

# **Variable Rate Soybean Seeding Study**

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## Background

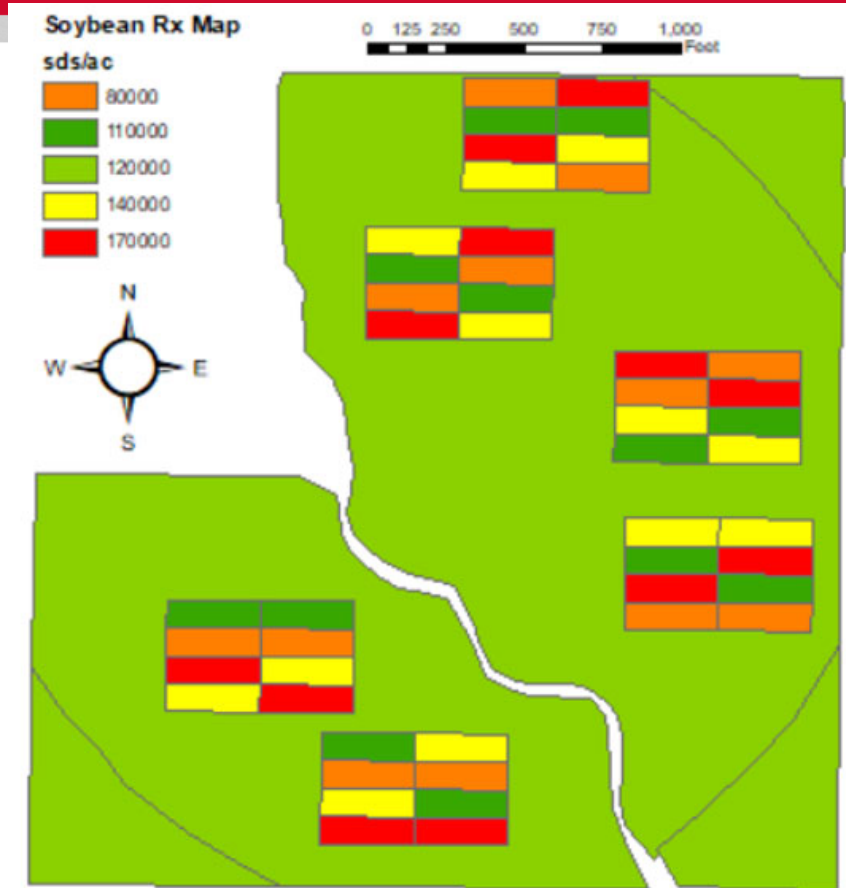
- On-farm research trial in 2018.
  - Biological product
- Severe crusting
  - Planted 140K
  - Early stands 90K
  - Harvest stands 54K
- Average yield
  - 70 bu/ac
- Question?
  - How low can I go (seeding rates)?

