



Anthem Flex for Weed Control in Peanut

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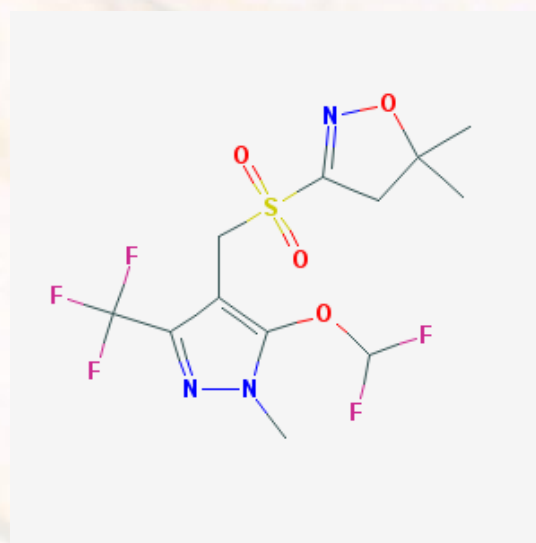
**UNIVERSITY OF
GEORGIA**

College of Agricultural &
Environmental Sciences



Pyroxasulfone

- Formerly KIH-485
- Isoxazoline family
 - fenoxasulfone
- WSSA MOA #15
 - *VLCFA inhibitor*
 - *Same as Dual or Warrant*
- Discovered by Kumiai Chemical
- Marketed by BASF (Zidua), FMC (Anthem/Anthem Flex), and Valent (Fierce)



Chemical Properties

Herbicide	Water Solubility (ppm)	Soil Binding (K_{oc})	Soil $\frac{1}{2}$ Life (days)
acetochlor	223	165	12
pyroxasulfone	3.49	114	22
S-metolachlor	488	200	20



Pyroxasulfone/Peanut Research in Georgia



- 2007-2019
- 59 pyroxasulfone field trials
 - *11 with Anthem Flex*
- Crop Tolerance
 - Weed-free
- Weed control
- Tank-mixes

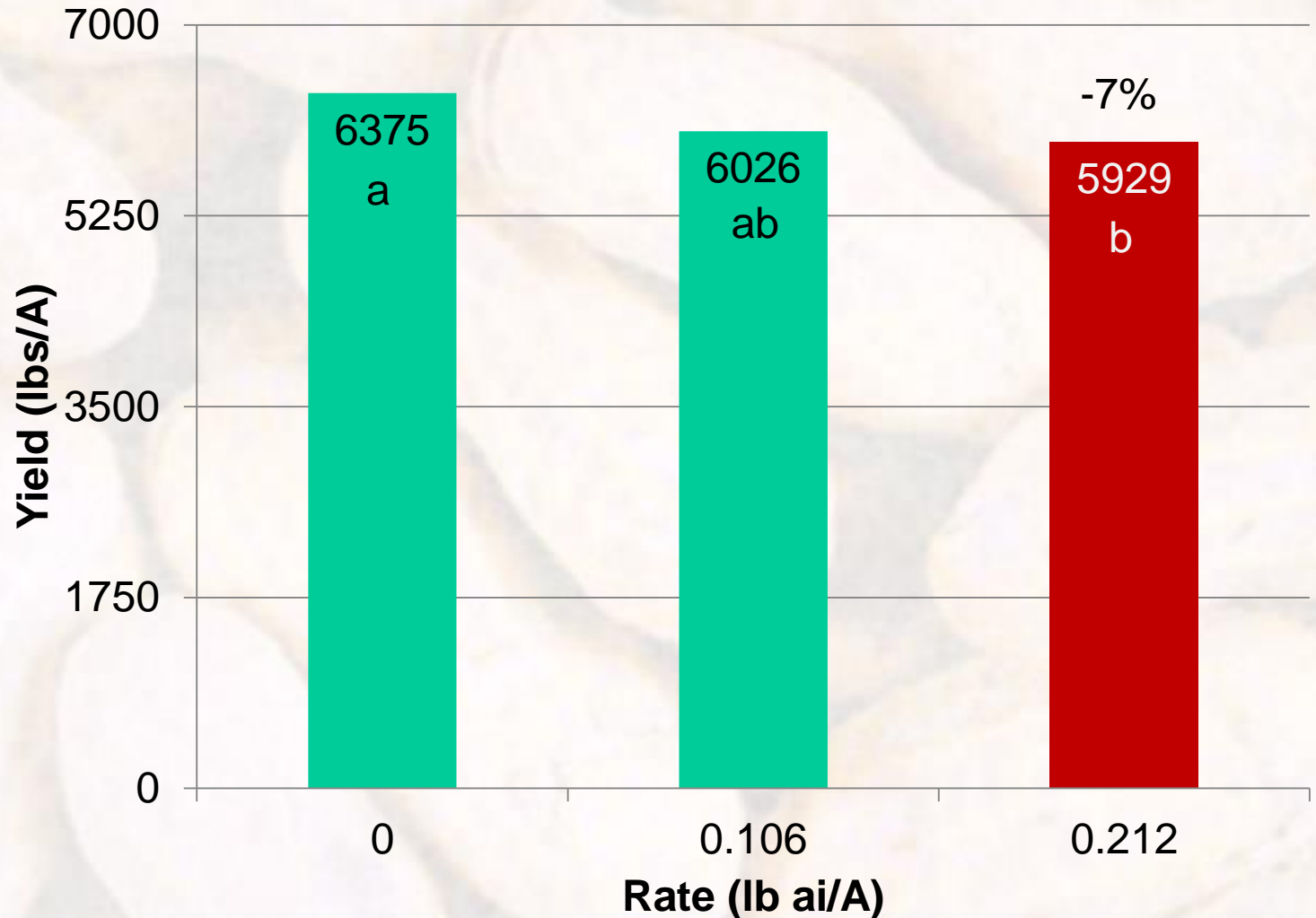


Pyroxasulfone in Peanut *General Summary*

- ***Should not be applied PRE!!!!!!***
- Excellent POST tolerance
- Tank-mix with Gramoxone, Cadre, Cobra, or Ultra Blazer
 - + *NIS*
- Pyroxasulfone tank-mixtures with fungicides have been fine (Tilt/Bravo, Abound, Fontelis, Provost, Priaxor, Artisan, Absolute)



