



On-Farm Research: What's in it for you??

Christiane Catellier – IHARF Soil & Crop Management Seminar – February 1, 2023

What is on-farm research?

- Testing new or different products, technologies, or practices on a commercial production scale...



Why do on-farm research?

- Producer control over research topics
- Farm-specific answers to agronomic questions
- Risk management and guiding crop production investments
- Exposure to new technologies
- Facilitate uptake of agricultural best management practices
- Increase understanding of design, benefits, and limitation of research

High-quality and effective

Why do [✓]on-farm research?

- Feel confident about using the results to guide your management decisions

High-quality and effective

What is ✓ on-farm research?

- Testing new or different products, technologies, or practices on a commercial production scale...
- Using scientifically valid experimental design.



High-quality and effective

How to do ✓ on-farm research?

1) Simple and practical treatments

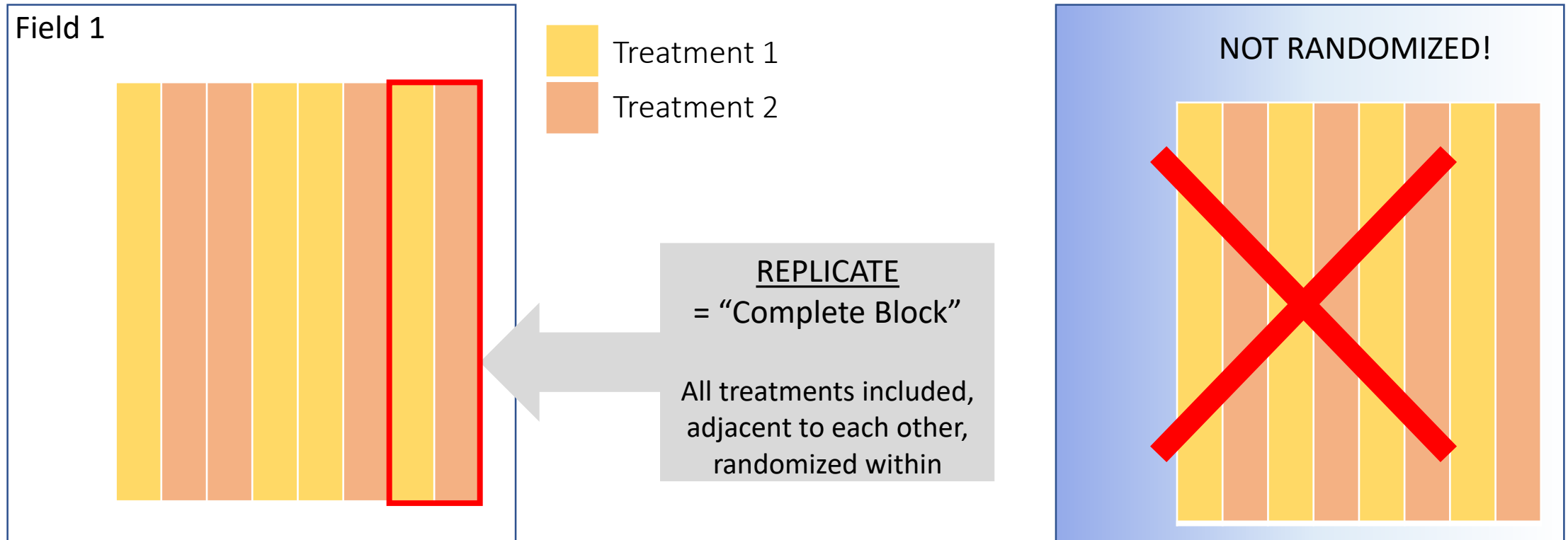
High-quality and effective

How to do ✓ on-farm research?

- 1) Simple and practical treatments
- 2) Good experimental design: The importance of replication, randomization, and statistical analysis

