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Peanut Variety and Quality Evaluation (PVQE) Program:

- 5 Locations throughout V-C region

- 30 Entries Total:

    - 5 Commercial Varieties: Bailey II, Emery, NC 20, Sullivan, Walton
    - 17 NCSU Breeding Lines
    - 8 VT-UF Breeding Lines

- 2 Digging Dates

- 4 Replications per dig

- Addition of spray lanes

Data Points:

Stand Establishment, TSWV, Disease ratings, yield, grade, oil composition, and blanchability.

Planting Date:	8-May		
Landplaster:	6/12/2024		
Product Name:	**Rate:**	**Type:**	**Date Applied:**
Satellite Hydrocap (incorporated)	32oz/A	Herbicide	4/30/2024
Vault (infurrow)	14oz/A	Inoculant	5/8/2024
Acronyx (infurrow)	10oz/A	Insecticide	5/8/2024
Medal EC	16oz/A	Herbicide	5/9/2024
Valor	2oz/A	Herbicide	5/9/2024
Acephate	10oz/A	Insecticide	5/29/2024
Storm	24oz/A	Herbicide	6/12/2024
Clethodim	10oz/A	Herbicide	6/12/2024
Agridex	16oz/A	Crop Oil	6/12/2024
Medal EC	16oz/A	Herbicide	6/24/2024
Bravo	24oz/A	Fungicide	7/3/2024
Provost Silver	13oz/A	Fungicide	7/17/2024
Clethodim	16oz/A	Herbicide	7/29/2024
Agridex	16oz/A	Crop Oil	7/29/2024
Boron	32oz/A	Nutrients	7/29/2024
Manganese	1 1/2lb/A	Nutrients	7/29/2024
Miravis	3.4oz/A	Fungicide	7/31/2024
Elatus	9.5oz/A	Fungicide	7/31/2024
Boron	16oz/A	Nutrients	8/6/2024
Manganese	1 1/2lb/A	Nutrients	8/6/2024
Beseige	8oz/A	Insecticide	8/6/2024

Kudos OD Tank Mixes:

New liquid formulation of prohexadione-calcium

Like the dry formulations still needs water conditioner + adjuvant to be effective

Evaluate tank-mixtures with common herbicides, insecticides, and micronutrients

Treatments:

