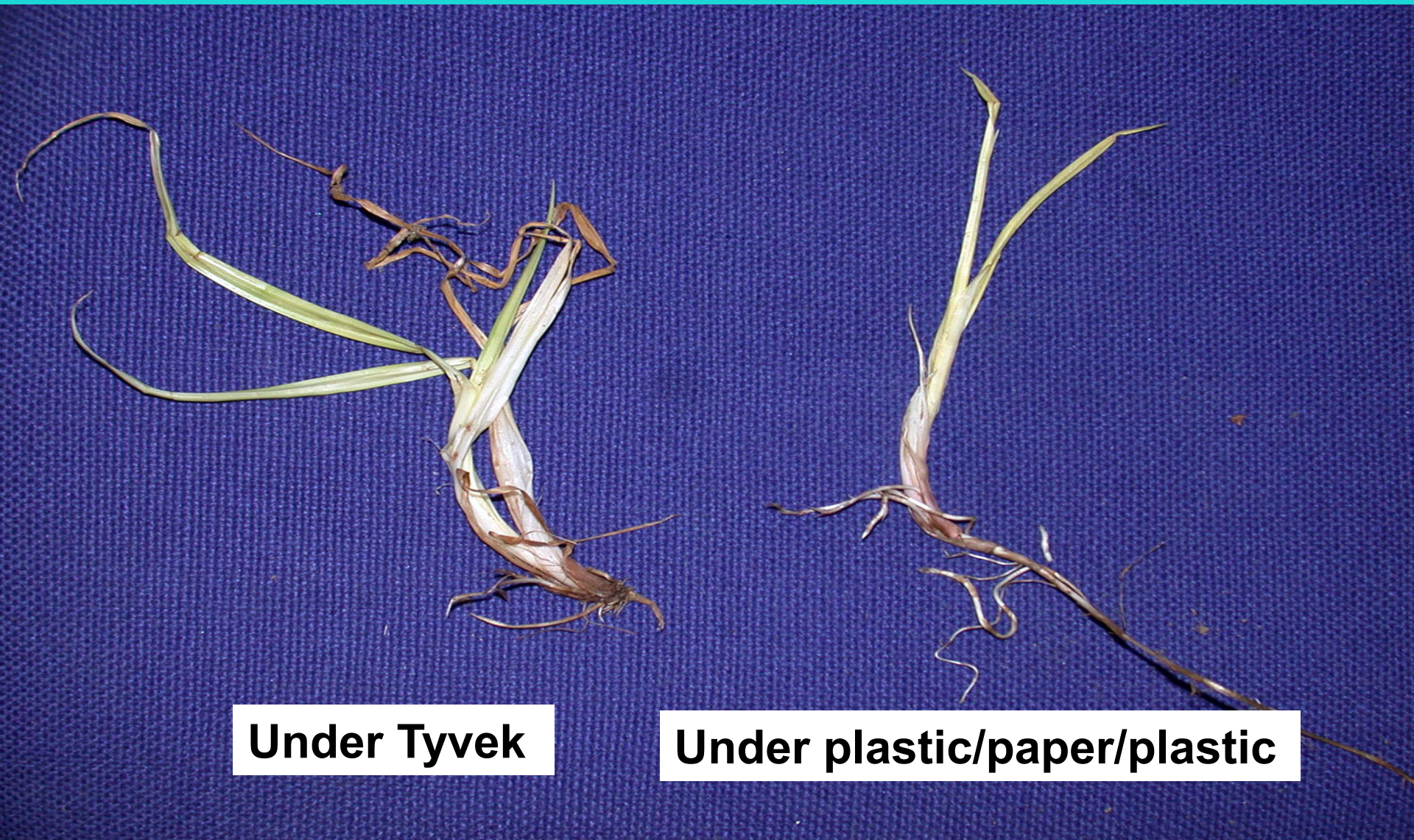
Fall

Untreated

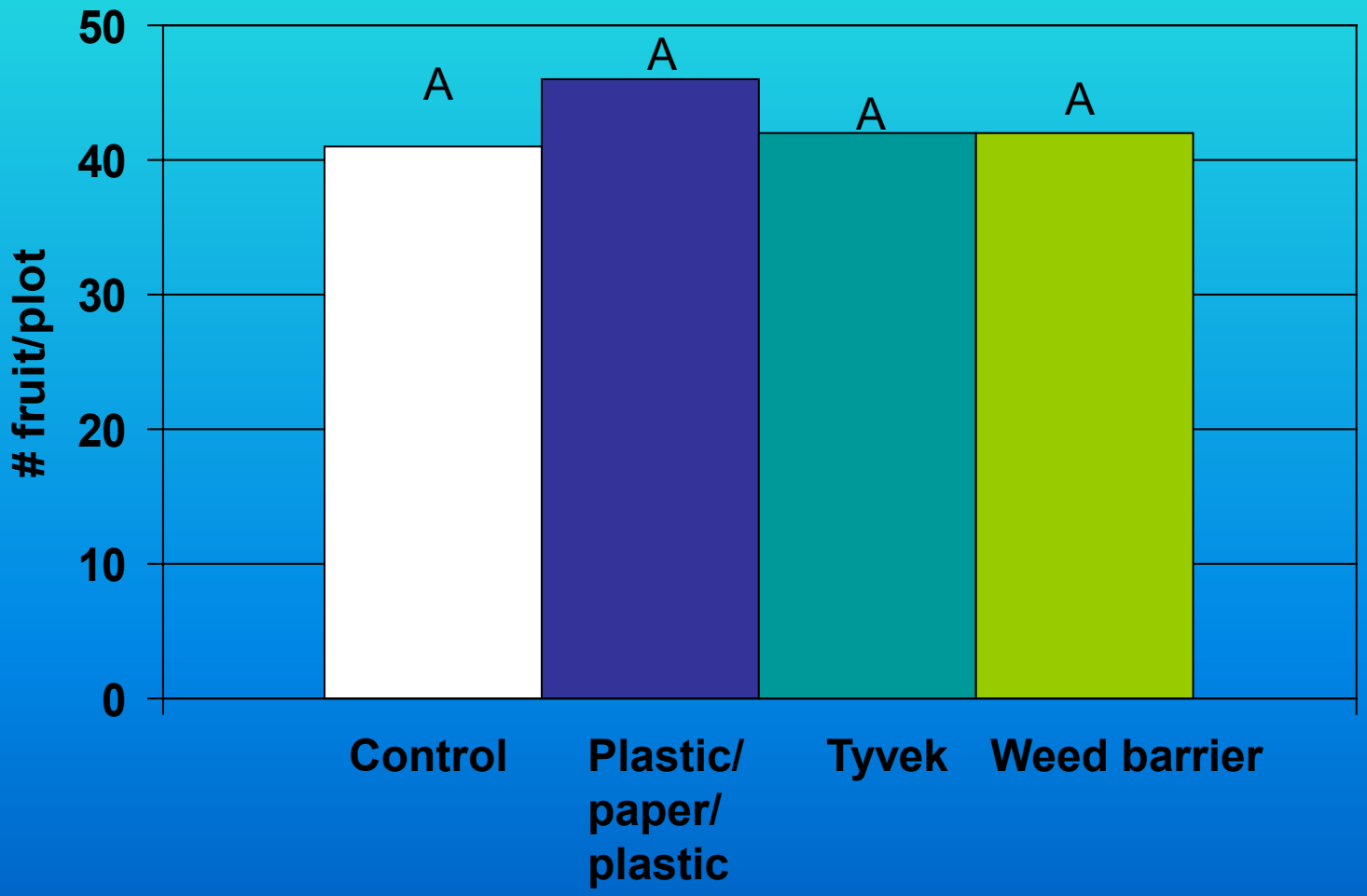
