

Field Experiment History

Title: The Effects of Plot Size on Maize.
Experiment: 01 Plot Size
Personnel: J.G. Lauer, P.J. Flannery, K.D. Kohn, and H.M. Darby
Supported by: Hatch

Year: 1998

Experimental Procedure

Exp. Design: RCB Split Plot
Replicates 3
Variables Hybrids:

| | |
|---------------------------|----------------|
| Asgrow Rx492 | Lemke SL45 |
| Carhart's Blue Top CX100A | Linco L4396 |
| Dahlco 2540 | NK Brand N4242 |
| Dairyland Stealth 1402 | Pioneer 36H36 |
| Dekalb DK493 | Renk RK543 |
| Golden Harvest H2387 | Spangler 4100 |

Plot Size:

2 Rows
4 Rows

Area Planted: 5' x 25' (2 row plot) and 10' x 25' (4 row plot)
Planting Equip: 4-row Kinze plot planter
Planting Rate: 28,900 seeds/A
Row Spacing: 30"
Harvest Equip: Kincaid Plot Combine

Field Information

| Location | Soil Type | Previous Crop | Planting Date | Harvest Dates | Ave. Final Stand (plants/A) | Tillage Operations | --Soil Test-- pH P K --(ppm)-- | --Nitrogen Fertilizer-- actual form time lbs/A | Weed Control | Insecticides | |
|------------|-------------------|---------------|---------------|---------------|-----------------------------|---------------------------------|--------------------------------------|--|----------------------|---|-------------------|
| Arlington | Plano Silt Loam | Soybean | 24-Apr | 29-Sep | 30622 | Chisel Plow Field Cultivator | 6.9 91 292 | 125 9 46-0-0 6-24-24 | preplant planting | Lasso 2 qts/A Bladex 90DF 2.2 lbs/A | None |
| Janesville | Plano Silt Loam | Corn | 28-Apr | 12-Oct | 29146 | Chisel Plow Field Cultivator | 6.3 41 215 | 160 9 82-0-0 6-24-24 | preplant planting | Harness 2.75 pt/A Hornet 4.5 oz/A | Lorsban 7lbs/A |
| Lancaster | Rozetta Silt Loam | Soybean | 6-May | 8-Oct | 27205 | Soil finisher (2x) | 7.3 50 170 | 140 9 82-0-0 6-24-24 | preplant planting | Roundup 1.5 qts/A Dual II 2 pts/A Buctril 1.5 pts/A Atrazine .75 pts/A | None |

Results: Table E-18.

