FARMER RESEARCH Tour

ON-FARM TRIALS AID IN DECISION MAKING

Ames, Iowa
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ON-FARM NETWORK® REPLICAED STRIP TRIAL DATABASE

Description
This database contains results of individual replicated strip trials following On-Farm Network protocols. The reports include essential management information, spatial yield data, and imagery. Scouting, soil and tissue sampling reports are included if available. To see trials summarized by trial type and crop, visit the interactive Summaries of On-Farm Strip Trials app.

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<thead>
<tr>
<th>Year</th>
<th>Crop</th>
<th>Trial Type and Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>All Crops</td>
<td>All Trial Types</td>
</tr>
<tr>
<td>2018</td>
<td>Corn</td>
<td>Cover Crop</td>
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<td></td>
<td>Corn or Soybean</td>
<td>Crop Management</td>
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<td>Crop Management - Tillage</td>
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<tr>
<td>2017</td>
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<td>All Trial Details</td>
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<td>+30lbs N vs Normal N Rate</td>
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<td>0-0-50 vs Untreated</td>
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<td>100k vs 130k vs 160k</td>
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Location

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<tr>
<th>Location</th>
<th>Districts</th>
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<td>7 (South West)</td>
<td></td>
<td>Buchanan</td>
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Individual Trial Reports

Replicated Strip Trial Report for ST2017/A0231

This is a Crop Protection - Fungicide trial comparing Strata BD vs. Untreated on a soybean following corn rotation, located in Chickasaw County, Iowa.

Treatment Layout and Results

- **Trait Type:** Crop Protection - Fungicide
- **Trial Date:** September 13, 2017
- **Staged Rates:**
  - Untreated
  - Strata BD

Grain Yield with Soil Survey

- **Total Average by Individual Treatment:**
  - Untreated: 68.6
  - Strata BD: 65.3

Summary Statistics and Rainfall

- **Rainfall Statistics:**
  - Event: Untreated vs. Strata BD
  - Average Rainfall:
    - Untreated: 4.0
    - Strata BD: 4.2

Cumulative Rainfall (March through August, 2017)

Notes:
- This trial was conducted with the intent to evaluate the efficacy of Strata BD in reducing disease pressure compared to an untreated control.
Individual Trial Analyses
New Analytical-Dynamic and Interactive Summarization Tool

- Farmers
- Agronomists
- Researchers
- Communicators
What New Questions will it help to Answer?

• Will this product or practice work on my farm?

• What could impact its performance?

• Will the product or practice pay for itself?
Interactive Summaries of On-Farm Strip Trials - ISOFAST

- Provides comprehensive, dynamic visual summaries for individual products and practices studied
- Incorporates effect of weather, soil and management
- Provides intuitive statistical inference
- Provides break-even economic analyses
Unique Features

• Nothing like it exists.

• Aids in decision making.

• No User Fees.
Interactive Summaries of On-Farm Strip Trials: ISOFAST

This online interactive tool is designed to provide individual and aggregated summaries of on-farm trials conducted by farmers working with ISA. On-farm trials include replicated treatments, or strips, that test different products, practices or technologies in Iowa cropping systems. Data available includes the trial description, trial locations, observed weather and results. Users can select or deselect years by checking boxes on the legend.

Click here to access Interactive Summary of On-Farm Strip Trials: ISOFAST

- Fungicide Calculator
- Within-Field Profitability Assessment
- Estimate Risk of Late-Season Nitrogen Deficiency
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Available Studies:

- Soil-Applied Insecticide
- Anhydrous vs UAN
- Spring vs Fall Anhydrous
- Instinct on Manure
- Instinct on UAN
- Foliar Fungicide
  - Headline
  - Stratego
  - Stratego YLD
  - Quilt
- Nemastrike Seed Treatment
- Tryptophan Biological
- Endurant Biological
Trial Locations

43 trials from 2013 to 2018

The map of Iowa shows county lines (black) and landform regions (gray) to clarify trial locations and general topographical attributes. The bulk of Iowa’s landmass falls primarily into 4 regions: Northwest Plains, Des Moines Lobe, and Iowa Surface, from west to east across the northern half of the state, and Southern Iowa Drift Plain across the southern half of the state.
Interactive Rainfall
Priaxor on Soybean

Select Year:
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018

Graph showing rainfall in inches for different years (2013 to 2018) and months from March to September. Each year has a distinct line color, and the graph includes a bar chart showing the statewide average rainfall for each month.
Growing Degree Days Information

Growing degree days (GDD) is a measure of heat accumulation used to predict plant and pest development rates, including crop maturity.
Yield Response – Stratego on Soybean

Soil Texture

Crop Stage
Confidence Interval Inference in Yield Response

Clariva Seed Treatment On Soybean

3 of 32 trials had significant yield response.