# 2019 Growing Season

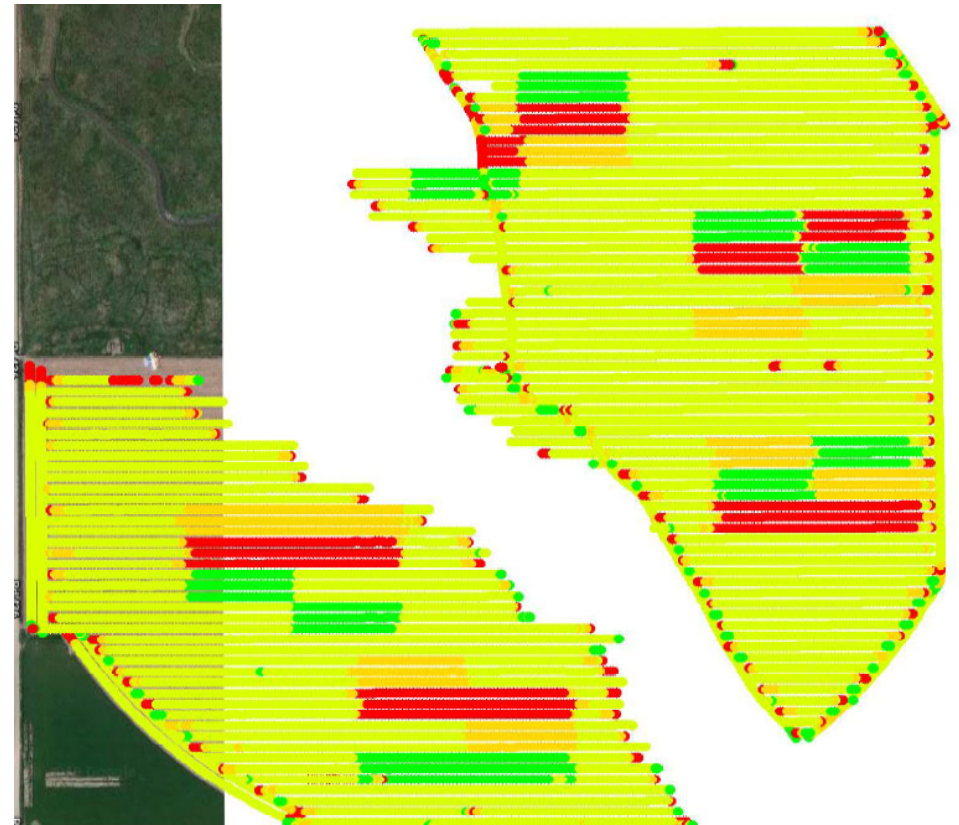
## Data Collected—2019

- Early season stand counts
- Scouting notes—every two weeks
- Harvest stand counts
- Stem diameter
- Detects stem borer pressure
- Yield
- Moisture
- Net return