**Table E-18. Plot Size Effects on Maize.
Arlington, WI; Janesville, WI; and Lancaster, WI - 1998**

| Location | Hybrid | Plot size | Grain yield bu/A | Grain moisture % | Test weight lbs/bu | Lodging % | Plant height inches |
|----------|---------------------------|-----------|---------------------|---------------------|-----------------------|--------------|------------------------|
| | | 2 Row | 219 | 19.4 | 55 | 4.4 | 105 |
| | | 4 Row | 222 | 19.4 | 55 | 4.3 | 105 |
| | Asgrow Rx492 | | 212 | 20.0 | 59 | 3.7 | 107 |
| | Carhart's Blue Top CX100A | | 218 | 18.7 | 54 | 3.4 | 103 |
| | Dahlco 2540 | | 202 | 20.6 | 54 | 0.8 | 104 |
| | Dairyland Stealth 1402 | | 227 | 20.6 | 54 | 2.3 | 101 |
| | Dekalb DK493 | | 232 | 19.1 | 55 | 5.6 | 106 |
| | Golden Harvest H2387 | | 219 | 20.8 | 55 | 9.9 | 106 |
| | Lemke SL45 | | 223 | 18.5 | 54 | 7.8 | 102 |
| | Linco L4396 | | 225 | 18.3 | 55 | 4.8 | 108 |
| | NK Brand N4242 | | 226 | 18.4 | 56 | 3.6 | 107 |
| | Pioneer 36H36 | | 228 | 19.9 | 56 | 3.9 | 107 |
| | Renk RK543 | | 218 | 20.7 | 57 | 0.9 | 107 |
| | Spangler 4100 | | 219 | 17.7 | 54 | 5.6 | 105 |
| | Asgrow Rx492 | 2 Row | 209 | 19.9 | 59 | 3.4 | 107 |
| | Asgrow Rx492 | 4 Row | 216 | 20.0 | 59 | 4.1 | 106 |
| | Carhart's Blue Top CX100A | 2 Row | 219 | 18.7 | 54 | 3.7 | 103 |
| | Carhart's Blue Top CX100A | 4 Row | 217 | 18.7 | 54 | 3.1 | 103 |
| | Dahlco 2540 | 2 Row | 196 | 20.4 | 55 | 0.7 | 104 |
| | Dahlco 2540 | 4 Row | 208 | 20.8 | 54 | 0.8 | 104 |
| | Dairyland Stealth 1402 | 2 Row | 222 | 21.0 | 54 | 3.0 | 101 |
| | Dairyland Stealth 1402 | 4 Row | 232 | 20.3 | 54 | 1.6 | 101 |
| | Dekalb DK493 | 2 Row | 234 | 19.1 | 55 | 4.1 | 104 |
| | Dekalb DK493 | 4 Row | 230 | 19.0 | 55 | 7.1 | 107 |
| | Golden Harvest H2387 | 2 Row | 216 | 20.7 | 55 | 11.9 | 106 |
| | Golden Harvest H2387 | 4 Row | 222 | 20.9 | 55 | 8.0 | 106 |
| | Lemke SL45 | 2 Row | 221 | 18.4 | 54 | 8.8 | 102 |
| | Lemke SL45 | 4 Row | 225 | 18.5 | 54 | 6.7 | 102 |
| | Linco L4396 | 2 Row | 223 | 18.2 | 55 | 3.0 | 108 |
| | Linco L4396 | 4 Row | 226 | 18.3 | 55 | 6.5 | 108 |
| | NK Brand N4242 | 2 Row | 224 | 18.4 | 57 | 3.1 | 109 |
| | NK Brand N4242 | 4 Row | 227 | 18.3 | 56 | 4.0 | 106 |
| | Pioneer 36H36 | 2 Row | 227 | 19.9 | 56 | 2.6 | 106 |
| | Pioneer 36H36 | 4 Row | 228 | 19.9 | 56 | 5.1 | 107 |
| | Renk RK543 | 2 Row | 213 | 20.8 | 56 | 0.9 | 108 |
| | Renk RK543 | 4 Row | 222 | 20.6 | 57 | 0.8 | 106 |
| | Spangler 4100 | 2 Row | 221 | 17.6 | 54 | 7.4 | 107 |
| | Spangler 4100 | 4 Row | 217 | 17.8 | 54 | 3.8 | 103 |

