Peanut Seed Treatment Evaluations

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What I am going to tell you

1) Seed quality last year was bad, mainly due to the extremes of heat and drought
2) *Aspergillus flavus* and *Aspergillus niger* were big players. Both are becoming resistant to QoIs (Abound and Dynasty)
3) Spring 2020 the seed industry rapidly switched to Rancona seed treatment
4) Rancona helped reduce the problem, but still issues w/ bad seed and bad weather

What I am going to tell you

5) Most seed in 2021 will be treated with Rancona (for max germ if nothing else)
6) There will be some polymer-treated seed in Georgia this year
7) Polymer treatments have advantages over dusts. Do not cut seeding rates.
8) Seed quality predicted very good in 2021
9) In furrow sprays are “stand insurance” - may not be needed w/ good seed and good growing conditions

2020 brought a new challenge

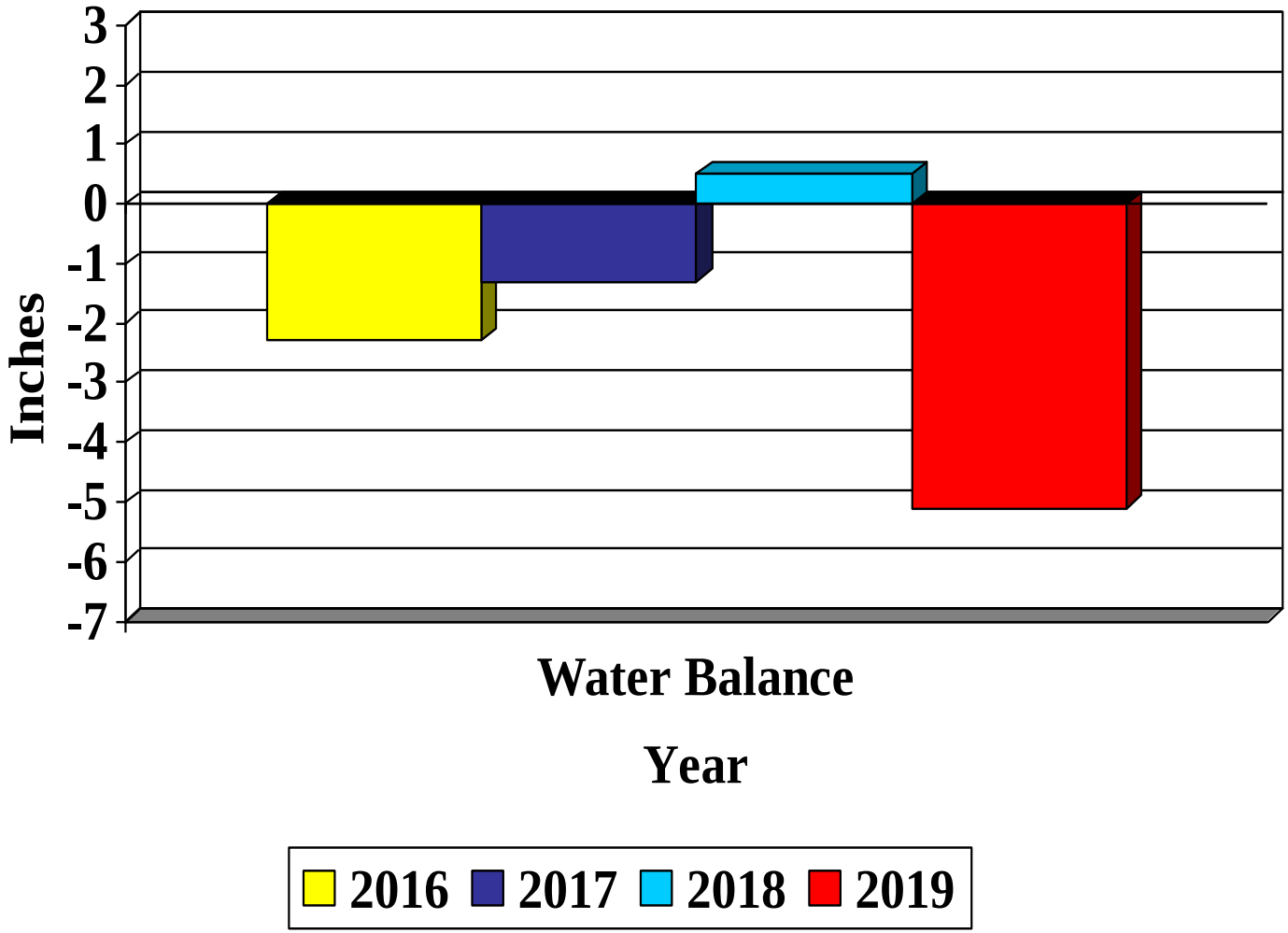
Photo by Dee Dee Smith

- state seed lab reported low seed germinationa and high incidence of *A. flavus*, NOT *A. niger*
- Some seed lots had higher germ's with Rancona vs Dynasty (up to 61% higher)

Why did we have so much *Aspergillus* in 2019?

