



Peanut Weed Control Update - 2022

Eric P. Prostko
Extension Weed Specialist
Department of Crop & Soil Sciences



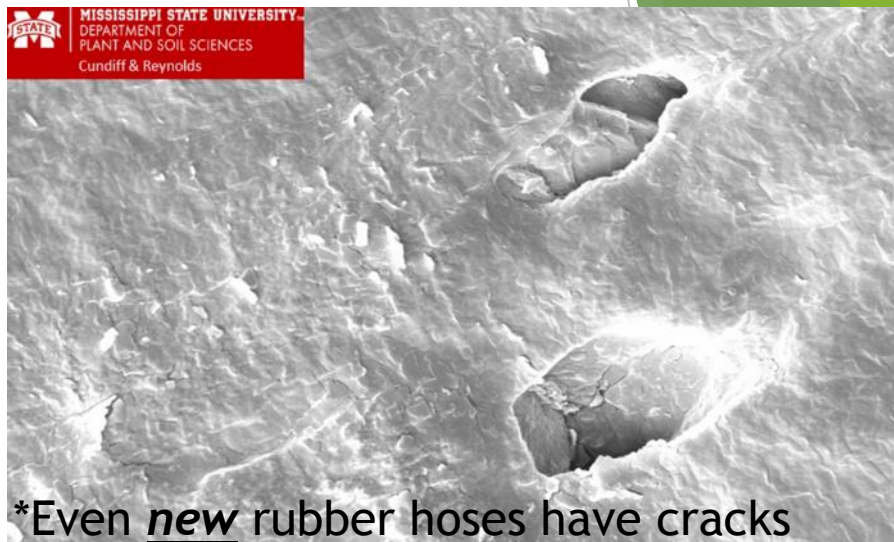
UNIVERSITY OF GEORGIA

EXTENSION

Valor (Flumioxazin) in Sprayers



Inside diaphragms. This problem is particularly common for air-assisted sprayers.



**Even new rubber hoses have cracks*



In end caps, typically at the end of a hose or boom.

1) Flumioxazin is not very water soluble!
Only 1.8 ppm

2) For comparison:
dicamba acid = 4500 ppm
glyphosate acid = 15,700 ppm
glufosinate = 1,370,000 ppm

3) Tank-cleaners or ammonia raise pH and increase Valor breakdown

* ½ life at pH 9 is only 15-22 minutes



Wild radish????





On-Time

- Works 100% of the time
 - Excellent crop safety
 - any GPA or nozzle
 - tank-mix with anything
 - no rotational restrictions
 - FREE
- **Obstacles**
 - Farm size
 - Weather
 - breakdowns
 - Beach Vacations
 - ???



Peanut Weed Control – 2021

How does this happen?



PE-09-21
June 15
36 DAP
205/206/207



Peanut Weed Control – 2021

How does this happen?



PE-09-21
June 29
50 DAP
205/206/207



Peanut Weed Control – 2021

How does this happen?



PE-09-21
July 14
65 DAP
205/206/207



Peanut Weed Control – 2021

How does this happen?

1) Started clean

2) Twin Rows (36"-9")

3) Strong residual program activated with irrigation

1) *Prowl or Sonalan or Dual or Warrant or Outlook + Valor + Strongarm (0.225 oz/A)*

4) **On-Time** (25 DAP) POST application with additional residual

1) *Cadre + 2,4-DB + Residual (Anthem Flex or Dual Magnum or Outlook or Warrant or Zidua)*



Aim 2EC + COC

Peanut Harvest Aid - 5 DAT





Flail Mower and Peanut - 2021



August 10, 2021
GA-16HO
92 DAP



Flail Mower and Peanut – 2021

Before



August 10, 2021
GA-16HO
92 DAP



Flail Mower and Peanut – 2021

After (2 passes in opposite directions, ~2 MPH)