continued

**Table E-18. Plot Size Effects on Maize.
Arlington, WI; Janesville, WI; and Lancaster, WI - 1998**

| Location | Hybrid | Plot size | Grain yield bu/A | Grain moisture % | Test weight lbs/bu | Lodging % | Plant height inches |
|------------|---------------------------|-----------|---------------------|---------------------|-----------------------|--------------|------------------------|
| Arlington | | | 240 | 19.9 | 54 | 9.2 | 107 |
| Janesville | | | 206 | 17.8 | 58 | 2.3 | 103 |
| Lancaster | | | 216 | 20.5 | 54 | 1.5 | 105 |
| Arlington | | 2 Row | 238 | 19.9 | 54 | 8.7 | 108 |
| Arlington | | 4 Row | 242 | 20.0 | 54 | 9.7 | 106 |
| Janesville | | 2 Row | 204 | 18.0 | 58 | 2.9 | 103 |
| Janesville | | 4 Row | 208 | 17.7 | 58 | 1.7 | 103 |
| Lancaster | | 2 Row | 214 | 20.5 | 54 | 1.5 | 105 |
| Lancaster | | 4 Row | 217 | 20.6 | 54 | 1.5 | 105 |
| Arlington | Asgrow Rx492 | | 230 | 20.2 | 58 | 8.8 | 109 |
| Arlington | Carhart's Blue Top CX100A | | 247 | 19.5 | 53 | 4.5 | 106 |
| Arlington | Dahlco 2540 | | 211 | 21.9 | 52 | 0.6 | 107 |
| Arlington | Dairyland Stealth 1402 | | 240 | 20.5 | 53 | 5.7 | 104 |
| Arlington | Dekalb DK493 | | 253 | 20.4 | 53 | 12.2 | 106 |
| Arlington | Golden Harvest H2387 | | 230 | 21.4 | 54 | 24.7 | 108 |
| Arlington | Lemke SL45 | | 252 | 19.1 | 53 | 16.0 | 106 |
| Arlington | Linco L4396 | | 248 | 18.3 | 54 | 9.2 | 111 |
| Arlington | NK Brand N4242 | | 245 | 18.5 | 56 | 8.3 | 108 |
| Arlington | Pioneer 36H36 | | 249 | 20.5 | 55 | 5.6 | 108 |
| Arlington | Renk RK543 | | 240 | 21.1 | 56 | 0.4 | 109 |
| Arlington | Spangler 4100 | | 231 | 17.8 | 54 | 14.0 | 108 |
| Janesville | Asgrow Rx492 | | 195 | 18.2 | 62 | 1.2 | 104 |
| Janesville | Carhart's Blue Top CX100A | | 199 | 17.3 | 56 | 3.0 | 101 |
| Janesville | Dahlco 2540 | | 190 | 18.0 | 58 | 0.7 | 100 |
| Janesville | Dairyland Stealth 1402 | | 217 | 18.8 | 57 | 0.7 | 100 |
| Janesville | Dekalb DK493 | | 215 | 17.0 | 58 | 3.7 | 105 |
| Janesville | Golden Harvest H2387 | | 212 | 19.4 | 57 | 2.7 | 104 |
| Janesville | Lemke SL45 | | 205 | 17.3 | 56 | 4.4 | 101 |
| Janesville | Linco L4396 | | 208 | 17.1 | 57 | 3.9 | 105 |
| Janesville | NK Brand N4242 | | 210 | 17.2 | 59 | 0.9 | 106 |
| Janesville | Pioneer 36H36 | | 212 | 18.4 | 59 | 4.4 | 104 |
| Janesville | Renk RK543 | | 203 | 18.9 | 59 | 0.9 | 104 |
| Janesville | Spangler 4100 | | 208 | 16.5 | 56 | 1.6 | 105 |
| Lancaster | Asgrow Rx492 | | 211 | 21.6 | 57 | 1.2 | 108 |
| Lancaster | Carhart's Blue Top CX100A | | 208 | 19.3 | 53 | 2.6 | 102 |
| Lancaster | Dahlco 2540 | | 205 | 21.9 | 53 | 1.0 | 104 |
| Lancaster | Dairyland Stealth 1402 | | 225 | 22.7 | 52 | 0.5 | 99 |
| Lancaster | Dekalb DK493 | | 228 | 19.8 | 54 | 1.0 | 106 |
| Lancaster | Golden Harvest H2387 | | 215 | 21.6 | 54 | 2.4 | 107 |
| Lancaster | Lemke SL45 | | 211 | 19.1 | 53 | 2.9 | 99 |
| Lancaster | Linco L4396 | | 218 | 19.4 | 53 | 1.2 | 108 |
| Lancaster | NK Brand N4242 | | 221 | 19.5 | 55 | 1.4 | 109 |
| Lancaster | Pioneer 36H36 | | 221 | 20.8 | 54 | 1.7 | 108 |
| Lancaster | Renk RK543 | | 209 | 22.2 | 55 | 1.2 | 108 |
| Lancaster | Spangler 4100 | | 218 | 18.7 | 52 | 1.2 | 102 |

continued

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Arlington, WI; Janesville, WI; and Lancaster, WI - 1998**

