



It's Time To Question Everything

Roy Pfaltzgraff





Why Do We Do What We Do?



32nd Annual
**NATIONAL
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January 9-12, 2024 • Indianapolis, Ind.



Challenging the status quo takes
commitment, courage, imagination,
and, above all, dedication to learning.

Marshall Ganz

“ quote fancy



Challenge your own status quo – before someone else does.

Ron Kaufman



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Mental Challenges

Personal

What if's?

Pressure to maintain operation

Are alternate markets possible?

Community

That's not how we do it

That won't work

Our climate doesn't fit that



What am I questioning?

- Row Spacing
- Plant Population
- Seed Treatment
- Custom Treatments



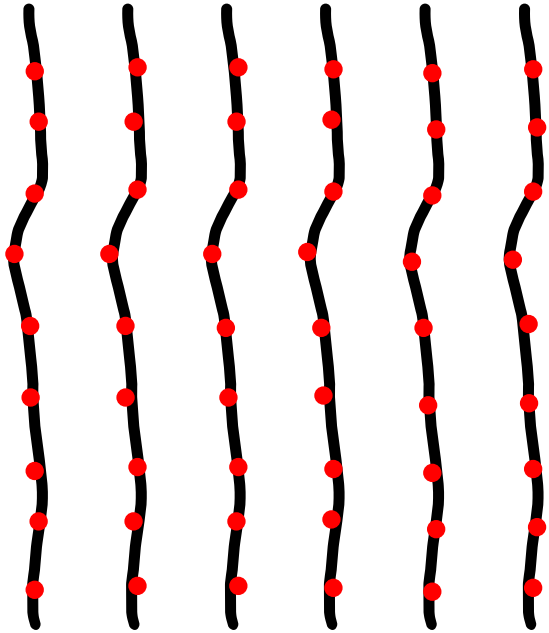
Row Spacing & Plant Population

- × Row spacing & population is restricted because we don't get moisture
- × Farmers HAVE TO plant row crops and 30" rows are best
- Pan Evaporation rate is 72"
- Any ground that doesn't have a canopy is losing moisture
- ✓ We drill milo, dry beans, corn and sunflowers
- ✓ 6 30" rows x ½ mile = 3 miles of furrow
- ✓ 16 12" rows x ½ mile = 8 miles of furrow
- ✓ Therefore, you need 2.67 times the seed for the same in-row plant spacing
 - ✓ Corn 27,500; Sunflowers 35,000; Milo 50,000; Beans 100,000
- ✓ Canopy is 3+ weeks faster

