

## FIELD EXPERIMENT HISTORY

**Title:** Cultivation, Plant Density, and Hybrid Influence on Corn Grain  
**Experiment:** 11 Misc **Trial ID:** 2710 **Year:** 2005  
**Personnel:** J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** HATCH

### Site Information

**Field:** ARS357 **Previous Crop:** Grass **Soil Type:** Plano Silt Loam  
**Soil Test:** **Date:** 11/1 /05 **pH** 6 **OM (%)** 3.4 **P (ppm)** 28 **K (ppm)** 78

### Plot Management

**Tillage Operations:** Chisel Plow    Field Cultivator    Soil Finisher    Cultivated    6/24/05  
**Analysis:** **Rate lbs/A:** **Date:**  
**Fertilizer:**    **Preplant :**    46-0-0    325 lbs/A    4 /14/05  
                   **Starter :**    9-24-24    150 lbs/A    5 /9 /05  
                   **Post plant :**    N/A    N/A    N/A  
                   **Manure:**    N/A    N/A    N/A  
**Herbicide:**    Outlook 20 oz/A    **Insecticide:**    None  
                   Hornet 4 oz/A    **Hybrid:**    See Factors  
                   Stinger (spot) 0.5 pt/A  
                   Accent 0.67 oz/A  
                   Callisto 3 oz/A  
**Irrigation:**    None  
**Planting Date:**    5/9/05    **Planting Depth:**    1.5"    **Row Width:**    30"  
**Target Plant Density:** See Factors    **Planting Method:**    Kinze Plot Planter  
**Harvest Date:**    10/24/05    **Harvest Method:**    Massey Ferguson 8XP

### Experimental Design

**Design:** RCB **Replications:** 3  
**Plot Size Seeded:** 10' x 25' **Experiment Size:** 0.21 Acre  
**Harvest Plot Size:** 5' x 22' **Harvest Plant Density:** N/A    plants per acre