August 10, 2021
GA-16HO
92 DAP

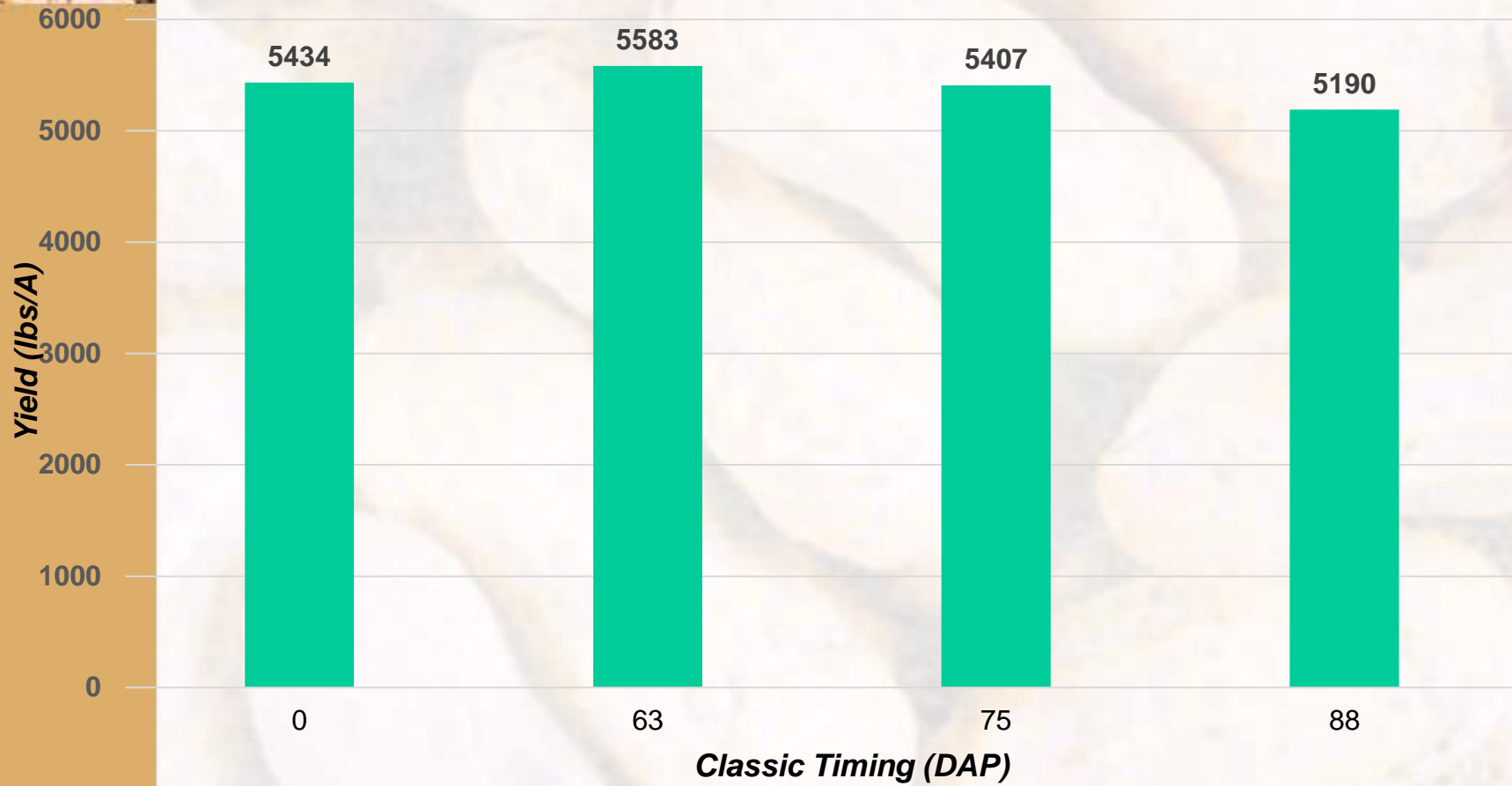


History of Classic[®] Use in Peanut



- First registered for use in 1988
 - *DuPont-Corteva-AMVAC*
- Late-season control of Florida beggarweed
 - *60 DAE until 45 DBH*
- Peanut Response
 - *height/chlorosis*
 - *cultivar tolerance*
 - *Southern Runner*
 - *GA-06G*
 - *Tifguard*

Influence of Classic[®] Timing on Peanut Yield - 2021*



*Averaged over 5 cultivars (GA-18RU, GA-20VHO, AUNPL-17, TIFNV HIGH O/L, FLORUN 331)

P=0.4778

UGA Current Classic®/Cultivar Use Recommendations

- **NO**

- GA-06G
- Tifguard

- **YES**

- Florida-07
- GA Greener
- GA-07W
- GA-09B
- GA-20VHO
- GA-18RU
- AUNPL-17
- TIFNV HIGH O/L
- FLORUN 331





Tropical Spiderwort/Benghal Dayflower

- 1) Plow (i.e. bury seed)
- 2) Twin Rows
- 3) **Group 15's (Dual Magnum, Warrant, Outlook, Zidua, Anthem Flex)**
- 4) Paraquat
- 5) Cadre?
- 6) Strongarm?
- 7) Manage after field corn harvest.