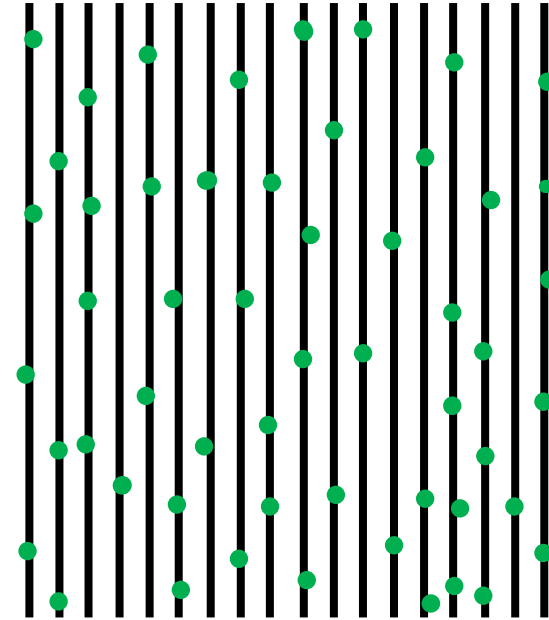


Looking at Row Spacing

One plant per every 13.5" of row



One plant per every 39.9" of row

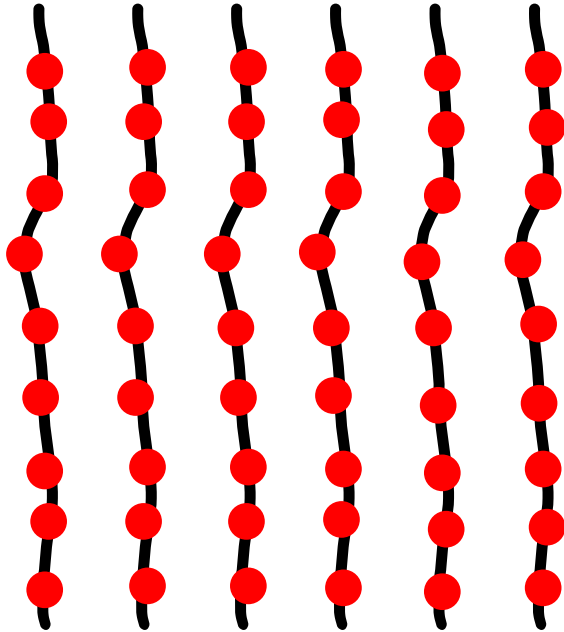


Every plant has 3.11 square feet of space on average in both

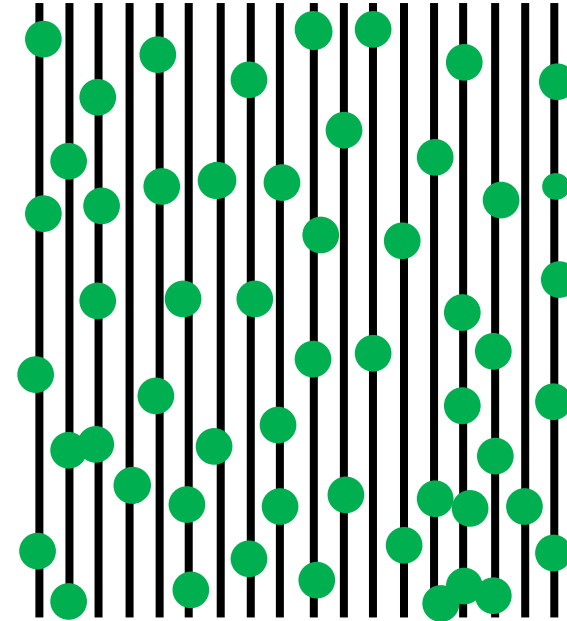


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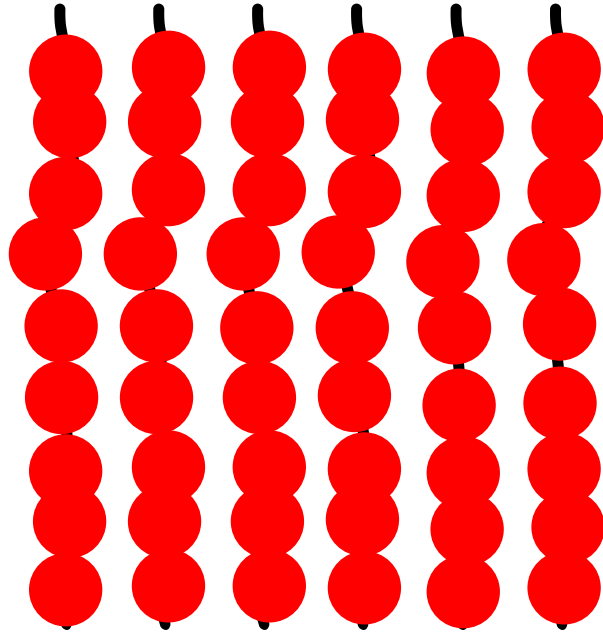