| Location | Hybrid | Plot size | Grain yield bu/A | Grain moisture % | Test weight lbs/bu | Lodging % | Plant height inches |
|------------|---------------------------|-----------|---------------------|---------------------|-----------------------|--------------|------------------------|
| Arlington | Asgrow Rx492 | 2 Row | 226 | 20.4 | 58 | 7.8 | 108 |
| Arlington | Asgrow Rx492 | 4 Row | 234 | 20.0 | 58 | 9.8 | 109 |
| Arlington | Carhart's Blue Top CX100A | 2 Row | 243 | 19.6 | 53 | 6.0 | 107 |
| Arlington | Carhart's Blue Top CX100A | 4 Row | 252 | 19.3 | 53 | 3.0 | 105 |
| Arlington | Dahlco 2540 | 2 Row | 203 | 21.4 | 53 | 1.3 | 107 |
| Arlington | Dahlco 2540 | 4 Row | 219 | 22.4 | 52 | 0.0 | 106 |
| Arlington | Dairyland Stealth 1402 | 2 Row | 238 | 20.8 | 53 | 7.6 | 106 |
| Arlington | Dairyland Stealth 1402 | 4 Row | 241 | 20.1 | 53 | 3.8 | 102 |
| Arlington | Dekalb DK493 | 2 Row | 256 | 20.4 | 53 | 6.0 | 102 |
| Arlington | Dekalb DK493 | 4 Row | 250 | 20.4 | 53 | 18.4 | 110 |
| Arlington | Golden Harvest H2387 | 2 Row | 227 | 21.2 | 54 | 29.1 | 108 |
| Arlington | Golden Harvest H2387 | 4 Row | 233 | 21.5 | 53 | 20.3 | 108 |
| Arlington | Lemke SL45 | 2 Row | 251 | 18.8 | 53 | 16.3 | 107 |
| Arlington | Lemke SL45 | 4 Row | 253 | 19.4 | 53 | 15.8 | 106 |
| Arlington | Linco L4396 | 2 Row | 246 | 18.2 | 54 | 4.3 | 114 |
| Arlington | Linco L4396 | 4 Row | 251 | 18.3 | 54 | 14.1 | 108 |
| Arlington | NK Brand N4242 | 2 Row | 249 | 18.5 | 56 | 5.5 | 109 |
| Arlington | NK Brand N4242 | 4 Row | 241 | 18.4 | 55 | 11.1 | 106 |
| Arlington | Pioneer 36H36 | 2 Row | 247 | 20.5 | 55 | 0.4 | 108 |
| Arlington | Pioneer 36H36 | 4 Row | 252 | 20.6 | 55 | 10.7 | 108 |
| Arlington | Renk RK543 | 2 Row | 233 | 21.4 | 56 | 0.9 | 114 |
| Arlington | Renk RK543 | 4 Row | 248 | 20.9 | 56 | 0.0 | 104 |
| Arlington | Spangler 4100 | 2 Row | 237 | 17.2 | 54 | 18.9 | 111 |
| Arlington | Spangler 4100 | 4 Row | 226 | 18.3 | 53 | 9.2 | 105 |
| Janesville | Asgrow Rx492 | 2 Row | 191 | 18.4 | 61 | 1.4 | 102 |
| Janesville | Asgrow Rx492 | 4 Row | 200 | 18.1 | 62 | 0.9 | 105 |
| Janesville | Carhart's Blue Top CX100A | 2 Row | 200 | 17.4 | 56 | 3.7 | 101 |
| Janesville | Carhart's Blue Top CX100A | 4 Row | 198 | 17.2 | 56 | 2.3 | 101 |
| Janesville | Dahlco 2540 | 2 Row | 186 | 18.1 | 58 | 0.0 | 101 |
| Janesville | Dahlco 2540 | 4 Row | 194 | 17.9 | 58 | 1.4 | 99 |
| Janesville | Dairyland Stealth 1402 | 2 Row | 209 | 19.1 | 58 | 1.4 | 99 |
| Janesville | Dairyland Stealth 1402 | 4 Row | 224 | 18.5 | 56 | 0.0 | 102 |
| Janesville | Dekalb DK493 | 2 Row | 218 | 17.0 | 58 | 5.5 | 104 |
| Janesville | Dekalb DK493 | 4 Row | 212 | 17.1 | 58 | 1.8 | 105 |
| Janesville | Golden Harvest H2387 | 2 Row | 216 | 19.5 | 57 | 3.2 | 103 |
| Janesville | Golden Harvest H2387 | 4 Row | 208 | 19.3 | 57 | 2.3 | 104 |
| Janesville | Lemke SL45 | 2 Row | 201 | 17.4 | 57 | 6.4 | 101 |
| Janesville | Lemke SL45 | 4 Row | 210 | 17.3 | 56 | 2.3 | 100 |
| Janesville | Linco L4396 | 2 Row | 204 | 17.3 | 57 | 3.7 | 104 |
| Janesville | Linco L4396 | 4 Row | 211 | 17.0 | 57 | 4.1 | 107 |
| Janesville | NK Brand N4242 | 2 Row | 204 | 17.2 | 59 | 1.4 | 109 |
| Janesville | NK Brand N4242 | 4 Row | 217 | 17.1 | 58 | 0.5 | 103 |
| Janesville | Pioneer 36H36 | 2 Row | 215 | 18.4 | 59 | 5.5 | 103 |
| Janesville | Pioneer 36H36 | 4 Row | 209 | 18.4 | 58 | 3.2 | 105 |
| Janesville | Renk RK543 | 2 Row | 196 | 19.2 | 59 | 0.9 | 103 |
| Janesville | Renk RK543 | 4 Row | 211 | 18.6 | 59 | 0.9 | 105 |
| Janesville | Spangler 4100 | 2 Row | 207 | 16.6 | 56 | 2.3 | 106 |
| Janesville | Spangler 4100 | 4 Row | 208 | 16.4 | 57 | 0.9 | 103 |