Irrigated Peanut Yield Response to PRE Applied Proxasulfone

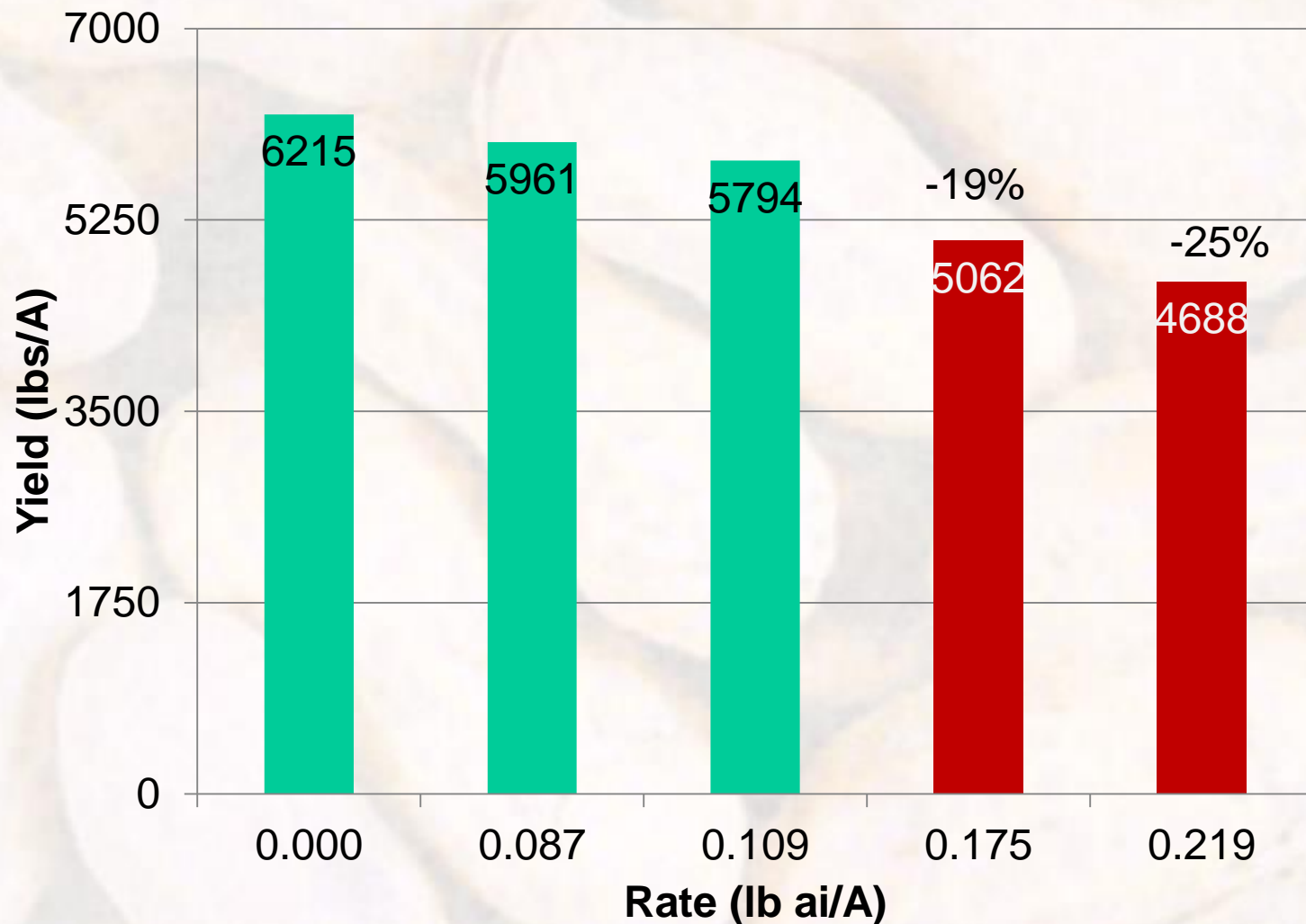


Source: Eure et al. 2015. Peanut Science 42:39-43

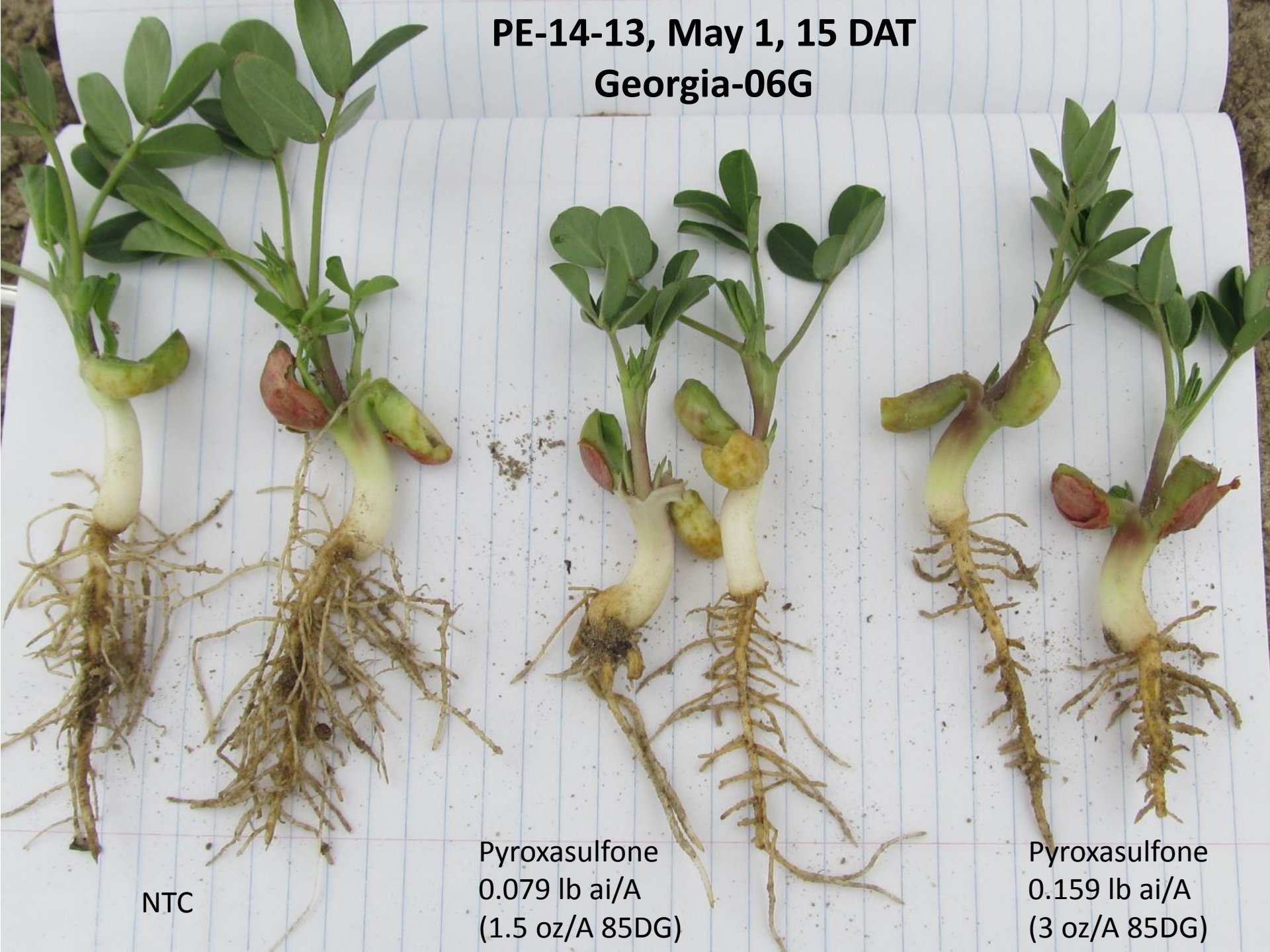
*Pooled over 3 cultivars (GA-06G, GA Greener, Tifguard) and 2 site-years (2012, 2013)



