

The Good, Bad, and Ugly of Wide Row Corn

Bob Recker



12 January, 2023
St. Louis, MO



Cultivating Solutions for Growth



About Bob Recker

John Deere Product Engineer in Waterloo, IA for 41 Years, 1967-2008

Worked in

- Hydraulics
- Drivetrain
- Total Tractors
- Manufacturing
- Computer Graphic Systems
- Global Tractors
- Farming Systems
- Advanced Products



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Advanced Products



The Most Fun and got me started on
the path I am now taking



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About Cedar Valley Innovation (CVI)



Formed LLC in 2004 in anticipation of retirement

Focus: Farmers' "Triple Bottom Line"

1. Sustainable Profit: Make money every year
2. Soil Legacy: Leave the Soil better than you got it
3. Food, Fiber, & Fuel: Support a growing population



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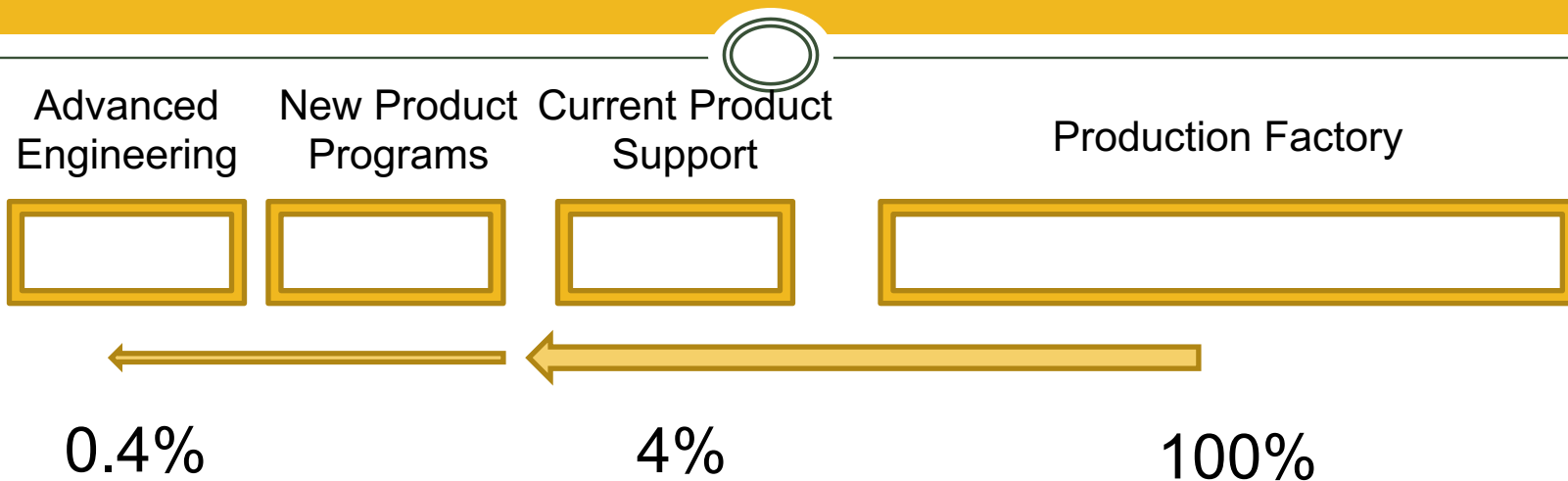
Sound



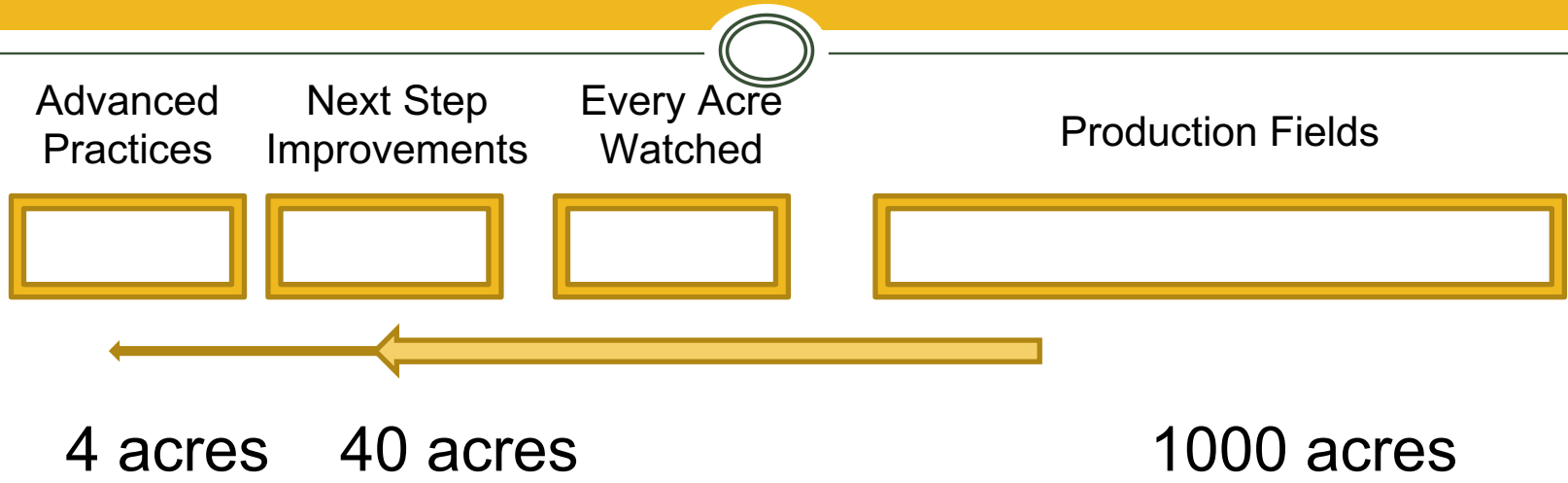
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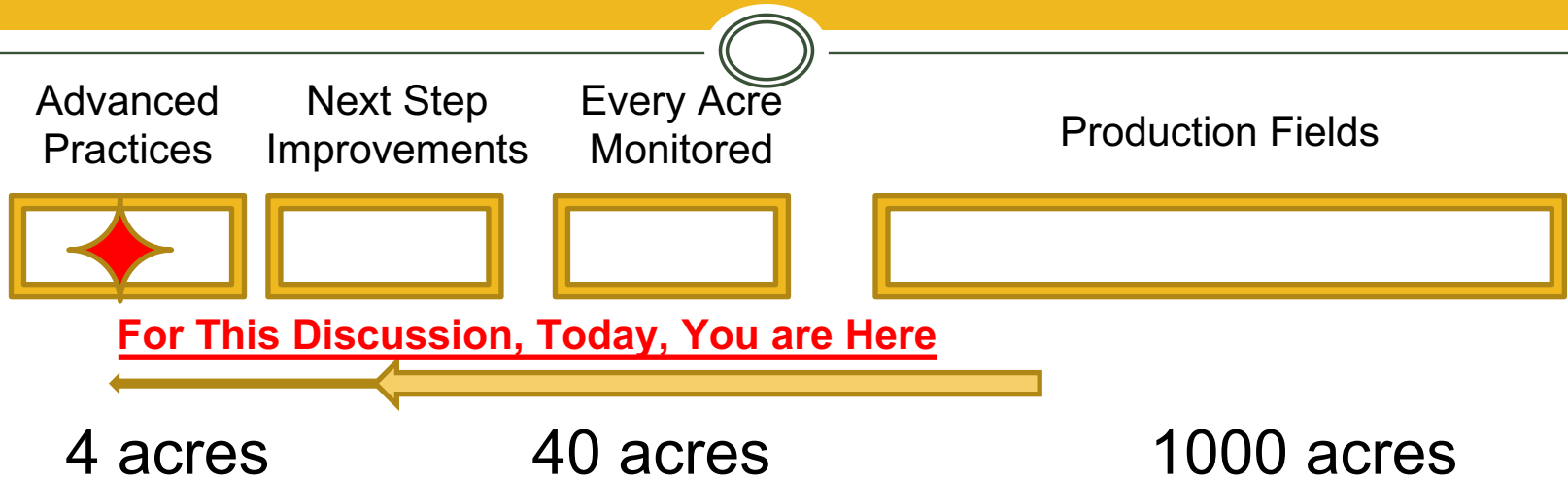
Manufacturing: The flow of Money