Georgia Rainfall Totals – 2021

April 15-October 15

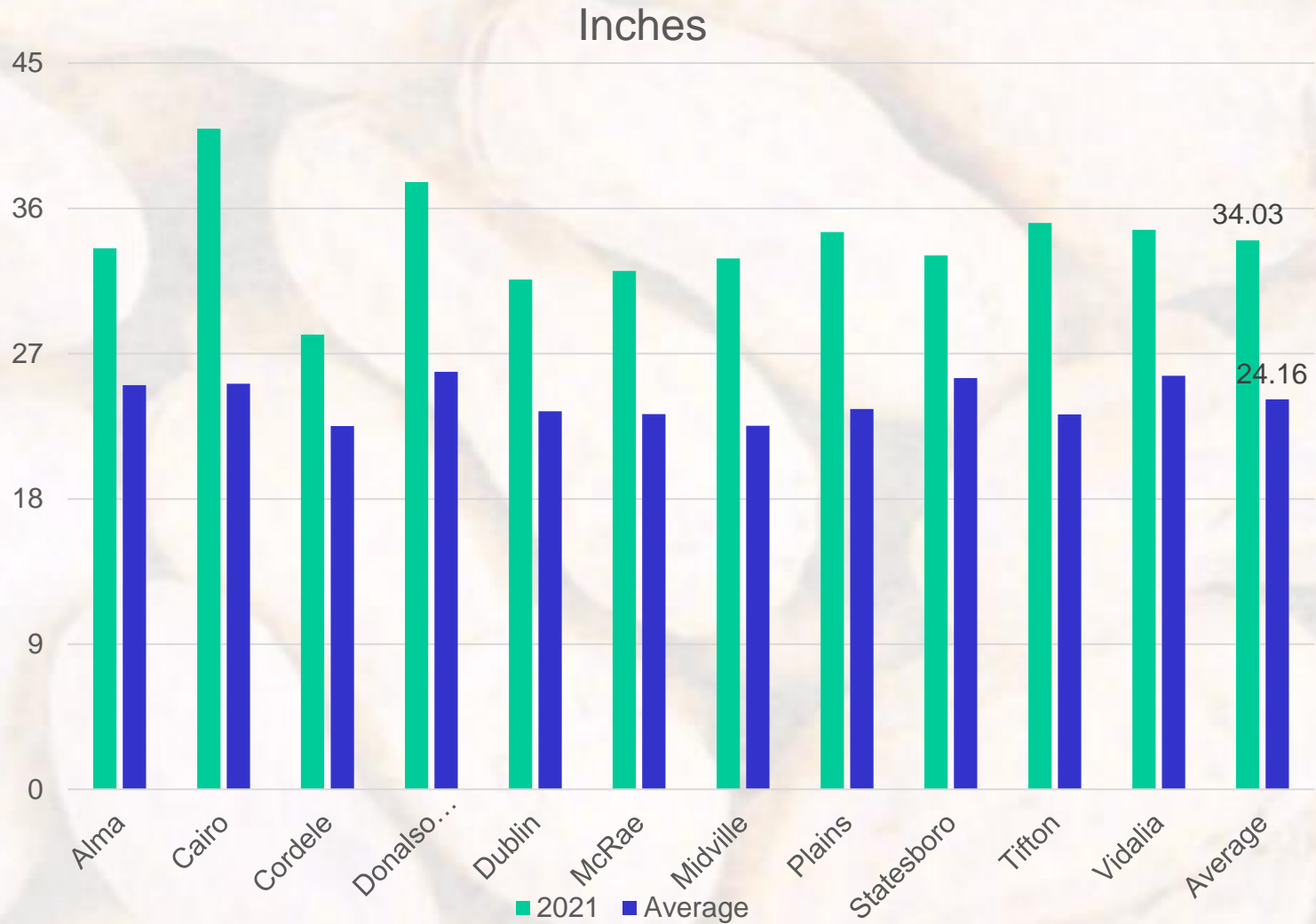




Figure 1. Tropical Spiderwort/Benghal Dayflower Control in Peanut As Influenced by Row Pattern