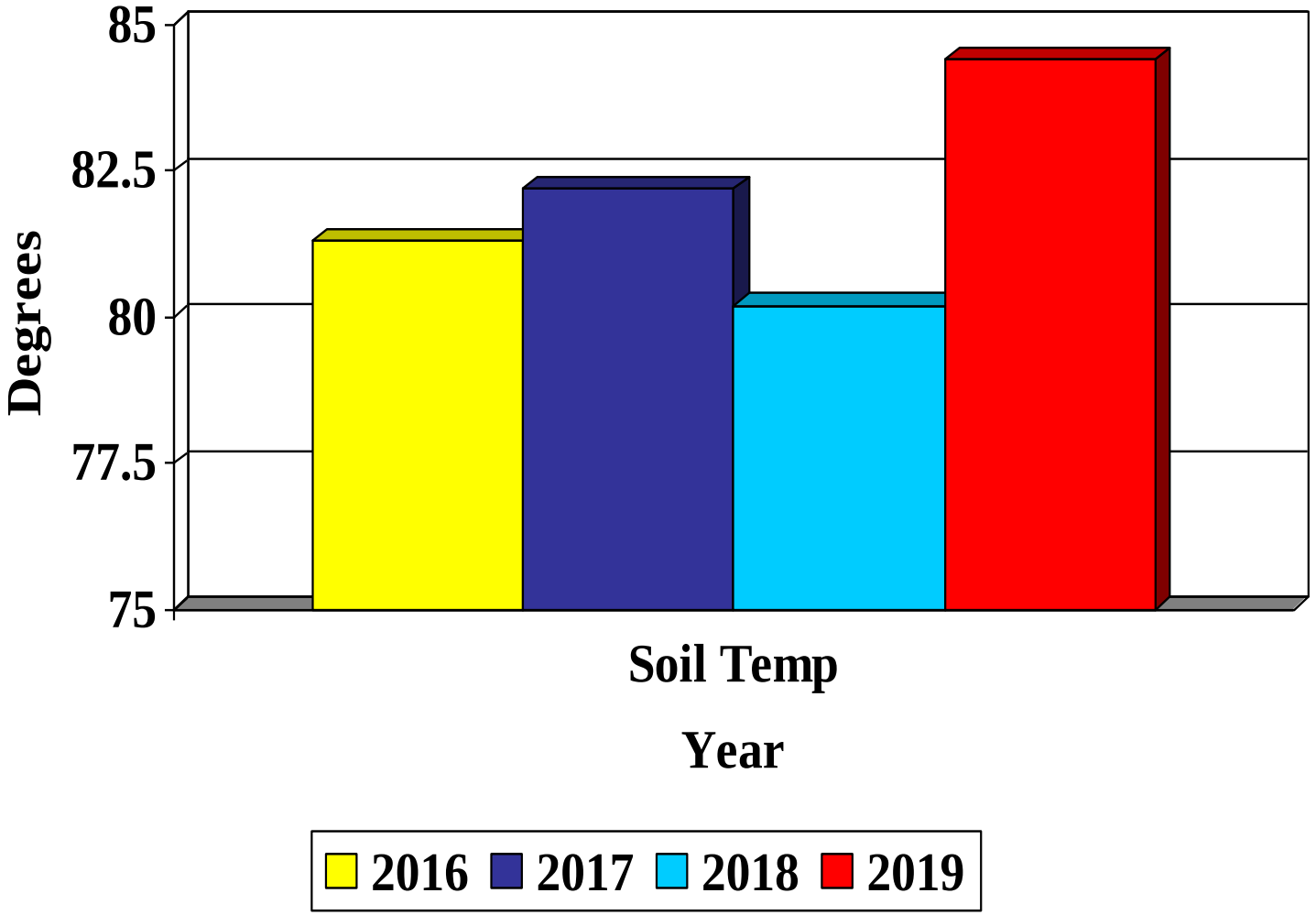
Water Balance in Tifton, Georgia, 2016-2019

(Aug 15 – Oct 15)



Soil Temperatures (4 inch) in Tifton, Georgia, 2016-2019

(Aug 15 – Oct 15)



***Aspergillus* spp.** – Virulent peanut pathogens that thrive when *hot & dry*

Seed Treatment Fungicides

- Chemicals that help us manage the fungi that attack seed/seedlings
- ESSENTIAL to our industry
- **Do not expect miracles. They cannot turn bad seed into good seed!**

Seed Treatment & In Furrow Fungicidess

Dynasty PD

- Azoxystrobin* Group 11
- Fludioxonil Group 12
- Mefenoxam Group 4

Rancona V PD

- Ipconazole Group 3
- Carboxin Group 7
- Metalaxyl Group 4

In Furrow

Abound (11), Proline (3),
Velum Total (7) or Propulse (3 & 7)

In Furrow Fungicides

1. Abound (6-11 oz)
   - Used to enhance stands & vigor
   - Good on *Rhizoctonia & Aspergillus*, less consistent recently (Resistance verified)
2. Proline (5.7 oz)
   - Used for CBR and early season white mold, with some stand and vigor benefits
3. Velum Total (18 oz) or Propulse (13.6 oz)
   - Fluopyram for nematodes with leaf spot and seedling disease benefits

Abound in furrow was great for *Aspergillus* in 2014, not now!

Resistance Risk of Fungicides*

Fungicide Class (FRAC)	Trade or common name	Mode of Action	Resistance Risk
Phenylamide (4)	Mefenoxam, Metaxyl	Single site	High
DMIs (3)	Ipconazole, Proline	Single site	Medium
QoIs (11)	**Abound, Evito**	**Single site**	**High**
SDHIs (7)	Velum Total, carboxin	Single site	Medium
PPs (12)	fludioxinil	Single site	Low - Medium

* Captan is multi-site with low risk

Why do we need so many active ingredients?

1) Many different pathogens can attack peanut seed / seedlings. No one product does it all.
2) Newer fungicides have only one mode of action, therefore are prone to resistance (and these same fungicide classes are being used on many crops in rotation with peanut, ie. more risk!)
3) Best defense against resistance is to use mixtures of chemistries

Maximum Chemistry Diversity
(other than mefenoxam, group 4)

Dynasty (11 & 12)
Proline (3) or Propulse (3&7)
Or Velum Total (7)
Applied In Furrow