**Figure 1.** Soybean seeding rate prescription map for 2019 field site.



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## Results—2019

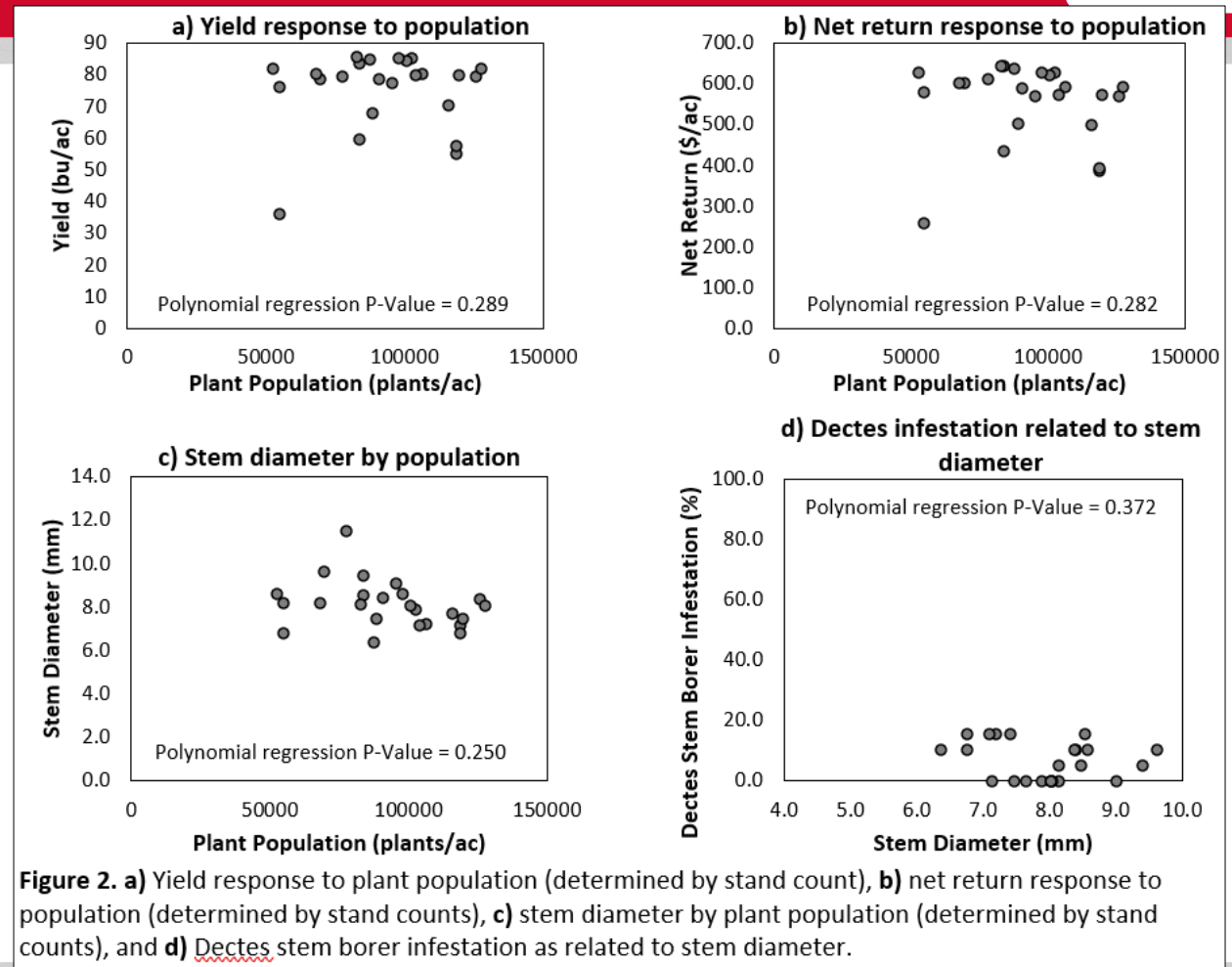
Planting rate (seeds/ac)	Stand Count (plants/ac)	Emergence (%)	Stem Diameter (mm)	<u>Dectes</u> Stem Borer Infestation %	Moisture (%)	Yield (bu/ac) <sup>†</sup>	Marginal Net Return <sup>‡</sup> (\$/ac)
80,000	65,833 C*	82 A	9 A	7 A	10.5 A	73 A	552.69 A
110,000	83,833 B	76 A	8 A	8 A	10.5 A	76 A	567.99 A
140,000	104,000 A	74 A	8 A	5 A	10.6 A	78 A	570.08 A
170,000	118,833 A	70 A	8 A	7 A	10.6 A	75 A	532.34 A
P-Value	<0.0001	0.276	0.135	0.930	0.242	0.344	0.374

\*Values with the same letter are not significantly different at a 90% confidence level.

<sup>†</sup>Yield values are from cleaned yield monitor data. Bushels per acre adjusted to 13% moisture.

<sup>‡</sup>Marginal net return based on \$8.10/bu soybean and \$60/unit of 140,000 seeds.

## Results—2019





## Summary –2019

- Plant stands ranged from 70% to 82% of the seeding rate.
- Stem diameter and Dectes stem borer infestation were not impacted by seeding rate or plant population at this site.
- Dectes stem borer infestation was relatively low, ranging from 5% to 7%.
- Yield and net return were not significantly different for the planting rates evaluated.
- The lowest seeding rate of 80,000 seeds/ac with plant stands averaging 66,000 plants/ac achieved yields as high as the 170,000 seeds/ac treatment.