Irrigated Peanut Yield Response to PRE Applied Pyroxasulfone



PE-14-13, May 1, 15 DAT
Georgia-06G



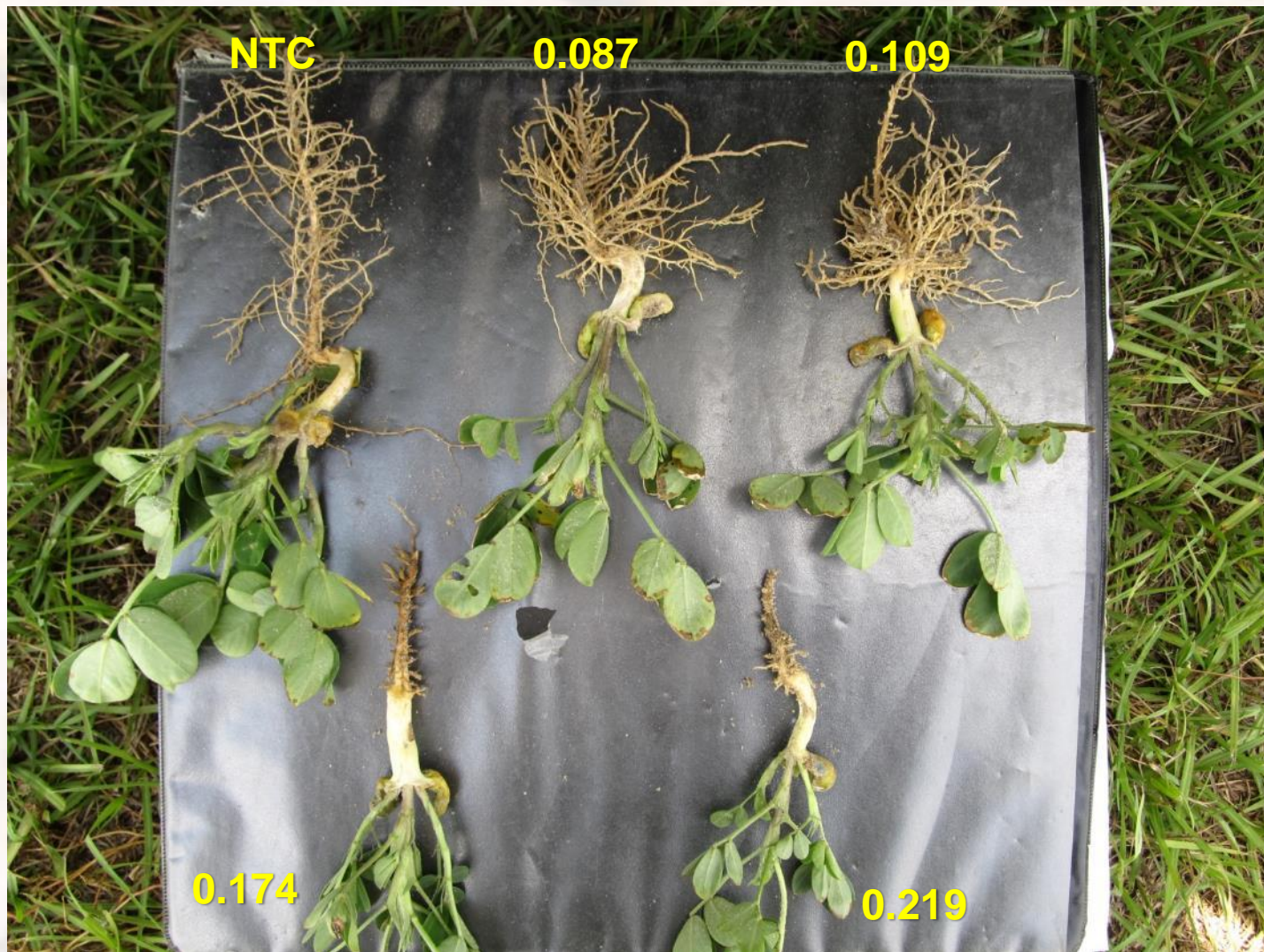
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Pyroxasulfone
0.079 lb ai/A
(1.5 oz/A 85DG)

Pyroxasulfone
0.159 lb ai/A
(3 oz/A 85DG)



Peanut Injury with Pyroxasulfone – 22 DAT (Ib ai/A)



Peanut Leaf Cupping Caused by Pyroxasulfone Applied PRE





Anthem Flex in Peanut

- FMC
- Anthem Flex 4SE (F9312-3)
 - carfentrazone (0.267 lb/gal)
 - pyroxasulfone (3.733 lbs/gal)
- Testing since 2012
- **POST only!**
- Increase in crop injury mostly due to carfentrazone
- 2.7-3.0 oz/A + NIS
 - 0.0056 - 0.0063 lb ai/A – carfentrazone
 - Aim 2EC @ 0.36-0.40 oz/A
 - 0.0787- 0.0875 lbs ai/A – pyroxasulfone
 - Zidua 85WG @ 1.48-1.65 oz/A or Zidua 4.17SC @ 2.42-2.69 oz/A



Weed Control in Peanut with Anthem Flex - 2017



PROWL H₂O 3.8 SC 32.0 oz/A (PRE)
VALOR SX 51 WG 3.0 oz/A (PRE)
STRONGARM 84 WG 0.225 oz/A (PRE)

CADRE 2 AS 4.0 oz/A (42 DAP)
ANTHEM FLEX 4SE 3.0 oz/A (42 DAP)
NIS 0.25 % v/v (42 DAP)

NTC

PE-04-17
July 20
79 DAP



Weed Control in Peanut with Anthem Flex - 2018



NTC



Prowl H₂O @ 32 oz/A – PRE

Gramoxone @ 12 oz/A - 16 DAP
Storm @ 16 oz/A - 16 DAP
Dual Magnum @ 16 oz/A - 16 DAP

Cadre @ 4 oz/A - 38 DAP
Dual Magnum @ 16 oz/A - 38 DAP



Prowl H₂O @ 32 oz/A – PRE

Gramoxone @ 12 oz/A - 16 DAP
Storm @ 16 oz/A - 16 DAP
Anthem Flex @ 3 oz/A - 16 DAP
Induce @ 0.25% v/v

Cadre @ 4 oz/A - 38 DAP
Anthem Flex @ 3 oz/A - 38 DAP
Induce @ 0.25% v/v

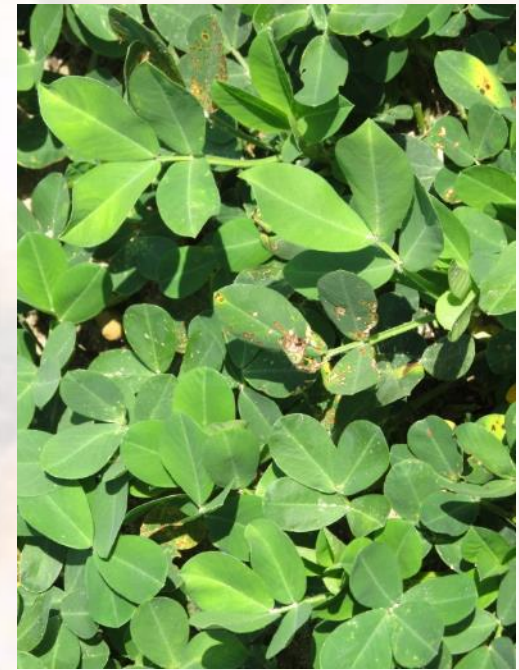
PE-15-18
July 17
71 DAP

Gramoxone + Storm + Anthem Flex



PE-02-15
May 19
1 DAT

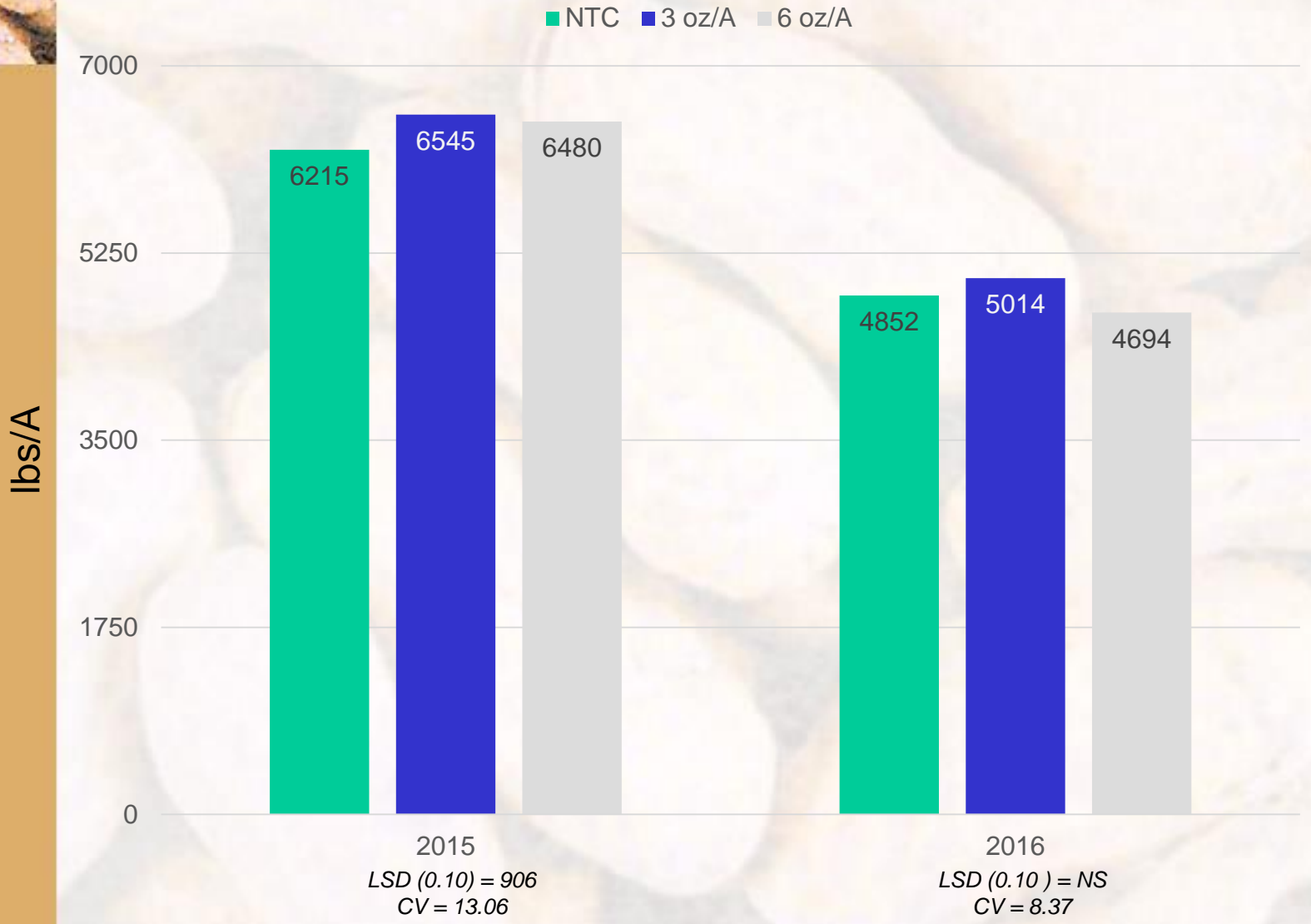
Anthem Flex Injury from POST Applications