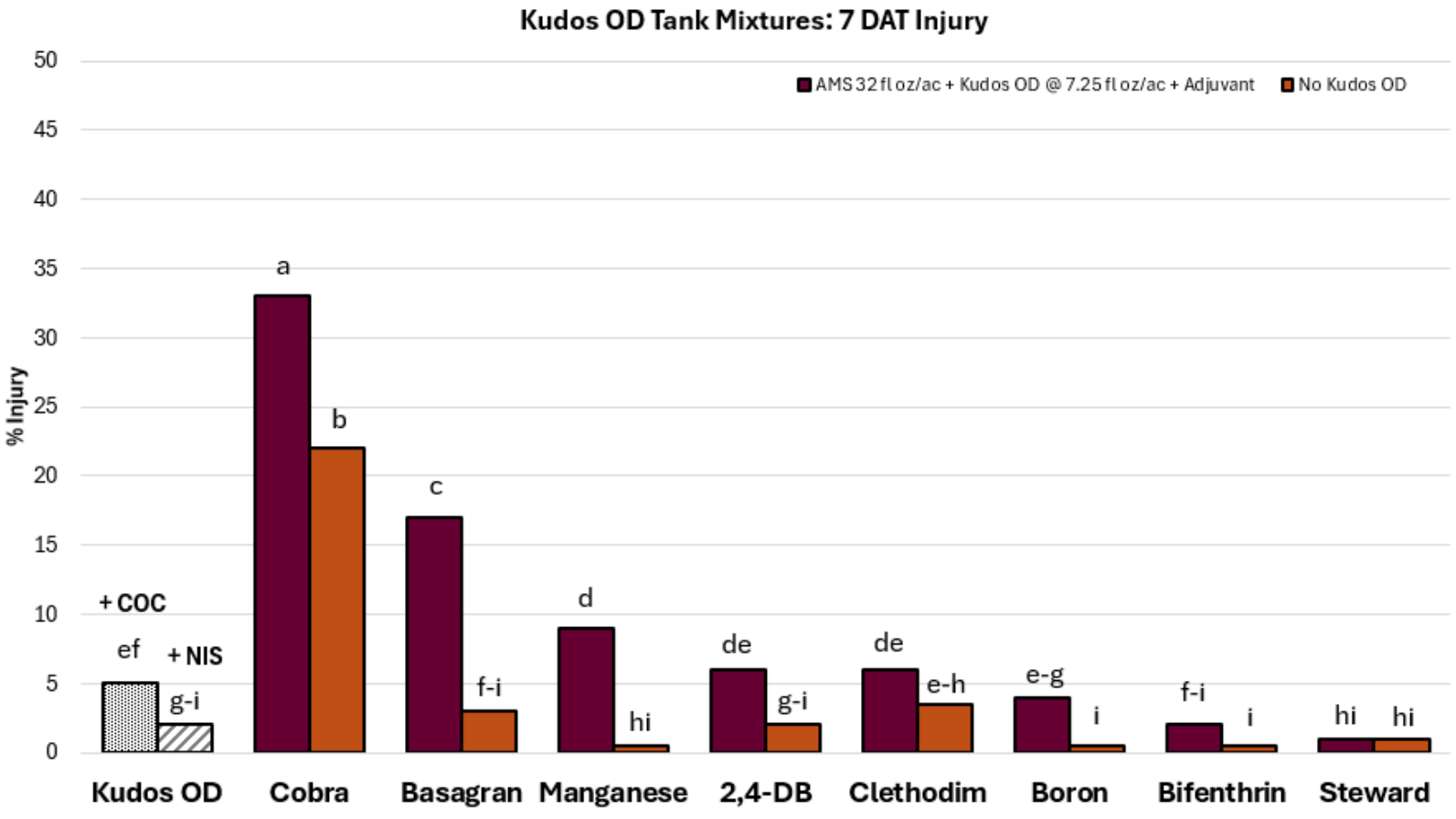
- Kudos OD + NIS 0.25% V/V
- Kudos OD + COC 1% V/V
- Cobra @ 12.5 fl oz/ac +/- Kudos OD + NIS
- Basagran @ 32 fl oz/ac +/- Kudos OD + NIS
- Clethodim @ 16 fl oz/ac +/- Kudos OD **+ COC**
- 2,4-DB @ 16 fl oz/ac +/- Kudos OD + NIS
- Bifenthrin @ 6.4 fl oz/ac +/- Kudos OD + NIS
- Steward @ 11.3 fl oz/ac +/- Kudos OD + NIS
- Boron @ 0.5 lb B/ac +/- Kudos OD + NIS
- Manganese @ 1 lb Mn/ac +/- Kudos OD + NIS
  *Treatments with Kudos: AMS @ 32 fl oz/ac + Kudos OD @ 7.25 fl oz/ac + **NIS or COC where noted**

Conclusions:

- No noticeable mixing issues between Kudos OD and any of the products tested
- In certain cases, the addition of Kudos OD increased injury
- Both COC and NIS effective at regulating peanut growth
- Yield Impacts?

Future Experiments:

Compare rates and number of applications, timing of applications, and comparisons with dry formulations.


Kudos OD Tank Mixtures: 7 DAT Injury
AMS 32 fl oz/ac + Kudos OD @ 7.25 fl oz/ac + Adjuvant
No Kudos OD
% Injury
50
45
40
35
30
25
20
15
10
5
0
+ COC
ef
+ NIS
g-i
a
b
c
f-i
d
hi
de
g-i
de
e-h
e-g
i
f-i
i
hi
hi
Kudos OD
Cobra
Basagran
Manganese
2,4-DB
Clethodim
Boron
Bifenthrin
Steward

NC STATE UNIVERSITY

Compatibility of Kudos OD with Fungicides Applied to Peanut in North Carolina

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Introduction

Prohexadione calcium is used to minimize excessive vine growth of peanut in order to facilitate efficient digging and vine inversion. Historically, dry formulations of prohexadione calcium (Apogee, Kudos, Cryova) have been used in peanut for this purpose. A new formulation, Kudos OD, is now registered for use in peanut. This formulation is composed of a liquid carrier. Preliminary research in 2022 indicated that injury observed when Kudos OD was applied with Provost Silver would likely be excessive based on grower perceptions (Figure 1). Prior to widespread use, it will be important to document any compatibility issues with respect to performance of plant growth regulation and injury.