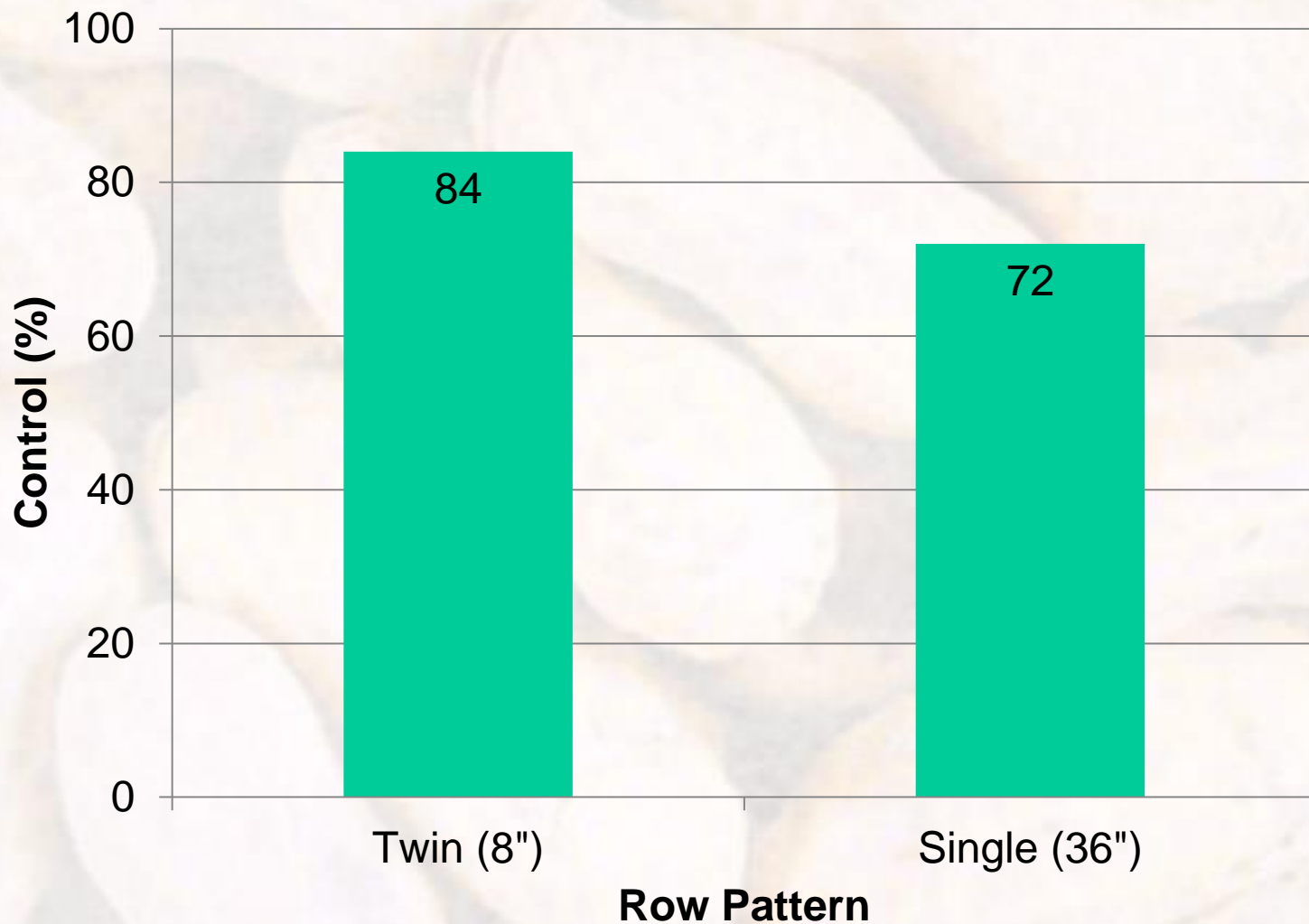




Figure 2. Tropical Spiderwort/Benghal Dayflower Emergence As Influenced by Burial Depth