PE-12B-14
June 19
9 DAT



'GA-06G' Yield Response to Anthem Flex 4SE + NIS Applied Postemergence (15-31 DAP) in GA.



lbs/A

PE-01-15
PE-10-16
weed-free
irrigated



Other Peanut Yield Data

- In weedy tests (PE-02-15, PE-04-17), no differences in peanut yield were observed when Anthem Flex was substituted for Dual Magnum in standard treatments such as.....
 - *Prowl + Valor + Strongarm (PRE) fb Cadre + Dual Magnum (35-42 DAP)*
 - *Prowl (PRE) FB Gramoxone + Storm + Dual Magnum (15-21 DAP) fb Cadre + Dual Magnum (35-42 DAP)*
 - *Prowl + Valor + Strongarm (PRE) fb Cobra + + 2,4-DB + Dual Magnum (35-42 DAP)*



Anthem Flex + Fungicides

- Only 1 field trial (PE-03-15)
- Tank-mixed with Tilt/Bravo, Abound, Fontelis, Provost, Priaxor, Artisan, Elast
- Peanut leaf-burn was increased by 8-11% with Tilt/Bravo, Fontelis, Artisan, and Elast
- No negative yield effects ($P = 0.1373$)





Some things I have heard said about pyroxasulfone?

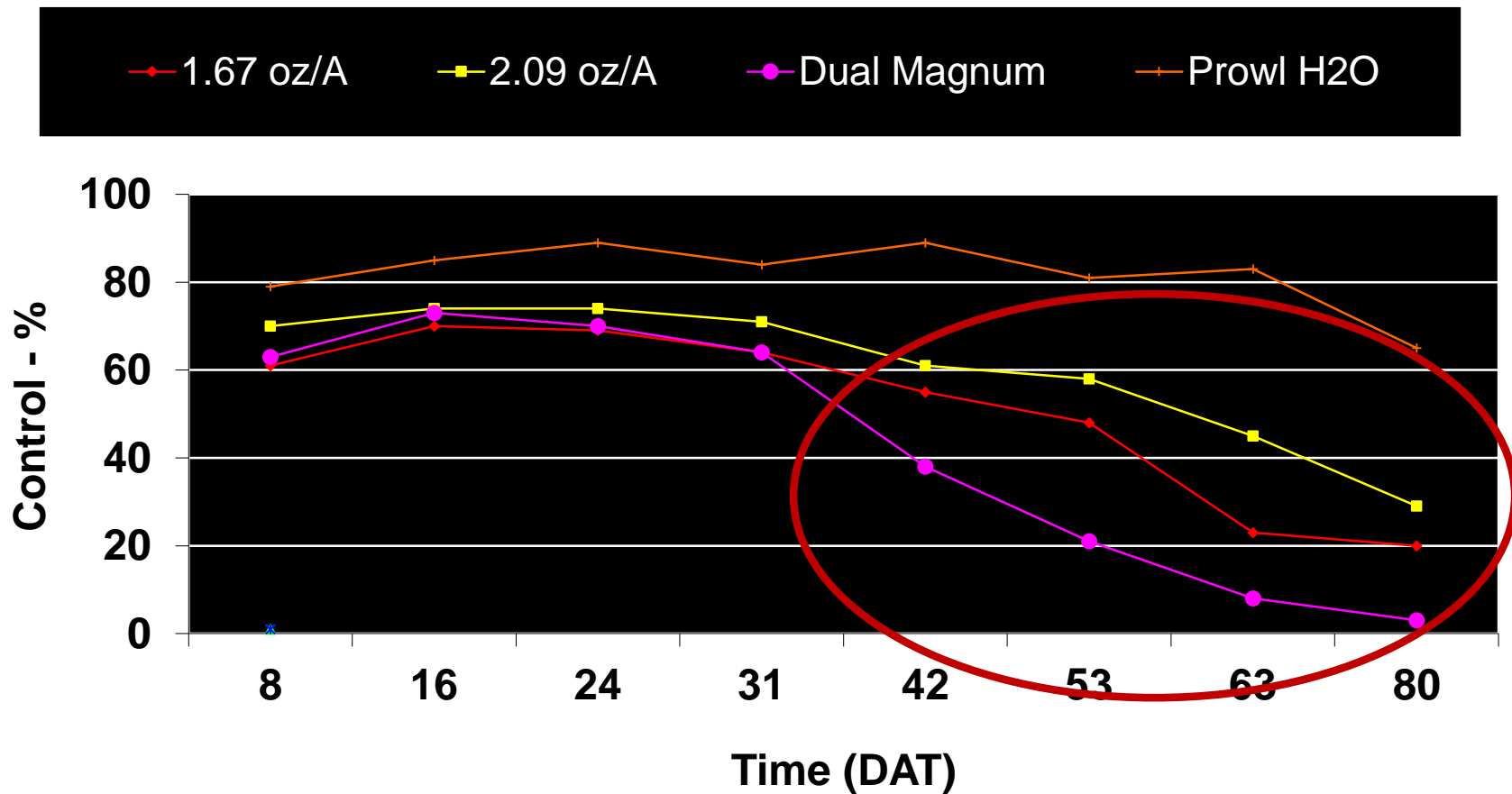
- Its way better than Dual (S-metolachlor) or Warrant (acetochlor) on pigweed, grasses, and annual mg??
- **IS IT ALWAYS BETTER???????**
- What about other weeds?
 - *Florida beggarweed*
 - *wild radish*

