

FIELD EXPERIMENT HISTORY

Title: Corn - Soybean Response to Tillage and Rotation
Experiment: 09CS **Trial ID:** 6423 **Year:** 2019
Personnel: Joe Lauer, Thierno Diallo, Kent Kohn,
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: 334 **Previous Crop:** See factors **Soil Type:**
Soil Test Date: 11/12/18 **pH:** 6.5 **OM (%)** 3.1 **P (ppm)** 15 **K (ppm)** 108

Plot Management

| | | | |
|--|-----------------------|---|--------------|
| Tillage Operations: Fiel cultivator x 2 | <u>Analysis:</u> | <u>Rate lbs/A:</u> | <u>Date:</u> |
| Fertilizer: Preplant : | MAP 11-52-0 0-0-60 | 325 lbs/A 325 lbs/A | 4 /24/19 |
| Starter : | N/A | N/A | N/A |
| Post plant : | 28-0-0 | CC: 678 CS: 571 | 6 /28/19 |
| Manure: | N/A | N/A | N/A |
| Herbicide: Roundup PowerMax @ 22 oz/A 4/26/19 Dual II - Magnum @ 24 oz/A 4/26/19 Roundup PowerMax @ 22 oz/A 6/20/19 | | Insecticide: See Seed Treatments | |
| | | Hybrid: C: Channel 205-19STXRIB S: Renk RS207NX | |
| Irrigation: No | | Row Width: 30" | |
| Planting Date: C: 5/14/19 S: 5/15/19 | | Planting Depth: 1.5" | |
| Target Plant Density: Corn: 32500 Plants/A Soybean: 140000 Plants/A | | Planting Method: JD 1700 with RTK | |
| Harvest Date: C: 11/04/19 S: 10/09/19 | | Harvest Method: MF 8XP plot combine | |
| Notes: | | | |

Experimental Design

Design: RCB split-split-plot **Replications:** 4
Plot Size Seeded: MP: 30' x 70' **Experiment Size:** 2.7 A
Harvest Plot Size: 5' x 31'

Factors/Treatments:

Tillage:

- 1) NT
- 2) CT

Rotation: 2019

- 1) CCCCCSSSSS-5C
- 2) CCCCCSSSSS-4C
- 3) CCCCCSSSSS-3C
- 4) CCCCCSSSSS-2C
- 5) CCCCCSSSSS-1C
- 6) CCCCCSSSSS-5S
- 7) CCCCCSSSSS-4S
- 8) CCCCCSSSSS-3S
- 9) CCCCCSSSSS-2S
- 10) CCCCCSSSSS-1S
- 11) CC-1C
- 12) CS-1S
- 13) CS-1C
- 14) SS-1S

Fungicide:

- 1) UTC
- 2) Prothioconazole (Proline @ 5.7 oz/A)
- 3) Picoxystrobin (Approach @ 6 oz/A)