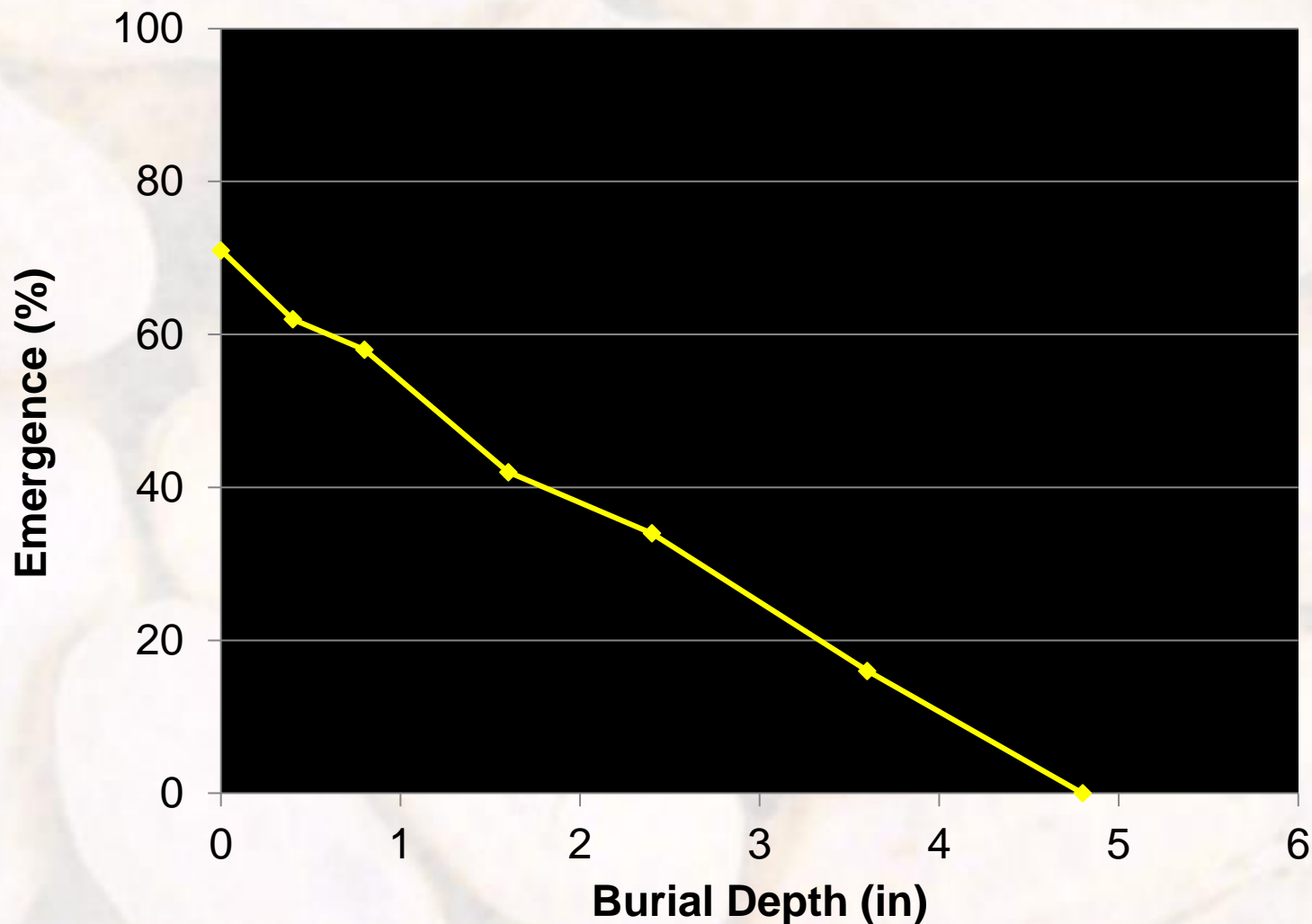




Figure 3. Tillage Effects on Tropical Spiderwort/Bengal