Materials and Methods

Small-plot trials were conducted in North Carolina during 2022 and 2023 to determine if peanut injury and row definition were altered when the liquid formulation of Kudos was applied with commercially-available fungicides used in peanut. Kudos OD was applied at 7.2 oz/acre in 15 gallons of water when 50% of lateral vines from adjacent rows were touching. A non-treated control was included. Specific fungicides applied at the manufacturer's suggested use rate are provided data tables. The treatments were applied one time with a full complement of bi-weekly fungicides applied during the season to suppress leaf spot and stem rot disease.

Visual estimates of percent injury were recorded two weeks after application using a scale of 0 to 100 where 0 = no injury and 100 = plant death. Foliar chlorosis and necrosis were considered when making the visual estimates. Peanut yield was determined. Data for these variables were subjected to ANOVA with means separated using Fisher's Protected LSD test at $p < 0.05$.

Results

Peanut injury ranged from 0 to 40% in 2022 and 1 to 25% in 2023 when Kudos OD was applied with fungicides (Tables 1 and 2). Considerable variation was noted when comparing treatments across years. For example, in 2022, the greatest injury was noted when Kudos OD was applied with Provost Silver or Miravis plus Elatus. In 2023, the greatest injury followed application of Kudos OD plus Bravo Weather Stik plus Alto or Tebuconazole. Bravo Weather Stik alone, Revytek, and Lucento did not cause more injury from Kudos OD compared with Kudos OD alone in either year. Peanut yield was not affected by any of the treatments relative to either the non-treated control or Kudos OD applied without fungicide.

Implications of Research

These results indicate that when Kudos OD is applied with some of the fungicides used in peanut, injury might occur when the application is made with crop oil concentrate and ammonium sulfate. Adequate suppression of peanut growth by prohexadione calcium requires inclusion of ammonium sulfate. However, performance of Apogee, a dry formulation of prohexadione calcium, was adequate in many cases when applied with only ammonium sulfate.

Additional research is needed to further define interactions of Kudos OD with these fungicides when applied with ammonium sulfate only and with other crop protection products including herbicides and insecticides. Defining the impact of foliar fertilizers and other PGR-type products on performance and possible injury is also needed.

Acknowledgements

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Figure 1. Injury symptoms observed when Kudos OD was applied with Provost Silver, crop oil, and ammonium sulfate.

Table 1. Peanut response to combinations of Kudos OD and Fungicides in 2022.[a]

Prohexadione calcium[a]	Fungicide	Injury Percent	Yield lb/acre
Kudos OD	-	0 d	4477 a
Kudos OD	Bravo Weather Stik	4 cd	4259 a
Kudos OD	Bravo Weather Stik plus Alto	10 c	4298 a
Kudos OD	Provost Silver	28 b	4269 a
Kudos OD	Revytek	6 cd	4002 a
Kudos OD	Lucento	0 d	4167 a
Kudos OD	Miravis plus Elatus	40 a	4608 a
Kudos OD	Bravo Weather Stik plus Tebuconazole	10 c	4085 a
-	-	0 d	4456 a

[a]Treatments included crop oil concentrate and ammonium sulfate

Table 2. Peanut response to combinations of Kudos OD and Fungicides in 2023.[a]

Prohexadione calcium[a]	Fungicide	Injury Percent	Yield lb/acre
Kudos OD	-	1 de	4966 a
Kudos OD	Bravo Weather Stik	11 bcd	4661 a
Kudos OD	Bravo Weather Stik plus Alto	25 a	4980 a
Kudos OD	Provost Silver	15 abc	4763 a
Kudos OD	Revytek	6 cde	4883 a
Kudos OD	Lucento	5 cde	4631 a
Kudos OD	Miravis plus Elatus	4 de	4661 a
Kudos OD	Bravo Weather Stik plus Tebuconazole	18 ab	4492 a
Non-treated	-	0 e	4341 a

[a]Treatments included crop oil concentrate and ammonium sulfate

Early POST Herbicide Injury

Treatments:

- Non-treated Check
- Gramoxone 3.0 @ 8 fl oz/ac
- Gramoxone 3.0 @ 8 fl oz/ac + Basagran @ 8 fl oz/ac
- Gramoxone 3.0 @ 8 fl oz/ac + Storm @ 16 fl oz/ac
- Gramoxone 3.0 @ 8 fl oz/ac + Dual Magnum @ 16 fl oz/ac
- Gramoxone 3.0 @ 8 fl oz/ac + Dual @ 16 fl oz/ac + Basagran @ 8 fl oz/ac
- Cobra @ 12.5 fl oz/ac
- Cobra @ 12.5 fl oz/ac + Basagran @ 16 fl oz/ac
- 2,4-DB @ 16 fl oz/ac
- Storm @ 24 fl oz/ac