Results: Tables 1909-07 & 1909-08

**Table 1909-07. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2019.**

| Tillage | Rotation | Fungicide | Yield bu/A | Moisture % | Test weight lbs/bu | Lodged | | | Harvest density plants/A | AGI \$3.54/bu \$/A |
|---------|----------|-----------------|---------------|---------------|--------------------------|------------|------------|-----------|--------------------------------|--------------------------|
| | | | | | | Total % | Stalk % | Root % | | |
| Conv | | | 237 | 26.8 | 53.0 | 0.4 | 0.1 | 0.3 | 31667 | 731 |
| Notill | | | 233 | 28.3 | 51.4 | 0.2 | 0.1 | 0.1 | 31464 | 712 |
| | 1C | | 252 | 26.5 | 52.8 | 0.1 | 0.0 | 0.1 | 31708 | 779 |
| | 2C | | 238 | 27.2 | 52.3 | 0.6 | 0.3 | 0.3 | 31875 | 733 |
| | 3C | | 228 | 28.4 | 52.1 | 0.5 | 0.2 | 0.3 | 31833 | 697 |
| | 4C | | 226 | 27.5 | 52.0 | 0.1 | 0.0 | 0.1 | 31542 | 693 |
| | 5C | | 224 | 28.5 | 51.2 | 0.1 | 0.1 | 0.0 | 31625 | 683 |
| | C | | 252 | 27.0 | 52.5 | 0.4 | 0.0 | 0.4 | 32167 | 778 |
| | CC | | 224 | 27.7 | 52.4 | 0.1 | 0.0 | 0.1 | 30208 | 688 |
| | | Picoxystrobin | 235 | 27.2 | 52.6 | 0.2 | 0.0 | 0.2 | 31643 | 724 |
| | | Prothioconazole | 240 | 28.5 | 51.9 | 0.5 | 0.1 | 0.4 | 31821 | 733 |
| | | UTC | 230 | 27.0 | 52.1 | 0.2 | 0.2 | 0.1 | 31232 | 708 |
| Conv | 1C | | 250 | 26.3 | 53.8 | 0.0 | 0.0 | 0.0 | 30667 | 774 |
| Conv | 2C | | 246 | 26.6 | 53.0 | 0.3 | 0.0 | 0.3 | 31500 | 758 |
| Conv | 3C | | 227 | 27.5 | 52.8 | 1.0 | 0.5 | 0.5 | 32417 | 696 |
| Conv | 4C | | 229 | 26.8 | 52.8 | 0.3 | 0.0 | 0.3 | 31750 | 707 |
| Conv | 5C | | 229 | 27.0 | 51.8 | 0.3 | 0.3 | 0.0 | 32167 | 705 |
| Conv | C | | 248 | 26.5 | 53.4 | 0.5 | 0.0 | 0.5 | 31583 | 767 |
| Conv | CC | | 230 | 26.8 | 53.3 | 0.3 | 0.0 | 0.3 | 31583 | 710 |
| Notill | 1C | | 254 | 26.7 | 51.7 | 0.3 | 0.0 | 0.3 | 32750 | 784 |
| Notill | 2C | | 231 | 27.9 | 51.6 | 0.8 | 0.6 | 0.3 | 32250 | 708 |
| Notill | 3C | | 230 | 29.4 | 51.5 | 0.0 | 0.0 | 0.0 | 31250 | 698 |
| Notill | 4C | | 222 | 28.3 | 51.2 | 0.0 | 0.0 | 0.0 | 31333 | 679 |
| Notill | 5C | | 219 | 30.1 | 50.7 | 0.0 | 0.0 | 0.0 | 31083 | 661 |
| Notill | C | | 257 | 27.4 | 51.6 | 0.2 | 0.0 | 0.2 | 32750 | 788 |
| Notill | CC | | 218 | 28.6 | 51.5 | 0.0 | 0.0 | 0.0 | 28833 | 666 |
| Conv | | Picoxystrobin | 236 | 26.5 | 53.5 | 0.2 | 0.0 | 0.2 | 31750 | 730 |
| Conv | | Prothioconazole | 243 | 27.7 | 52.7 | 0.6 | 0.0 | 0.6 | 31679 | 744 |
| Conv | | UTC | 232 | 26.2 | 52.8 | 0.3 | 0.3 | 0.0 | 31571 | 720 |
| Notill | | Picoxystrobin | 234 | 27.9 | 51.7 | 0.1 | 0.0 | 0.1 | 31536 | 718 |
| Notill | | Prothioconazole | 238 | 29.3 | 51.2 | 0.4 | 0.2 | 0.1 | 31964 | 721 |
| Notill | | UTC | 227 | 27.8 | 51.4 | 0.1 | 0.0 | 0.1 | 30893 | 697 |
| | 1C | Picoxystrobin | 254 | 26.0 | 53.0 | 0.0 | 0.0 | 0.0 | 31500 | 787 |
| | 1C | Prothioconazole | 256 | 27.2 | 52.3 | 0.0 | 0.0 | 0.0 | 32375 | 788 |
| | 1C | UTC | 246 | 26.3 | 53.0 | 0.4 | 0.0 | 0.4 | 31250 | 762 |
| | 2C | Picoxystrobin | 232 | 26.4 | 53.2 | 0.0 | 0.0 | 0.0 | 31250 | 718 |
| | 2C | Prothioconazole | 248 | 28.3 | 52.0 | 1.7 | 0.8 | 0.9 | 31500 | 757 |
| | 2C | UTC | 235 | 27.0 | 51.8 | 0.0 | 0.0 | 0.0 | 32875 | 724 |
| | 3C | Picoxystrobin | 227 | 27.7 | 52.7 | 0.0 | 0.0 | 0.0 | 31875 | 696 |
| | 3C | Prothioconazole | 235 | 29.9 | 52.0 | 0.8 | 0.0 | 0.8 | 31125 | 710 |
| | 3C | UTC | 224 | 27.8 | 51.6 | 0.7 | 0.7 | 0.0 | 32500 | 685 |