Spring-summer

Nutsedge at the end of season

Nutsedge at the end of season

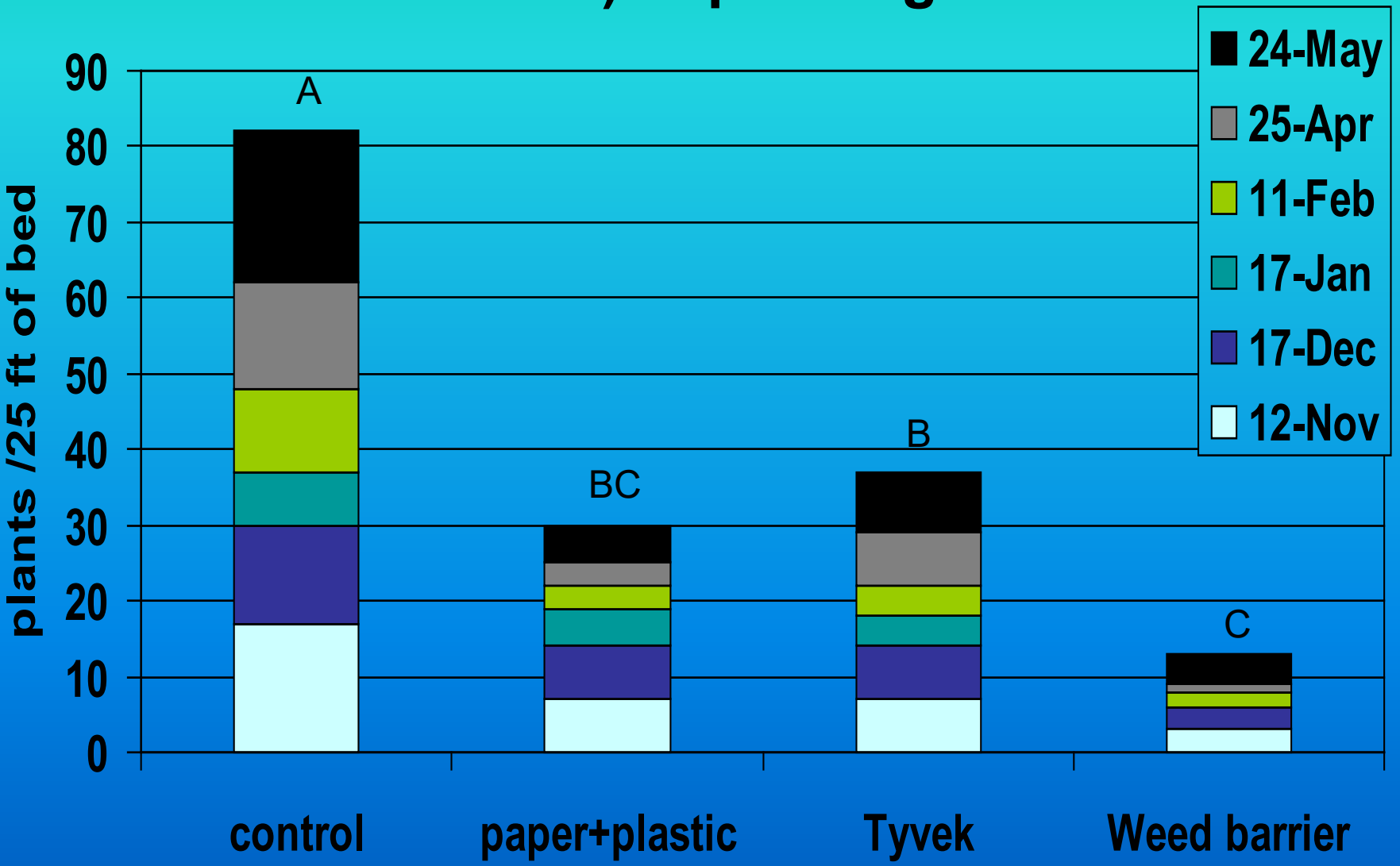


Early strawberry yield (first 5 harvests)