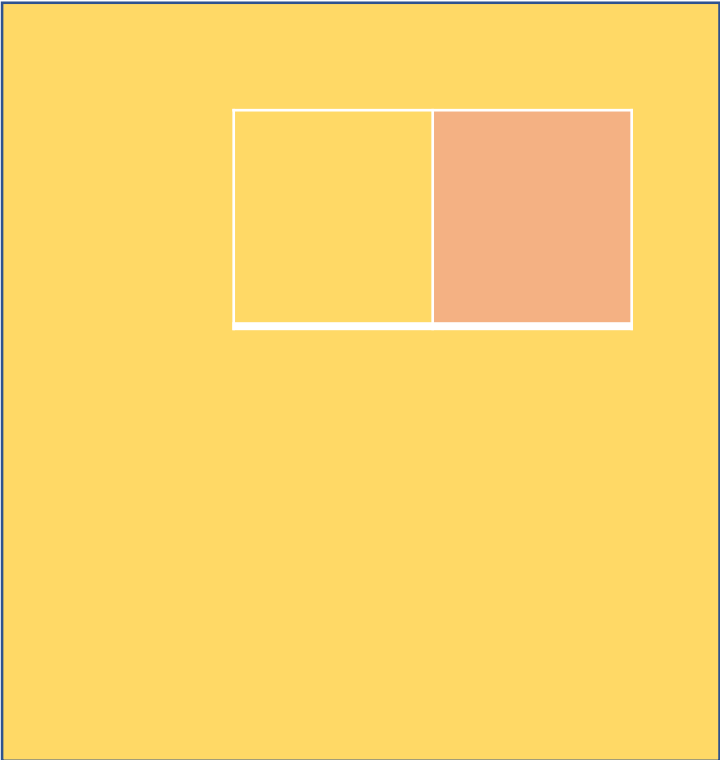
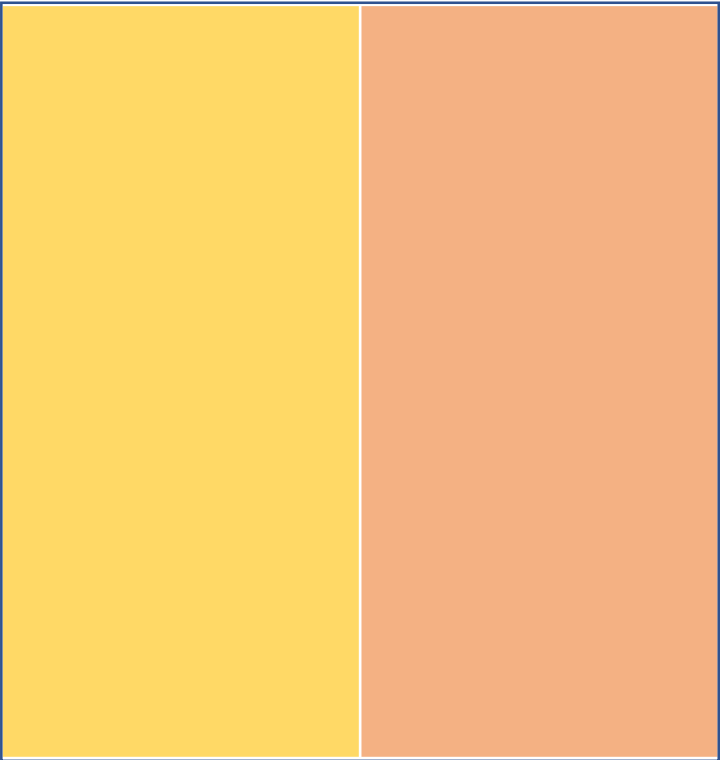
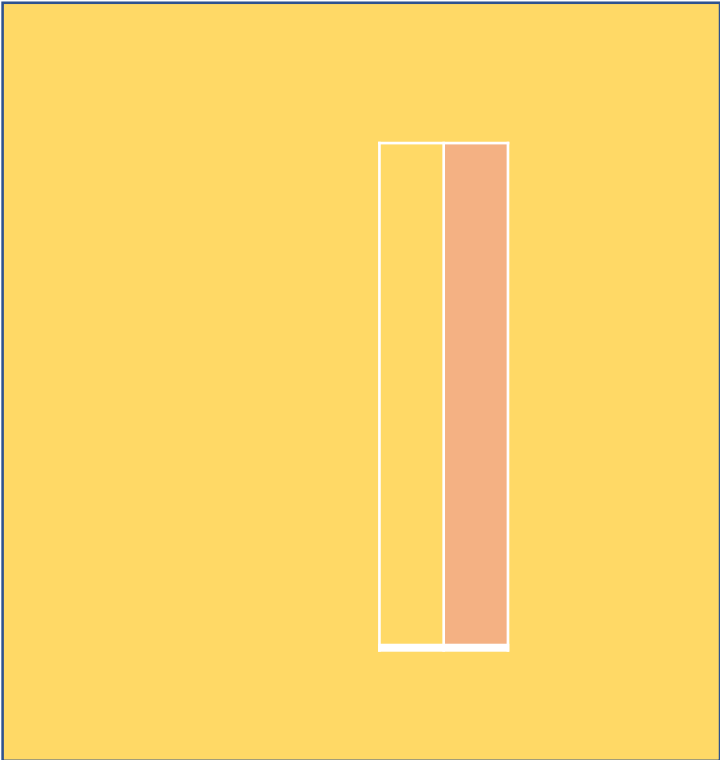
The only way to be confident that the effect observed is truly a result of the treatment and not simply due to chance!

The importance of replication and randomization



What is a replicate?

Treatment 1
Treatment 2



The importance of statistical analysis

Determine the probability that measured effects were a result of the treatment and not due to chance or natural variability

"Significant Difference":

- P-value less than 0.05
- 95% probability that effect is result of the treatment

"Non-significant Difference":

- No treatment effect, OR
- Treatment effect could not be detected due to low replication, high variability, or small effect size

High-quality and effective

How to do [✓] on-farm research?

- 1) Simple and practical treatments
- 2) Good experimental design: The importance of replication, randomization, and statistical analysis
- 3) Consider the effect of growing conditions

High-quality and effective

How to do ✓ on-farm research?