### Factors/Treatments:

#### Plant Density: (plants/A)

30000  
38000

#### Hybrids:

Dekalb DKC5334  
Pioneer 34M94  
Pioneer 34M95

**Results:** Table C-68.

**Table C-68. Cultivation, Plant Density, and Hybrid Influence on Corn Grain.  
Arlington, WI - 2005.**

| Target<br>Density<br>plants/A | Hybrid         | Trait | Cultivation<br>Y or N | Grain         |               |                          |                          |            |            |           |                      |             |          |        |
|-------------------------------|----------------|-------|-----------------------|---------------|---------------|--------------------------|--------------------------|------------|------------|-----------|----------------------|-------------|----------|--------|
|                               |                |       |                       | Yield<br>bu/A | Moisture<br>% | Test<br>Weight<br>lbs/bu | Grower<br>Return<br>\$/A | Lodged     |            |           | Ears<br>Dropped<br>% | Harvest     |          |        |
|                               |                |       |                       |               |               |                          |                          | Total<br>% | Stalk<br>% | Root<br>% |                      | Barren<br>% | plants/A | ears/A |
|                               |                |       | N                     | 194           | 19.3          | 58                       | 302                      | 10         | 9          | 1         | 2                    | 0           | 33154    | 32626  |
|                               |                |       | Y                     | 202           | 19.6          | 58                       | 313                      | 11         | 10         | 1         | 2                    | 0           | 33440    | 32912  |
|                               | Dekalb DKC5334 | BtRR  |                       | 199           | 18.5          | 60                       | 313                      | 3          | 3          | 0         | 1                    | 0           | 33099    | 32901  |
|                               | Pioneer 34M94  |       |                       | 191           | 19.9          | 58                       | 295                      | 17         | 16         | 1         | 3                    | 0           | 33825    | 32703  |
|                               | Pioneer 34M95  | Bt    |                       | 203           | 19.9          | 58                       | 314                      | 11         | 8          | 3         | 1                    | 0           | 32967    | 32703  |
|                               | Dekalb DKC5334 | BtRR  | N                     | 195           | 18.5          | 59                       | 306                      | 5          | 5          | 0         | 1                    | 0           | 33066    | 32736  |
|                               | Dekalb DKC5334 | BtRR  | Y                     | 204           | 18.6          | 60                       | 320                      | 2          | 2          | 0         | 0                    | 0           | 33132    | 33066  |
|                               | Pioneer 34M94  |       | N                     | 190           | 19.8          | 58                       | 293                      | 16         | 16         | 0         | 3                    | 0           | 33792    | 32736  |
|                               | Pioneer 34M94  |       | Y                     | 193           | 20.1          | 57                       | 297                      | 18         | 17         | 1         | 3                    | 0           | 33858    | 32670  |
|                               | Pioneer 34M95  | Bt    | N                     | 198           | 19.6          | 58                       | 306                      | 8          | 6          | 2         | 1                    | 0           | 32604    | 32406  |
|                               | Pioneer 34M95  | Bt    | Y                     | 209           | 20.1          | 57                       | 321                      | 13         | 10         | 3         | 1                    | 0           | 33330    | 33000  |
| 30000                         |                |       |                       | 205           | 19.8          | 58                       | 317                      | 6          | 5          | 1         | 1                    | 0           | 29392    | 29062  |
| 38000                         |                |       |                       | 191           | 19.1          | 59                       | 297                      | 15         | 13         | 1         | 2                    | 0           | 37202    | 36476  |
| 30000                         |                |       | N                     | 202           | 19.6          | 58                       | 313                      | 5          | 5          | 0         | 1                    | 0           | 29260    | 29128  |
| 30000                         |                |       | Y                     | 208           | 19.9          | 58                       | 322                      | 7          | 6          | 1         | 2                    | 0           | 29524    | 28996  |
| 38000                         |                |       | N                     | 186           | 19.0          | 59                       | 290                      | 14         | 13         | 1         | 3                    | 0           | 37048    | 36124  |
| 38000                         |                |       | Y                     | 196           | 19.3          | 58                       | 304                      | 15         | 14         | 1         | 1                    | 0           | 37356    | 36828  |
| 30000                         | Dekalb DKC5334 | BtRR  |                       | 204           | 18.7          | 59                       | 320                      | 2          | 2          | 0         | 1                    | 0           | 29106    | 29106  |
| 30000                         | Pioneer 34M94  |       |                       | 202           | 20.4          | 57                       | 309                      | 11         | 10         | 1         | 2                    | 0           | 29766    | 29172  |
| 30000                         | Pioneer 34M95  | Bt    |                       | 210           | 20.2          | 58                       | 322                      | 5          | 4          | 1         | 2                    | 0           | 29304    | 28908  |
| 38000                         | Dekalb DKC5334 | BtRR  |                       | 194           | 18.4          | 60                       | 305                      | 5          | 5          | 0         | 1                    | 0           | 37092    | 36696  |
| 38000                         | Pioneer 34M94  |       |                       | 181           | 19.5          | 58                       | 281                      | 23         | 22         | 1         | 4                    | 0           | 37884    | 36234  |
| 38000                         | Pioneer 34M95  | Bt    |                       | 197           | 19.5          | 58                       | 305                      | 16         | 12         | 4         | 1                    | 0           | 36630    | 36498  |

(continued)