Weed barrier matt may limit crown expansion

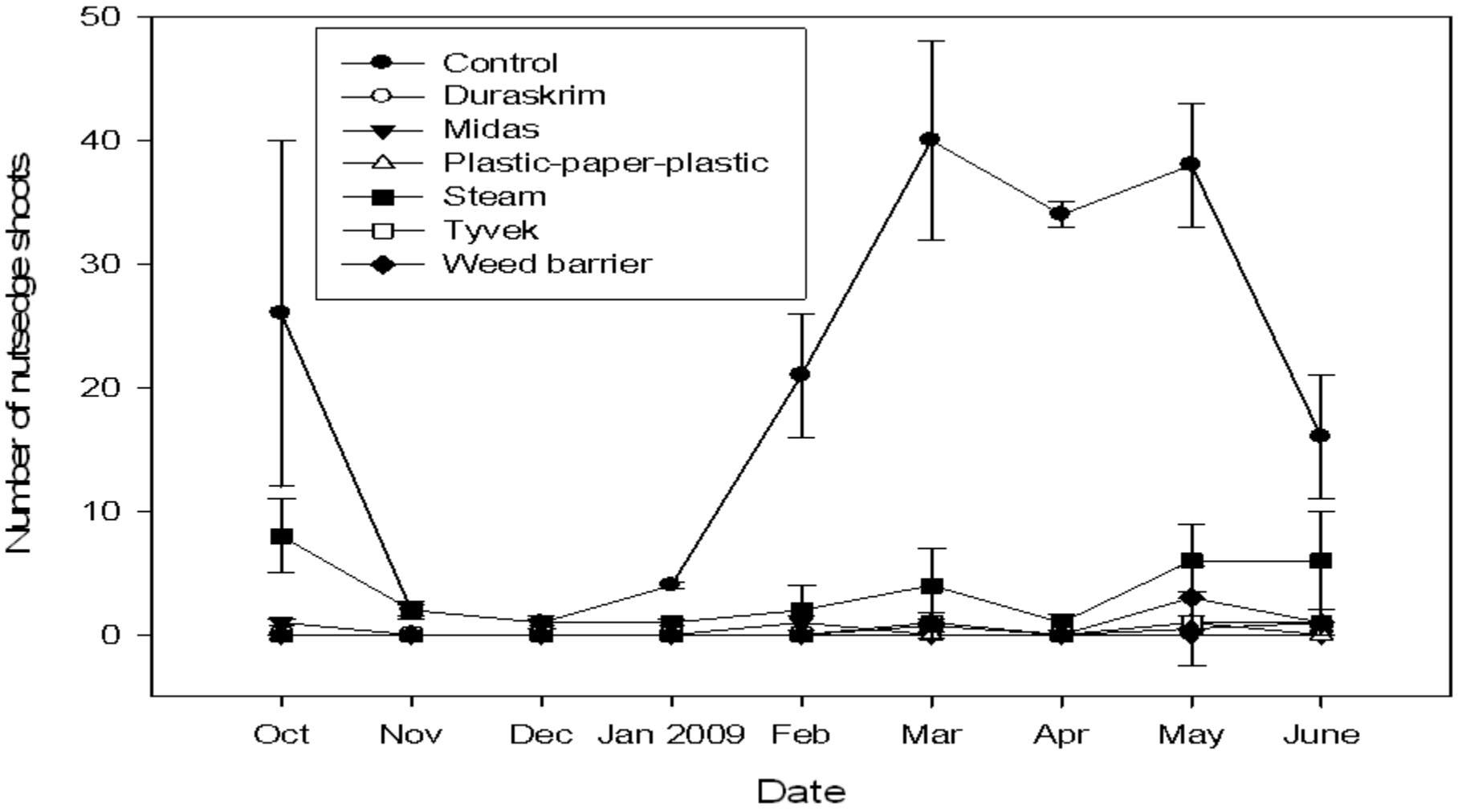
Wind-dispersed weeds (groundsel, sowthistle and horseweed) in planting holes



2008-2009

- **Barriers:** plastic/paper/plastic, Tyvek, Weed barrier and Duraskrim (0.167 mm thick line PE plastic)
- **Midas/Chloropicrin 50/50** at 300 lbs/acre, broadcast shank injected
- **Bed-applied steam** (via four surface hoses with 6 inch spike injectors) to raise soil T to about 158F for 20 minutes

