

2009

Inoculant Test Plots



KALO

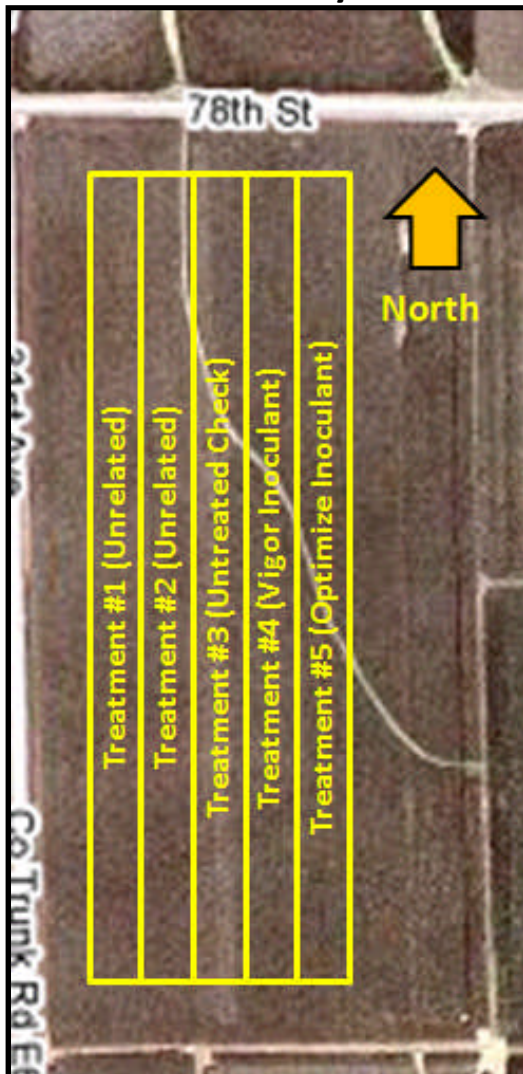
2009 Kevin Miller Field Treatments

Planted May 23, 2009

| Treatment | Product | Rate | Function |
|--------------|----------------------------------|--------------------|-----------|
| Treatment #3 | Untreated Check | -- | -- |
| Treatment #4 | Vigor Soybean Inoculant (KALO) | 3.38 fl. oz. / cwt | Inoculant |
| Treatment #5 | Optimize Soybean Inoculant (EMD) | 4.25 fl. oz. / cwt | Inoculant |

Treatments 1 & 2 are unrelated to this study.

Field Plot Layout



Grower Plot Preparation and Planting Form

Seed Treatment Performance Study

| Producer/Cooperator | Contact Information (address & ph#'s) | Field Name, Description & Location |
|---------------------------|---|---|
| Kevin Miller | 3018 78 th St. Norway Iowa, 52318 Cell# 319-560-2645 | Utoff 80 Northwest |
| General Study Information | | |
| Target Crop/Seed | Technology Being Evaluated: | Evaluation Purpose or Objective: |
| Soybeans | Vigor Soybean Inoculant | Evaluate KALO's Vigor Soybean Inoculant against Optimize (EMD) and record development progress and yield comparison at harvest. |

Seed & Treatment Information

| Current Seed Variety Information | | | | |
|---|--|--|---------------------------|--|
| Seed Brand | Variety, Lot# & GMO Traits | % Germ | Number of Seeds per pound | How Delivered to Producer |
| Pioneer | 93M11 - Roundup Ready | 90% | 3450 | <input type="checkbox"/> Bag/Units <input checked="" type="checkbox"/> Pro-Box <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Bulk <input type="checkbox"/> Bulk Bag |
| Individual Plot Treatments (List all plots including untreated check, if any) | | | | |
| Product(s) | Function <small>(Insecticide/Fungicide/ Nutritional/Inoculant/etc.)</small> | Rate <small>(Per cwt, per seed, etc.)</small> | Date of Seed Treatment | Seed Treatments Applied by: |
| Treatment Number (Specify): | | #3 - UTC | | Estimated Plot Size: 15 Acres |
| Plot Specific Comments: | | | | |
| Untreated Beans | -- | -- | -- | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: Dave L. |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| Treatment Number (Specify): | | #4 - Vigor | | Estimated Plot Size: 15 Acres |
| Plot Specific Comments: | | | | |
| Vigor (KALO) | Liquid Inoculant | 3.38 fl oz/cwt | 5/23/09 | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input checked="" type="checkbox"/> Other: Dave L. |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| Treatment Number (Specify): | | #5 - Optimize | | Estimated Plot Size: 15 Acres |
| Plot Specific Comments: | | | | |
| Optimize (EMD) | Liquid Inoculant | 4.25 fl oz/cwt | 5/23/09 | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input checked="" type="checkbox"/> Other: Dave L. |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |
| | | | | Applied by: <input type="checkbox"/> Dealer <input type="checkbox"/> Producer <input type="checkbox"/> Seed House <input type="checkbox"/> Other: |