Dayflower Density

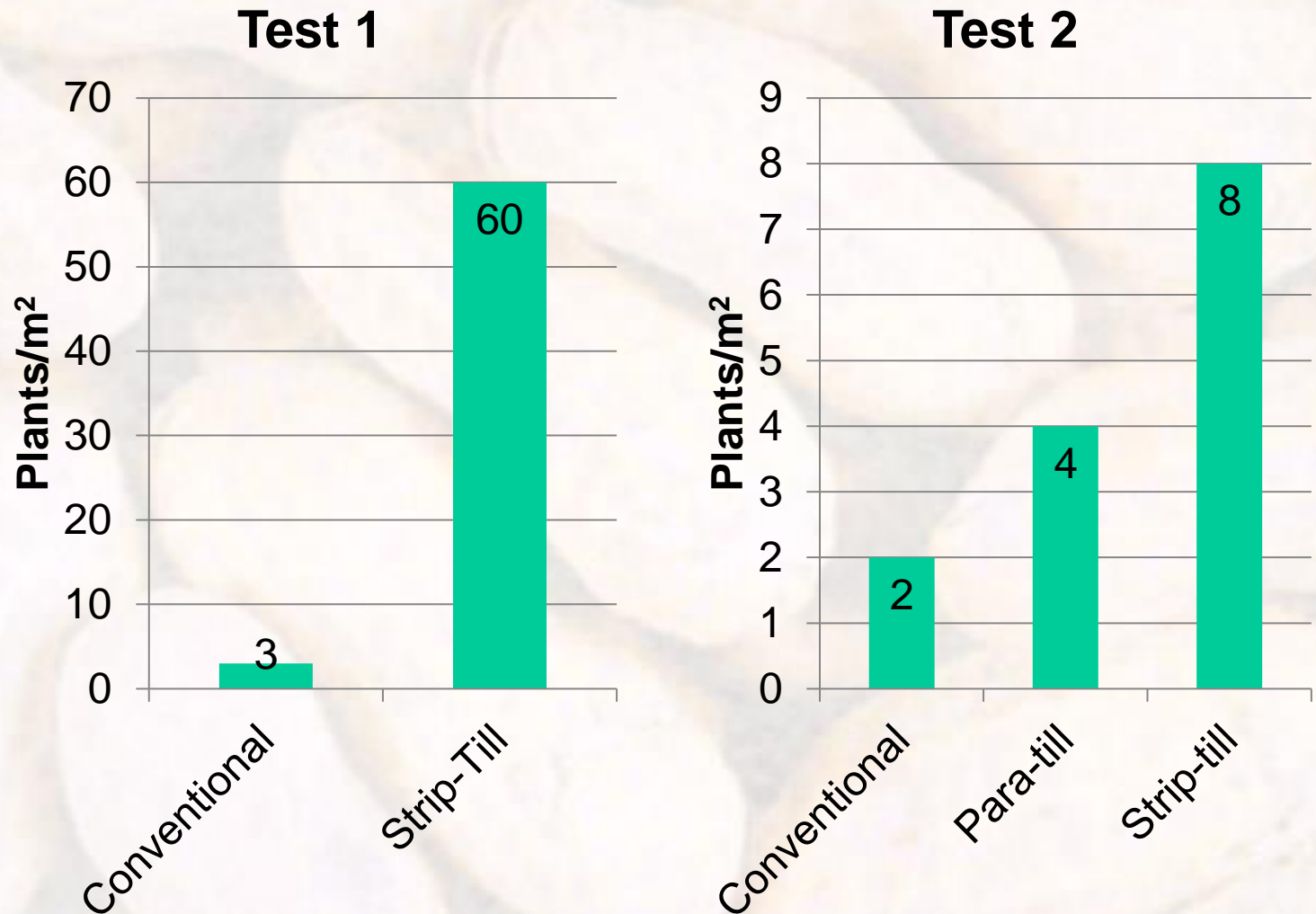
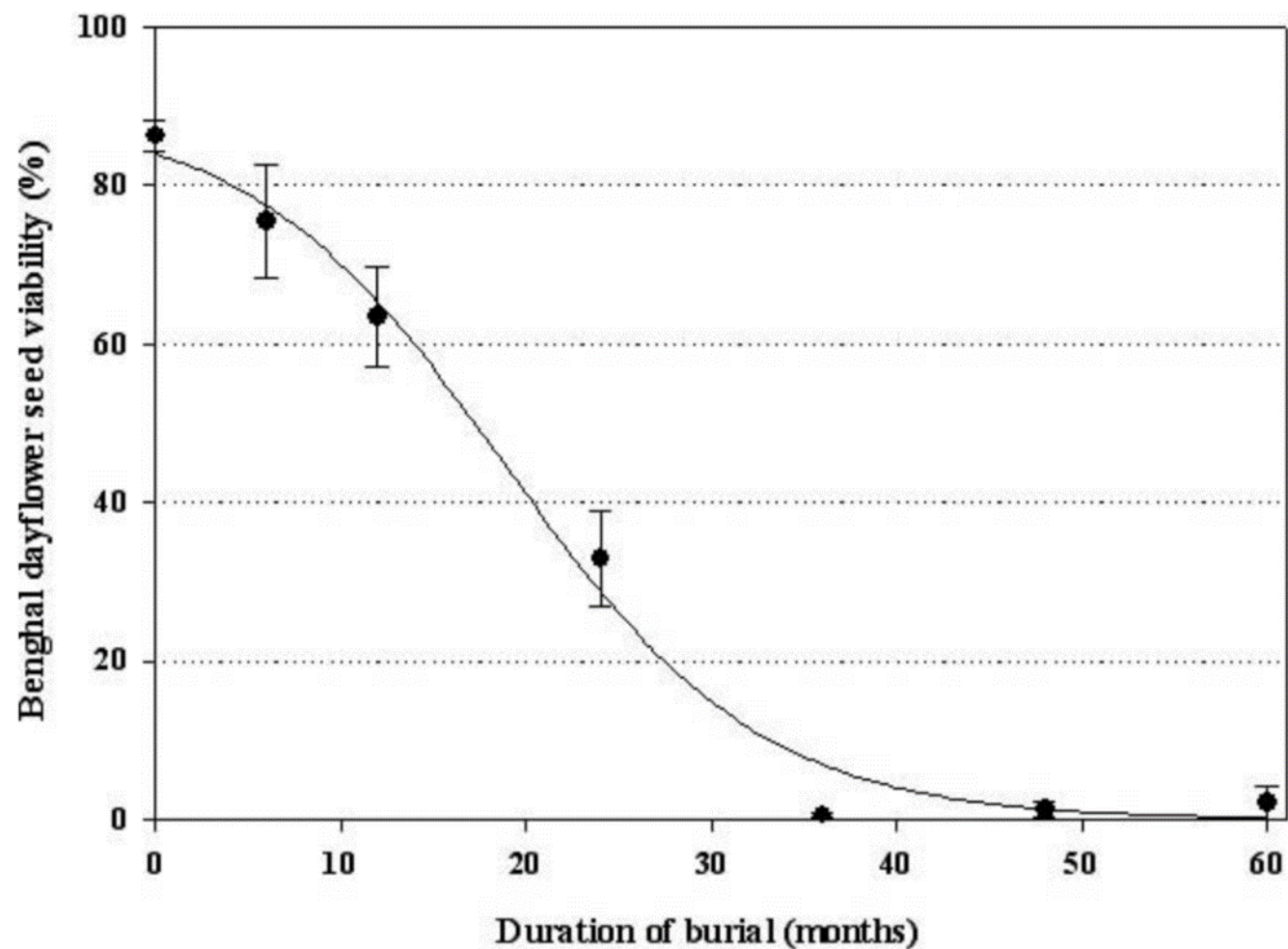