Annual Morningglory Control

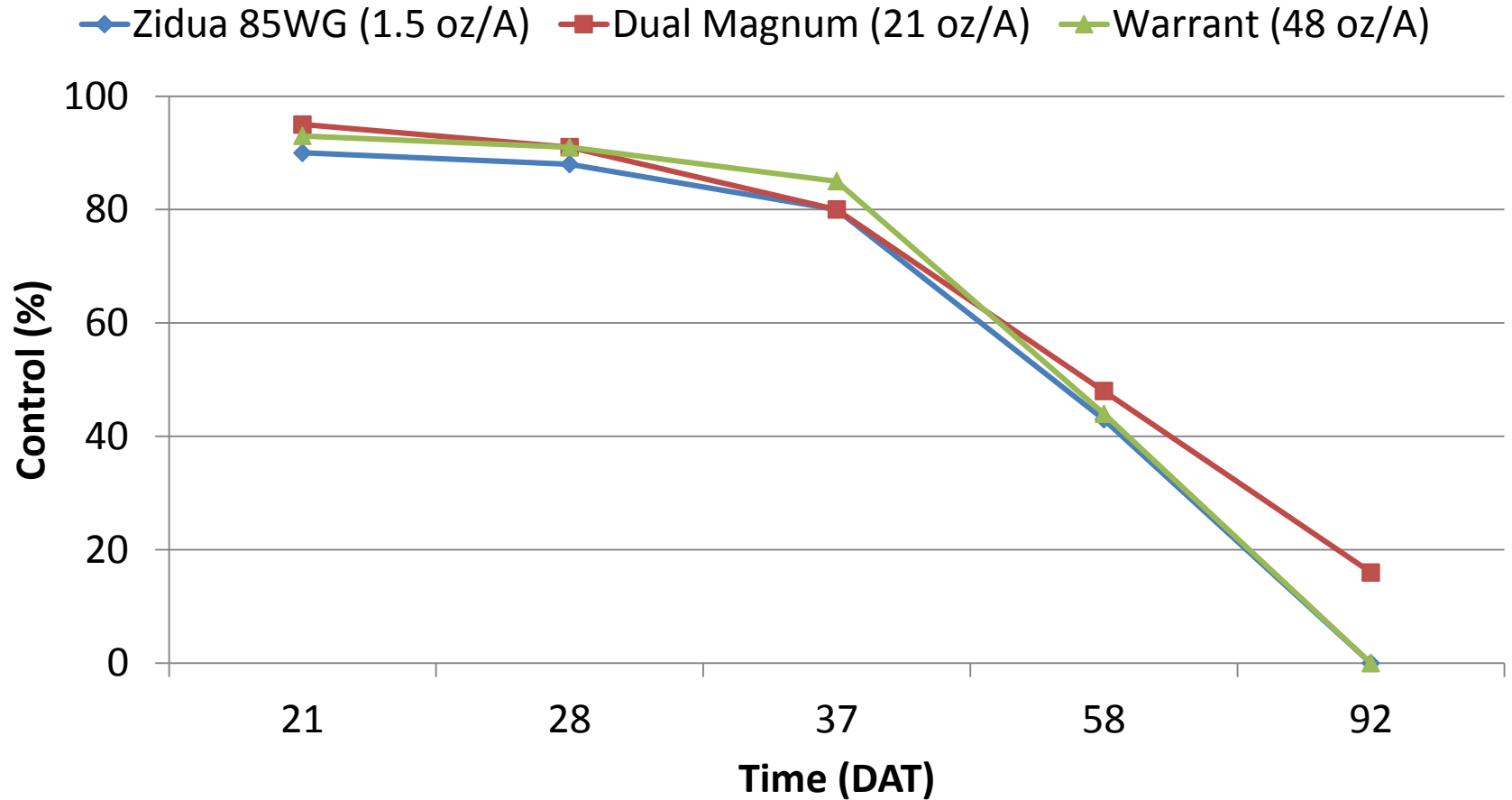
Herbicide	TN	AR (PITTED)	LA	NC	MS	DE, MD, NJ, VA	KY	KS	OH, IL, IN
Dual Magnum	2	0	2	N (<25%)	NL	N (<55%)	0	-	- (<60%)
Warrant	NL	0	NL	N	NL	N	0	-	-
Zidua	2	6	7	N	7	N	0	F	-

Source: 2019 University Weed Control Guides from each state.