Rancona (3 & 7)
+ Abound (11)
Applied In Furrow

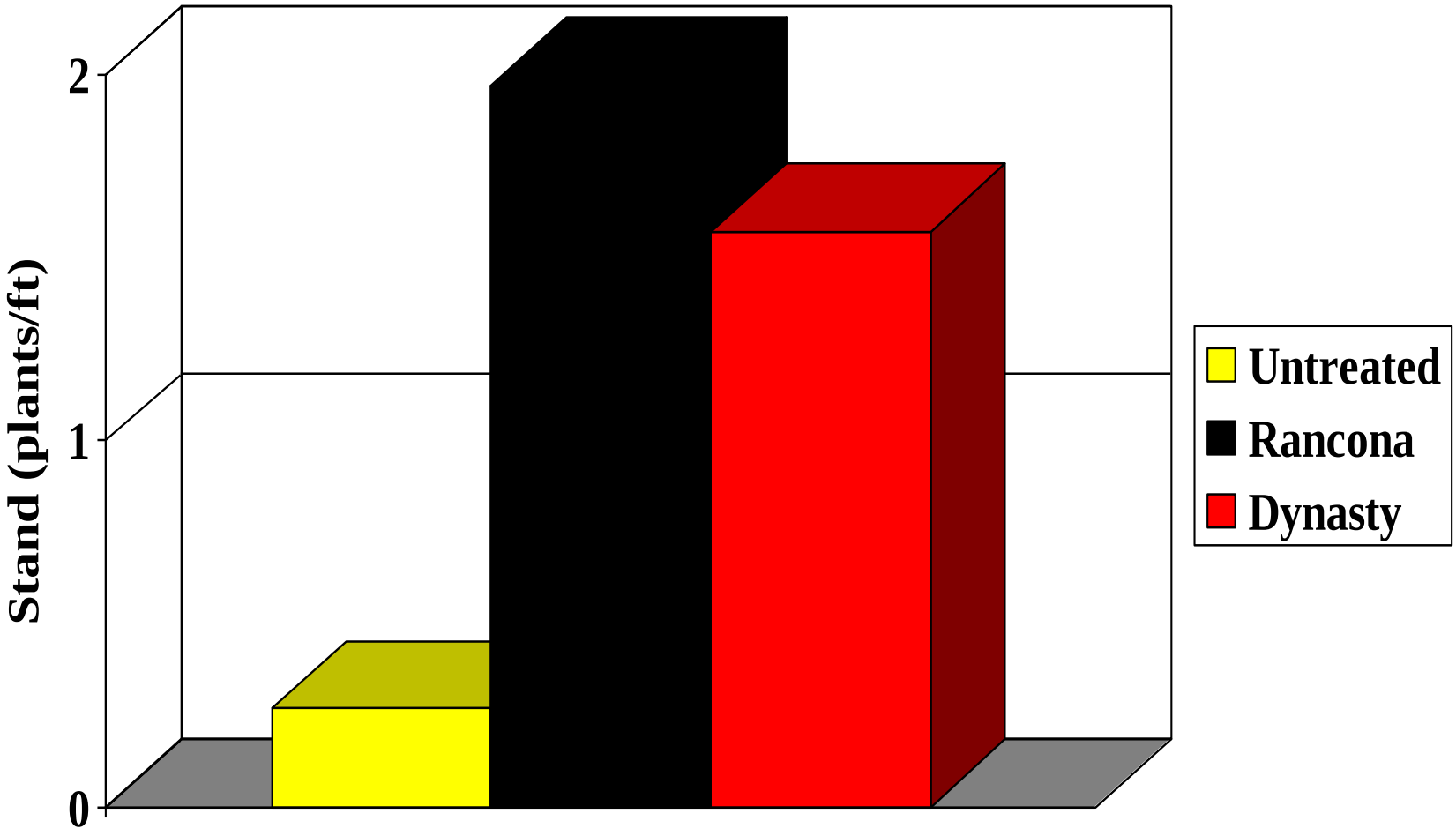
Seed Treatment Trials 2019
(An acid test!)

- Used “stressed” Tifguard (80% germ)
- High *A. niger*
- Planted in a continuous peanut field

Tap root count at digging

(Mean of 7 tests 2016-2020)

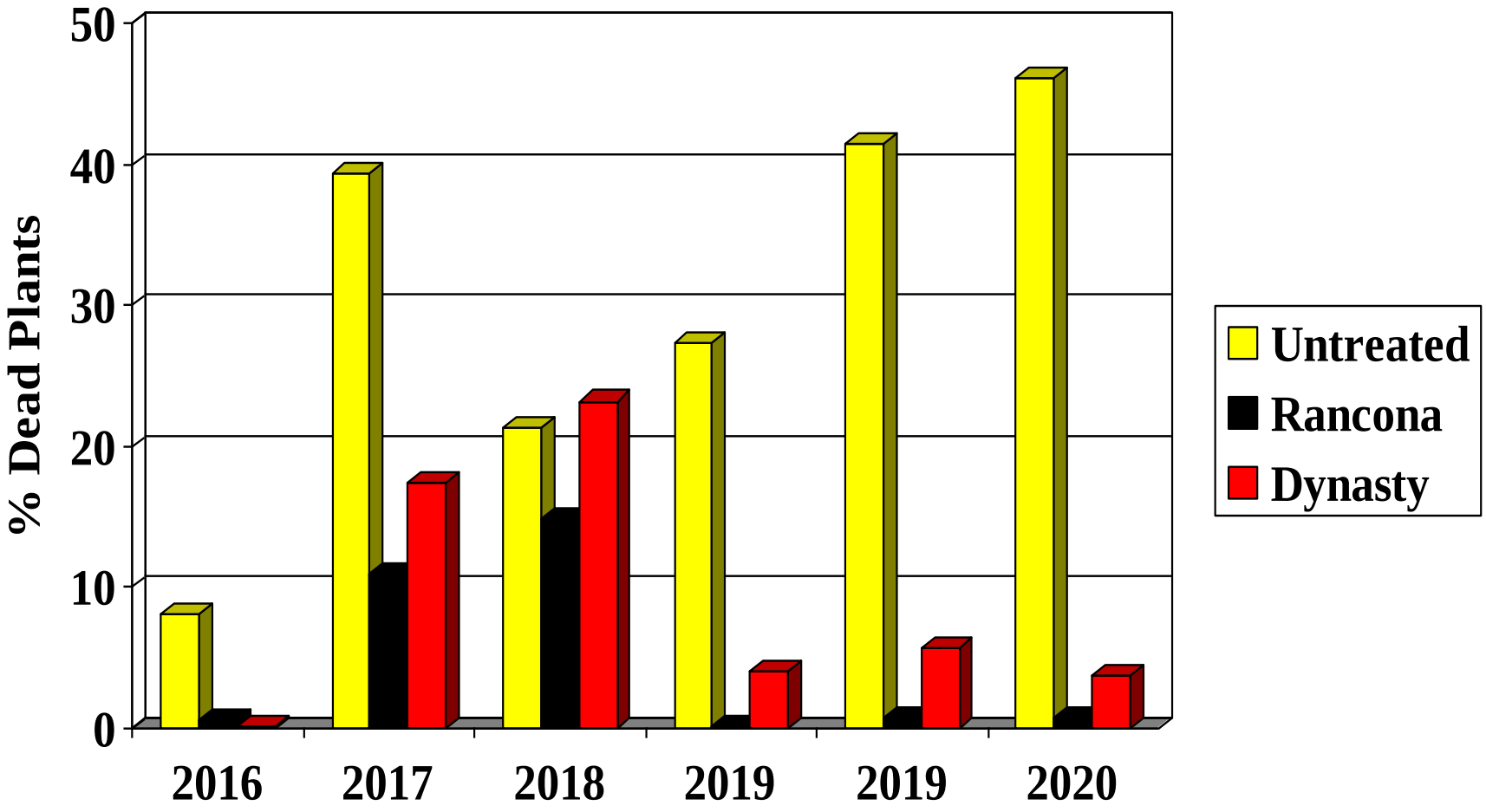
(LSD = 0.14)