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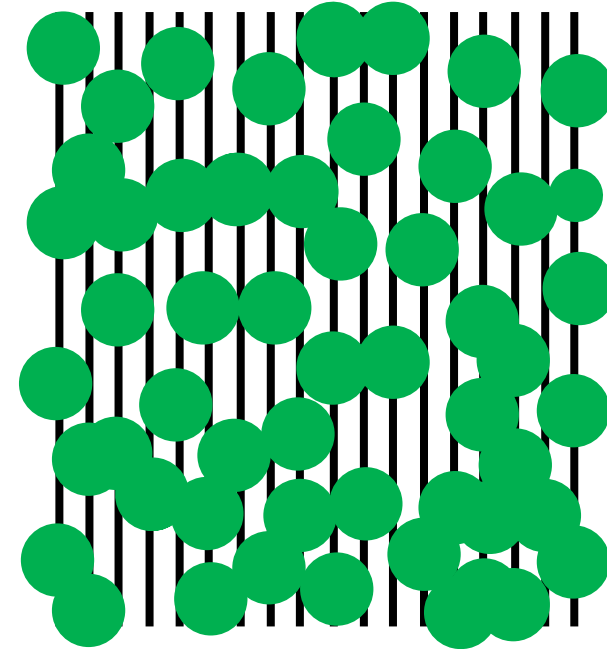


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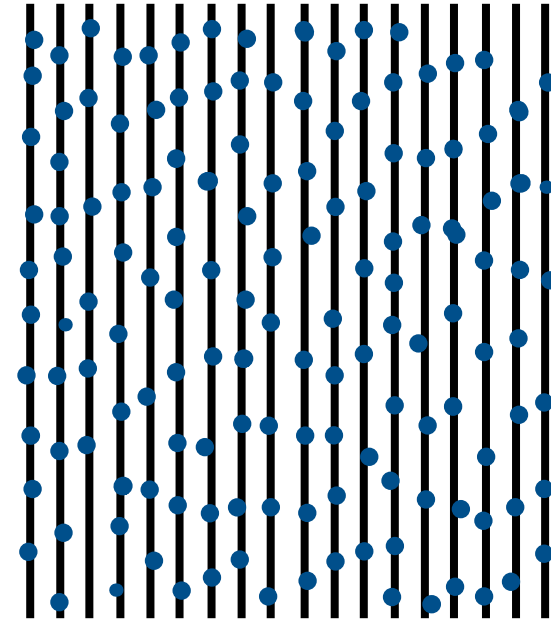


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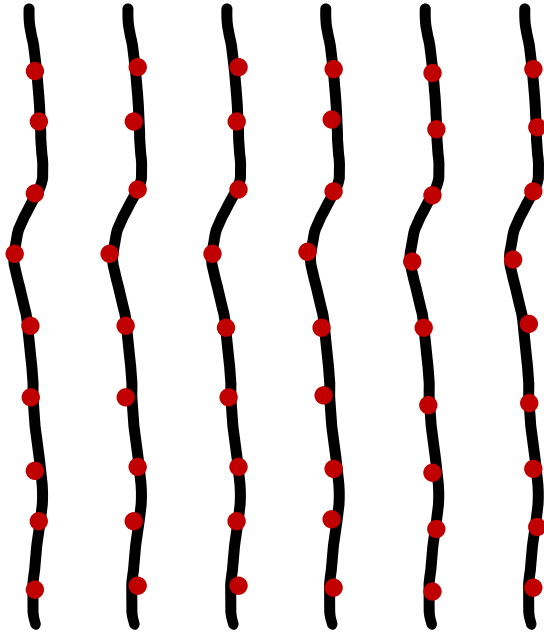
Looking at Row Spacing

- But what if we wanted uniform spacing in plants?
- One plant per every 13.5" of row
 - 37564 plants per acre
- We have found 2.67 times the standard population gives us uniform spacing
- The closest competing plant is almost the same distance as planted