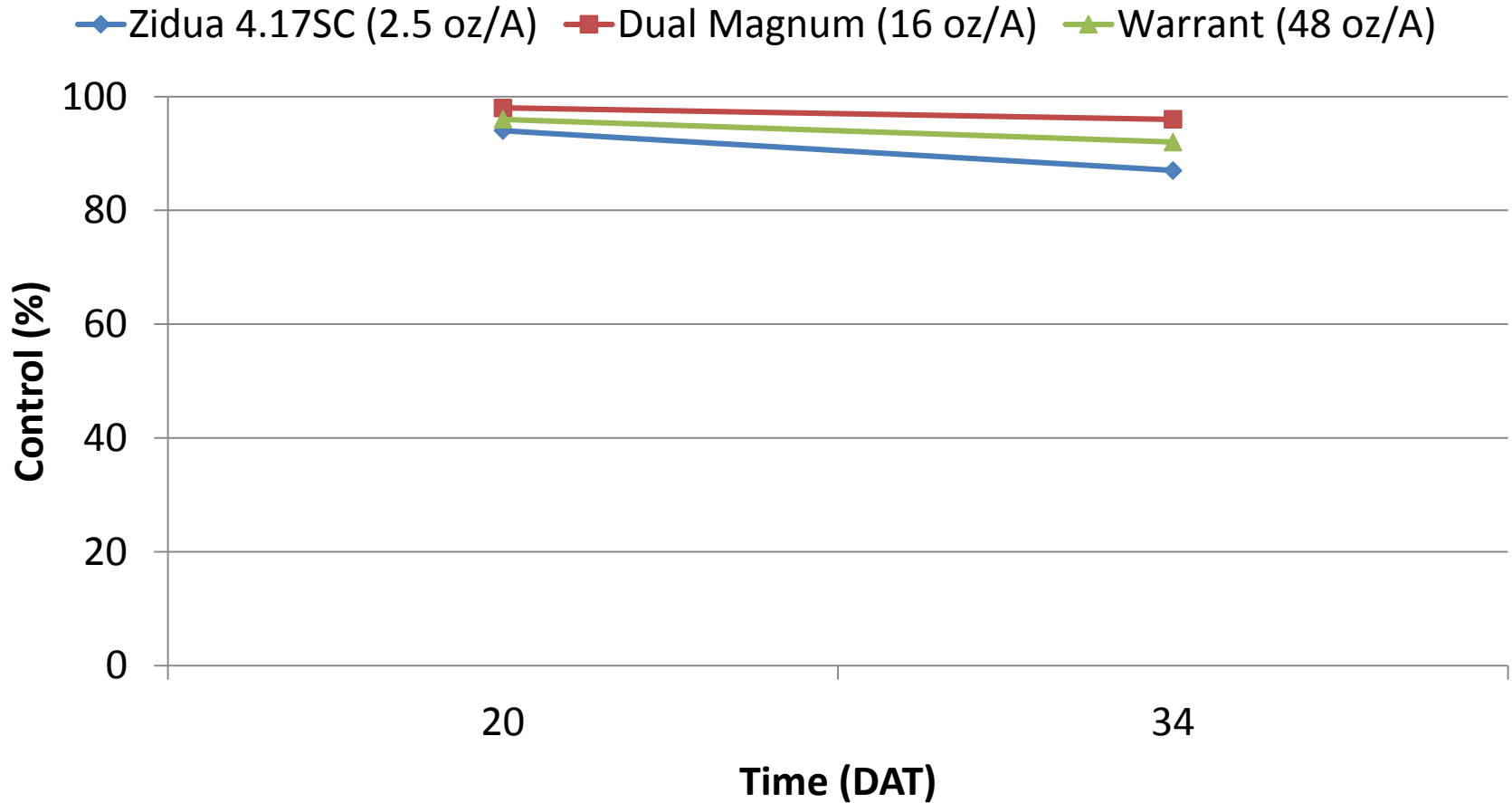
Texas Panicum Control with KIH-485 85WG



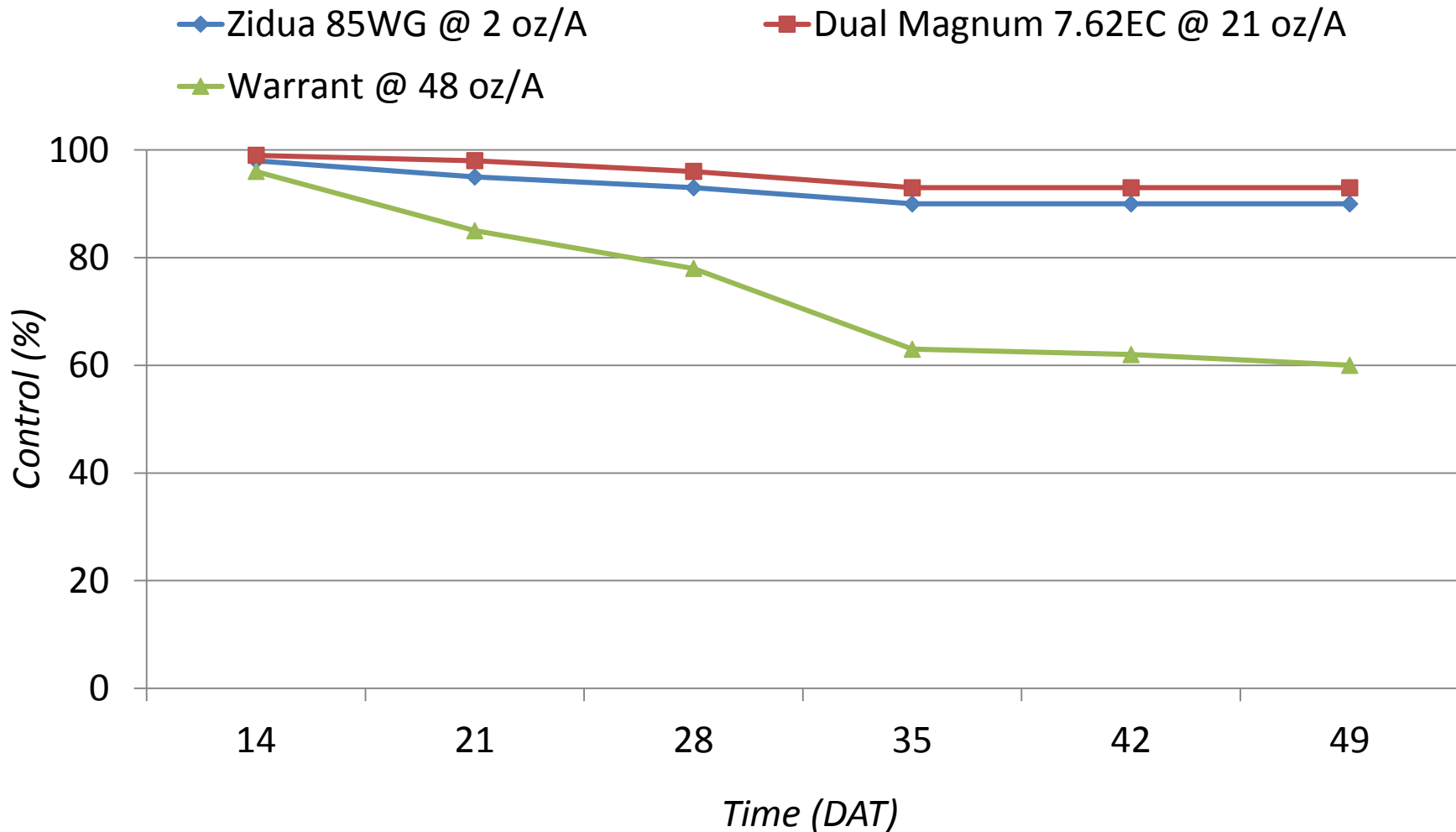
Annual Grass** Control with PRE Herbicides - 2016



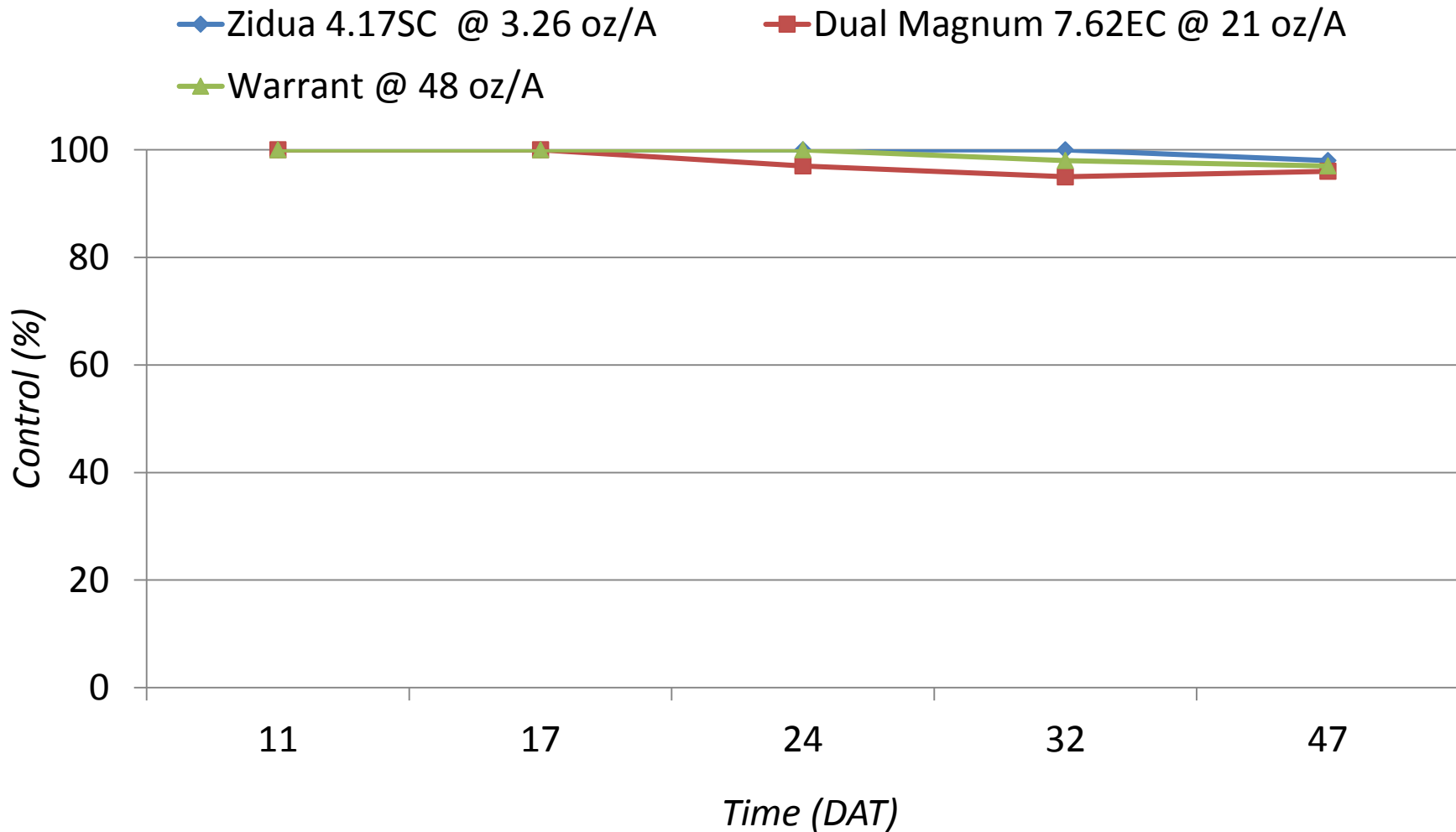
Annual Grass** Control with PRE Herbicides - 2019