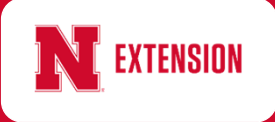
# 2020 Growing Season

## Data Collected—2020

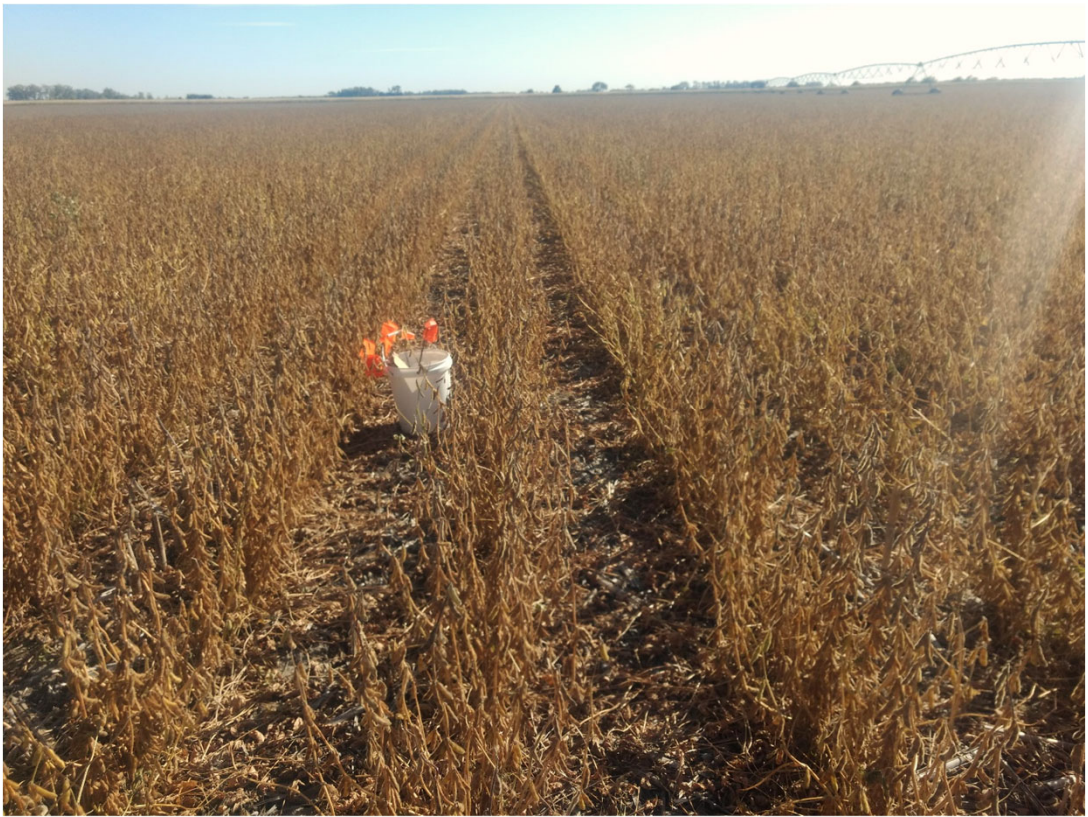
- Early season stand counts
- Harvest stand counts
- Yield
- Moisture
- Net return



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## Results—2020

	Early Season Stand Count (plants/ac)	Harvest Stand Count (plants/ac)	Moisture (%)	Yield (bu/ac) <sup>†</sup>	Marginal Net Return <sup>‡</sup> (\$/ac)
80,000 seeds/ac	67,458 D*	63,708 D	10.1 A	81 A	740.97 A
110,000 seeds/ac	93,792 C	83,458 C	9.8 A	79 A	711.72 A
140,000 seeds/ac	119,542 B	99,417 B	10.0 A	81 A	714.47 A
170,000 seeds/ac	148,500 A	123,875 A	9.9 A	82 A	718.79 A
P-Value	<0.0001	<0.0001	0.314	0.685	0.602

\*Values with the same letter are not significantly different at a 90% confidence level.  
†Bushels per acre corrected to 13% moisture.  
‡Marginal net return based on \$9.50/bu soybean and \$50/140,000 seed unit.

## Summary –2020

- Plant populations at this site ranged from 83% to 87% of the target seeding rate.
- Yield and net return was not different among the four seeding rates evaluated.

## Future Plans?

- May adjust seeding rates
  - Depends on farmer preference
  - Input costs/farm profits
- Dr. Joe Luck's group has been conducting these studies for years now
  - More information available



## Resources

- Nebraska On-Farm Research Network
  - Website: <https://cropwatch.unl.edu/on-farm-research>
  - Publications (print or online)
- Virtual Field Days
  - Twitter: @OnFarmResearch
  - YouTube: Nebraska Extension On-Farm Research Network Channel
  - WCREEC: <https://mediahub.unl.edu/media/14313>
- CropWatch
  - Website: <https://cropwatch.unl.edu>



## Question? Thank You!

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