



GEORGIA
Precision Ag

2022 UGA Cotton Production Workshop

Precision Ag in Cotton Production

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Extension Precision Ag Specialist

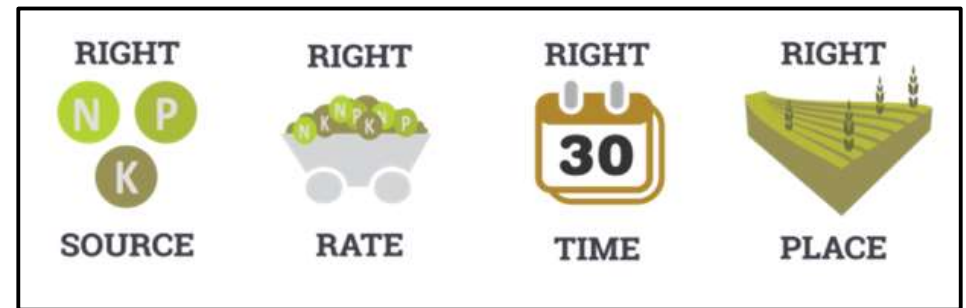
University of Georgia



Fertilization

UGA Recommendation:

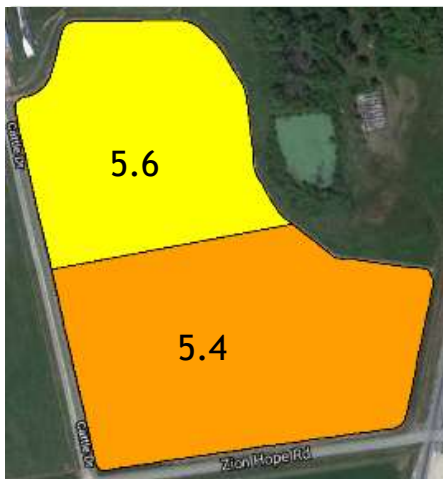
- Soil pH: 6.0 – 6.3
- P and K: upper to medium range
- N (Rate and Timing)



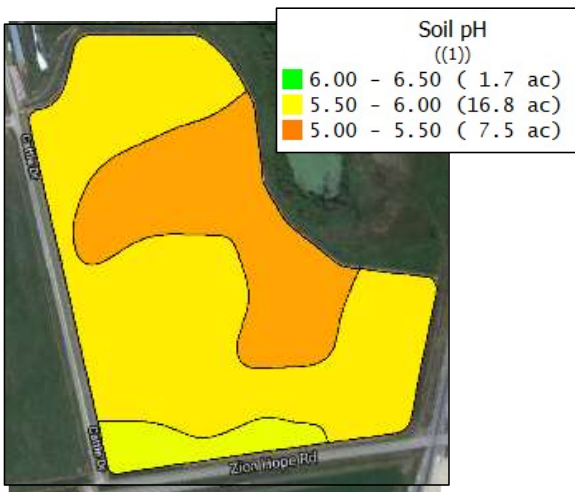
Precision soil sampling to guide VR fertilizer Applications:

- Grid – no field history (2.5 or 5 ac)
- Zone – field history known (2 to 3)