Farming: Your On-Farm Experiments



Farming: Your On-Farm Experiments



2021 SARE Project



“Cover Crops in Wide Row Corn” FNC21-1297



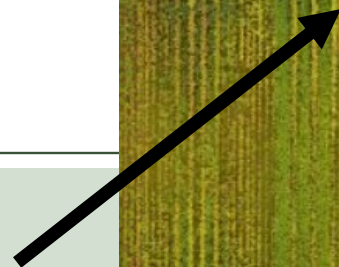
Cover Crop Response to Highly Variable Soil



“Better Corn” Sample Site

“Very Poor Corn” Sample Site

Plot 111011 2021 Season



10-45"

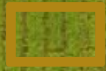


10-55"

30" Corn Baseline

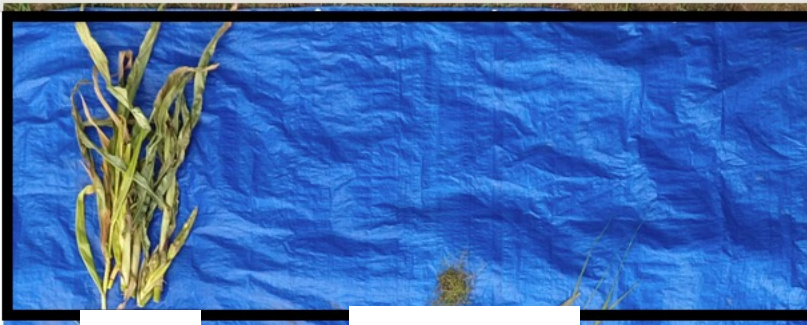
10-80" (90" Twin)

10-80" (90" Twin)



Corn & Cover Crop Biomass

“Better Corn” Area



Corn

Cover Crop

30" Corn, No Cover Crop
7132 lbs/acre Corn Biomass
139 lbs/acre Weeds



10-80" (90" Twin) Corn
3996 lbs/acre Corn Biomass
3647 lbs/acre Cover Crop

Plot 111011 2021 Season



Corn & Cover Crop Biomass

Corn

Cover Crop



Very Poor Corn Area
10-80" (90" Twin) Corn
325 lbs/acre Corn Biomass
6621 lbs/acre Cover Crop

Plot 111011 2021 Season



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2022 SARE Project



“Wide Rows and Cover Crops” FNC22-1398



Plot 30011 Waterloo, IA

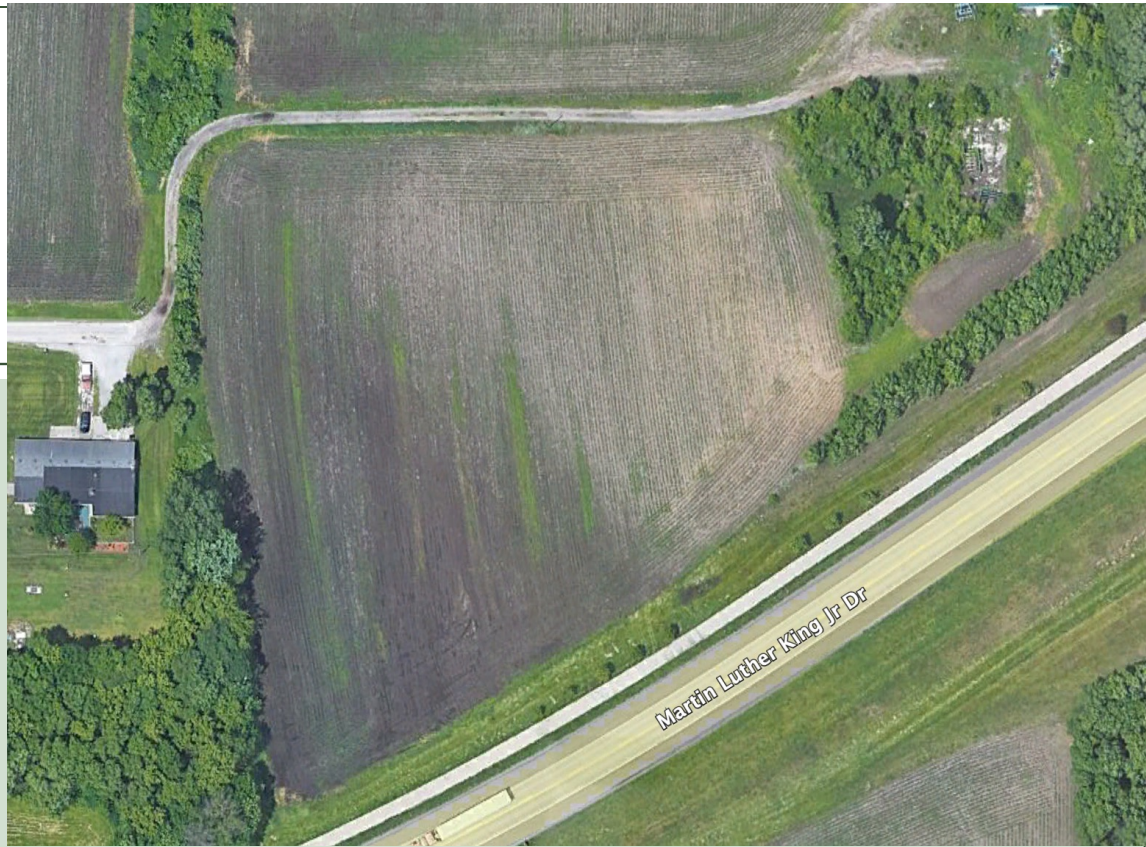
3 Acre Plot Initial Conditions

Highly variable soil

”Too Light, Dry” at top (NE)

“Good Soil” in middle

“Too Heavy, Wet” at bottom (SW)