continue

Table 1909-07. Corn/Soybean Rotation and Tillage Study - Corn.

(continued)

Arlington, WI - 2019.

| Tillage | Rotation | Fungicide | Yield bu/A | Moisture % | Test weight lbs/bu | Lodged | | | Harvest density plants/A | AGI \$3.54/bu \$/A |
|---------|----------|-----------------|---------------|---------------|--------------------------|------------|------------|-----------|--------------------------------|--------------------------|
| | | | | | | Total % | Stalk % | Root % | | |
| | 4C | Picoxystrobin | 227 | 26.7 | 52.9 | 0.4 | 0.0 | 0.4 | 31500 | 702 |
| | 4C | Prothioconazole | 230 | 29.0 | 51.4 | 0.0 | 0.0 | 0.0 | 31875 | 699 |
| | 4C | UTC | 220 | 26.9 | 51.7 | 0.0 | 0.0 | 0.0 | 31250 | 677 |
| | 5C | Picoxystrobin | 226 | 28.6 | 51.4 | 0.0 | 0.0 | 0.0 | 32000 | 688 |
| | 5C | Prothioconazole | 227 | 29.4 | 51.2 | 0.0 | 0.0 | 0.0 | 32000 | 689 |
| | 5C | UTC | 219 | 27.6 | 51.1 | 0.4 | 0.4 | 0.0 | 30875 | 672 |
| | C | Picoxystrobin | 263 | 26.8 | 52.3 | 0.8 | 0.0 | 0.8 | 32000 | 810 |
| | C | Prothioconazole | 252 | 28.0 | 52.1 | 0.4 | 0.0 | 0.4 | 32625 | 771 |
| | C | UTC | 243 | 26.1 | 53.2 | 0.0 | 0.0 | 0.0 | 31875 | 752 |
| | CC | Picoxystrobin | 217 | 28.2 | 52.5 | 0.0 | 0.0 | 0.0 | 31375 | 664 |
| | CC | Prothioconazole | 234 | 27.7 | 52.5 | 0.4 | 0.0 | 0.4 | 31250 | 716 |
| | CC | UTC | 222 | 27.2 | 52.2 | 0.0 | 0.0 | 0.0 | 28000 | 683 |
| Conv | 1C | Picoxystrobin | 247 | 26.1 | 54.1 | 0.0 | 0.0 | 0.0 | 31000 | 766 |
| Conv | 1C | Prothioconazole | 260 | 26.6 | 53.6 | 0.0 | 0.0 | 0.0 | 31250 | 802 |
| Conv | 1C | UTC | 243 | 26.1 | 53.8 | 0.0 | 0.0 | 0.0 | 29750 | 754 |
| Conv | 2C | Picoxystrobin | 241 | 25.9 | 54.6 | 0.0 | 0.0 | 0.0 | 31250 | 747 |
| Conv | 2C | Prothioconazole | 255 | 27.7 | 52.4 | 0.9 | 0.0 | 0.9 | 30750 | 781 |
| Conv | 2C | UTC | 241 | 26.2 | 52.0 | 0.0 | 0.0 | 0.0 | 32500 | 747 |
| Conv | 3C | Picoxystrobin | 227 | 26.8 | 54.1 | 0.0 | 0.0 | 0.0 | 32750 | 701 |
| Conv | 3C | Prothioconazole | 233 | 28.9 | 52.9 | 1.6 | 0.0 | 1.6 | 31750 | 707 |