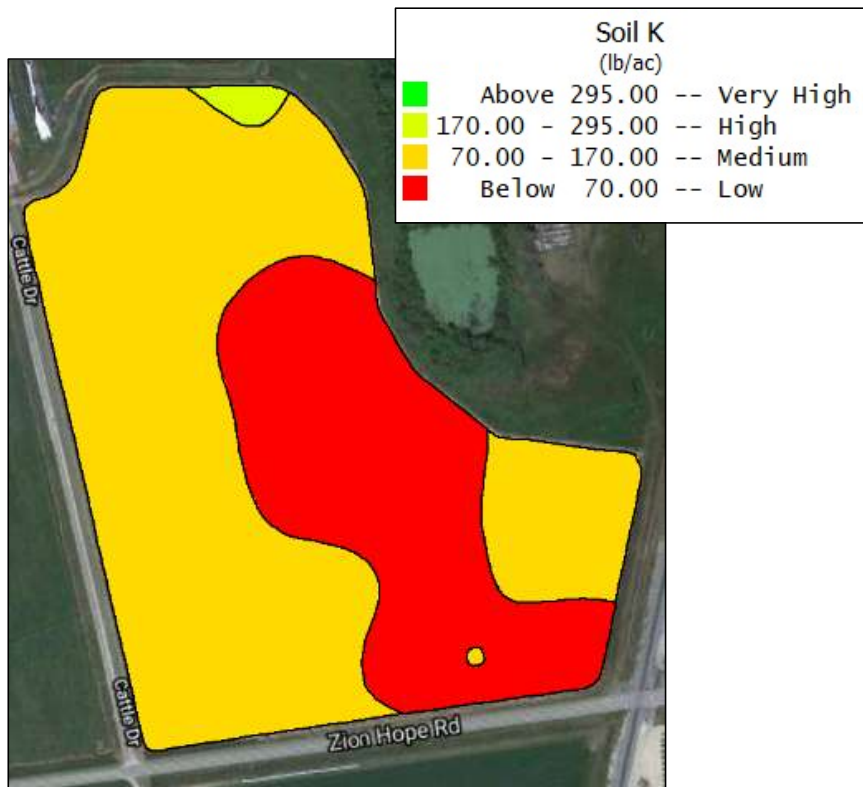




| ----- Uniform Application ----- | | | | |
|---------------------------------|--------------|---------------|------------------|-----------------|
| Field | Size (acres) | Rate (lbs/ac) | Total Lime (lbs) | Total Cost (\$) |
| Zone 1 | 26.0 | 2000 | 52,000 | \$494 |
| Total | | | 26 ton | \$494 |



| ----- Variable-Rate Application ----- | | | | |
|---------------------------------------|--------------|---------------|------------------|-----------------|
| Field | Size (acres) | Rate (lbs/ac) | Total Lime (lbs) | Total Cost (\$) |
| Zone 1 | 7.5 | 1500 | 11,250 | \$107 |
| Zone 2 | 16.8 | 1000 | 16,800 | \$160 |
| Zone 3 | 1.7 | 0 | 0 | \$0 |
| Total | | | 14 ton | \$267 |



Potassium



Phosphorus

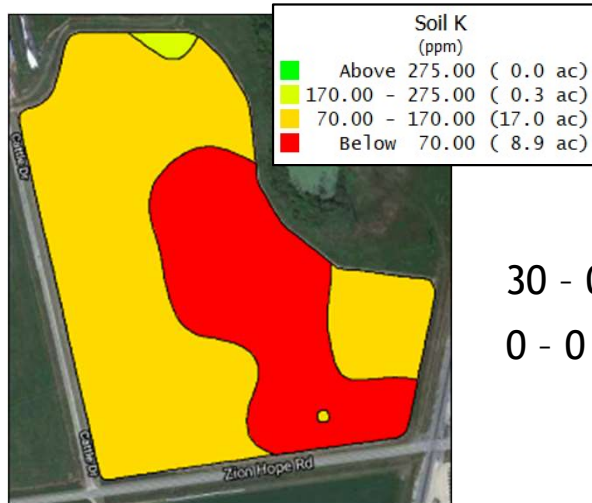


Total: N-P-K : 75 - 0 - 110 lbs/ac

Pre-plant: N-P-K : 30 - 0 - 110 lbs/ac

30 - 0 - 110 lbs/ac

| --- Uniform Application --- | | | |
|-----------------------------|--------------|--------------|-----------------|
| Field | Size (acres) | Cost (\$/ac) | Total Cost (\$) |
| Field | 26.0 | 124 | 3,224 |
| Total | | | \$3,224 |