continued

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| Location | Hybrid | Plot size | Grain yield bu/A | Grain moisture % | Test weight lbs/bu | Lodging % | Plant height inches |
|------------------------|---------------------------|-----------|---------------------|---------------------|-----------------------|--------------|------------------------|
| Lancaster | Asgrow Rx492 | 2 Row | 209 | 21.1 | 57 | 0.9 | 110 |
| Lancaster | Asgrow Rx492 | 4 Row | 213 | 22.0 | 57 | 1.5 | 105 |
| Lancaster | Carhart's Blue Top CX100A | 2 Row | 215 | 19.2 | 54 | 1.4 | 100 |
| Lancaster | Carhart's Blue Top CX100A | 4 Row | 202 | 19.5 | 53 | 3.8 | 105 |
| Lancaster | Dahlco 2540 | 2 Row | 199 | 21.8 | 53 | 1.0 | 103 |
| Lancaster | Dahlco 2540 | 4 Row | 210 | 21.9 | 53 | 1.0 | 106 |
| Lancaster | Dairyland Stealth 1402 | 2 Row | 220 | 23.0 | 52 | 0.0 | 98 |
| Lancaster | Dairyland Stealth 1402 | 4 Row | 230 | 22.4 | 53 | 0.9 | 100 |
| Lancaster | Dekalb DK493 | 2 Row | 227 | 20.0 | 54 | 1.0 | 107 |
| Lancaster | Dekalb DK493 | 4 Row | 229 | 19.5 | 54 | 1.0 | 105 |
| Lancaster | Golden Harvest H2387 | 2 Row | 205 | 21.4 | 54 | 3.3 | 107 |
| Lancaster | Golden Harvest H2387 | 4 Row | 225 | 21.9 | 54 | 1.5 | 107 |
| Lancaster | Lemke SL45 | 2 Row | 209 | 19.2 | 54 | 3.8 | 99 |
| Lancaster | Lemke SL45 | 4 Row | 212 | 18.9 | 53 | 1.9 | 99 |
| Lancaster | Linco L4396 | 2 Row | 220 | 19.1 | 52 | 0.9 | 106 |
| Lancaster | Linco L4396 | 4 Row | 216 | 19.6 | 53 | 1.4 | 109 |
| Lancaster | NK Brand N4242 | 2 Row | 219 | 19.5 | 55 | 2.4 | 109 |
| Lancaster | NK Brand N4242 | 4 Row | 223 | 19.6 | 55 | 0.5 | 108 |
| Lancaster | Pioneer 36H36 | 2 Row | 220 | 20.9 | 55 | 1.9 | 107 |
| Lancaster | Pioneer 36H36 | 4 Row | 223 | 20.8 | 54 | 1.4 | 110 |
| Lancaster | Renk RK543 | 2 Row | 211 | 21.9 | 55 | 1.0 | 108 |
| Lancaster | Renk RK543 | 4 Row | 207 | 22.4 | 55 | 1.4 | 108 |
| Lancaster | Spangler 4100 | 2 Row | 218 | 18.8 | 52 | 0.9 | 103 |
| Lancaster | Spangler 4100 | 4 Row | 218 | 18.6 | 52 | 1.4 | 101 |
| Mean | | | 221 | 19.4 | 55 | 4.3 | 105 |
| Probability (%) | | | | | | | |
| Hybrid (H) | | | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| Size (S) | | | 4.0 | 86.6 | 9.9 | 92.3 | 42.1 |
| H x S | | | 77.1 | 45.8 | 28.5 | 82.7 | 40.5 |
| Location (L) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| H x L | | | 18.4 | 0.0 | 0.0 | 0.9 | 42.1 |
| S x L | | | 92.2 | 0.0 | 43.9 | 59.4 | 6.8 |
| H x S x L | | | 92.0 | 52.1 | 50.7 | 84.8 | 23.2 |
| LSD(0.10) | | | | | | | |
| Hybrid (H) | | | 7.3 | 0.3 | 0.4 | 3.6 | 2.1 |
| Size (S) | | | 3.0 | NS | 0.2 | NS | NS |
| H x S | | | NS | NS | NS | NS | NS |
| Location (L) | | | 3.6 | 0.2 | 0.2 | 1.8 | 1.1 |
| H x L | | | NS | 0.8 | 1.0 | 9.4 | NS |
| S x L | | | NS | 0.8 | NS | NS | 5.5 |
| CV(%) | | | 6 | 3 | 1 | 151 | 4 |