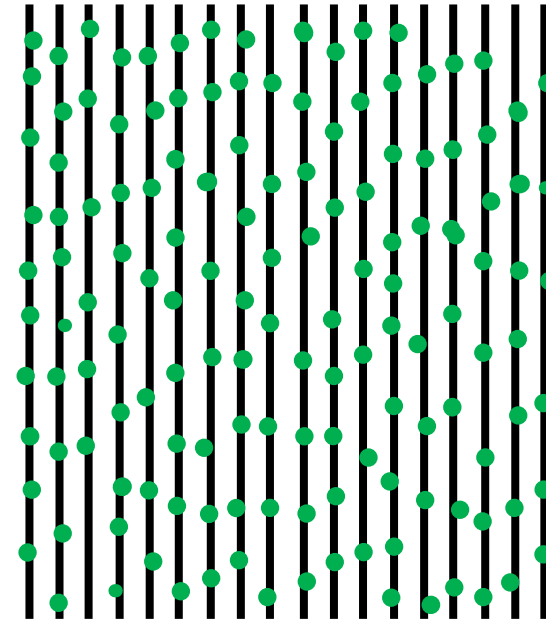


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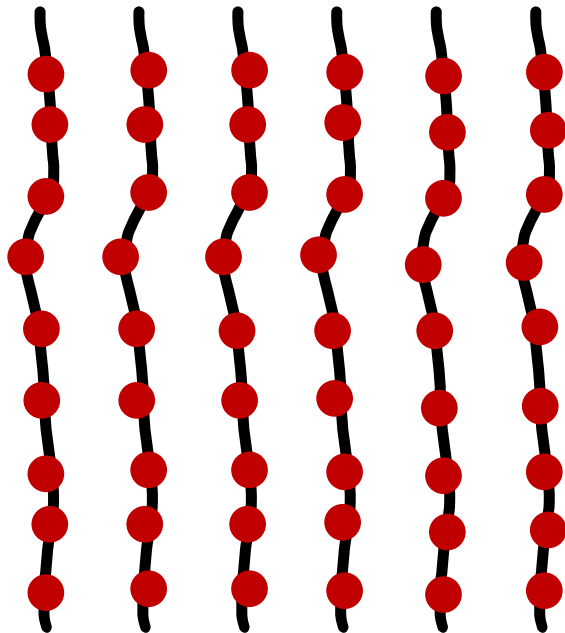


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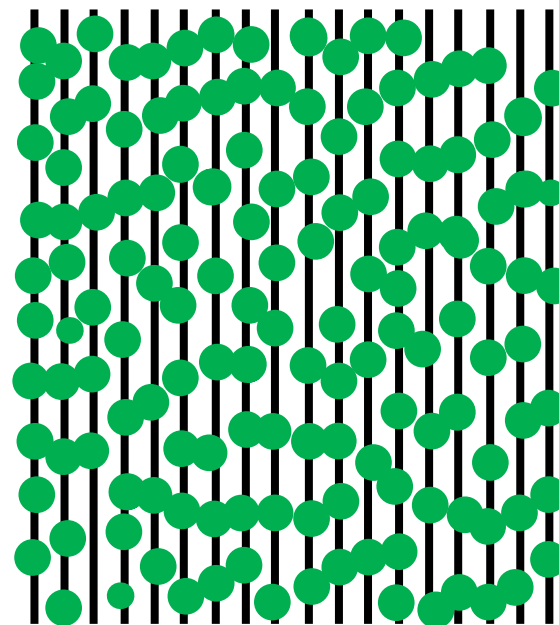