*****All treatments except 2,4-DB received NIS @ 0.25% V/V

(1qt/100 gal H_20)

Conclusions:

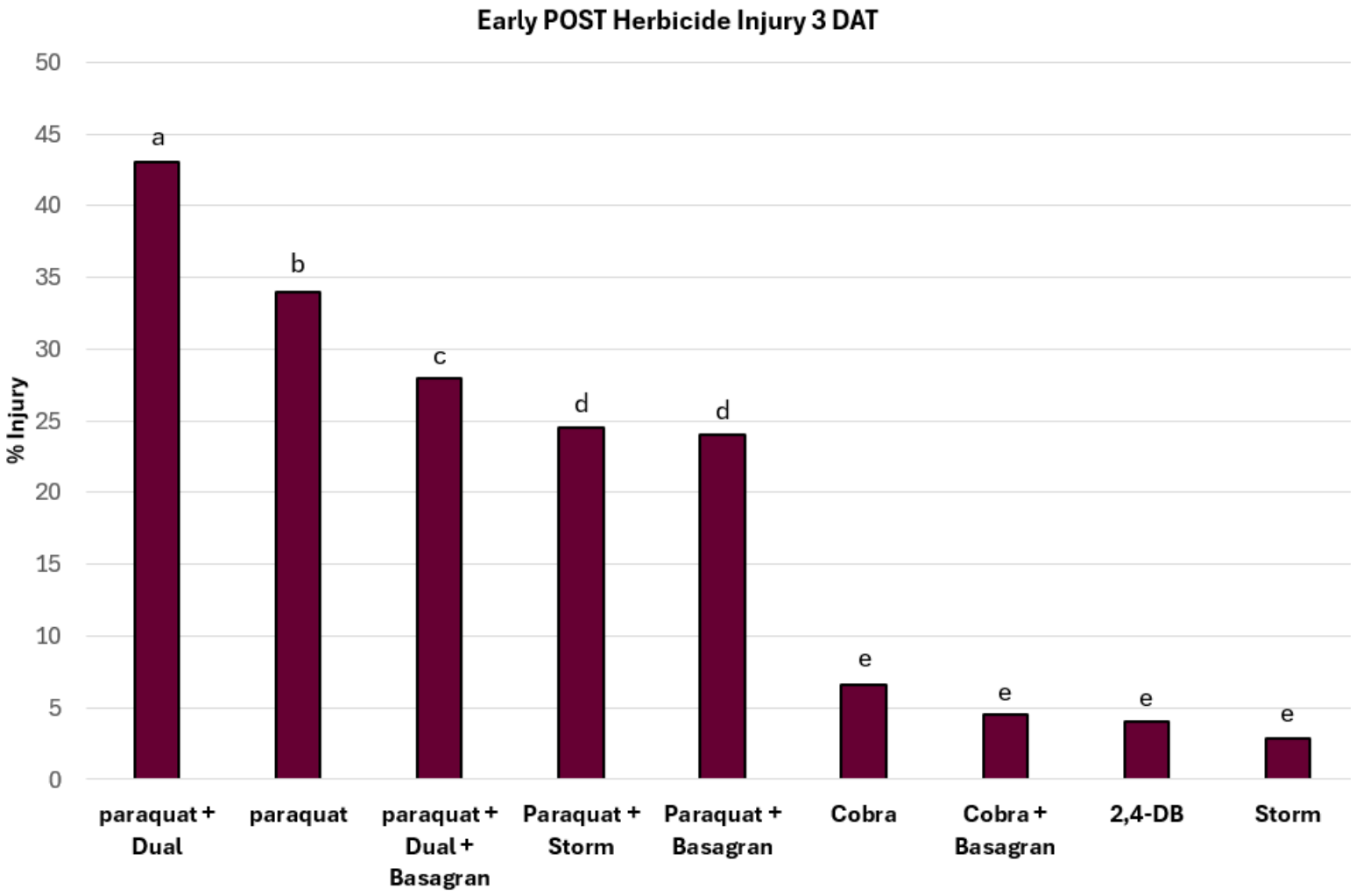
Injury from paraquat treatments were reduced when applied with Basagran or Storm

Injury was greater with the addition of residual herbicide

Little to No Thrips Injury

(Herbicide Injury can be compounded by thrips damage)

Yield Impacts?