Key result
Across all trials, Clariva nematicide treatments produced a yield response of 0.4 bu/acre with a 90% confidence interval from -0.1 to 0.8 bu/acre.
Economic Evaluation

Enter Grain Price and Treatment/Application Costs

Grain Market Price ($/bu):
10.00

Treatment/Application Cost ($/acre):
27.00

$ Economic Results

Break-Even Analysis

Yield required to pay for treatment: 2.7 bu/acre
The probability of exceeding the direct application cost: 64%
Expected average profit exceeding cost: $3.11 /acre
A range for the expected average profit exceeding cost: $-11.11 to $17.49 /acre
11 of 22 trials had mean yield response above the break-even value of bu/acre
Probability of Economic Return

Priaxor & Fastac on Soybean

Yield required to pay for treatment: 2.7 bu/acre
The probability of exceeding the direct application cost: 64%
Expected average profit exceeding cost: $3.11 \$/acre
A range for the expected average profit exceeding cost: $-11.11$ to $17.49$ \$/acre

11 of 22 trials had mean yield response above the break-even value of bu/acre

Yield required to pay for treatment: 3.1 bu/acre
The probability of exceeding the direct application cost: 46%
Expected average profit exceeding cost: $-0.91$ \$/acre
A range for the expected average profit exceeding cost: $-12.29$ to $10.59$ \$/acre

11 of 22 trials had mean yield response above the break-even value of bu/acre
Lower yielding areas had higher yield response to soil applied insecticide on corn.
Clariva: Scouting Data Example
Average Reproductive Factor by GDD

Key Results

The Clariva Treatments slightly lowered SCN reproductive factors and reproductive factor values tended to decrease with higher GDD.
Summaries and Print Capabilities

Conclusions

1. Of the 32 trials in 2014, 2015 and 2016, only 3 trials had significant positive yield responses of 1.2, 1.4 and 2.2 bu/acre on soybean.
2. Across three years with a 90% confidence interval, Clariva nematicide treatments increased yield on average by 0.4 bu/acre, from 0.1 to 0.8 bu/acre.
3. There was no significant difference in egg counts between the spring counts and the fall.
4. Only three trials had CSN counts larger than 1,000 eggs/100 grams of soil
5. Clariva slightly decreased SCN egg counts in a few trials.

Clariva Nematicide Treatments Analysis

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Interesting Observations:

TRYPTOPHAN 2017-2018

- SOYBEAN: $7.00 cost/ac – 77% chance to break even
- CORN: $10.00 cost/ac – 70% chance to break even

NEMASTRIKE 2018

- SOYBEAN: avg yield difference = 1.4 bu/ac
- CORN: avg yield difference = 1.6 bu/ac

Hypothetical Soybean Market
Price $10.00/bu

Hypothetical Corn Market
Price $3.50 / bu
Foliar Fungicide on Soybean – 90% CI

- Headline: 139 of 206
- Stratego: 21 of 29
- Stratego YLD: 37 of 37
- Quadris: 15 of 18
- Priaxor: 24 of 43
- Priaxor & Fastac: 11 of 22

Number of trials with significant yield difference out of total number of trials.
Economic Breakeven - Probability to Exceed

Hypothetical cost per acre to apply and probability to exceed break even.
Headline

foliar fungicide on Corn

- 98 of 143 trials had Significant yield response
- 4.5 bu/ac mean yield response [3.8, 5.2]
- Breakeven Yield Response 5.7 bu/ac
- 0% probability to exceed cost

Hypothetical Market price
Corn $3.50/bu

Hypothetical Application Cost
Headline $20.00/ac
Next Steps

• Regional summaries by landform areas if sufficient data.

• Multiple treatment trials and spatial inferences.

• More Interactive Summaries of Scouting Data

• Management Decision Trees

• Continue to add studies – Sign up to participate in trials!!

Thank you to our sponsors and participating Iowa Soybean Farmers!
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QUESTIONS?

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