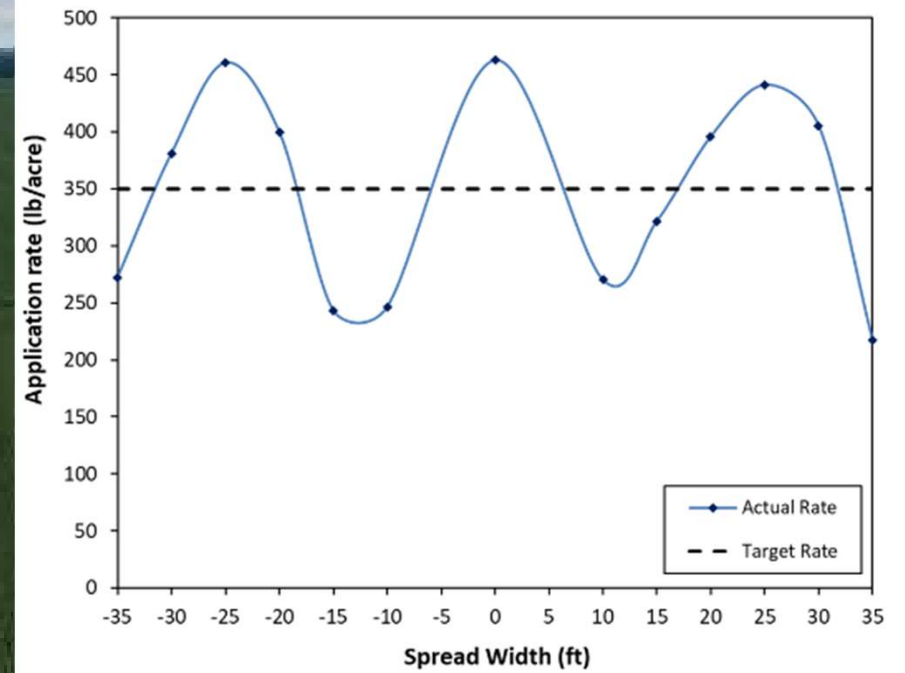
30 - 0 - 70 lbs/ac

0 - 0 - 40 lbs/ac

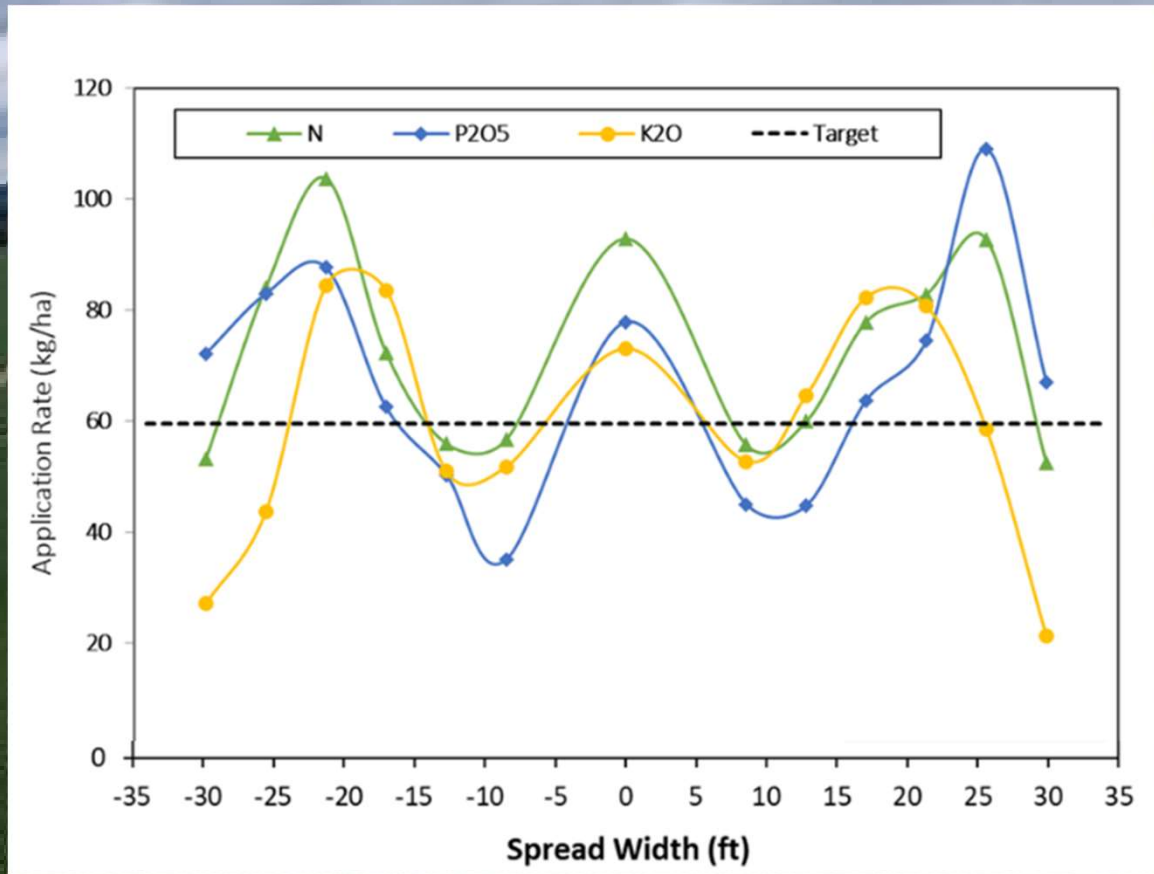
| Variable-Rate Application | | | |
|---------------------------|--------------|--------------|-----------------|
| Field | Size (acres) | Cost (\$/ac) | Total Cost (\$) |
| Field | 26.0 | 89 | 2,314 |
| Zone 2 | 9.0 | 28 | 252 |
| Total | | | \$2,566 |