Early POST Herbicide Injury 3 DAT
% Injury
50
45
40
35
30
25
20
15
10
5
0
a
b
c
d
d
e
e
e
e
paraquat + Dual
paraquat
paraquat + Dual + Basagran
Paraquat + Storm
Paraquat + Basagran
Cobra
Cobra + Basagran
2,4-DB
Storm

Dr. David Langston: VIRGINIA PEANUT BOARD RHIZOPUS SEED ROT TEST (PTSEED124, Tidewater Research Farm, Suffolk, VA)

A. PURPOSE: To evaluate the efficacy of cultivar, seed treatment, and in-furrow foliar fungicides for control of Rhizopus seed rot of peanut.

B. EXPERIMENTAL DESIGN:
   1. Four factorial, randomized complete blocks with 8-ft alleys between blocks
   2. Two, 35-ft rows per plot with 36-in. row spacing

C. APPLICATION OF TREATMENTS: Liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting.

D. CULTIVARS:
   1. Bailey II
   2. Sullivan
   3. Emery

E. SEED TREATMENT:
   1. Kannar
   2. Untreated

F. TREATMENT AND RATE/A:
   1. Quadris 12 fl oz
   2. Proline 480SC 5.7 fl oz
   3. Velum 6.84 fl oz
   4. Untreated check

G. ADDITIONAL INFORMATION:
   1. Location: Field 34A, Tidewater Research Farm, Hare Rd., Suffolk, VA
   2. Crop history: corn, 2023; cotton, 2022; peanut, 2021
   3. Planting date: 17 May
   4. Soil fertility report (26 Jan 2024)

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)
7.4	60	70	1638	110
Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
0.7	9.5	0.1	11.7	0.1

   5. Soil type: Emporia fine sandy loam
   6. Fertilizer: Potash 0-0-60 100 lb/A (9 Apr)
      Bicep 2 pt + Simazine 1 pt/A (29 Apr)
   7. Herbicide: Roundup PowerMAX 1 qt + 2,4-D 1.5 pt/A (20 Mar)
      Prowl H2O 1 pt + Valor EZ 2 fl oz + Roundup PowerMAX 1 qt
      + Intermoc 48 fl oz + Strongarm 0.45 fl oz + Brake (22 May)
   8. Insecticide: Admire Pro 4.6SC 9.2 fl oz/A (in-furrow, 17 May)

Orthene 97 12 oz/A (11 Jun)

9. Fungicide:
10. Harvest date:

Table 1. Effect of cultivar, seed treatment, and in-furrow fungicide treatment on emergence and plant health in peanut (PTSEED124, Tidewater Research Farm, VA 2024).

