ACKNOWLEDGMENTS

Trials conducted by the Insect Management and Insecticide Efficacy Program at the University of Illinois are the result of the collaborative efforts of many individuals. We extend our gratitude to all those who worked with and supported us in 2004.

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Illinois Foundation Seeds

Monsanto

Pioneer Hi-Bred International

Syngenta Crop Protection

Valent

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CORN

SOYBEANS

APPENDIX

SECTION 1

Evaluation of rootworm-control products to manage corn rootworm larvae (*Diabrotica spp.*) in Illinois, 2004

Ronald E. Estes, Jared B. Schroeder, Kevin L. Steffey, and Michael E. Gray

Location

We established three trials on University of Illinois research and education centers near DeKalb, Monmouth, and Urbana.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. Plot sizes for treatments varied by location: DeKalb—4 rows × 35 feet; Monmouth—4 rows × 40 feet; Urbana—4 rows × 40 feet. Five randomly selected root systems were extracted from the third row of each four-row plot, washed, and rated for rootworm larval injury. Root ratings are based upon the 1-to-6 root-rating scale developed by Hills and Peters (1971). Two rows of each plot were mechanically harvested. Weights and grain moisture were used to determine corn yields in bushels per acre. Percentage consistency (percentage of roots with a rating of 1, 2, or 3) was determined for each product at each location. Percentage lodging also was assessed before harvest at each location.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units or through modified SmartBox metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to either a 5-inch, slope-compensating bander or to the seed furrow. Capture 2EC and Lorsban 4E were applied at a spray volume of 5 gallons per acre using a CO_2 system with stainless steel drop tubes with TeeJet 8001VS spray tips. All insecticides were applied in front of the firming wheels on the planter. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information for all three trials is listed in Table 1.1.

Climatic Conditions

Temperature and precipitation data for all three locations are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright© 1982–2003 Gylling Data Management, Inc.).

TABLE 1.1 • Agronomic factors for rootworm control product efficacy trials, University of Illinois, 2004.

	DeKalb	Monmouth	Urbana
Planting date	28 April, 2004	27 April, 2004	19 April, 2004
Hybrids	Golden Harvest H-8799 and Golden Harvest H-8588RW	Golden Harvest H-8799 and Golden Harvest H-8588RW	Golden Harvest H-8799 and Golden Harvest H-8588RW
Row spacing	30 inches	30 inches	30 inches
Seeding rate	33,000/acre	33,000/acre	33,000/acre
Previous crop	Trap crop (late planted corn and pumpkins)	Trap crop (late planted corn and pumpkins)	Trap crop (late planted corn and pumpkins)
Tillage	Fall—Chisel plow Spring—Field cultivator	Fall—Chisel plow Spring—Field cultivator	Fall—Chisel plow Spring—Field cultivator
Soil conditions			
Moisture	Normal	Normal	Normal
Texture	Medium	Medium	Medium

Results and Discussion

DeKalb—Table 1.2 shows the mean root ratings and average percentages of lodging for each treatment applied in our trial near DeKalb. The mean root rating in the untreated check plots was 5.0 (two nodes of roots destroyed), indicating that rootworm larval feeding injury was severe. Although the mean root ratings for almost all treatments were significantly lower than the mean root rating for the untreated check, severe rootworm feeding injury was observed in several treatments.

The mean root rating for YieldGard Rootworm (YGRW) corn (2.35) was significantly lower than the mean root ratings for all treatments except Force 3G (4 oz rate, applied in a band), Aztec 2.1G, and Fortress 2.5G. The mean root ratings for Capture 2EC (3.9), Poncho 1250 (3.95), and Empower 2 (applied in furrow) were significantly greater than the mean root ratings for all treatments except Empower 2 (applied in a band) and Cruiser. The mean root ratings for Cruiser and Empower 2 (applied in a band) were not significantly different from the mean root rating for the untreated check.

Strong winds caused significant lodging in several treatments. Almost all plants (96%) in the untreated check plot lodged (lodging is defined as a plant leaning 45° or more from vertical). Lodging exceeded 50% in the following treatment plots: YGRW corn (56%), Capture 2EC (73%), Poncho 1250 (83%), Empower 2 applied in furrow (93%), Empower 2 applied in a band (100%), and Cruiser (100%). Single-digit percentage

TABLE 1.2 • Evaluation of rootworm control products, DeKalb, University of Illinois, 2004.