(On average, past studies show average cost return of \$14-\$20 from GPS soil sampling and \$VRT)

Application Issues can be very costly!

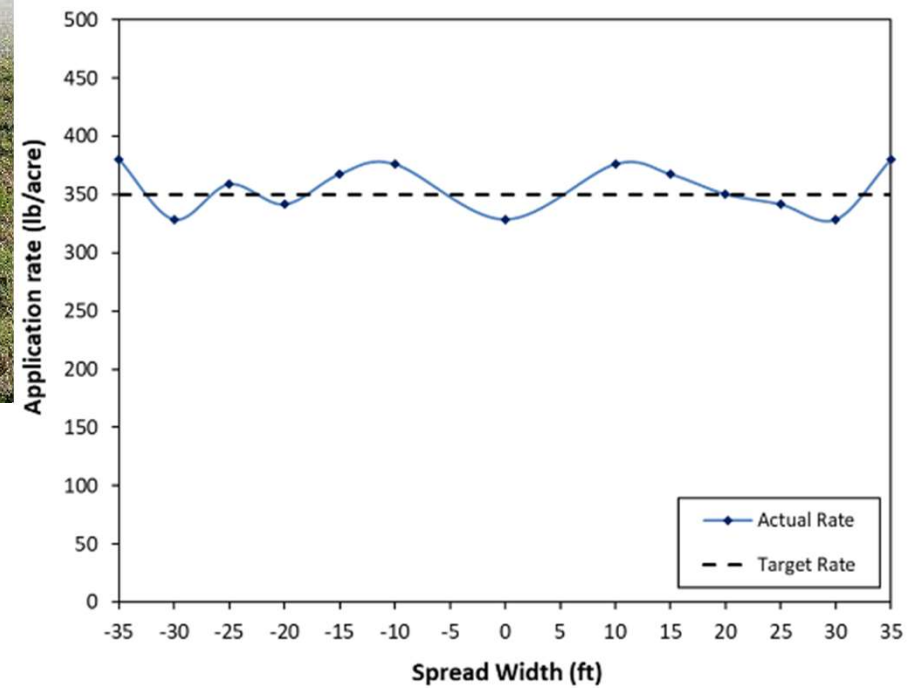


Think about segregation when applying blends!





Standard pan testing: verify application rate and distribution across the swath!