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Replicated Trials in Variable Soil

Repeated treatments as in 2021 Season

Plot Variables:

30" Baseline

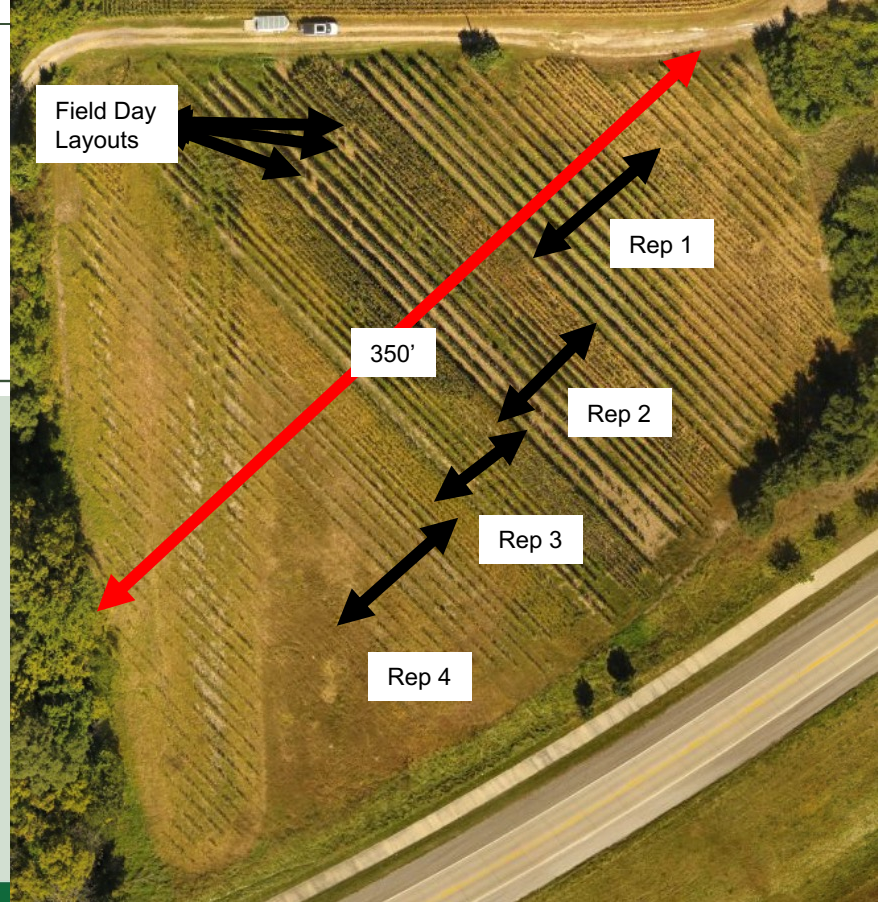
60" Single Row,

90" Twin Row

30 Sep 2022 Field Day was recorded

Posted in 11 videos on YouTube

Search "Bob Recker"



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30" Row, Field Day Layout

30" Row, 209" (1/1000 Acre)
26 Plants, 36 Ears
211 Bu/a
Avg Ear Wet Wt: 0.72 Lbs
Ear Weight C.O.V: 28%



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60" Row, Field Day Layout

60" Row, 104.5" (1/1000 Acre)
24 Plants, 24 Ears
153 Bu/a
Avg Ear Wet Wt: 0.56 Lbs
Ear Weight C.O.V: 41%



90" Twin Row, Field Day Layout

90" Twin Row, 70" (1/1000 Acre)
21 Plants, 21 Ears
195 Bu/a
Avg Ear Wet Wt: 0.79 Lbs



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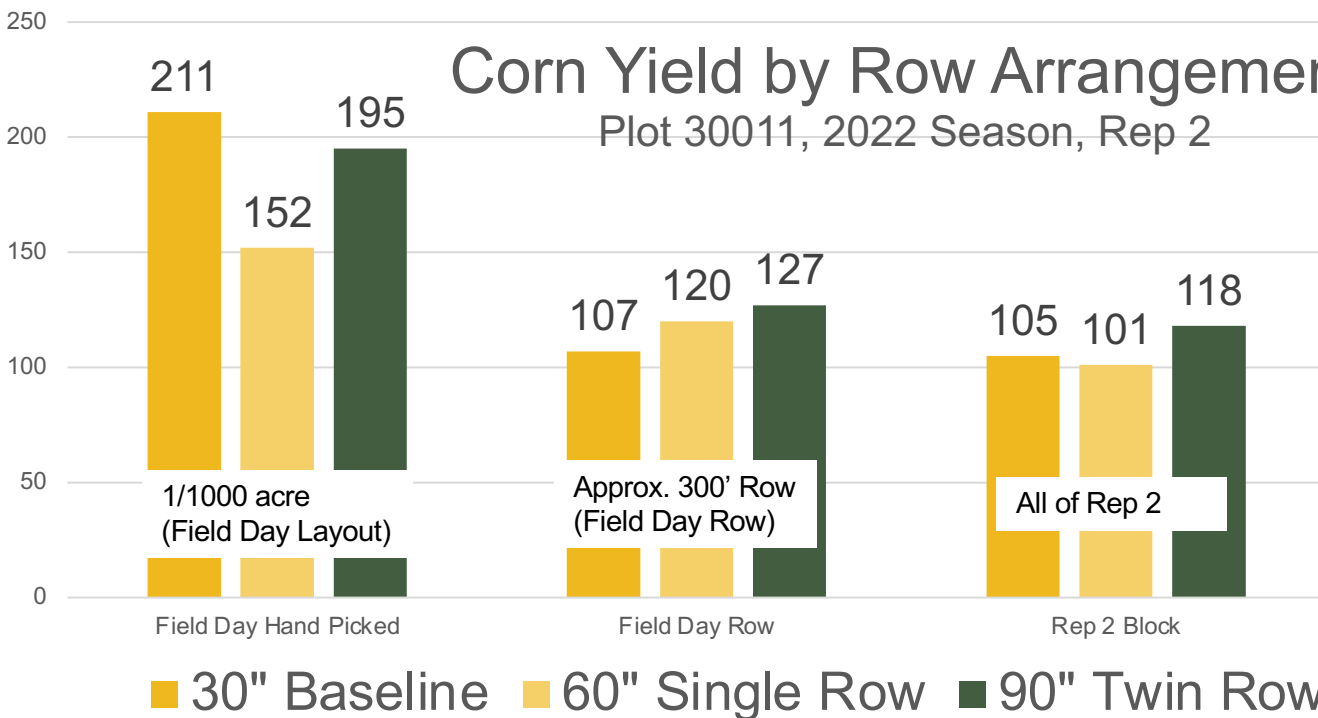
Sound