Products	Rate[1,2]	Placement	Mean root rating[3,4,5]	% consistency[6]	% lodging[7]	Yield (bu/A)[8]
Aztec 2.1G	6.7 oz	Band	2.75 cde	100	20	164.53 ab
Aztec 4.67G[9]	3.0 oz	Band	2.95 cd	75	33	167.69 ab
Aztec 4.67G[9]	3.0 oz	Furrow	3.05 cd	85	46	160.76 abc
Capture 2EC	0.37 oz	Band	3.90 b	20	73	154.86 bcd
Cruiser	1.25mg	Seed	5.05 a	0	100	138.28 cd
Empower 2	8.0 oz	Band	4.70 a	0	100	134.24 d
Empower 2	8.0 oz	Furrow	4.13 b	15	93	132.81 d
Force 3G[9,10]	3.0 oz	Band	3.15 cd	75	31	164.23 ab
Force 3G	4.0 oz	Band	2.65 de	90	4	180.63 ab
Fortress 2.5G	7.4 oz	Furrow	2.75 cde	95	0	169.46 ab
Fortress 5G[9]	3.7 oz	Furrow	2.95 cd	80	29	164.62 ab
KC 30RCC002PO72	3.7 oz	Band	3.00 cd	65	3	164.60 ab
Lorsban 15G	8.0 oz	Band	3.30 c	55	4	170.90 ab
Lorsban 4E	2.4 oz	Band	3.15 cd	80	23	168.77 ab
Nufos 15G	8.0 oz	Band	3.18 cd	70	11	180.89 a
Poncho 1250	1.25 mg	Seed	3.95 b	20	83	163.83 ab
YGRW[11]	—	—	2.35 e	100	56	168.85 ab
Untreated check	—	—	5.00 a	10	96	135.25 d

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Root ratings are based upon the 1-to-6 root-rating scale developed by Hills and Peters (1971).
[4] Mean root ratings are based upon root ratings of five individual roots per treatment in each of four replications.
[5] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[6] Percentage of roots with a rating of 1, 2, or3.
[7] Percentage lodging was estimated in 1/1,000 A in one row of each treatment in each of four replications. Lodging was defined as a plant leaning 45° or more from vertical. Average percentage lodging is presented as rounded, whole numbers.
[8] Yields have been calculated to bushels per acre at 15% moisture.
[9] Applied with modified SmartBox metering units.
[10] Force 3G was inadvertently applied at a reduced rate.
[11] The YieldGard Rootworm (YGRW) corn hybrid was Golden Harvest H-8588RW. All other treatments were applied to Golden Harvest H-8799 (the non-transgenic isoline of H-85588RW).

lodging occurred in only three treatments: Force 3G (4 oz rate, applied in a band; 4%), Fortress 2.5G (0%), and Lorsban 15G (4%).

Average yields ranged from 132.81 bushels per acre (Empower 2 applied in furrow) to 180.89 bushels per acre (Nufos 15G) at our DeKalb location. Capture 2EC (154.86), Cruiser (138.28), Empower 2 applied in a band (134.24), and Empower 2 applied in furrow (132.81) did not yield significantly better than the untreated check. All other treatments in the trial had significantly greater yields than the untreated check.

Monmouth—Table 1.3 shows the mean root ratings and average percentages of lodging for each treatment applied in our trial near Monmouth. The mean root rating in the untreated check plots was 5.75 (almost three nodes of roots destroyed), indicating that rootworm larval feeding injury was severe. Although the mean root ratings for all treatments were significantly lower than the mean root rating for the untreated check, severe rootworm feeding injury was observed in several treatments. The mean root rating for YGRW corn (1.8) was significantly lower than the mean root ratings for all other treatments. The mean root ratings for Fortress 2.5G and 5G (both 2.55) were significantly lower than the mean root ratings for Force 3G (4 oz rate, applied in a band; 3.35), Capture 2EC (3.45), Poncho 1250 (4.1), and Cruiser (5.1). The mean root rating for Nufos 15G (2.65) was significantly lower than the mean root ratings for Capture 2EC, Poncho 1250, and Cruiser. The mean root ratings for Poncho 1250 and Cruiser were significantly higher than the mean root ratings for all other treatments; however, the mean root rating for Poncho 1250 was significantly lower than the mean root rating for Cruiser.

Lodging was less evident at Monmouth than at either DeKalb or Urbana (refer to preceding and following discussions).

TABLE 1.3 • Evaluation of rootworm control products, Monmouth, University of Illinois, 2004.