Planting Considerations and Technologies

Timely and uniform stand establishment is critical to maximize yield potential!

- ✓ Seeding Rate (2 -3 seed/ft)
- ✓ Seeding Depth (0.5 to 1.0")
- ✓ Seed Spacing (uniform)

Seed Monitor: (by-row feedback)

- Population (over or under)
- Seed Singulation (98 - 100%)



JOHN DEERE

Planter

09:58

RTK

SCV

25400
(seeds/ac)

10.8
(in H2O)

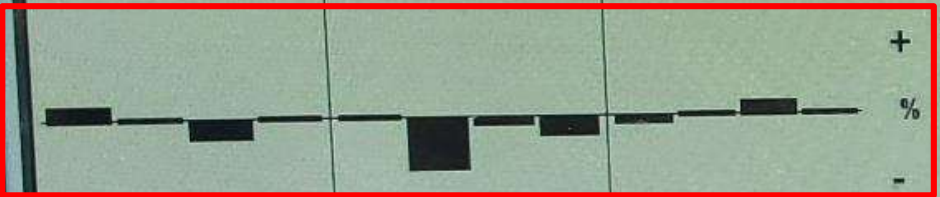
I

+

2.40

-

C



AutoTrac

A

Active

ON

Steering

AUTO

Location

0in

Planted Population – enough or not?



Planted Population



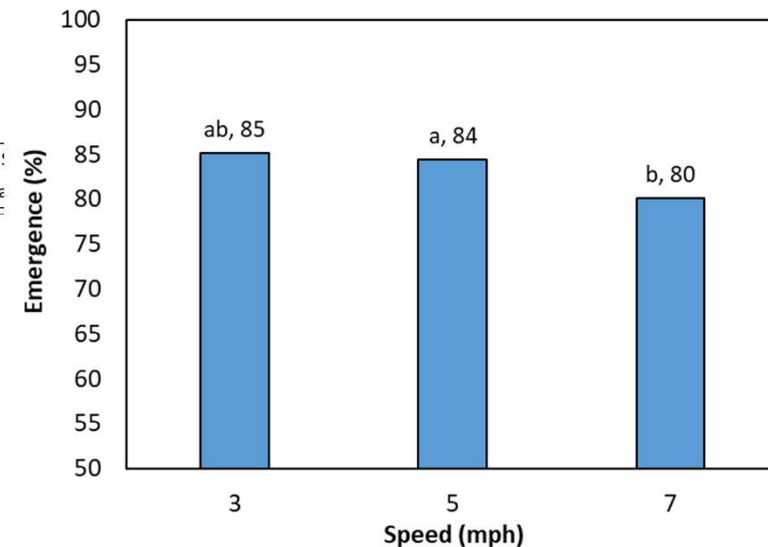
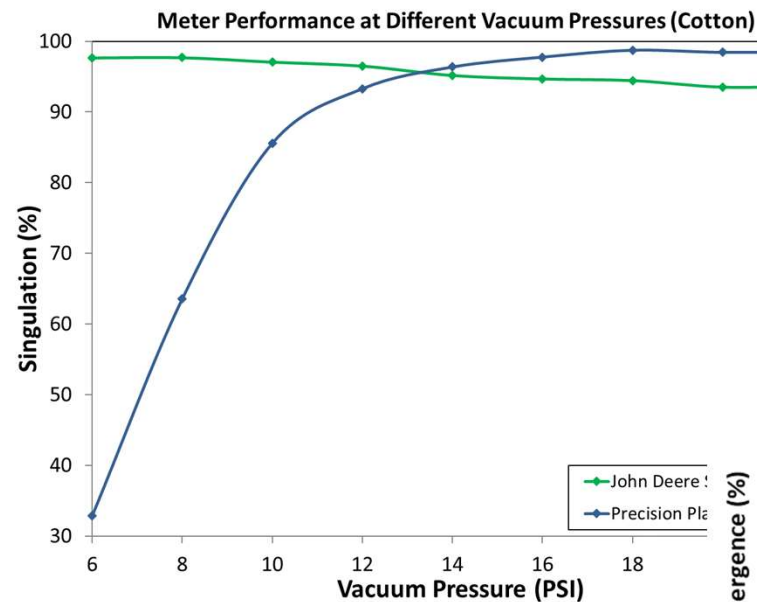
Singulation

Seed Singulation

$$\text{Singulation (\%)} = 100 - \text{skips (\%)} - \text{multiples (\%)}$$

What affects singulation?