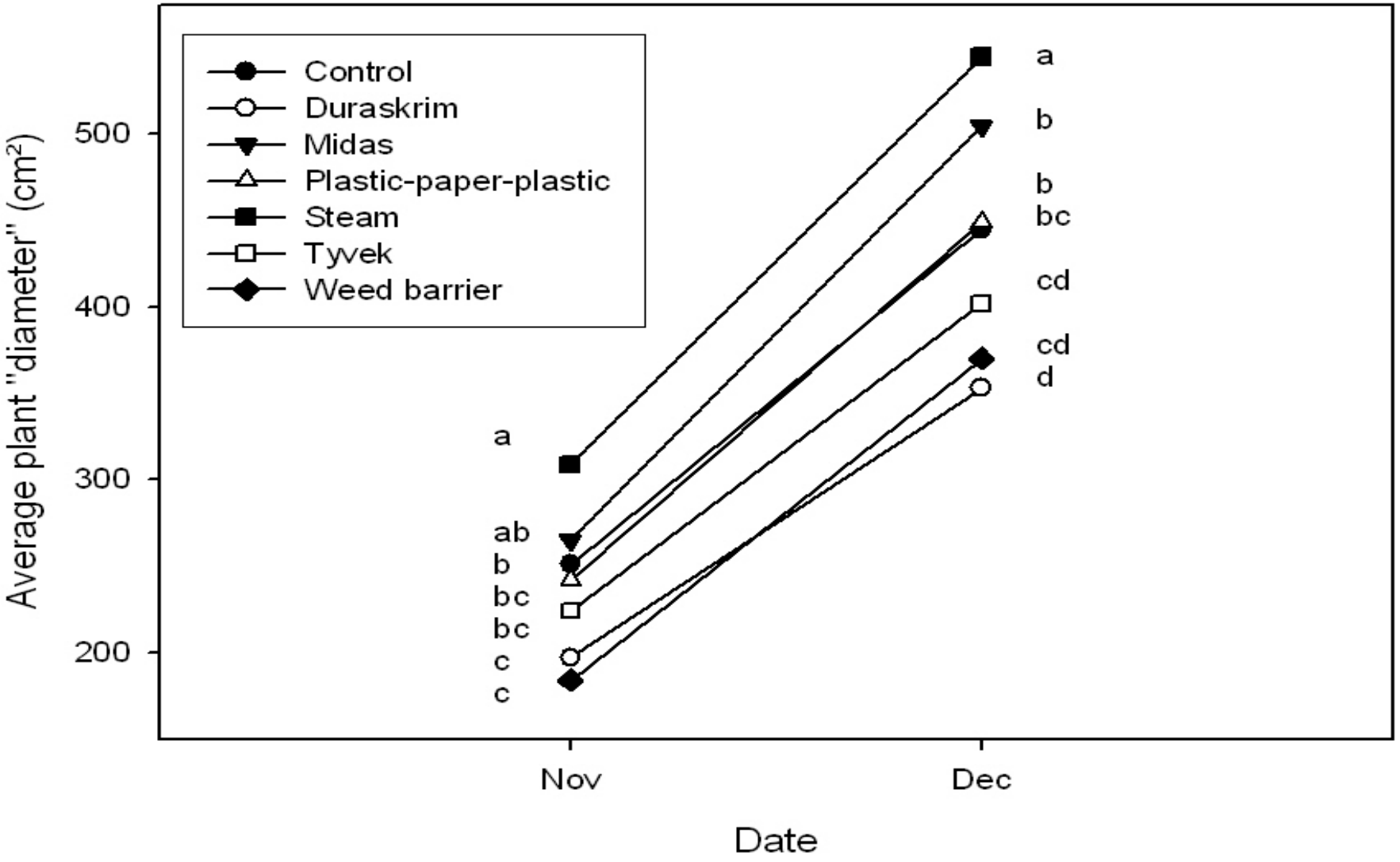
Nutsedge control



Total nutsedge shoots/season

Treatment	Number
Control	192 a
Duraskrim	0 b
Midas	2 b
Plastic-paper-plastic	1 b
Steam	31 b
Tyvek	1 b
Weed barrier	8 b
P-value	<0.0001

Plant size


Control
Duraskrim
Midas
Plastic-paper-plastic
Steam
Tyvek
Weed barrier
Average plant "diameter" (cm²)
500
400
300
200
Nov
Dec
Date
a
ab
b
bc
bc
c
c
a
b
b
bc
cd
cd
d


Feb. 24 2009
Control
Steam


Feb 24 2009
Midas
Control

Duraskrim: adequate planting holes and plant placement are critical

Weeding costs=$6,530/acre (at 5 min/25 ft of bed x 18 times and $10/h)

Nutsedge barriers	Costs, $/acre
Plastic+Paper+Plastic	500 (plastic) + 1,200 (paper) = **1,700**
Weed barrier	**~3,600**
Tyvek home wrap	**4,709**
Duraskrim pond liner	**6,500**

Other water resistant papers?