Man



Corn Yield by Row Arrangement

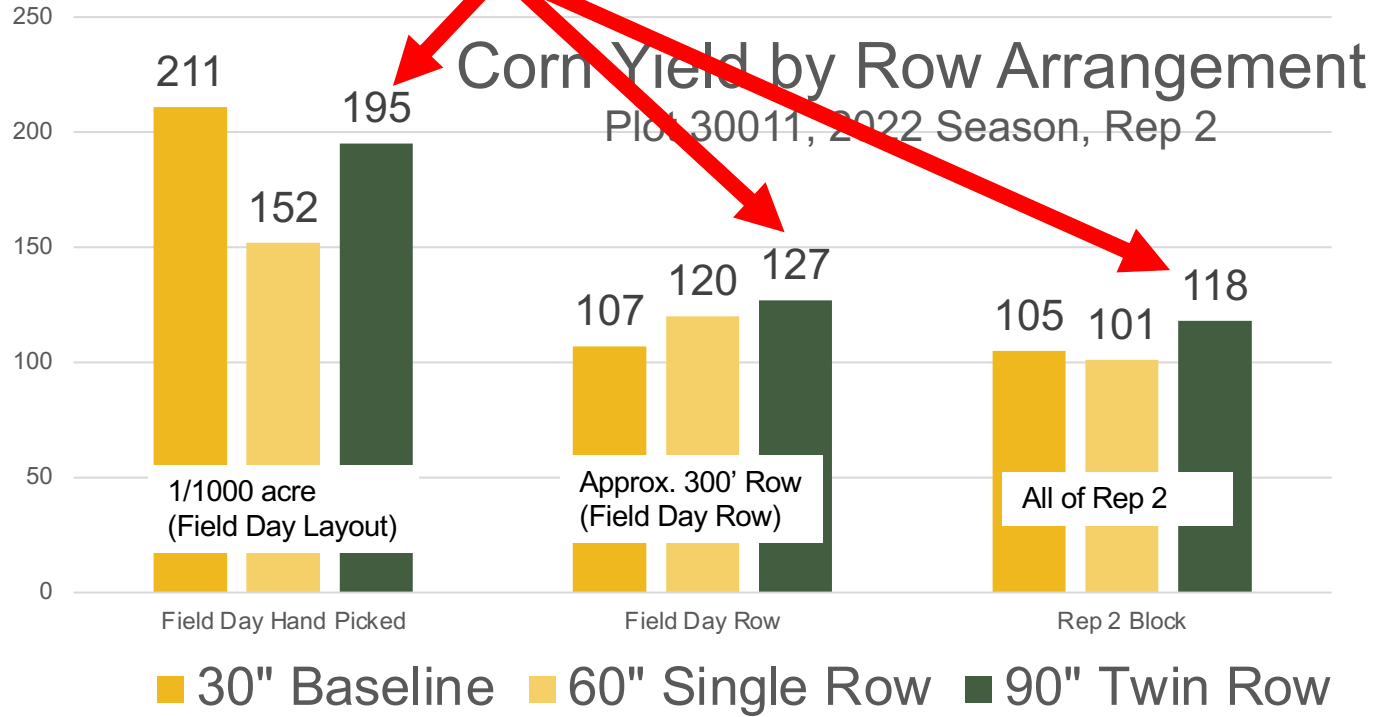
Plot 30011, 2022 Season, Rep 2



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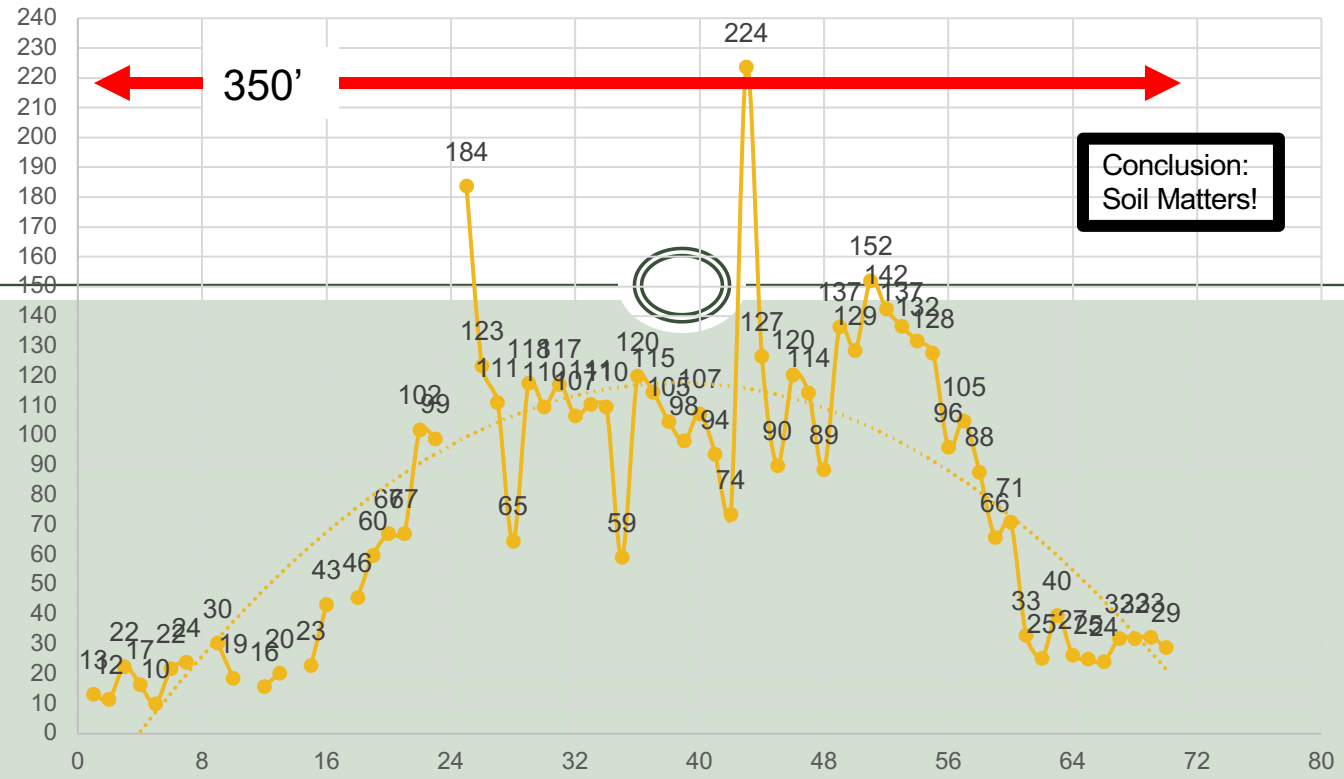
Unexpected and Amazing Results for Wide Rows!



Plot 30011 Yield By Row: Machine Harvest

Single Row
Plot Yield,
Bu/a

Data based on
Machine
Harvest, In-Tank
scale on
Combine



Conclusion:
Soil Matters!