| Conv | 3C | UTC | 220 | 26.9 | 51.3 | 1.5 | 1.5 | 0.0 | 32750 | 679 |
| Conv | 4C | Picoxystrobin | 235 | 25.8 | 53.9 | 0.8 | 0.0 | 0.8 | 31250 | 729 |
| Conv | 4C | Prothioconazole | 230 | 28.3 | 52.0 | 0.0 | 0.0 | 0.0 | 32000 | 703 |
| Conv | 4C | UTC | 222 | 26.3 | 52.4 | 0.0 | 0.0 | 0.0 | 32000 | 687 |
| Conv | 5C | Picoxystrobin | 227 | 26.9 | 51.7 | 0.0 | 0.0 | 0.0 | 32750 | 699 |
| Conv | 5C | Prothioconazole | 236 | 27.6 | 52.0 | 0.0 | 0.0 | 0.0 | 32000 | 723 |
| Conv | 5C | UTC | 225 | 26.4 | 51.6 | 0.8 | 0.8 | 0.0 | 31750 | 695 |
| Conv | C | Picoxystrobin | 253 | 26.6 | 53.4 | 0.8 | 0.0 | 0.8 | 31000 | 783 |
| Conv | C | Prothioconazole | 247 | 27.5 | 52.3 | 0.7 | 0.0 | 0.7 | 33000 | 759 |
| Conv | C | UTC | 244 | 25.3 | 54.5 | 0.0 | 0.0 | 0.0 | 30750 | 761 |
| Conv | CC | Picoxystrobin | 222 | 27.4 | 52.7 | 0.0 | 0.0 | 0.0 | 32250 | 682 |
| Conv | CC | Prothioconazole | 239 | 27.1 | 53.7 | 0.8 | 0.0 | 0.8 | 31000 | 735 |
| Conv | CC | UTC | 230 | 26.1 | 53.7 | 0.0 | 0.0 | 0.0 | 31500 | 714 |
| Notill | 1C | Picoxystrobin | 260 | 25.8 | 51.9 | 0.0 | 0.0 | 0.0 | 32000 | 807 |
| Notill | 1C | Prothioconazole | 252 | 27.9 | 51.1 | 0.0 | 0.0 | 0.0 | 33500 | 774 |
| Notill | 1C | UTC | 249 | 26.4 | 52.1 | 0.8 | 0.0 | 0.8 | 32750 | 770 |
| Notill | 2C | Picoxystrobin | 223 | 27.0 | 51.8 | 0.0 | 0.0 | 0.0 | 31250 | 688 |
| Notill | 2C | Prothioconazole | 241 | 28.8 | 51.6 | 2.5 | 1.7 | 0.8 | 32250 | 734 |
| Notill | 2C | UTC | 229 | 27.8 | 51.5 | 0.0 | 0.0 | 0.0 | 33250 | 701 |
| Notill | 3C | Picoxystrobin | 226 | 28.6 | 51.4 | 0.0 | 0.0 | 0.0 | 31000 | 690 |
| Notill | 3C | Prothioconazole | 237 | 30.8 | 51.1 | 0.0 | 0.0 | 0.0 | 30500 | 712 |
| Notill | 3C | UTC | 227 | 28.7 | 51.9 | 0.0 | 0.0 | 0.0 | 32250 | 692 |
| Notill | 4C | Picoxystrobin | 220 | 27.7 | 51.8 | 0.0 | 0.0 | 0.0 | 31750 | 675 |
| Notill | 4C | Prothioconazole | 230 | 29.6 | 50.8 | 0.0 | 0.0 | 0.0 | 31750 | 695 |
| Notill | 4C | UTC | 217 | 27.4 | 50.9 | 0.0 | 0.0 | 0.0 | 30500 | 667 |