Figure 4. The Influence of Burial Duration (8" depth) on Tropical Spiderwort/Benghal Dayflower Seed Viability



TSW Control in Peanut with Paraquat + Dual Magnum (Applied 17 DAP)





What do the top Georgia peanut growers do?

2020 Georgia Peanut Achievement Club Winners

- 14 growers
 - 167 to 1482 acres (range)
- **5805 lb/A average yield**
 - 4452-6632 lbs/A (range)
 - GA State Avg. = 4120 lb/A
- 100% - irrigated
- 79% - bottom plow
- 100% - twin rows
- **Herbicides**
 - 57% - Sonalan
 - **93% - Valor**
 - 50% - Dual
 - **93% - Cadre**
 - 57% - 2,4-DB
 - 43% - Prowl
 - 14% - Strongarm
 - 7% - Zidua



Paraquat Label Changes Coming

EPA Interim Decision – July 2021

- *Limit aerial applications to a maximum of 350 acres per applicator per 24-hr period for all uses except cotton desiccation;*
- *Require a residential area drift buffer for all aerial applications (50'-75');*
- *Prohibit use of human flaggers;*
- *Prohibit pressurized handgun and backpack sprayer application methods;*
- *Limit the maximum application rate for alfalfa to one pound of paraquat cation per acre;*
- *Require enclosed cabs if area treated in 24-hour period is more than 80 acres;*
- *Require enclosed cabs or PF10 respirators if area treated in 24-hour period is 80 acres or less;*
- *Require a 7-day restricted entry interval (REI) for cotton desiccation;*
- *Require a 48-hour REI for all crops and uses except cotton desiccation; and*
- *Require mandatory spray drift management label language.*

The logo for Gramoxone, featuring a stylized blue 'C' shape to the left of the word 'Gramoxone' in a bold, black, sans-serif font, with a registered trademark symbol (®) to the upper right.The logo for PARAZONE 3SL Herbicide, with 'PARAZONE' in a bold, black, sans-serif font and '3SL Herbicide' in a smaller, black, sans-serif font below it.The logo for HELMQUAT 3SL, featuring a red curved line above the word 'HELMQUAT' in a bold, black, sans-serif font, with '3SL' in a smaller, black, sans-serif font to the right.



Paraquat/Parkinson's Disease??