Plot 30181: 3.6 Acres

Conclusion:
Rebuilding the Soil on the North Half of the Plot is a major undertaking

Dramatic North-South Variability

May be residual of 1990's Road Construction Dirt Stockpiles, etc



950'



Bishop Ave

Plot 30181 2022 Season

3.6 Acres

4 Replications (South Side of Plot)

1st 4 Rows in Each Rep the "Baseline" Variety

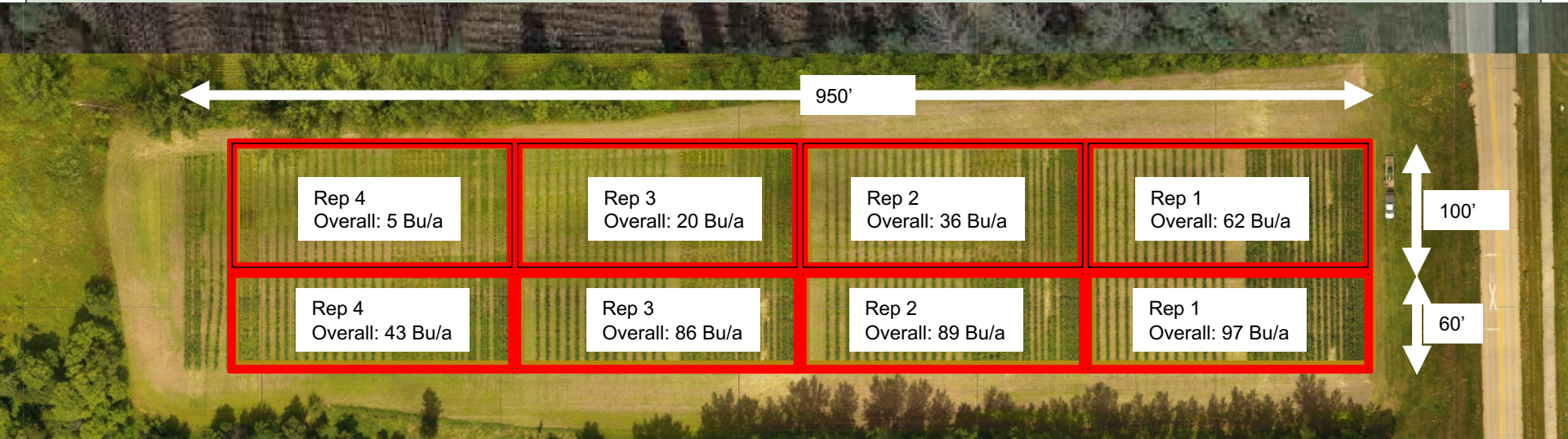
Plot Variables: 30" Baseline, 60" Single, 60" Twin Row, 90" Twin, Various in-Row plant arrangements



Plot 30181 Replications

4 Replications (South Side of Plot)

1st 4 Rows in Each Rep is the “Baseline” Variety; All other rows in each are a different variety by rep
Plot Variables: 30” Baseline, 60” Single, 60” Twin Row, 90” Twin, Various in-Row plant arrangements