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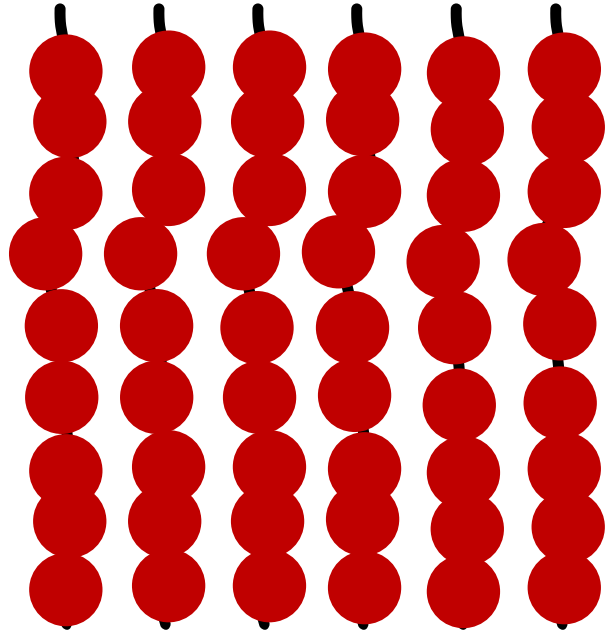


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Looking at Row Spacing

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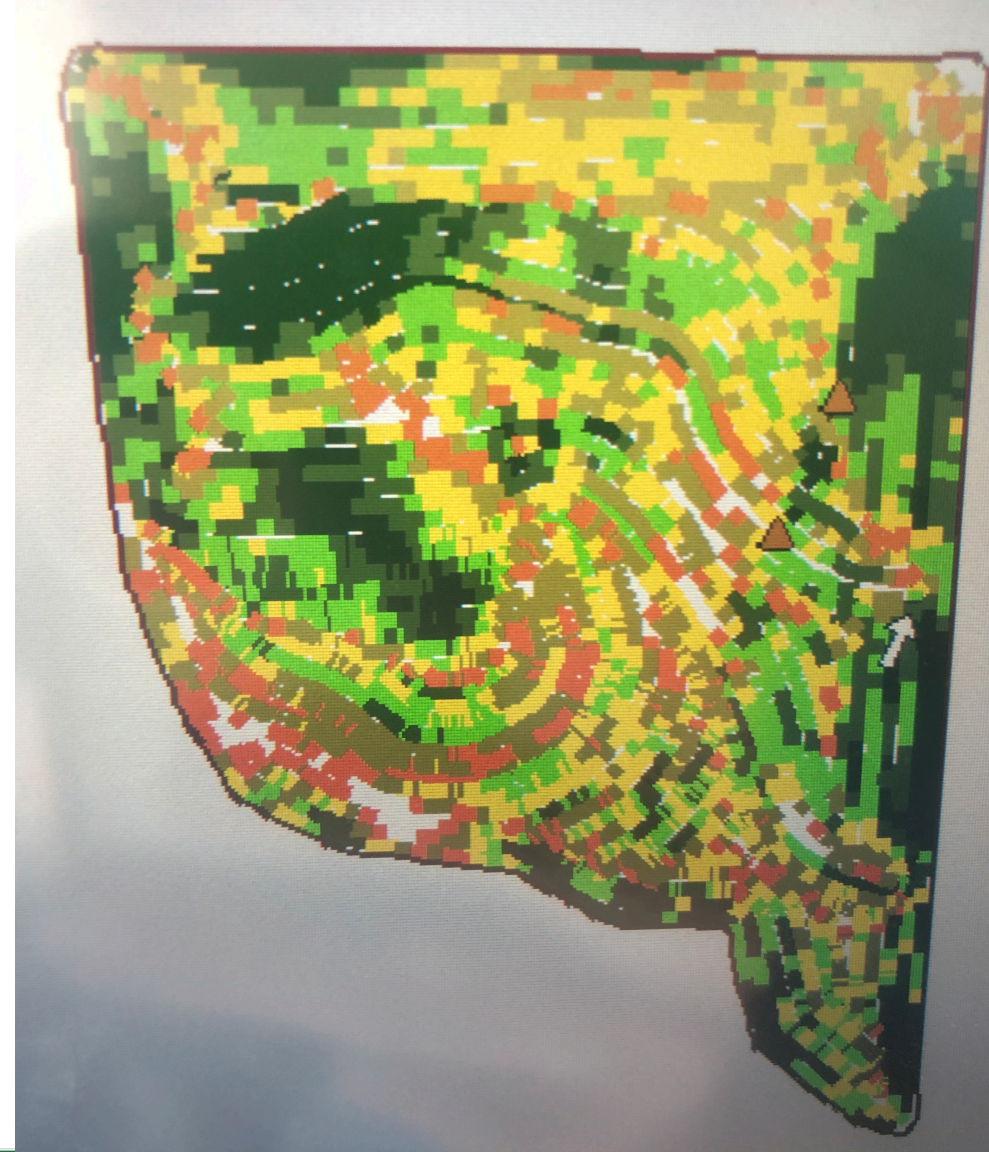