Aspergillus Crown Rot, 2016-2020

(LSD = 5.1, 9.6, n.s., 5.8, 12.4 & 7.0)

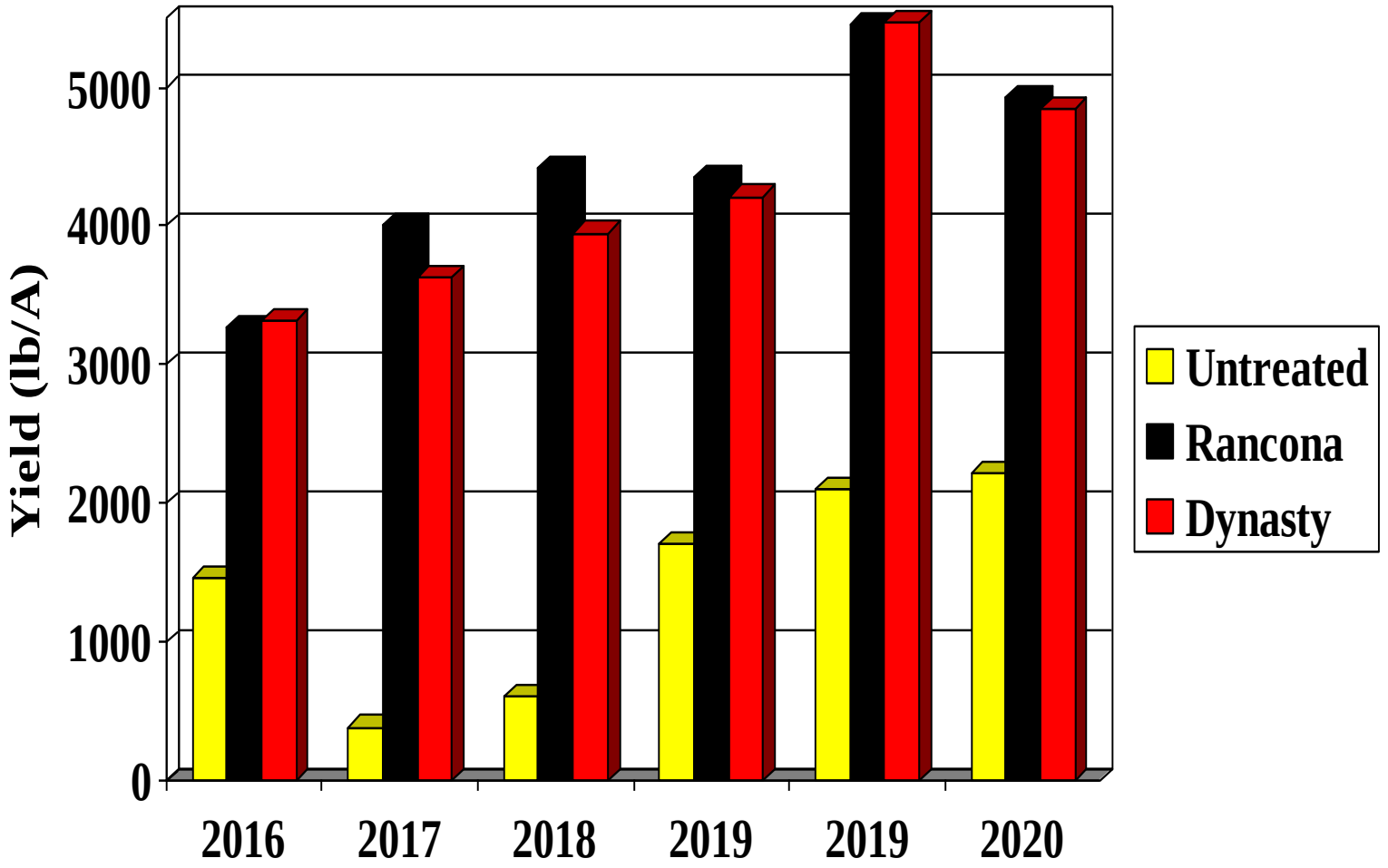
(% of emerged plants that died from crown rot)



Rancona vs Dynasty, 2016-2020

(LSD = 608, 846, 773, 871, 892 & 918)

T. Brenneman, UGA Tifton



In Furrow Fungicides

Application:

- **Apply as a spray or a stream directly in the furrow before row closure**

Seed Treatment X In Furrow Sprays Test, 2019

Seed Treatments

1. Untreated
2. Dynasty PD (4 oz/100 lb)
3. Rancona V PD (4 oz/100 lb)

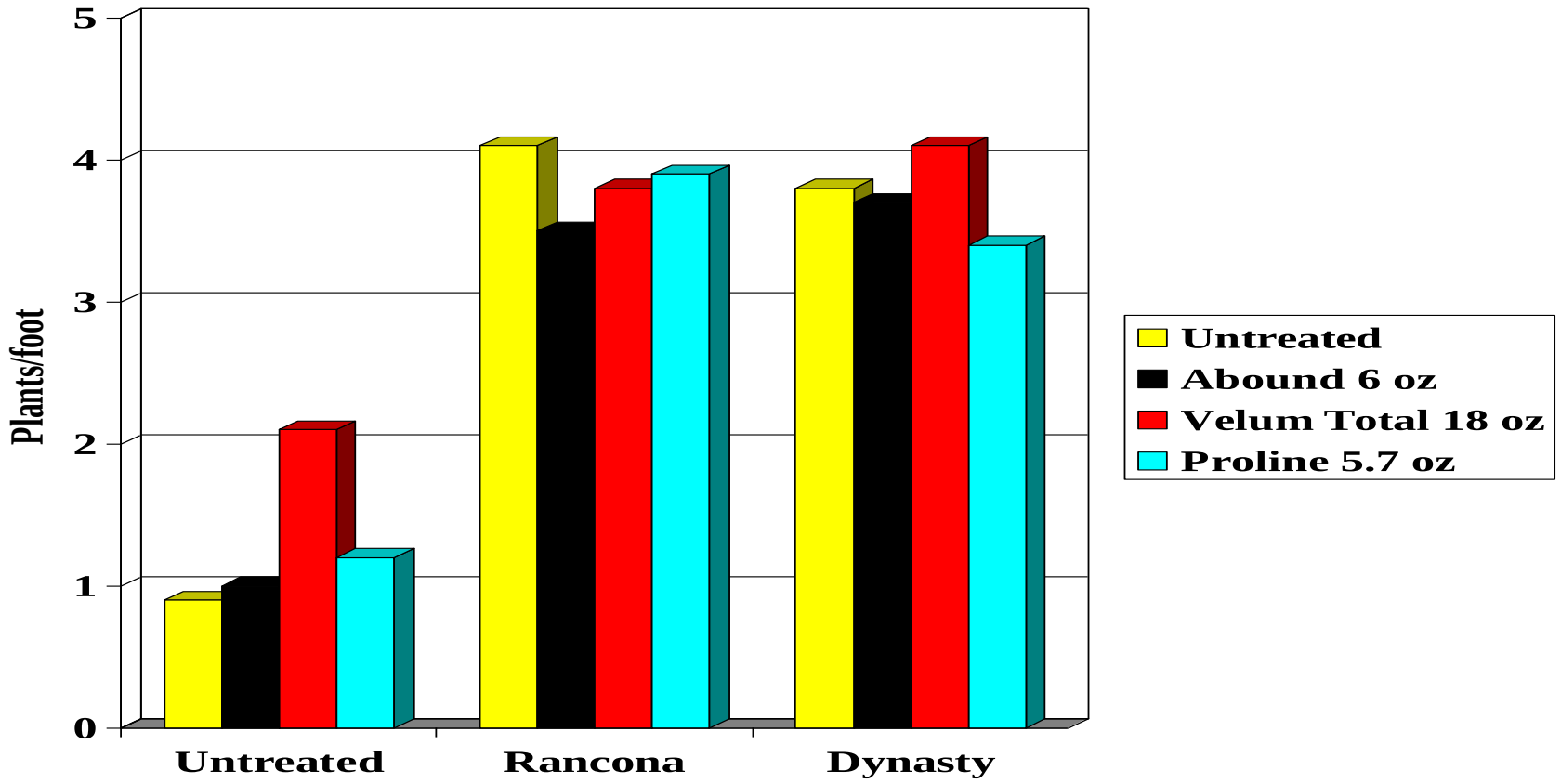
In Furrow

1.	Untreated		
2.	Abound	Group 11	6.0 oz
3.	Proline	Group 3	5.7 oz
4.	**Velum Total**	**Group 7**	**18 oz**

Factorial design with 4 replications

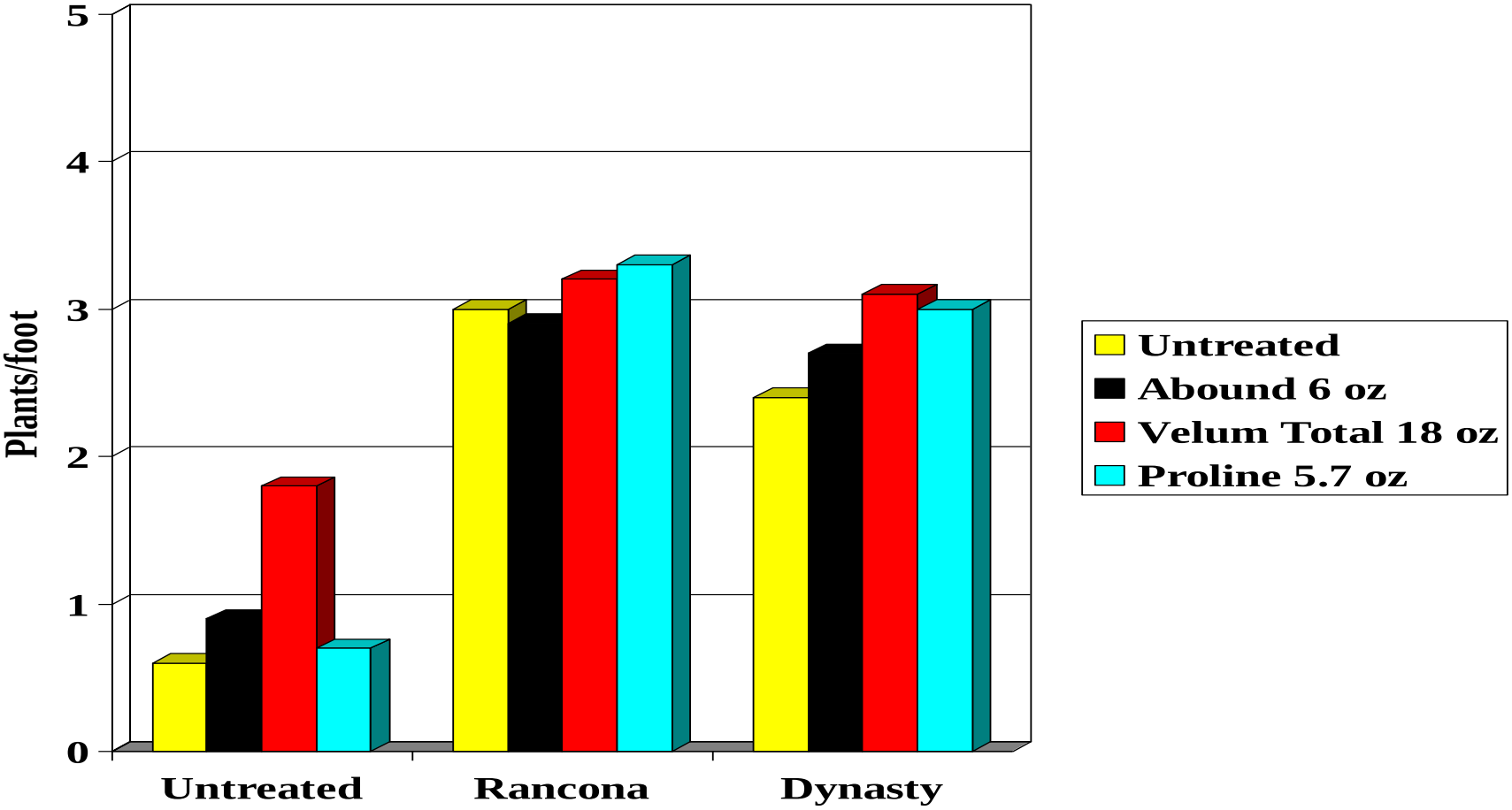