Cultivar, seed trt	In-furrow trt and rate/A[z]	No. plants /ft.[y]		Vigor (1-10)[x]		
		31 May	7 Jun	29 May	7 Jun	14 Jun
Bailey II, Kannar	Quadris 12 fl oz	2.4 bc	3.5 a-e	4.0 c-f	4.0 c-e	4.0 e-i
Bailey II, Kannar	Proline 480SC 5.7 fl oz	2.4 bc	3.7 a-c	5.5 a-d	4.0 c-e	4.5 c-i
Bailey II, Kannar	Velum 6.84 fl oz	2.3 b-d	3.7 a-d	4.1 b-f	4.0 c-e	4.7 c-i
Bailey II, Kannar	Untreated check	2.1 c-e	3.7 a-c	4.5 b-f	4.3 c-e	4.3 d-i
Baily II, untreated	Quadris 12 fl oz	1.1 h	2.0 h	2.8 ef	2.3 e	2.3 i
Baily II, untreated	Proline 480SC 5.7 fl oz	1.3 gh	2.2 gh	3.0 ef	2.3 e	2.3 i
Baily II, untreated	Velum 6.84 fl oz	1.2 gh	1.8 h	3.3 d-f	3.8 c-e	2.3 i
Baily II, untreated	Untreated check	1.5 f-h	2.1 gh	3.3 d-f	2.3 e	2.8 g-i
Sullivan, Kannar	Quadris 12 fl oz	3.0 a	4.3 a	7.5 a	8.0 a	8.3 a
Sullivan, Kannar	Proline 480SC 5.7 fl oz	2.9 a	4.0 ab	6.0 a-c	7.3 a	6.8 a-c
Sullivan, Kannar	Velum 6.84 fl oz	3.1 a	4.0 ab	7.8 a	7.5 a	7.5 ab
Sullivan, Kannar	Untreated check	2.8 ab	3.5 a-e	6.5 ab	6.5 ab	6.5 a-d
Sullivan, untreated	Quadris 12 fl oz	1.9 d-f	2.9 d-g	4.0 c-f	3.0 c-e	2.8 g-i
Sullivan, untreated	Proline 480SC 5.7 fl oz	1.6 fg	2.5 f-h	2.5 f	3.0 c-e	3.3 g-i
Sullivan, untreated	Velum 6.84 fl oz	1.8 ef	2.8 e-g	5.0 b-e	2.8 de	3.5 f-i
Sullivan, untreated	Untreated check	1.6 f-h	2.4 f-h	3.3 d-f	2.3 de	2.7 g-i
Emery, Kannar	Quadris 12 fl oz	2.1 c-e	3.8 a-c	5.0 b-e	4.5 b-d	5.0 c-g
Emery, Kannar	Proline 480SC 5.7 fl oz	2.4 bc	3.7 a-c	5.0 b-e	5.0 bc	4.8 c-h
Emery, Kannar	Velum 6.84 fl oz	2.5 bc	3.4 b-e	5.5 a-d	6.5 ab	5.8 b-f
Emery, Kannar	Untreated check	2.4 bc	3.2 c-f	5.0 b-e	5.0 bc	6.0 a-e
Emery, untreated	Quadris 12 fl oz	1.5 f-h	2.9 d-g	3.5 d-f	2.3 e	2.8 g-i
Emery, untreated	Proline 480SC 5.7 fl oz	1.2 gh	2.2 gh	2.5 f	2.3 e	2.5 hi
Emery, untreated	Velum 6.84 fl oz	1.5 f-h	2.5 f-h	3.5 d-f	3.3 c-e	3.3 g-i
Emery, untreated	Untreated check	1.6 f-h	2.5 f-h	4.3 b-f	2.8 de	3.8 e-i
P(F)		**<0.0001**	**<0.0001**	**0.0003**	**<0.0001**	**<0.0001**

[z] Liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting. Seed was planted 17 May. All plots received Admire Pro 4.6SC 9.2 fl oz/A in-furrow for insect control.

[y] Determined from counts in two, 35-ft rows per plot.

[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 2. Effect of seed treatment and in-furrow fungicide treatment on emergence and plant health in peanut (PTSEED124, Tidewater AREC, Suffolk, VA 2024).

Seed treatment, fungicide treatment and rate/A[z]		Plants/ft.[y]		Vigor (1-10)[x]		
		31 May	7 Jun	29 May	7 Jun	14 Jun
Factorial analysis *P*(F)						
Seed treatment		**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**
Fungicide treatment		0.86	0.37	0.47	0.30	0.75
Seed treatment x fungicide treatment		0.49	0.75	0.74	1.00	0.90
Seed treatment mean						
Kannar		2.5 a	3.7 a	5.6 a	5.6 a	5.7 a
Untreated		1.5 b	2.4 b	3.4 b	2.7 b	2.8 b
Fungicide treatment						
Quadris 12 fl oz		2.0	3.2	4.5	4.0	4.2
Proline 480SC 5.7 fl oz		2.0	3.0	4.1	4.0	4.0
Velum 6.84 fl oz		2.1	3.0	4.9	4.7	4.5
Untreated		2.0	2.9	4.5	3.9	4.3
Seed trt x fungicide trt mean						
Kannar	Quadris 12 fl oz	2.5	3.8	5.5	5.5	5.8
Kannar	Proline 5.7 fl oz	2.6	3.8	5.5	5.4	5.3
Kannar	Velum 6.84 fl oz	2.6	3.7	5.9	6.2	6.1
Kannar	Untreated	2.4	3.5	5.3	5.3	5.6
Untreated	Quadris 12 fl oz	1.5	2.6	3.4	2.5	2.6
Untreated	Proline 5.7 fl oz	1.4	2.3	2.7	2.5	2.7
Untreated	Velum 6.84 fl oz	1.5	2.4	3.9	3.3	3.0
Untreated	Untreated	1.5	2.4	3.6	2.5	3.1

[z] Liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting. Seed was planted 21 May. All plots received Admire Pro 4.6SC 9.2 fl oz/A in-furrow for insect control.

[y] Determined from counts in two, 35-ft rows per plot.

[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor. Plots were rated on 12 Jun for symptoms of phytotoxicity; none was observed.

Means followed by the same letter(s) in a column or group are not significantly different according to Fisher's Protected LSD (P=0.05).