continue

**Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2019**

| Tillage | Rotation | Fungicide | Yield bu/A | Moisture % | AGI \$8.21/bu \$/A |
|---------|----------|-----------------|---------------|---------------|--------------------------|
| Conv | | | 63.8 | 12.9 | 509 |
| Notill | | | 68.3 | 13.0 | 545 |
| | 1S | | 73.3 | 13.6 | 584 |
| | 2S | | 71.8 | 12.6 | 573 |
| | 3S | | 62.9 | 12.9 | 502 |
| | 4S | | 59.6 | 13.0 | 475 |
| | 5S | | 66.2 | 12.6 | 528 |
| | S | | 69.0 | 13.3 | 550 |
| | SS | | 59.6 | 12.7 | 475 |
| | | Picoxystrobin | 68.5 | 13.0 | 546 |
| | | Prothioconazole | 65.7 | 13.0 | 524 |
| | | UTC | 64.0 | 12.9 | 511 |
| Conv | 1S | | 69.9 | 13.6 | 557 |
| Conv | 2S | | 69.1 | 12.6 | 552 |
| Conv | 3S | | 57.8 | 12.9 | 461 |
| Conv | 4S | | 58.8 | 13.0 | 469 |
| Conv | 5S | | 62.9 | 12.6 | 502 |
| Conv | S | | 68.5 | 13.2 | 546 |
| Conv | SS | | 59.6 | 12.7 | 475 |
| Notill | 1S | | 76.7 | 13.6 | 611 |
| Notill | 2S | | 74.4 | 12.5 | 594 |
| Notill | 3S | | 68.0 | 12.9 | 542 |
| Notill | 4S | | 60.4 | 13.0 | 482 |
| Notill | 5S | | 69.4 | 12.6 | 554 |
| Notill | S | | 69.6 | 13.4 | 554 |
| Notill | SS | | 59.6 | 12.7 | 476 |
| Conv | | Picoxystrobin | 66.5 | 12.9 | 530 |
| Conv | | Prothioconazole | 64.0 | 13.0 | 511 |
| Conv | | UTC | 60.9 | 12.9 | 486 |
| Notill | | Picoxystrobin | 70.4 | 13.0 | 562 |
| Notill | | Prothioconazole | 67.4 | 13.1 | 537 |
| Notill | | UTC | 67.1 | 12.8 | 535 |
| | 1S | Picoxystrobin | 81.7 | 13.5 | 651 |
| | 1S | Prothioconazole | 69.7 | 13.8 | 555 |
| | 1S | UTC | 68.5 | 13.4 | 546 |
| | 2S | Picoxystrobin | 73.2 | 12.6 | 584 |
| | 2S | Prothioconazole | 72.5 | 12.6 | 578 |
| | 2S | UTC | 69.6 | 12.5 | 555 |
| | 3S | Picoxystrobin | 69.3 | 12.9 | 553 |
| | 3S | Prothioconazole | 57.8 | 13.0 | 461 |
| | 3S | UTC | 61.6 | 12.9 | 492 |

continue

Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.(continued) **Arlington, WI - 2019.**