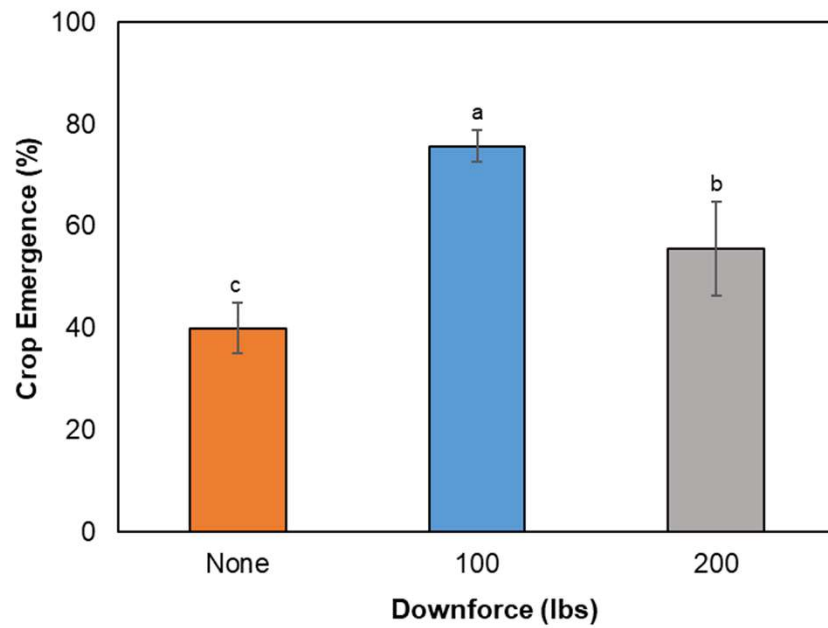
- Meter Setup
- Vacuum (seed size)
- Ground speed
- Row-unit vibration



98-100% singulation is desired!

Downforce

- **Too little** and **too much** can affect emergence (timing and uniformity)



Consider field variability – soil type, texture, moisture, etc.



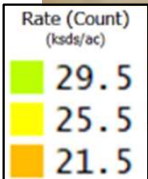
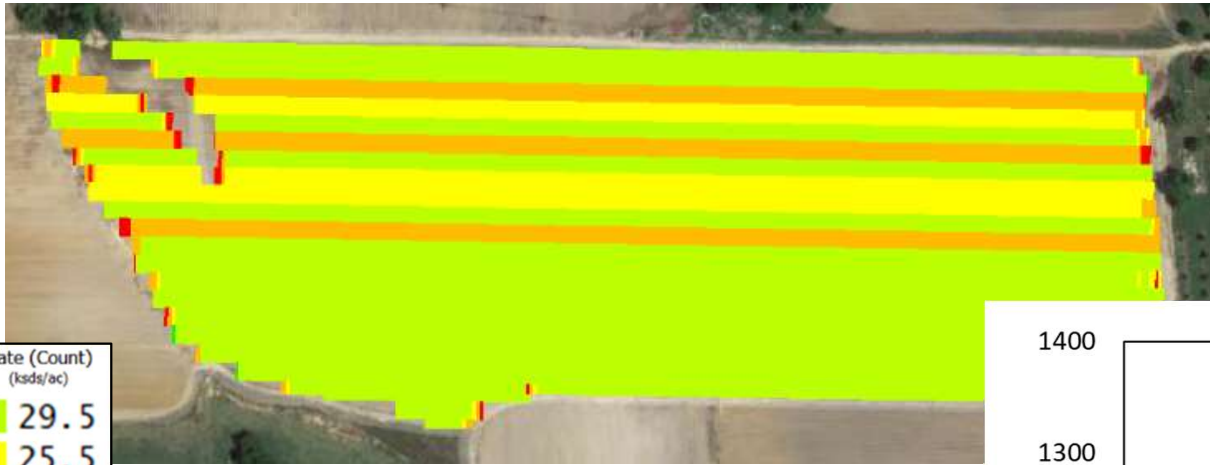
Active Downforce options:



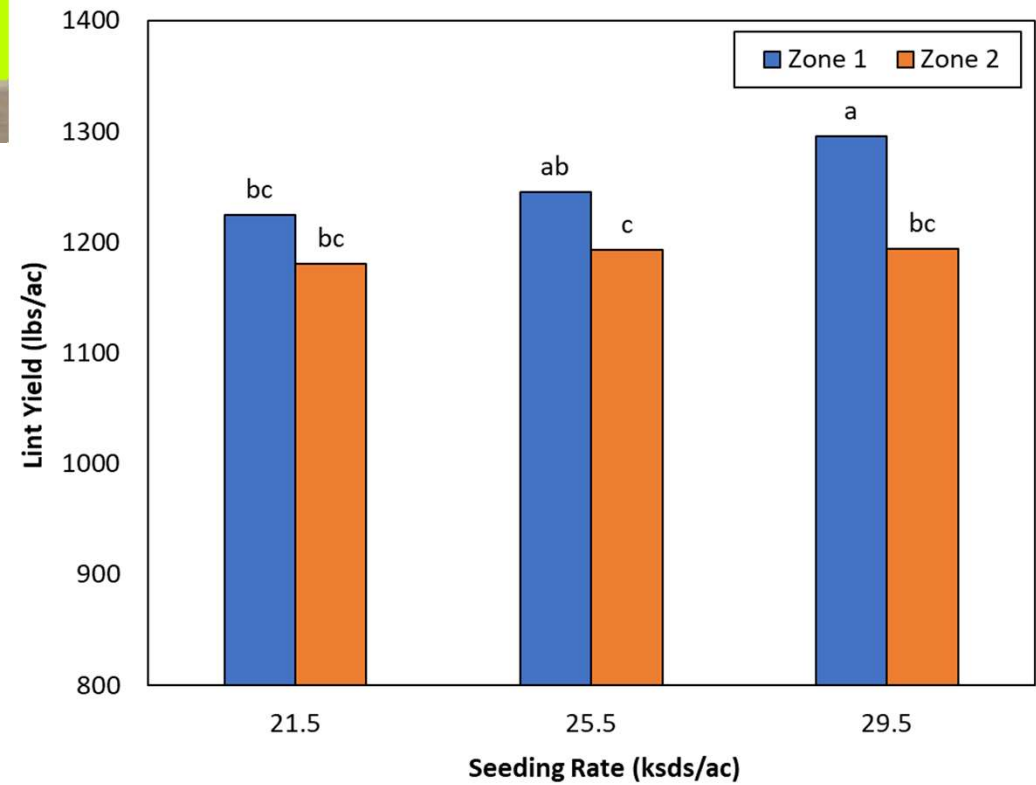
On-Farm Research



Variable-Rate Seeding

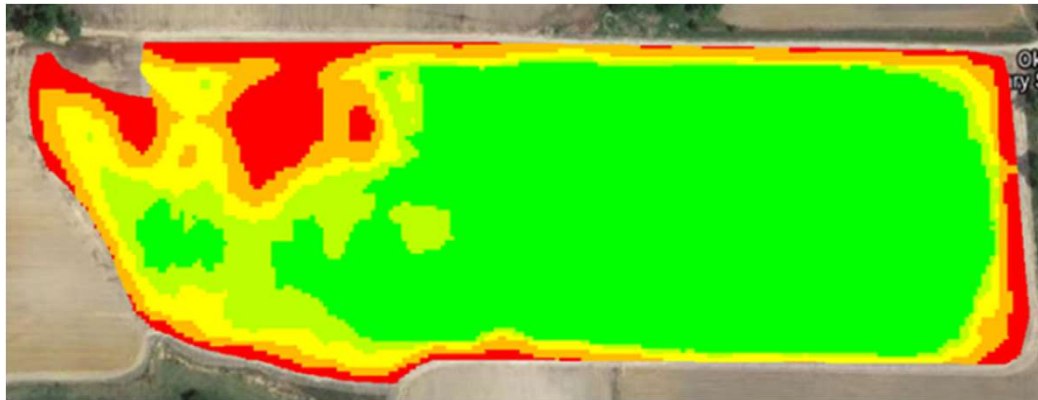


| Zone | Target Rate (ksds/ac) |
|---|-----------------------|
| 1 | 21.5 |
| 1 | 25.5 |
| 1 | 29.5 |
| <hr style="border-top: 1px dashed black;"/> | |
| 2 | 21.5 |
| 2 | 25.5 |