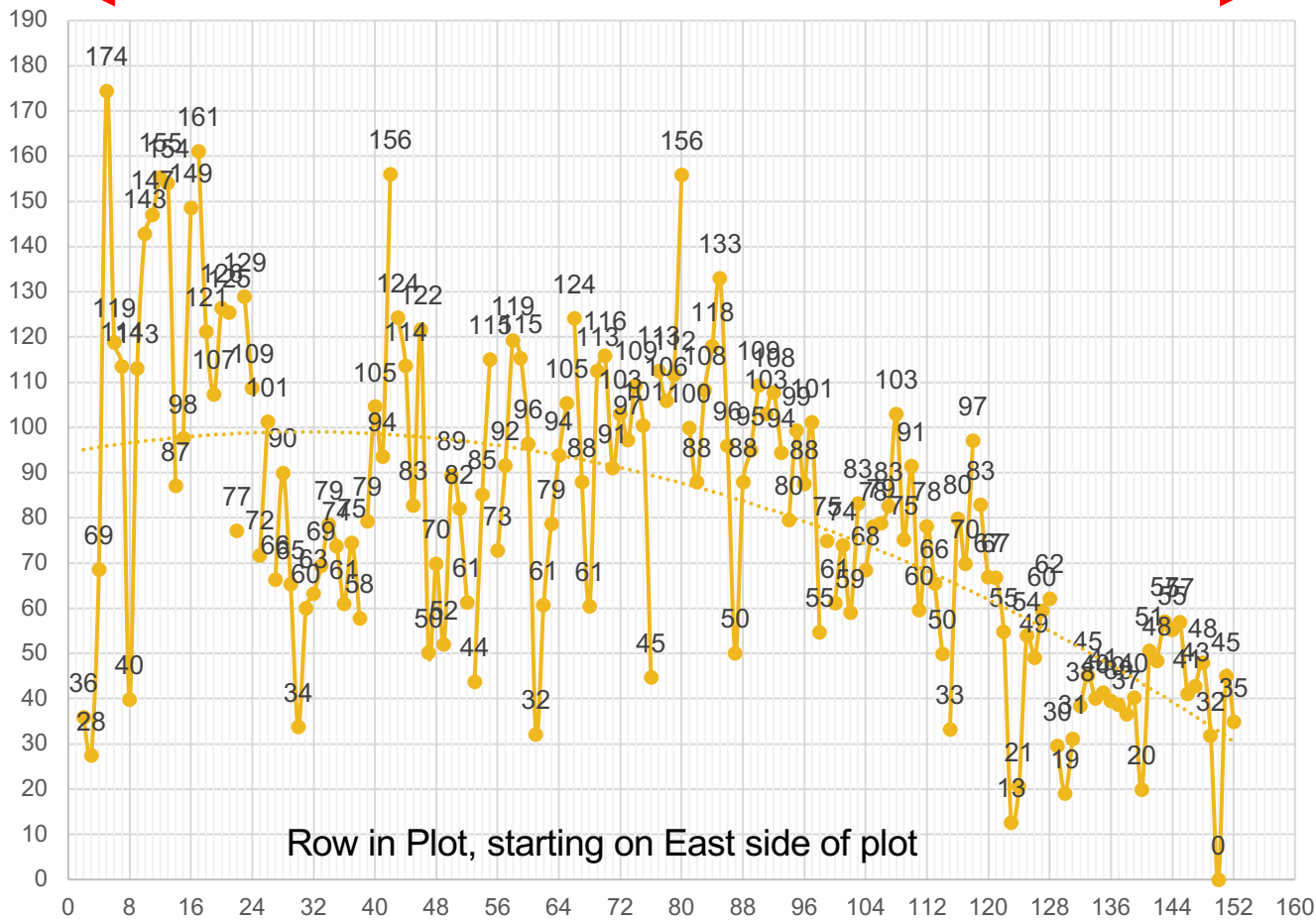


Plot 30181 Yield By Row-South Half of Plot



Single Row
Plot Yield,
Bu/a

Data based on
Machine
Harvest, In-Tank
scale on
Combine



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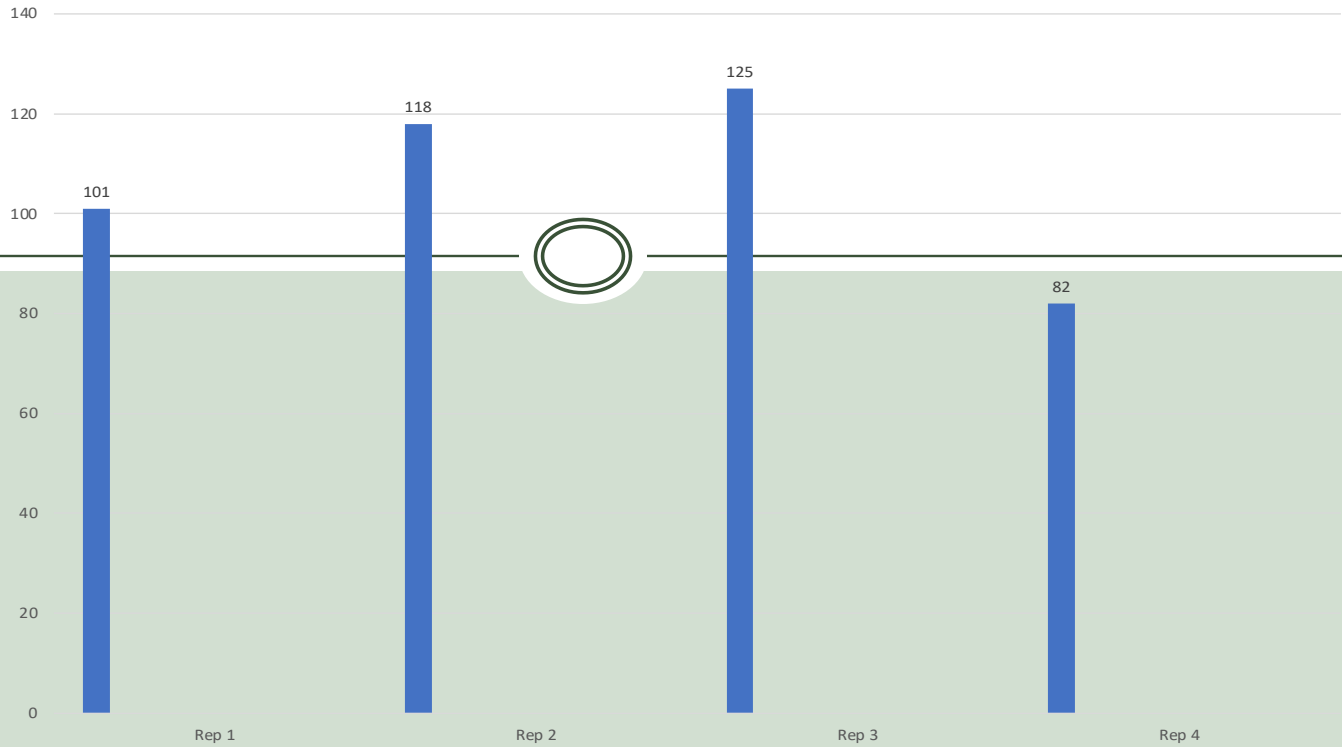
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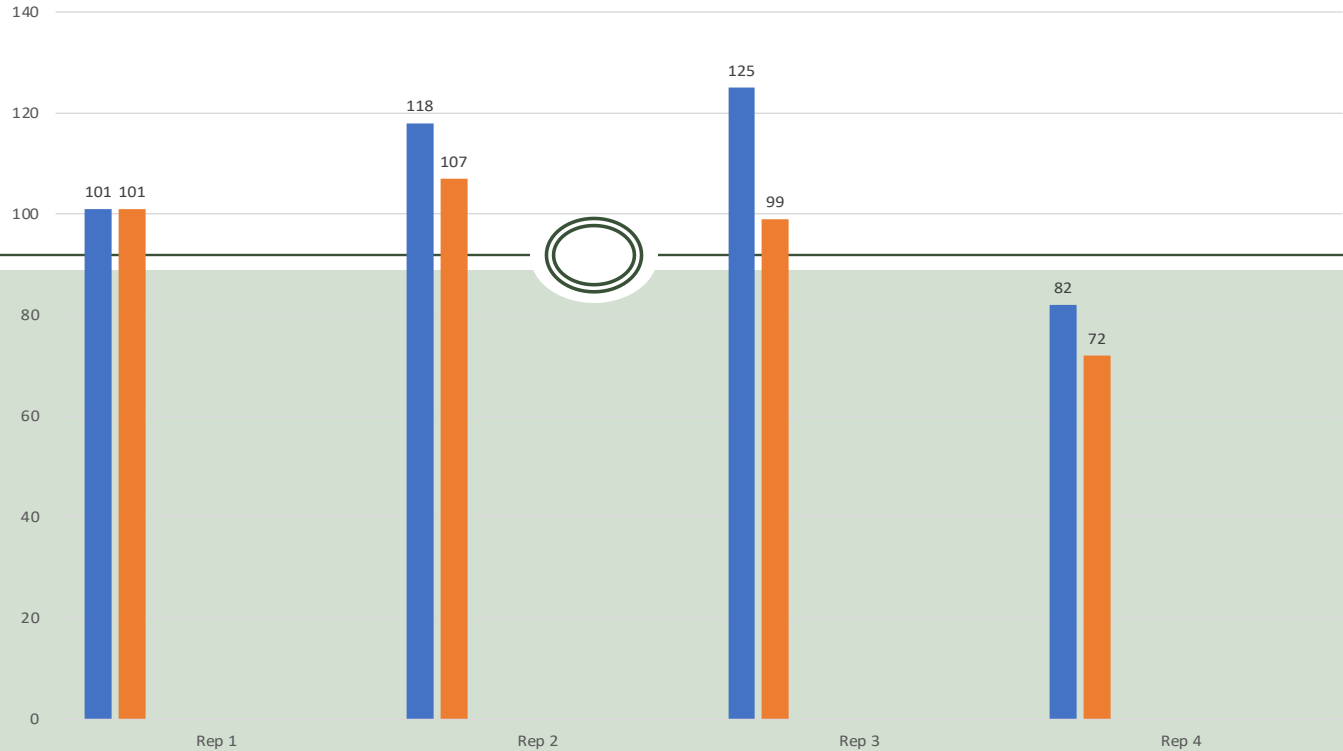
Plot 30181, 2022 Season Baseline Variety, 30" Rows



■ 30" Baseline, Baseline Variety ■ 30" Rep Variety ■ 60" Single Row ■ 60" Single Row Hills ■ 60" Twin Row ■ 60" Twin Row Hills ■ 90" Twin Row ■ 90" Twin Row Hills



Plot 30181, 2022 Season Baseline & Rep Variety, 30" Rows



■ 30" Baseline, Baseline Variety
 ■ 30" Rep Variety
 ■ 60" Single Row
 ■ 60" Single Row Hills
 ■ 60" Twin Row
 ■ 60" Twin Row Hills
 ■ 90" Twin Row
 ■ 90" Twin Row Hills