- Parkinson's disease (PD) is a neurodegenerative disorder that affects predominately dopamine-producing (“dopaminergic”) neurons in a specific area of the brain called *substantia nigra*.
- 1 million people in US have PD
- 60,000 people in US diagnosed with PD every year
- Men are 1.5X more likely to develop PD than women
- Causes: Genetics X Environment (head injuries, residence, occupation, metal exposure, TCE/PCB exposure, pesticides?) X Lifestyle
- 300+ lawsuits filed against paraquat
 - **Tanner et al. 2011. Rotenone, Paraquat, and Parkinson's Disease. Environmental Health Perspectives 119(6):866-872.**
 - “Our findings, considered together with earlier results, suggest that paraquat use plays a role in human PD.”
 - **Costello et al. 2009. Parkinson's Disease and Residential Exposure to Maneb and Paraquat from Agricultural Applications in the Central Valley of California. American Journal of Epidemiology 169:919-926.**
 - “This study provides evidence that exposure to a combination of maneb and paraquat increases PD risk, particularly in younger subjects and/or when exposure occurs at younger ages.”
 - **Tanner et al. 2009. Occupation and Risk of Parkinsonism. Archives of Neurology 66(9):1106-1113.**
 - “2,4-D, paraquat, and permethrin were associated with more than a 3-fold increased risk of disease, although precision was poor for paraquat and permethrin.”



Paraquat/Parkinson's Disease??

- **Cell Death and Differentiation (2010) 17:1115-1125**
 - “The epidemiological and clinical evidence that PQ may favor the onset of PD is inconclusive”.
 - “In the case of PQ, the link between experiments in rodents and potential human adverse effects is weak.”
- **PLoS ONE (2016) 11(10):e0164094**
 - “Paraquat administered maximum tolerated doses did not induce any neuro-pathogenic effects.”
- **2019 EPA-OPP Review (June 26, 2019)**
 - Data from 28 human, 217 animal, and 244 in vitro studies
 - “Weight of evidence was insufficient to link paraquat exposure from pesticide use of US registered products to PD in humans.”
- **Journal of Toxicology and Environmental Health (2019) 22(5-6):172-302**
 - Data indicates a positive association between exposure to PQ and PD occurrence, but the weight of evidence does not enable one to assume an indisputable cause/effect relationship.”
- **Environmental Research (2020) 191:110186*****
 - Hazard ratio for ever-use of paraquat was elevated but not statistically significant.”
- **Journal of Occupational Medicine and Toxicology (2021) 16-21**
 - “No evidence of increased risk of PD or increased mortality from other causes among PQ production workers whose exposure to PQ on a daily basis was at least comparable to that of PQ sprayer or mixer/loader.”
- **Neurotoxicology (2021) 86:80-184**
 - “A consensus exists in the scientific community that the available evidence does not warrant a claim that paraquat causes Parkinson's disease.”
- **Handbook of Neurotoxicity (2021) 1-19**
 - “Weight of evidence is sufficient to conclude a generic association between PQ exposure and PD exists, but is not sufficient to conclude that this is a causal relationship.”



Wear Your PPE!



DANGER / POISON
PELIGRO / VENENO

Fatal if swallowed. Fatal if inhaled. Corrosive. Causes irreversible eye damage. Harmful if adsorbed through skin. Do not breathe (dust, vapor, or spray mist). Remove and wash contaminated clothing before reuse. Do not get in eyes or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Avoid contact with skin.

IMPORTANT: Inhalation is an unlikely route of exposure due to low vapor pressure and large spray droplet size, but mucosal irritation or nose bleeds may occur. Prolonged contact with this concentrated product can irritate your skin.

2.2 Personal Protective Equipment (PPE)

Applicators and other handlers (other than Mixers and Loaders) must wear:

- Long-sleeve shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber ≥ 14 mils, polyethylene, polyvinyl chloride (PVC) ≥ 14 mils or Viton® ≥ 14 mils
- NIOSH-approved particulate respirator with any N, R, or P filter, NIOSH approval number prefix TC-84A, or a NIOSH-approved powered air-purifying respirator with an HE filter with NIOSH approval number prefix TC-21C.

Mixers and Loaders must wear:

- Long-sleeve shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber ≥ 14 mils, polyethylene, polyvinyl chloride (PVC) ≥ 14 mils or Viton ≥ 14 mils
- NIOSH-approved particulate respirator with any N, R, or P filter, NIOSH approval number prefix TC-84A, or a NIOSH-approved powered air-purifying respirator with an HE filter with NIOSH approval number prefix TC-21C
- Chemical-resistant apron
- Face shield

Questions/Comments