Seed Treatment x In Furrow Test 2019

(Plants / Foot, 21 DAP, LSD = 0.5)



Seed Treatment x In Furrow Test 2020

(Plants / Foot, 21 DAP, LSD = 0.5)



Peanut In-Furrow Seedling Disease Trial, 2019

e Earl, University of Georgia

Untreated Check

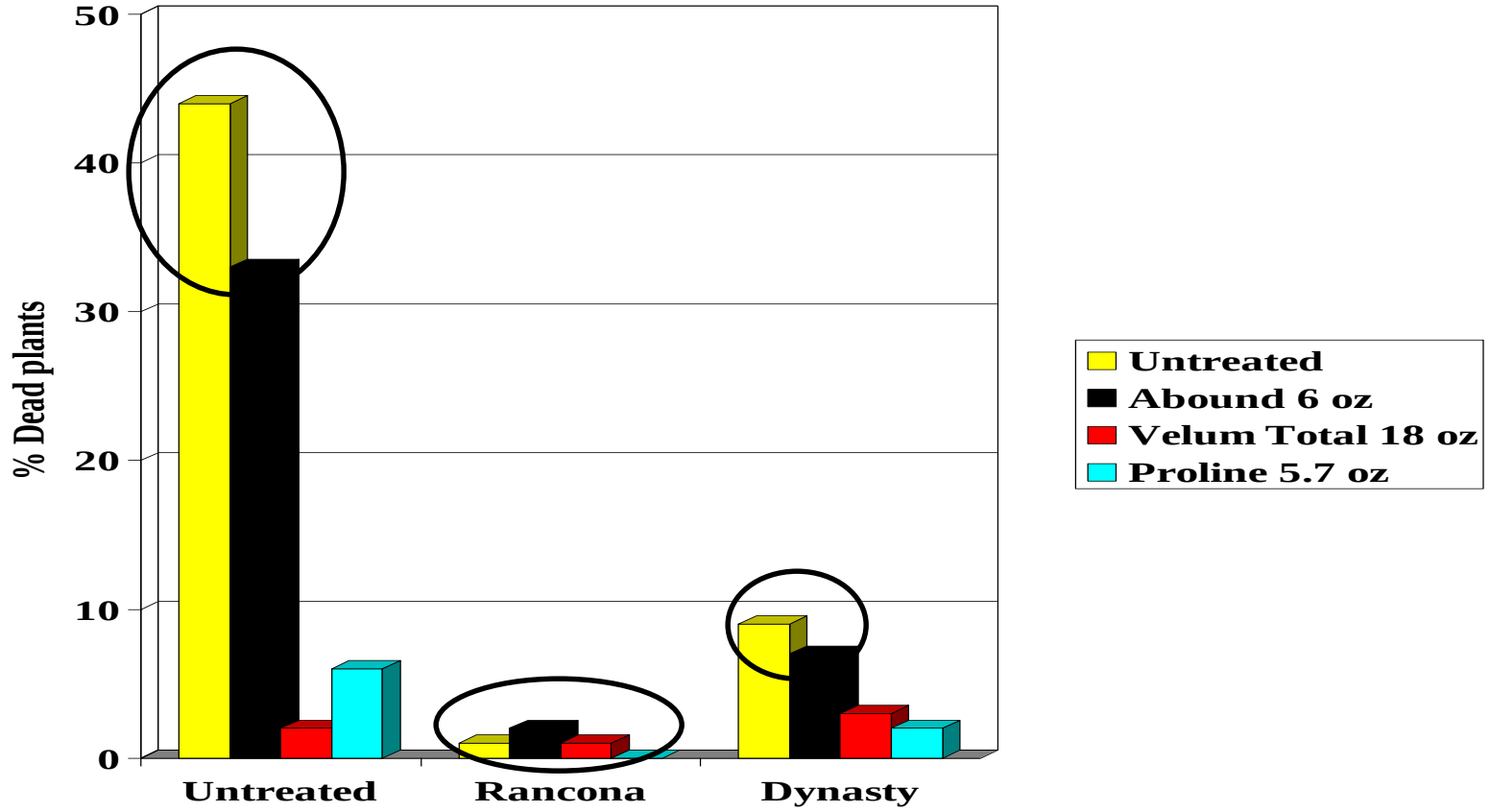
Abound 6 oz/A IF

Velum Total 18 oz/A IF

Trial was planted using Tiftguard peanuts without any seed treatment.
Photo is a composite from drone of all reps in a RCB test (Photo credit – Keith Rucker)