- 1) Simple and practical treatments
- 2) Good experimental design: The importance of replication, randomization, and statistical analysis
- 3) Consider the effect of growing conditions
- 4) Collect relevant and accurate data

High-quality and effective

How to do ✓ on-farm research?

- 1) Simple and practical treatments
- 2) Good experimental design: The importance of replication, randomization, and statistical analysis
- 3) Consider the effect of growing conditions
- 4) Collect relevant and accurate data
- 5) Pool data or share results

Why pool data and share results?

- Increased replication across different environments – different fields, farms, years
- Adopt new practices more quickly
- Learn from the experience of others

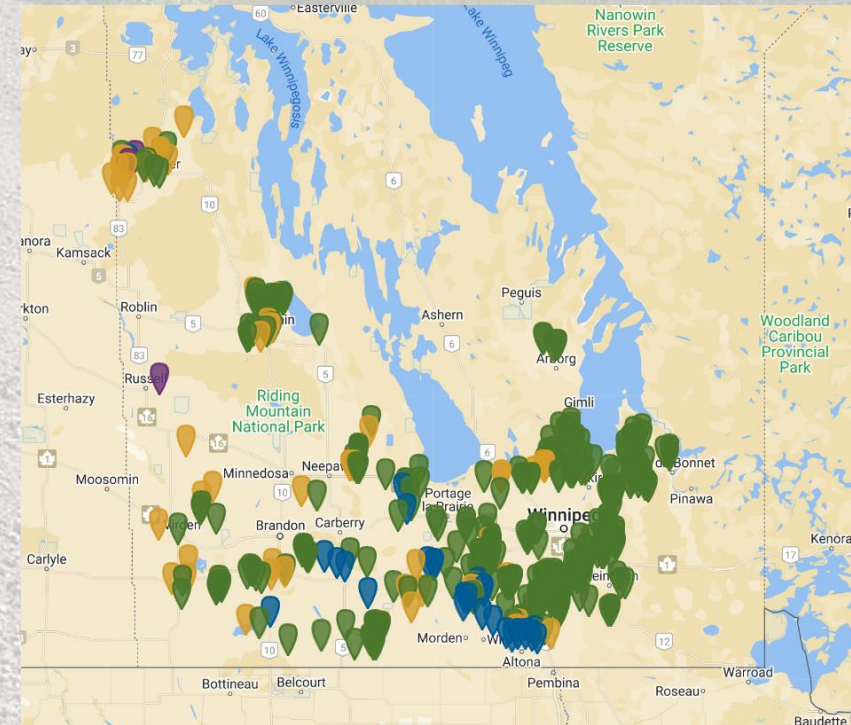
Why pool data and share results?

MANITOBA
Pulse Soybean
GROWERS



on-farm network
PARTICIPATORY • PRECISE • PROACTIVE

- 450 individual trial since 2014
- ~50 trials per year
- 14 protocols to choose from in 2023:
 - Seeding rates
 - Fungicide
 - Row spacing
 - Inoculant
 - Seed treatment
 - Biologicals
 - Fertility
 - Tillage



Why pool data and share results?



MANITOBA
CROP
ALLIANCE

Research on the Farm

- ~50 trials per year
- 14 protocols to choose from in 2023:
 - Plant Growth Regulator (PGR)
 - Seeding rates
 - Varieties
 - Enhanced Efficiency Fertilizer
 - Seed Treatment
 - Fungicide

Benefits of working with research specialists

- Unbiased and unincentivized perspective
- Research expertise – consultation and support on trial set-up, data collection, and data analysis
- Confidence in results = value for time and resources invested
- Trained technicians and specialized tools and equipment
- Organize replicated effort of a specific trial and pool results

IHARF On-Farm Research Initiative

- Replicated effort of selected protocols, in collaboration with producers and partnering organizations
- Research priorities and protocol selection will be producer-driven
- Potentially, custom trial design for specific agronomic topics
- To develop trial management skills and establish a pool of experienced and reliable producer cooperators.
- Encourage growers to complete research on their farms, and provide support to those who do
- Assist partners with their own on-farm research programs

2023 On-Farm Research Topics

- **Foliar-applied N-Fixing Biological Products on Wheat and Canola**
 - SaskWheat and SaskCanola
 - Potentially, Wheat Seeding Rate
- **Barley Bin Field Lab – TBD**
 - SaskBarley
 - Potentially – Seeding rate, Increased Nitrogen Rate, Variety comparison (malt only), or other topic of interest (fungicide, PGR, EEF, seeding date)
- **Lentil seeding rates**
 - PROFIT (Pulse Replicated On-Farm Independent Trials) - SPG

Looking for interested partners and collaborators!

- Are you progressive, engaged in learning, and open to trying new things?
- Are you new to on-farm research and want to learn how?
- Are you experienced in on-farm research and want to join a network of producers addressing similar topics?
- Are you an agronomy provider who wants to grow their program?