Other Comments:

Plots #1 & #2 are not related to this study.

Inoculant was diluted with well water (Norm Miller residence) and applied at a rate of 9 fl. oz. / cwt of seed.

Field Information

| Field / Plot & Tillage Information | | | | | | |
|--|--|--|--|--|-----------------------------------|--|
| Field Size | Previous Crop | | | Field Landscape | | |
| 80 Acres | <input checked="" type="checkbox"/> Corn | <input type="checkbox"/> Wheat | <input type="checkbox"/> Fallow | <input checked="" type="checkbox"/> Upland | <input type="checkbox"/> Terraced | <input type="checkbox"/> Other (specify) |
| | <input type="checkbox"/> Corn Silage | <input type="checkbox"/> Milo/Sorghum | <input type="checkbox"/> Other (Specify) | <input type="checkbox"/> Bottom Ground | <input type="checkbox"/> Rolling | |
| | <input type="checkbox"/> Soybeans | <input type="checkbox"/> Alfalfa | | <input type="checkbox"/> Flat | | |
| Field Tillage | | Irrigation | | Field Specific Comments | | |
| <input type="checkbox"/> No-Till | <input type="checkbox"/> Conventional Till | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Sub-surface | | | |
| <input checked="" type="checkbox"/> Mulch Till | <input type="checkbox"/> Other (specify) | <input type="checkbox"/> Sprinkler | <input type="checkbox"/> Other (specify) | | | |
| <input type="checkbox"/> Ridge Till | | <input type="checkbox"/> Flood | | | | |
| Soil Fertility Information | | | | | | |
| Soil Tests | | Nutrient Information | | | Other: (Manure, etc.) | |
| Is a recent soil test available? | | Soil Type/Texture ... | N.... | S..... | Mn... | <input checked="" type="checkbox"/> No |
| <input type="checkbox"/> Yes (Please make available and include if possible) | | Soil pH ~6 | | Mg ... | Fe.... | <input type="checkbox"/> Yes (specify) |
| <input checked="" type="checkbox"/> No | | Organic matter | P | Ca | Cu | |
| Comments: | | CEC..... | K | Zn | B | |