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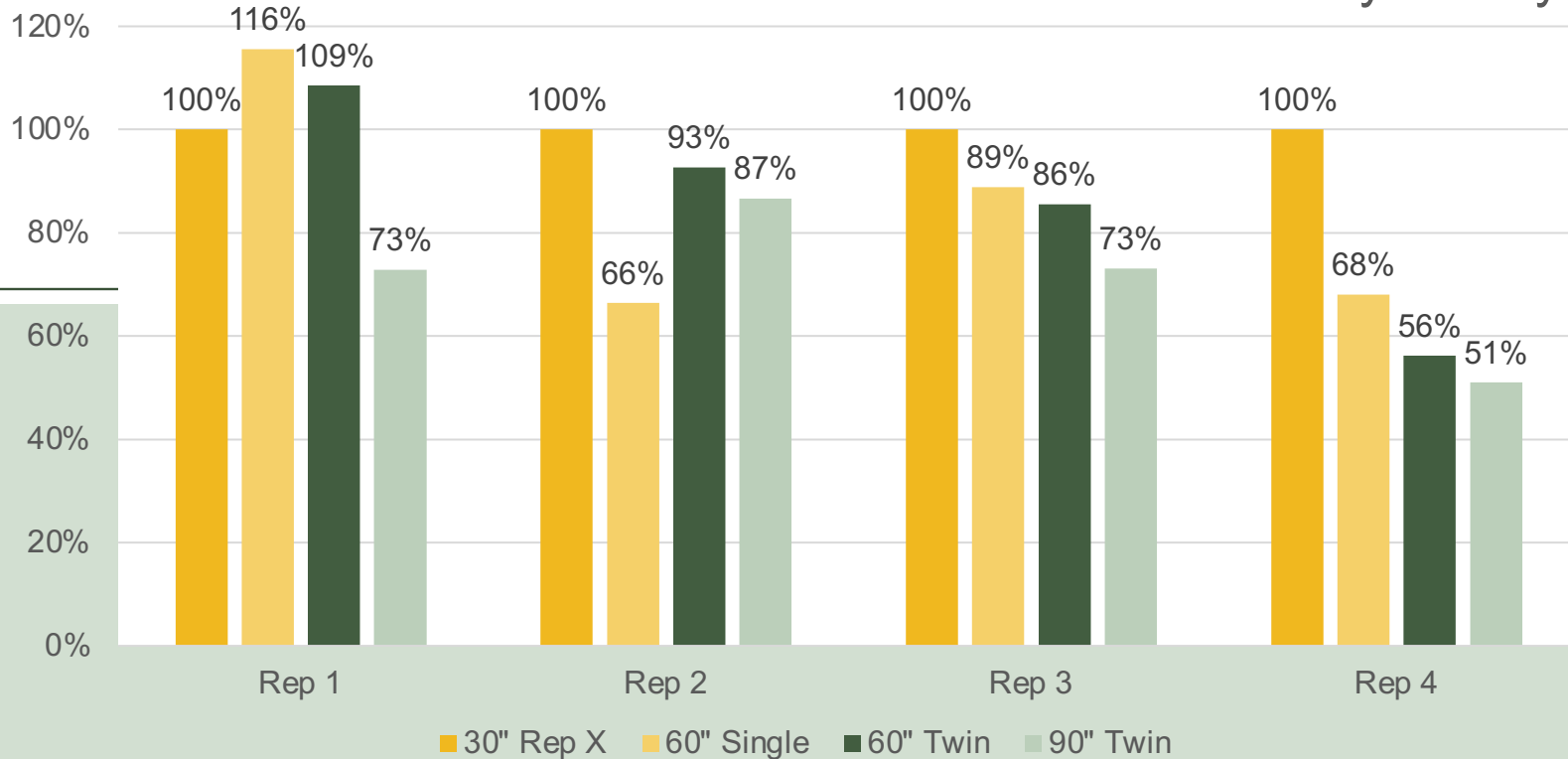
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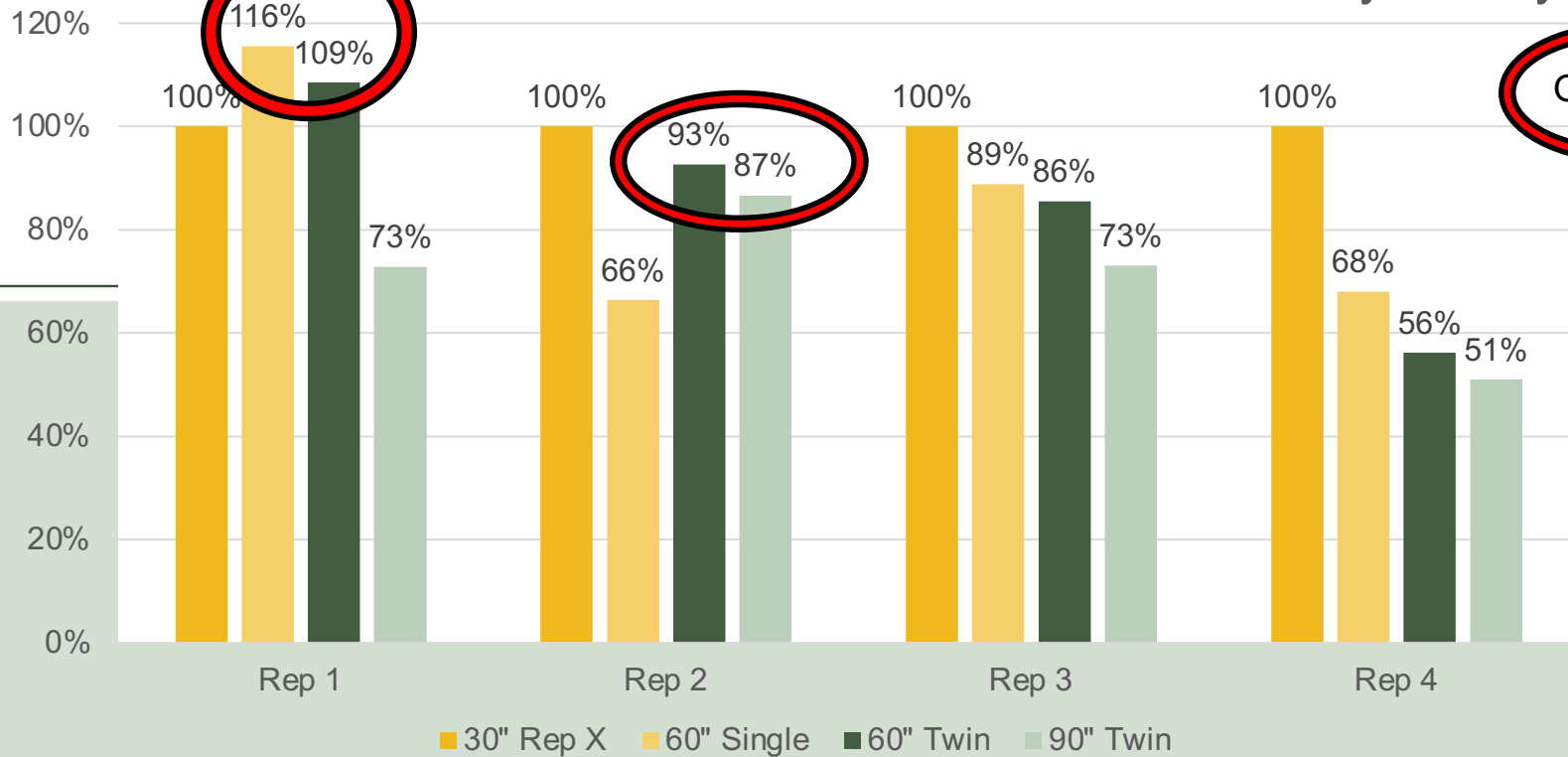
Yield Performance of Row Treatments by Variety