| 2 | 29.5 |



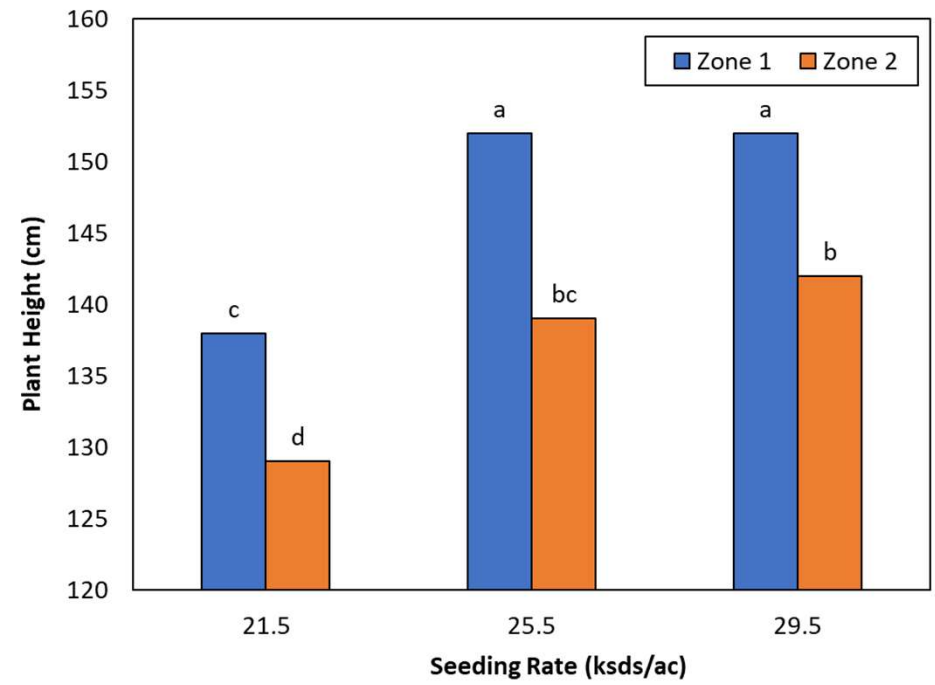


Soil Type

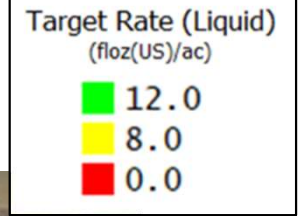


Crop Health

Plant Growth



Plant Growth Management by Zone



Thanks!

Simerjeet Virk

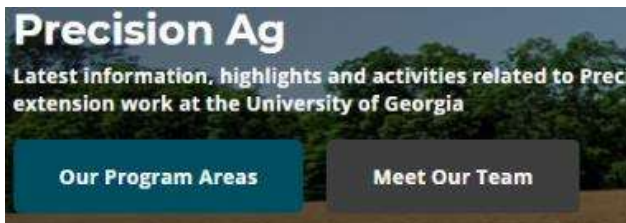
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