| Tillage | Rotation | Fungicide | Yield bu/A | Moisture % | AGI \$8.21/bu \$/A |
|---------|----------|-----------------|---------------|---------------|--------------------------|
| | 4S | Picoxystrobin | 60.2 | 13.2 | 479 |
| | 4S | Prothioconazole | 61.5 | 12.9 | 490 |
| | 4S | UTC | 57.2 | 12.9 | 456 |
| | 5S | Picoxystrobin | 67.9 | 12.6 | 542 |
| | 5S | Prothioconazole | 66.8 | 12.7 | 533 |
| | 5S | UTC | 63.9 | 12.5 | 510 |
| | S | Picoxystrobin | 67.4 | 13.3 | 537 |
| | S | Prothioconazole | 71.2 | 13.5 | 567 |
| | S | UTC | 68.4 | 13.2 | 546 |
| | SS | Picoxystrobin | 59.6 | 12.9 | 476 |
| | SS | Prothioconazole | 60.5 | 12.8 | 483 |
| | SS | UTC | 58.7 | 12.6 | 468 |
| Conv | 1S | Picoxystrobin | 78.0 | 13.4 | 622 |
| Conv | 1S | Prothioconazole | 68.5 | 13.9 | 546 |
| Conv | 1S | UTC | 63.3 | 13.4 | 505 |
| Conv | 2S | Picoxystrobin | 70.4 | 12.6 | 561 |
| Conv | 2S | Prothioconazole | 71.2 | 12.6 | 568 |
| Conv | 2S | UTC | 65.9 | 12.6 | 526 |
| Conv | 3S | Picoxystrobin | 64.3 | 12.9 | 513 |
| Conv | 3S | Prothioconazole | 52.0 | 13.0 | 415 |
| Conv | 3S | UTC | 57.2 | 12.9 | 457 |
| Conv | 4S | Picoxystrobin | 58.6 | 13.3 | 467 |
| Conv | 4S | Prothioconazole | 61.3 | 12.9 | 489 |
| Conv | 4S | UTC | 56.4 | 12.9 | 450 |
| Conv | 5S | Picoxystrobin | 66.4 | 12.5 | 530 |
| Conv | 5S | Prothioconazole | 64.2 | 12.7 | 512 |
| Conv | 5S | UTC | 58.2 | 12.7 | 464 |
| Conv | S | Picoxystrobin | 67.3 | 13.1 | 536 |
| Conv | S | Prothioconazole | 70.2 | 13.3 | 560 |
| Conv | S | UTC | 67.9 | 13.2 | 541 |
| Conv | SS | Picoxystrobin | 60.6 | 12.9 | 483 |
| Conv | SS | Prothioconazole | 60.7 | 12.7 | 484 |
| Conv | SS | UTC | 57.5 | 12.6 | 458 |
| Notill | 1S | Picoxystrobin | 85.4 | 13.6 | 680 |
| Notill | 1S | Prothioconazole | 70.9 | 13.7 | 565 |
| Notill | 1S | UTC | 73.8 | 13.5 | 588 |
| Notill | 2S | Picoxystrobin | 76.1 | 12.6 | 607 |
| Notill | 2S | Prothioconazole | 73.8 | 12.6 | 589 |
| Notill | 2S | UTC | 73.3 | 12.5 | 585 |
| Notill | 3S | Picoxystrobin | 74.3 | 12.9 | 592 |
| Notill | 3S | Prothioconazole | 63.6 | 13.0 | 507 |
| Notill | 3S | UTC | 66.0 | 12.9 | 527 |
| Notill | 4S | Picoxystrobin | 61.7 | 13.2 | 492 |
| Notill | 4S | Prothioconazole | 61.6 | 13.0 | 492 |
| Notill | 4S | UTC | 57.9 | 12.8 | 462 |

continue

Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.(continued) **Arlington, WI - 2019.**

| Tillage | Rotation | Fungicide | Yield bu/A | Moisture % | AGI \$8.21/bu \$/A |
|------------------------------|----------|-----------------|---------------|---------------|--------------------------|
| Notill | 5S | Picoxystrobin | 69.4 | 12.6 | 554 |
| Notill | 5S | Prothioconazole | 69.4 | 12.7 | 554 |
| Notill | 5S | UTC | 69.6 | 12.4 | 555 |
| Notill | S | Picoxystrobin | 67.5 | 13.4 | 538 |
| Notill | S | Prothioconazole | 72.2 | 13.7 | 575 |
| Notill | S | UTC | 69.0 | 13.2 | 550 |
| Notill | SS | Picoxystrobin | 58.7 | 12.8 | 468 |
| Notill | SS | Prothioconazole | 60.3 | 12.8 | 481 |
| Notill | SS | UTC | 59.9 | 12.6 | 478 |
| Mean | | | 66.1 | 13.0 | 527 |
| <u>Probability(%)</u> | | | | | |
| Tillage (T) | | | 0.8 | 89.4 | 0.8 |
| Rotation (R) | | | 0.0 | 0.0 | 0.0 |
| Fungicide (F) | | | 0.0 | 3.5 | 0.0 |
| T x R | | | 0.5 | 99.3 | 0.5 |
| T x F | | | 24.0 | 47.4 | 23.7 |
| R x F | | | 0.0 | 48.1 | 0.0 |
| T x R x F | | | 87.0 | 96.7 | 87.4 |
| <u>LSD(0.10)</u> | | | | | |
| Tillage (T) | | | 1.7 | NS | 13 |
| Rotation (R) | | | 2.2 | 0.3 | 18 |
| Fungicide (F) | | | 1.4 | 0.1 | 12 |
| T x R | | | 3.2 | NS | 25 |
| T x F | | | NS | NS | NS |
| R x F | | | 3.8 | NS | 31 |
| T x R x F | | | NS | NS | NS |