2-sided waxed paper ,
4 ft wide rolls
~ $850/ treated acre

1-side Poly Coated Kraft Paper Roll, 4 ft wide
~ $1,700/treated acre

Summary:

Barriers: - excellent nutsedge control,
- reduce wind-dispersed weeds;
- economical at high nutsedge densities, esp. w/o fumigation

Steam: - very good nutsedge control,
- disinfects soil
- more efficient/economical methods under investigation

Midas: - excellent nutsedge control
- availability and restrictions on use?

Other chemical methods?

S-metolachlor (Dual Magnum)

- good nutsedge efficacy and safety in vegetable crops
- Added to IR-4 (minor crop) list in 2008 for strawberry:

  need data on nutsedge control in strawberry

Yellow and purple nutsedge at Santa Paula, summer-planted strawberry

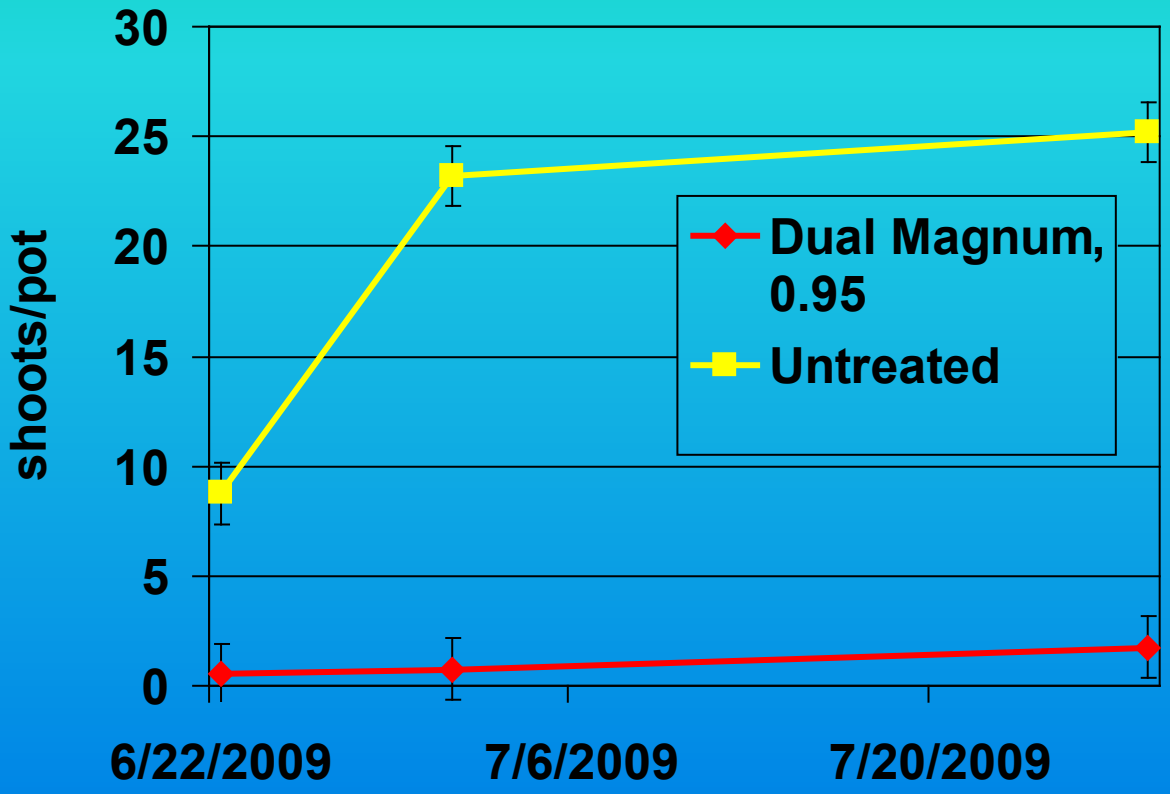
- Nutsedge tubers placed in pots into beds
- DM 0.95 lb a. i. /acre on June 9
- Applied to beds and covered by mulch
- Strawberry transplanted 30 d later