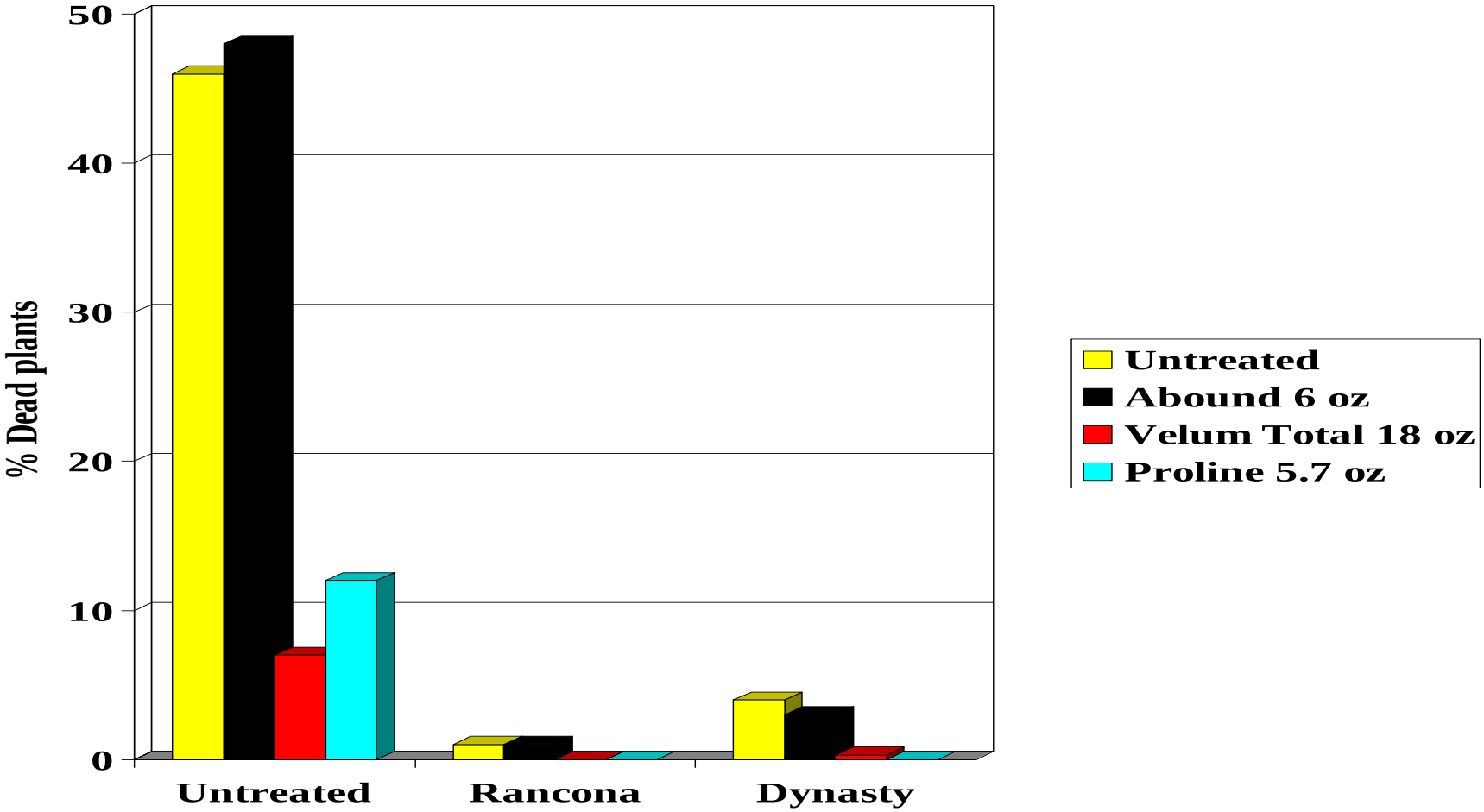
Seed Treatment x In Furrow Test 2019

(Aspergillus Crown Rot, 35 DAP, LSD = 9.0)