Day of Planting Information

| Plot Planting Date | | | | | | | | |
|---|--|---|--|--|---|---|--|--|
| 5/23/09 | | | | | | | | |
| Target Yield & Planting Information | | | | | | | | |
| Yield Target | Seeding Population | Planting Depth | Comments | | | | | |
| 50-55 Bu/A | 165,000 Seeds/A | 1.50 Inches | | | | | | |
| Seedbed Conditions | | | | | | | | |
| General Seedbed Conditions | | Amount of Crop Residue | | Soil Moisture | | Soil Temperature at 3" depth | | |
| <input type="checkbox"/> Excellent | <input type="checkbox"/> High | <input type="checkbox"/> Wet | <input type="checkbox"/> 45-46 | <input type="checkbox"/> 57-58 | <input checked="" type="checkbox"/> 69-70 | | | |
| <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Medium/High | <input type="checkbox"/> Good/Wet | <input type="checkbox"/> 47-48 | <input type="checkbox"/> 59-60 | <input type="checkbox"/> 71-72 | | | |
| <input checked="" type="checkbox"/> Good | <input checked="" type="checkbox"/> Medium | <input checked="" type="checkbox"/> Good | <input type="checkbox"/> 49-50 | <input type="checkbox"/> 61-62 | <input type="checkbox"/> 73-74 | | | |
| <input type="checkbox"/> Poor/Good | <input type="checkbox"/> Low/Medium | <input type="checkbox"/> Dry/Good | <input type="checkbox"/> 51-52 | <input type="checkbox"/> 63-64 | <input type="checkbox"/> 75-76 | | | |
| <input type="checkbox"/> Poor | <input type="checkbox"/> Low | <input type="checkbox"/> Dry | <input type="checkbox"/> 53-54 | <input type="checkbox"/> 65-66 | <input type="checkbox"/> 77-78 | | | |
| Comments: Some small clods, but a pretty good seed bed overall. | Comments: | Comments: | <input type="checkbox"/> 55-56 | <input type="checkbox"/> 67-68 | <input type="checkbox"/> : | | | |
| Weather Conditions | | | | | | | | |
| Sky Conditions | | Air Temperature (Approx.) | | Humidity | | General Weather Conditions 1-5 days Before Planting | | |
| <input type="checkbox"/> Sunny | <input type="checkbox"/> 41-45°F | <input type="checkbox"/> 71-75°F | <input type="checkbox"/> High | <input type="checkbox"/> Wet | Comments: | | | |
| <input checked="" type="checkbox"/> Partly Cloudy | <input type="checkbox"/> 46-50°F | <input checked="" type="checkbox"/> 76-80°F | <input type="checkbox"/> Medium/High | <input type="checkbox"/> Good/Wet | | | | |
| <input type="checkbox"/> Cloudy | <input type="checkbox"/> 51-55°F | <input type="checkbox"/> 81-85°F | <input checked="" type="checkbox"/> Medium | <input checked="" type="checkbox"/> Good | | | | |
| <input type="checkbox"/> Sprinkles | <input type="checkbox"/> 56-60°F | <input type="checkbox"/> 86-90°F | <input type="checkbox"/> Low/Medium | <input type="checkbox"/> Dry/Good | | | | |
| <input type="checkbox"/> Rain | <input type="checkbox"/> 61-65°F | <input type="checkbox"/> 90-95°F | <input type="checkbox"/> Low | <input type="checkbox"/> Dry | | | | |
| <input type="checkbox"/> Other: | <input type="checkbox"/> 66-70°F | <input type="checkbox"/> : °F | Comments: | | | | | |
| Equipment Information | | | | | | | | |
| Planter or Drill Make, Model & Year | | Number of Rows or Width | | Row Spacing | | Comments | | |
| CIH 5400 Soybean Special Drill | | 20' | | 15' | | | | |

General Field & Plot Layout (indicate North arrow) and Comments:

See Map

Field Pictures July 17, 2009

Untreated



Vigor (KALO)



Optimize (EMD)



Harvest Tracking Form - Soybeans

| Cooperator | Harvester/Operator | Date of Harvest | Field Name |
|--------------|--------------------|-----------------|--------------------|
| Kevin Miller | Kevin Miller | 11/05/09 | Utoff 80 Northwest |

| Harvest Equipment Information | | |
|-------------------------------|----------------|----------|
| Harvester Make, Model & Year | Header Width | Comments |
| 2388 CIH | 20 Ft. or Rows | |

| Method to Capture Yield Data | |
|--|--|
| Weigh Wagon Make & Model | If using an alternate means to verify yield, indicate below. (i.e., yield monitor, elevator scale, etc.) |
| <input type="checkbox"/> Parker Model 1500R (Agrilead) <input type="checkbox"/> Weigh Tronix Scale Model 700E | <input checked="" type="checkbox"/> Linn Coop Pioneer Weigh Wagon |