Purple nutsedge

Untreated control

DM 0.95lb a. i./acre

Purple nutsedge counts



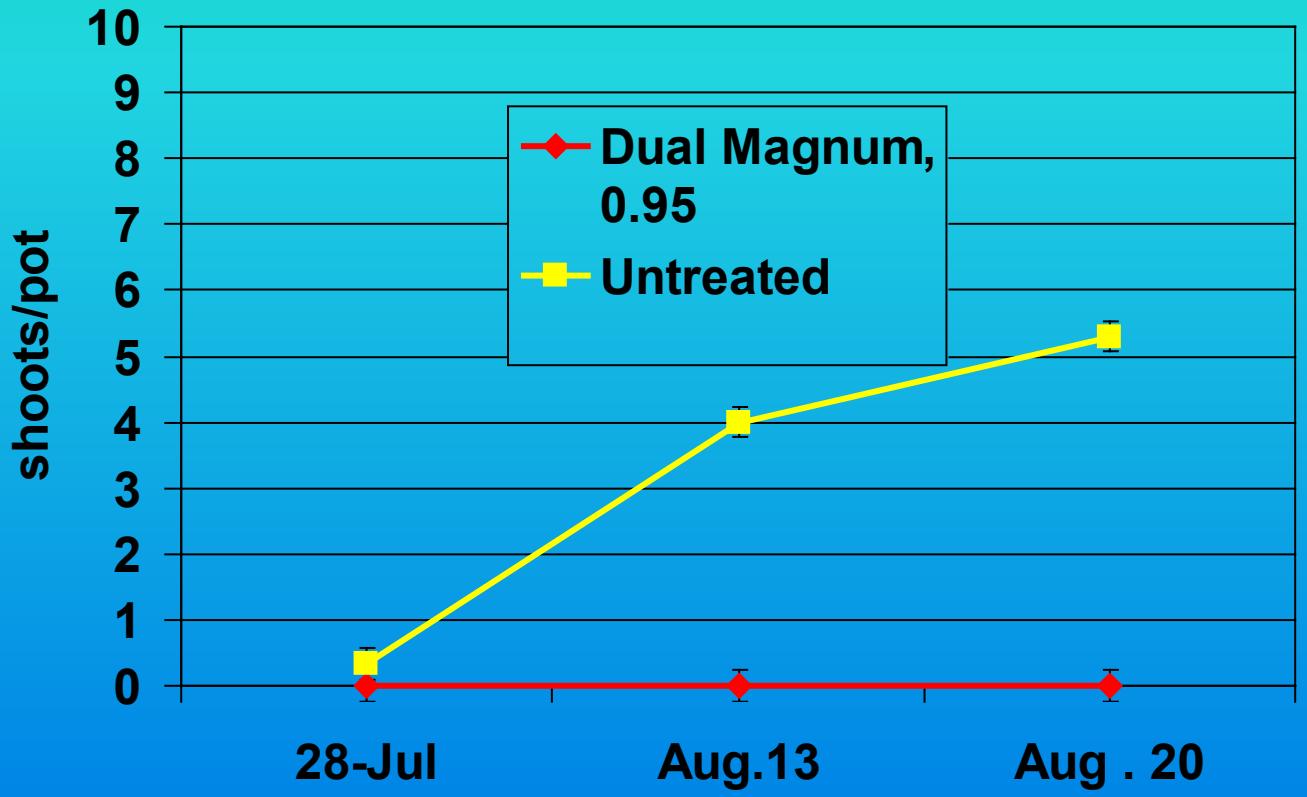
No significant injury to strawberry

Yellow nutsedge

Untreated control

DM 0.95lb a. i./acre

Yellow nutsedge counts



injury – under evaluation

Acknowledgements

- RAC
- Tri-Cal
- Novovita
- Arysta Life Science
- Syngenta
- Erin Rosskopf, USDA
- Emmanuel Gonzales (UCCE-Ventura)
- Dole
- UC Hansen Trust
- CSC (financial support)