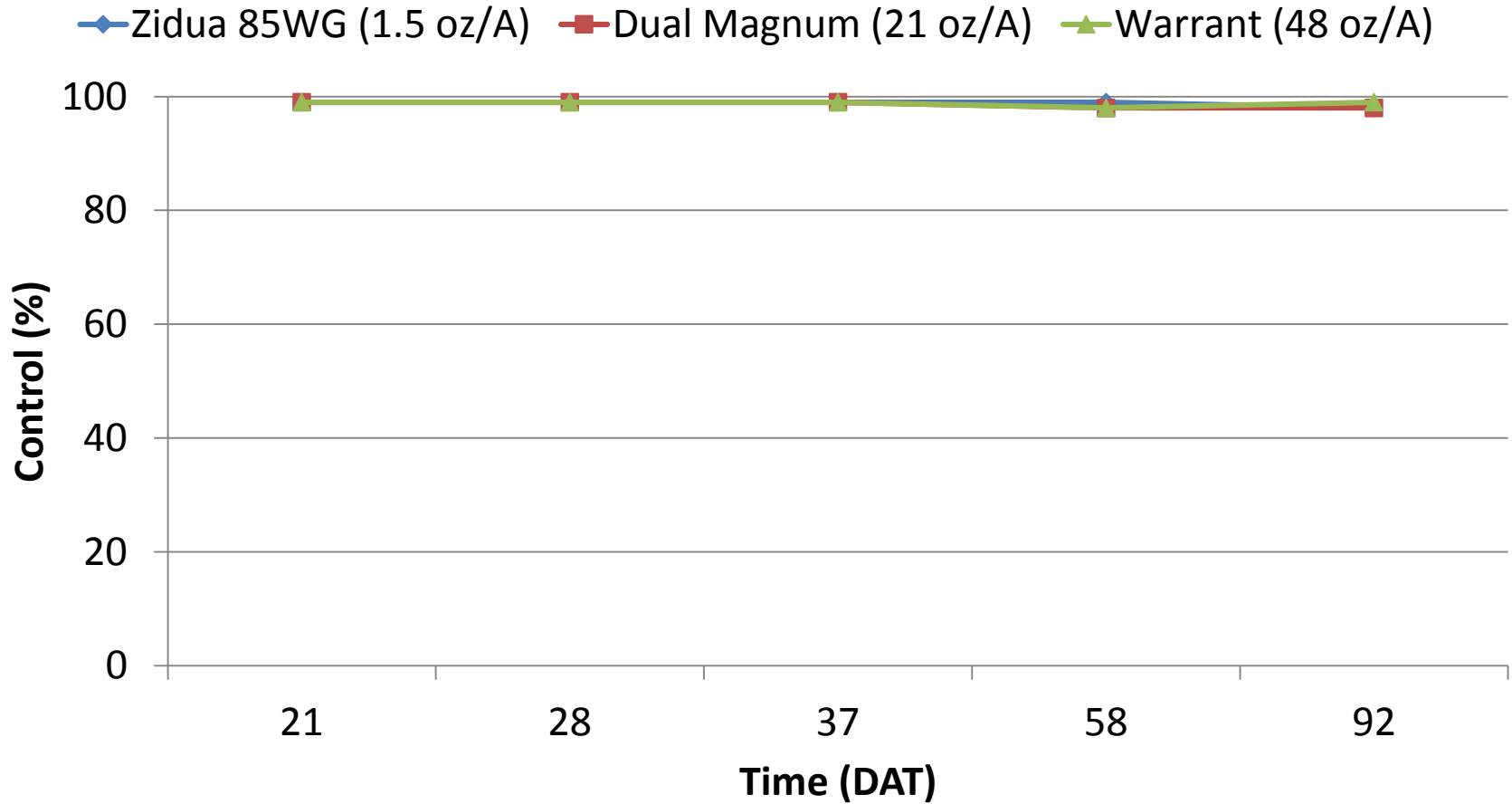
Palmer Amaranth Control with Zidua, Dual Magnum, and Warrant Applied PRE to Bare-Ground - 2011



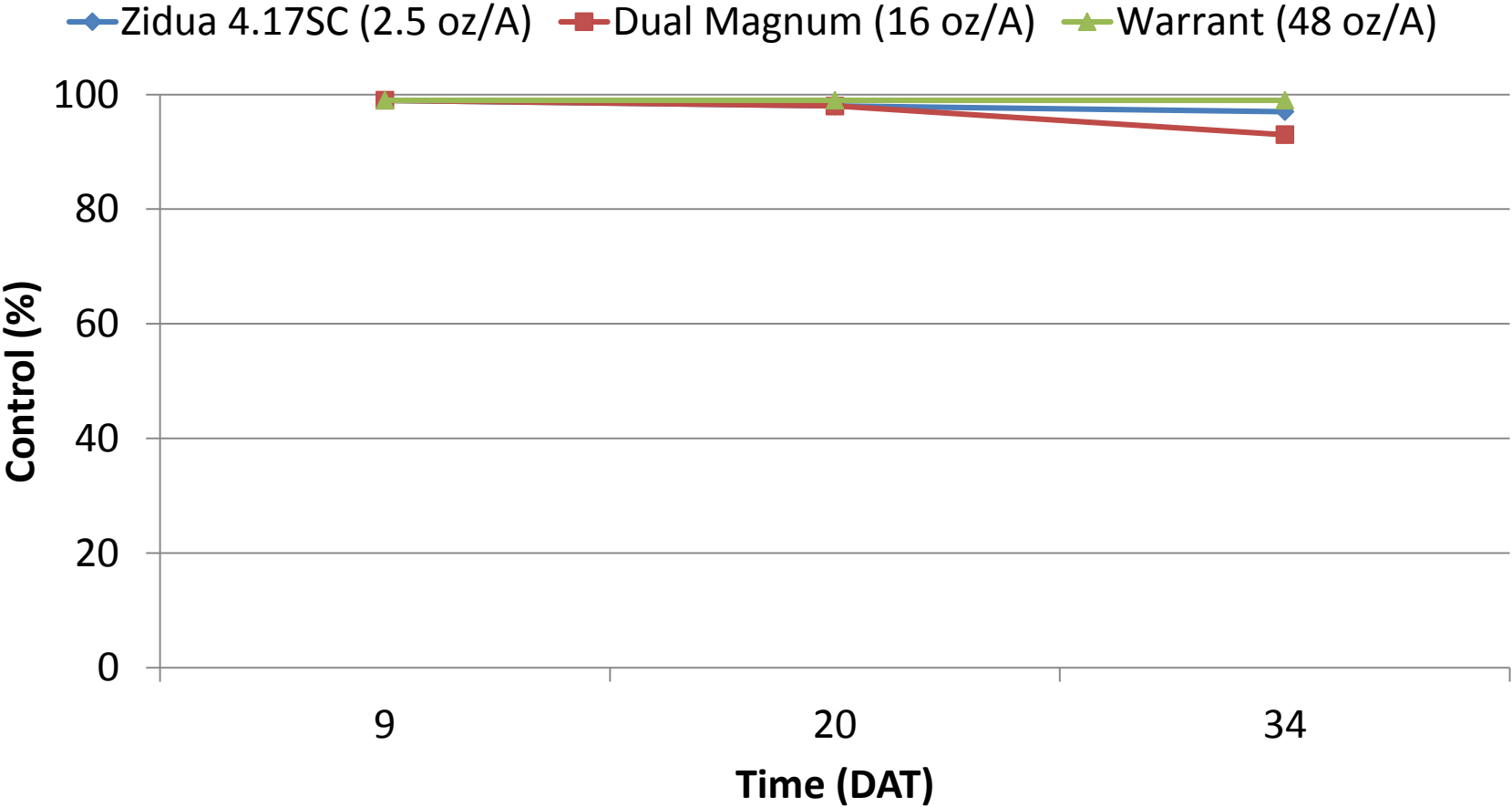
Palmer Amaranth Control with Zidua, Dual Magnum, and Warrant Applied PRE to Bare-Ground - 2016