**Table C-68. Cultivation, Plant Density, and Hybrid Influence on Corn Grain.**

(continued) **Arlington, WI - 2005.**

| Target<br>Density     | Hybrid         | Trait | Cultivation | Grain |          |                |                  |        |      |      |      |   |          |        |
|-----------------------|----------------|-------|-------------|-------|----------|----------------|------------------|--------|------|------|------|---|----------|--------|
|                       |                |       |             | Yield | Moisture | Test<br>Weight | Grower<br>Return | Lodged |      |      | Ears |   | Harvest  |        |
| plants/A              |                |       | Y or N      | bu/A  | %        | lbs/bu         | \$/A             | %      | %    | %    | %    | % | plants/A | ears/A |
| 30000                 | Dekalb DKC5334 | BtRR  | N           | 199   | 18.7     | 59             | 311              | 1      | 1    | 0    | 0    | 0 | 29304    | 29436  |
| 30000                 | Dekalb DKC5334 | BtRR  | Y           | 210   | 18.6     | 60             | 329              | 2      | 2    | 0    | 1    | 0 | 28908    | 28776  |
| 30000                 | Pioneer 34M94  |       | N           | 204   | 20.1     | 58             | 313              | 10     | 10   | 0    | 1    | 0 | 29832    | 29436  |
| 30000                 | Pioneer 34M94  |       | Y           | 200   | 20.7     | 57             | 305              | 12     | 11   | 1    | 3    | 0 | 29700    | 28908  |
| 30000                 | Pioneer 34M95  | Bt    | N           | 205   | 20.1     | 58             | 315              | 3      | 3    | 0    | 1    | 0 | 28644    | 28512  |
| 30000                 | Pioneer 34M95  | Bt    | Y           | 215   | 20.3     | 57             | 330              | 7      | 4    | 3    | 2    | 0 | 29964    | 29304  |
| 38000                 | Dekalb DKC5334 | BtRR  | N           | 190   | 18.3     | 60             | 300              | 8      | 8    | 0    | 3    | 0 | 36828    | 36036  |
| 38000                 | Dekalb DKC5334 | BtRR  | Y           | 198   | 18.5     | 60             | 311              | 2      | 2    | 0    | 0    | 0 | 37356    | 37356  |
| 38000                 | Pioneer 34M94  |       | N           | 176   | 19.5     | 59             | 273              | 22     | 22   | 0    | 5    | 0 | 37752    | 36036  |
| 38000                 | Pioneer 34M94  |       | Y           | 186   | 19.4     | 58             | 288              | 23     | 23   | 1    | 4    | 0 | 38016    | 36432  |
| 38000                 | Pioneer 34M95  | Bt    | N           | 191   | 19.1     | 58             | 298              | 12     | 9    | 4    | 1    | 0 | 36564    | 36300  |
| 38000                 | Pioneer 34M95  | Bt    | Y           | 203   | 19.9     | 57             | 312              | 20     | 16   | 4    | 0    | 0 | 36696    | 36696  |
| Mean                  |                |       |             | 198   | 19.4     | 58             | 307              | 10     | 9    | 1    | 2    | 0 | 33297    | 32769  |
| <b>Probability(%)</b> |                |       |             |       |          |                |                  |        |      |      |      |   |          |        |
| Hybrid (H)            |                |       |             | 12.4  | 0.8      | 0.0            | 8.3              | 0.0    | 0.0  | 0.2  | 0.6  | - | 3.1      | 77.5   |
| Plant Density (D)     |                |       |             | 0.5   | 11.0     | 0.4            | 1.3              | 0.0    | 0.1  | 14.6 | 27.1 | - | 0.0      | 0.0    |
| H x D                 |                |       |             | 62.6  | 72.4     | 40.2           | 73.8             | 18.9   | 30.3 | 8.9  | 7.0  | - | 43.7     | 63.9   |
| Cultivation (C)       |                |       |             | 10.5  | 47.0     | 21.4           | 15.0             | 47.6   | 72.7 | 20.3 | 93.0 | - | 29.1     | 28.4   |
| C x H                 |                |       |             | 75.6  | 88.3     | 3.8            | 77.9             | 28.3   | 45.3 | 63.5 | 46.7 | - | 51.1     | 58.9   |
| C x D                 |                |       |             | 71.4  | 96.5     | 35.1           | 74.1             | 76.8   | 98.4 | 22.9 | 7.3  | - | 93.4     | 12.5   |
| C x D x H             |                |       |             | 75.7  | 78.6     | 70.4           | 69.6             | 53.8   | 44.0 | 52.2 | 86.7 | - | 25.8     | 19.8   |
| <b>LSD (0.10)</b>     |                |       |             |       |          |                |                  |        |      |      |      |   |          |        |
| Hybrid (H)            |                |       |             | NS    | 0.8      | 0              | 16               | 4      | 5    | 1    | 1    | - | 556      | NS     |
| Plant Density (D)     |                |       |             | 8     | NS       | 0              | 13               | 3      | 4    | NS   | NS   | - | 454      | 447    |
| H x D                 |                |       |             | NS    | NS       | NS             | NS               | NS     | NS   | 2    | 2    | - | NS       | NS     |
| Cultivation (C)       |                |       |             | NS    | NS       | NS             | NS               | NS     | NS   | NS   | NS   | - | NS       | NS     |
| C x H                 |                |       |             | NS    | NS       | 1              | NS               | NS     | NS   | NS   | NS   | - | NS       | NS     |
| C x D                 |                |       |             | NS    | NS       | NS             | NS               | NS     | NS   | NS   | 1    | - | NS       | NS     |
| C x D x H             |                |       |             | NS    | NS       | NS             | NS               | NS     | NS   | NS   | NS   | - | NS       | NS     |
| <b>CV(%)</b>          |                |       |             | 7     | 6        | 1              | 7                | 58     | 71   | 148  | 98   | - | 2        | 2      |