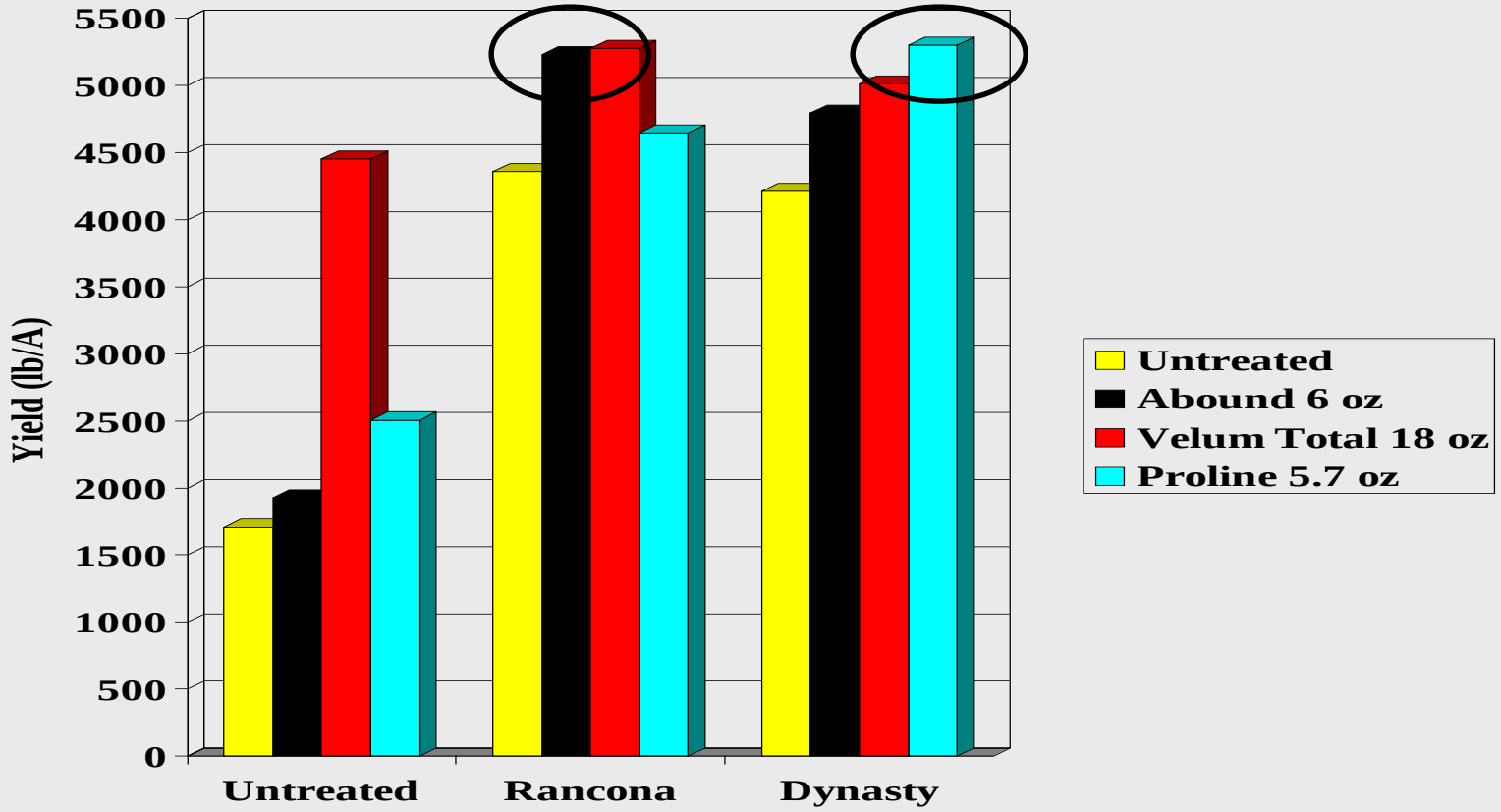
Seed Treatment x In Furrow Test 2020

(Aspergillus Crown Rot, 35 DAP, LSD = 7.0)



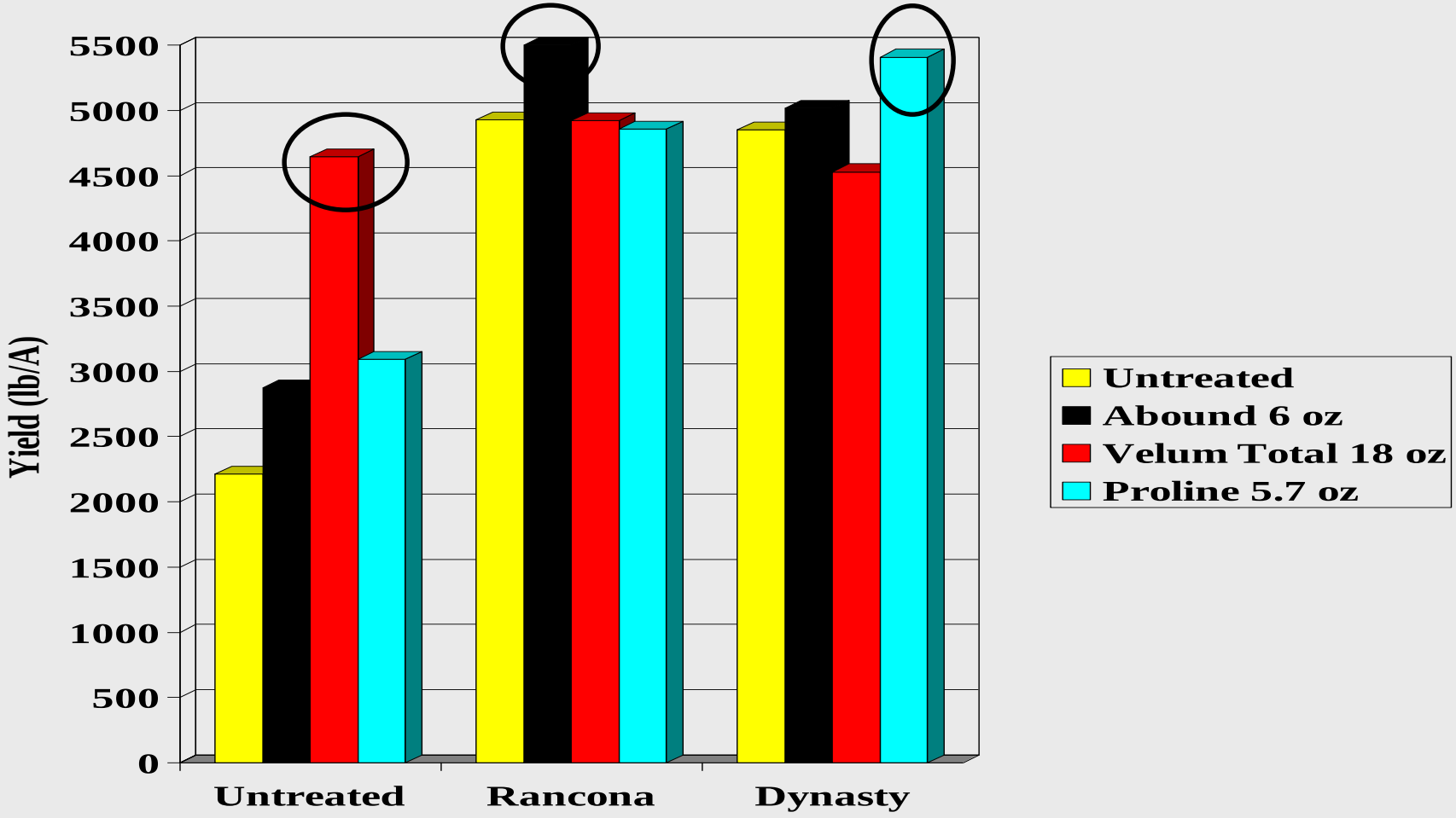
Seed Treatment x In Furrow Test 2019

(Yield, LSD = 871)



Seed Treatment x In Furrow Test 2020

(Yield, LSD = 918)



What about Polymers?

- Continue to look good, many benefits
- Several companies will have them available in 2021 (added cost?)