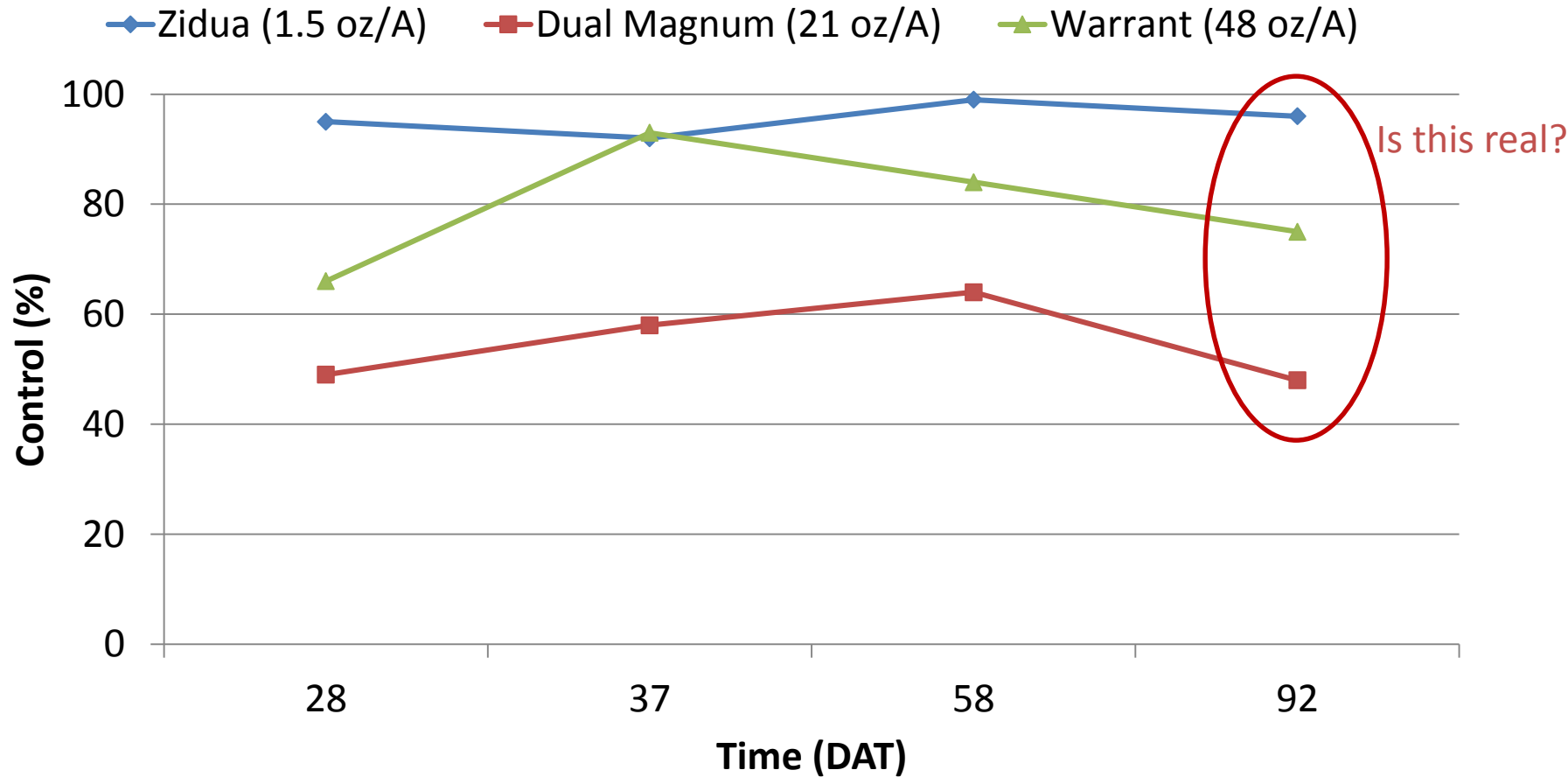
Palmer Amaranth Control with PRE Herbicides - 2016



Palmer Amaranth Control with PRE Herbicides - 2019



Florida Beggarweed Control with PRE Herbicides - 2016



Residual Weed Control in Soybeans - 2016



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Zidua 85WG
1.5 oz/A
(0.080 lb ai/A)

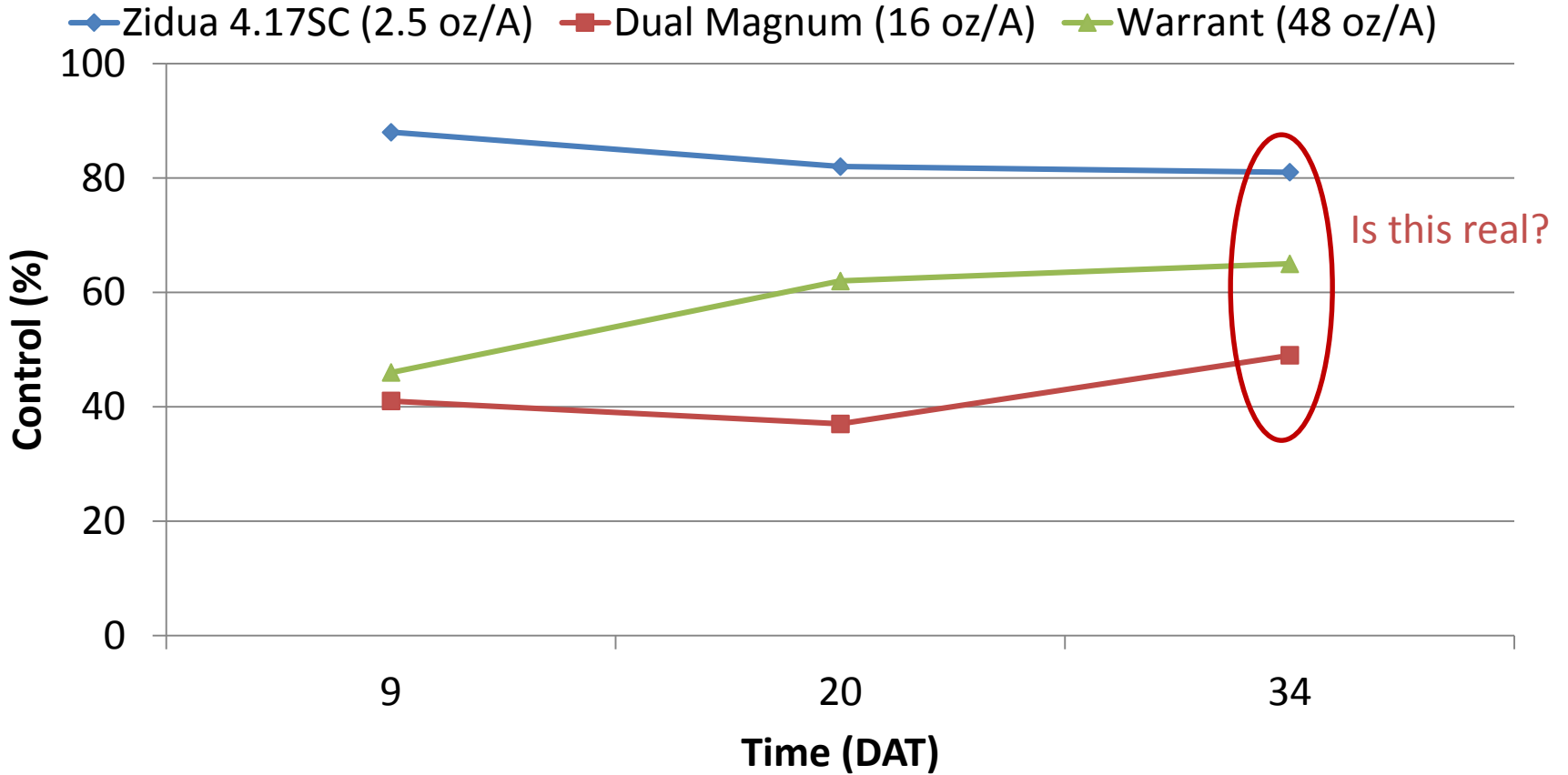


Dual Magnum 7.62EC
21 oz/A



Warrant 3ME
48 oz/A

Wild Radish Control with PRE Herbicides - 2019



Weed Response to PRE Herbicides - 2019



NTC



Zidua 4.17SC
2.5 oz/A
(0.081 lb ai/A)



Dual Magnum 7.62EC
16 oz/A



Warrant 3ME
48 oz/A



Final Thoughts?

- Anthem Flex use rate in peanut?
 - *2.7-3.0 oz/A*
 - *How much will Anthem Flex cost/A?*
 - *Zidua 4.17SC @ 2.5 oz/A (0.081 lb ai/A) = ~\$11-\$13*
 - *Dual Magnum 7.62EC @ 16 oz/A = ~\$8/A*
 - *Warrant 3ME @ 48 oz/A = ~\$7-8/A*
- Need more fungicide tank-mix data!
 - *Miravis, Elatus, Lucento*
- Is pyrozasulfone really better (**all the time**) on IPOSP, RAPRA, and DEDTO?

Questions/Comments