One plant per every 13.5" of row



SEED TREATMENTS

- × Seed treatments were developed for less than favorable soil condition
- × Farmers **HAVE TO** use seed treatments and the seed companies know best
- ✓ Is there a seed treatment for too hot and dry?
- ✓ Do we have the problems they are trying to solve?
- ✓ Are there other treatment options?



Our Little Corn Experiment

- 3 Replications of 4 acres each
- 6 different seed treatments
 - Standard Commercial Seed Treatment
 - Compost Liqueur
 - 8 Strains of Fungal Spores
 - Micro-nutrient for root elongation
 - Combination of a Biological and Micro-nutrient
 - Untreated
- Each of the non-commercial seed treatments received an organic biological wireworm treatment
- All seeded on the same day



Corn treatment trial '23

Pass #	treatment
1-3	untreated
4-5	treated
6-7	prairie food
8-9	mycorrhiza
10-11	nutra plant SL
12-13	phyco terra / n gage
14-15	untreated
16-17	treated
18-19	prairie food
20-21	mycorrhiza
22-23	nutra plant SL
24-25	phyco terra / n gage
26-27	untreated
28-29	treated
30-31	prairie food
32-33	mycorrhiza
34-35	nutra plant SL
36-37	phyco terra / n gage
38-39	untreated



Initial Root Development





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TILLAGE TOOLS
Cultivating Solutions for Growth

Ag Leader
FARM EQUIPMENT
SINCE 1930

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Bio-Tech**

MonTag

**The
Andersons**

**GS3
QUALITY
SEED**

HOLGANIX
Soil Nourishing Root Stimulating™

CopperheadAg
PRODUCTS

APACHE ET
SPRAYERS

Martin Till

ForGround
by Bayer

Great Plains
"Harvest Starts Here."

Sound



LAFORGE





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How Did It Compare?

Treatment	Test Weight	Moisture	Protein
Commercial	53.4	11.9	10.1
Compost Liqueur	54.8	14.7	9.5
8 Strains	53.4	12.8	9
Root Promoter	53.8	13.7	9.4
Bio + Micro	55.5	12.6	9.1
Naked	54.0	12.6	10.9

- All Plots Yielded Essentially the Same
- Yield Estimates in August Showed Significant More Potential In Treated Areas
- Proved Without a Doubt – When Water is the Limiting Factor Other Actions Don't Matter



BONUS CONTENT:

- Harvesting Methods Experiments
- What's More Important
 - Yield vs Water Retention?
- Study by University of Nebraska Extension
 - Compared Standard Corn Residue to Baling Stover
 - Found 3.5"-4" greater moisture retention



Sample quality?

- Lower Foreign Matter
- Less Dirt
- Higher Test Weight (Crop Dependent)
- Faster Harvest



Thank you



REGENERATING
our soil • our food • our community

- Roy@PfzFarms.com
- www.PfzFarms.com
- www.Bar71Consulting.com
- 970-466-1887
- Twitter: @PfzFarms & @PfzFarmStand
- Instagram: @PfzFarms
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