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Yield Performance of Row Treatments by Variety

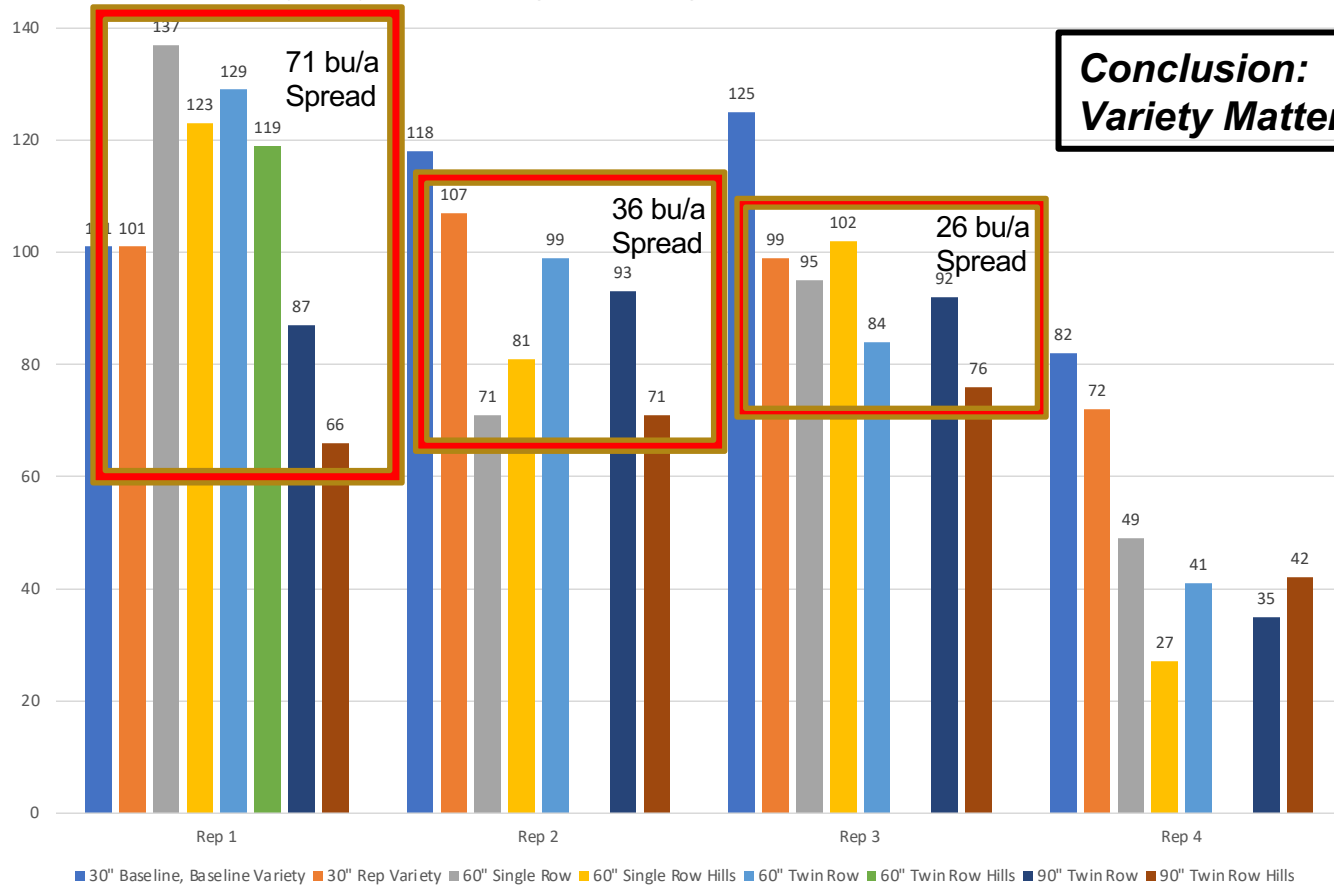


Outliers?



Plot 30181, 2022 Season

Baseline & Rep Variety, 30" Rows, 60" Single Rows, 60" Single Hills, 60" Twin, 60" Twin Hills, 90" Twin, 90" Twin Hills



**Conclusion:
Variety Matters!**



Conclusions: “Standard” Learning



“Robert’s Rules” for High Yielding Wide Row Corn

1. **Weather Trumps Everything**
2. **After Weather, Soil and Nutrients Matter Most**
3. **After Weather and Soil, Variety Selection Matters**

4. **For Wide Rows, have a clear statement of your goals BEFORE you start-But then START!**



Conclusions: “Radical” Learning

“What if” Wide Rows can be coaxed to outperform 30” Rows?



Triple Bottom Line Impact

- Higher Profitability thru higher yield
- Improved Soil Health with Aggressive Cover Crops
- More diverse food production potential in Opportunity Space

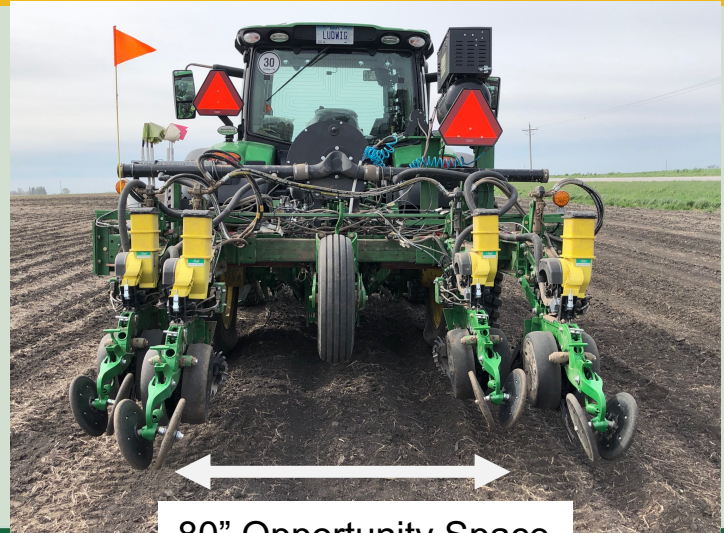


Plot Equipment: Planting

30" Baseline Rows



90" Twin Row



80" Opportunity Space



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Adding BioChar to the Row Units at Planting



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“Opportunity Space” Equipment

48” Wide Drill

Seed Meter and Drill



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Questions?

***Please contact me if
you want to share
Wide Row
Experiences!***

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e-mail: cedarvalleyinnovation@gmail.com

Phone: 319-240-2200 Text or Message, please

SARE PROJECT NUMBER: FNC22-1348

“Wide Row Cover Crop Demonstrations”



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