Day of Harvest Information

| Field & Crop Conditions | | |
|--|--|----------|
| General Field Conditions | General Harvest Conditions | Comments |
| <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good/Excellent <input type="checkbox"/> Good <input type="checkbox"/> Poor/Good <input type="checkbox"/> Poor | <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good/Excellent <input type="checkbox"/> Good <input type="checkbox"/> Poor/Good <input type="checkbox"/> Poor | |

| Weather Conditions | | | |
|--|--|---|---|
| Sky Conditions | Air Temperature (Approx.) | Humidity | General Weather Conditions 1-7 days Before Harvest |
| <input type="checkbox"/> Sunny <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Cloudy <input type="checkbox"/> Sprinkles <input type="checkbox"/> Rain <input type="checkbox"/> Other: | <input type="checkbox"/> 41-45°F <input type="checkbox"/> 46-50°F <input type="checkbox"/> 51-55°F <input type="checkbox"/> 56-60°F <input type="checkbox"/> 61-65°F <input checked="" type="checkbox"/> 66-70°F <input type="checkbox"/> 71-75°F <input type="checkbox"/> 76-80°F <input type="checkbox"/> 81-85°F <input type="checkbox"/> 86-90°F <input type="checkbox"/> 90-95°F <input type="checkbox"/> : °F | <input type="checkbox"/> High <input type="checkbox"/> Medium/High <input type="checkbox"/> Medium <input type="checkbox"/> Low/Medium <input type="checkbox"/> Low | <input type="checkbox"/> Wet <input type="checkbox"/> Good/Wet <input checked="" type="checkbox"/> Good <input type="checkbox"/> Dry/Good <input type="checkbox"/> Dry Comments: |

Plot Harvest Information

| Plot #3 Plot Harvest Data – Untreated Check | | | | | |
|---|------------------------|--|------------------------------------|--|------------------------------------|
| Plant Height | | Pod Height | | Overall Plant Health & Harvestability | |
| Range | Average | Range | Average | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good |
| - inches | - inches | - inches | - inches | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor |
| | | | | <input checked="" type="checkbox"/> Good | |
| Actual Size of Harvested Plot | Total Pounds Harvested | Test Weight | Percent Moisture | | |
| 4.16 acres | 13,512 pounds | - lb/bu | 13.4 % | | |
| Total Bushels Harvested | Calculated bu/A | Grain Quality | | Comments | |
| 225.2 bushels | 54.13 bu/Acre | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good | | |
| | | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor | | |
| | | <input checked="" type="checkbox"/> Good | | | |

| Plot #4 Plot Harvest Data – Vigor Soybean Inoculant | | | | | |
|---|------------------------|--|------------------------------------|--|------------------------------------|
| Plant Height | | Pod Height | | Overall Plant Health & Harvestability | |
| Range | Average | Range | Average | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good |
| - inches | - inches | - inches | - inches | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor |
| | | | | <input checked="" type="checkbox"/> Good | |
| Actual Size of Harvested Plot | Total Pounds Harvested | Test Weight | Percent Moisture | | |
| 4.15 acres | 14,508 pounds | - lb/bu | 13.2 % | | |
| Total Bushels Harvested | Calculated bu/A | Grain Quality | | Comments | |
| 242 bushels | 58.31 bu/Acre | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good | | |
| | | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor | | |
| | | <input checked="" type="checkbox"/> Good | | | |

| Plot #5 Plot Harvest Data – Optimize Soybean Inoculant | | | | | |
|--|------------------------|--|------------------------------------|--|------------------------------------|
| Plant Height | | Pod Height | | Overall Plant Health & Harvestability | |
| Range | Average | Range | Average | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good |
| - inches | - inches | - inches | - inches | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor |
| | | | | <input checked="" type="checkbox"/> Good | |
| Actual Size of Harvested Plot | Total Pounds Harvested | Test Weight | Percent Moisture | | |
| 4.15 acres | 13,882 pounds | - lb/bu | 13.2 % | | |
| Total Bushels Harvested | Calculated bu/A | Grain Quality | | Comments | |
| 231.36 bushels | 55.75 bu/Acre | <input type="checkbox"/> Excellent | <input type="checkbox"/> Poor/Good | | |
| | | <input type="checkbox"/> Good/Excellent | <input type="checkbox"/> Poor | | |
| | | <input checked="" type="checkbox"/> Good | | | |

Other Comments: Plots 1 & 2 are unrelated to this study.

Harvest Tracking Form - Soybeans

Consolidated Results