Products	Rate[1,2]	Placement	Mean root rating[3,4,5]	% consistency[6]	% lodging[7]
Aztec 2.1G	6.7 oz	Band	3.25 def	70	6
Aztec 4.67G[8]	3.0 oz	Band	2.80 def	80	2
Aztec 4.67G[8]	3.0 oz	Furrow	3.15 def	70	0
Capture 2EC	0.37	Band	3.45 d	60	1
Cruiser	1.25 mg	Seed	5.10 b	0	65
Force 3G	4.0 oz	Band	3.35 de	60	0
Force 3G[8,9]	3.0 oz	Band	2.85 def	90	3
Fortress 2.5G	7.4 oz	Furrow	2.55 f	90	1
Fortress 5G[8]	3.7 oz	Furrow	2.55 f	85	13
KC 30RCC002PO72	3.7 oz	Band	3.40 d	50	2.5
Lorsban 15G	8.0 oz	Band	2.95 def	85	0
Lorsban 4E	2.4 oz	Band	3.00 def	65	5
Nufos 15G	8.0 oz	Band	2.65 ef	95	2
Poncho 1250	1.25 mg	Seed	4.10 c	20	56
YGRW[10]	—	—	1.80 g	100	10
Untreated check	—	—	5.75 a	0	100

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Root ratings are based upon the 1-to-6 root-rating scale developed by Hills and Peters (1971).
[4] Mean root ratings are based upon root ratings of five individual roots per treatment in each of four replications.
[5] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[6] Percentage of roots with a rating of 1, 2, or 3.
[7] Percentage lodging was estimated in 1/1,000 A in one row of each treatment in each of four replications. Lodging was defined as a plant leaning 45° or more from vertical. Average lodging is presented as rounded, whole numbers.
[8] Applied with modified SmartBox metering units.
[9] Force 3G inadvertently applied at a reduced rate.
[10] The YieldGard Rootworm (YGRW) corn hybrid was Golden Harvest H-8588RW. All other treatments were applied to Golden Harvest H-8799 (the non-transgenic isoline of H-85588RW).

However, all plants lodged in the untreated check plots, and lodging exceeded 50% in the Poncho 1250 plots (56%) and the Cruiser plots (65%). Double-digit percentage lodging occurred in the YGRW corn plots (10%) and the Fortress 5G plots (13%).

Due to problems that were incurred while harvesting at Monmouth, the yield data for this location is not presented.

Urbana—Table 1.4 shows the mean root ratings and average percentages of lodging for each treatment applied in our trial near Urbana. The mean root rating in the untreated check plots was 5.80 (almost three nodes of roots destroyed), indicating that rootworm larval feeding injury was severe. Although the mean root ratings for all treatments were significantly lower than the mean root rating for the untreated check, severe rootworm feeding injury was observed in several treatments. The mean root rating for Force 3G (4 oz rate, applied in a band; 2.45) was significantly lower than the mean root ratings for Aztec 4.67G (3 oz rate, applied in a band; 3.4), Capture 2EC (3.55), Poncho 1250 (4.05), Cruiser (4.15), and both placements (furrow and band) of Empower 2 (4.53 and 4.7, respectively). The mean root ratings for Empower 2 were significantly higher than the mean root ratings for all other products except Poncho 1250 and Cruiser. The mean root ratings for Poncho 1250 and Cruiser were significantly higher than the mean root ratings for all other products except Aztec 4.67G (3 oz rate, applied in a band), Capture 2EC, and Empower 2.

TABLE 1.4 • Evaluation of rootworm control products, Urbana, University of Illinois, 2004.

Product	Rate[1,2]	Placement	Mean root rating[3,4,5]	% consistency[6]	% lodging[7]	Yield (bu/A)[8]
Aztec 2.1G	6.7 oz	Band	2.90 def	80	6	202.49 a
Aztec 4.67G[9]	3.0 oz	Furrow	3.01 def	65	0	194.38 ab
Aztec 4.67G[9]	3.0 oz	Band	3.40 cde	55	0	176.77 ab
Capture 2EC	0.37 oz	Band	3.55 cd	45	32	176.66 ab
Cruiser	1.25 mg	Seed	4.15 bc	15	51	169.44 ab
Empower 2	8.0 oz	Furrow	4.53 b	5	58	156.87 b
Empower 2	8.0 oz	Band	4.70 b	5	54	171.04 ab
Force 3G	4 oz	Band	2.45 f	85	0	197.03 a
Force 3G[9,10]	3.0 oz	Band	3.20 def	55	5	189.64 ab
Fortress 2.5G	7.4 oz	Furrow	2.95 def	80	8	196.71 a
Fortress 5G[9]	4.5 oz	Furrow	2.90 def	75	0	204.30 a
Fortress 5G[9]	3.7 oz	Furrow	3.20 def	65	6	188.35 ab
KC 30RCC002PO72	3.7 oz	Band	2.94 def	80	3.5	186.68 ab
Lorsban 15G	8 oz	Band	2.65 ef	90	0	195.61 a
Lorsban 4E	2.4 oz	Band	2.65 ef	90	4	197.33 a
Nufos 15G	8 oz	Band	2.65 ef	85	0	189.07 ab
Poncho 1250	1.25 mg	Seed	4.05 bc	10	16	179.95 ab
YGRW[11]	—	—	3.15 def	60	66	201.64 a
Untreated check	—	—	5.80 a	0	100	91.50 c

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Root ratings are based upon the 1-to-6 root-rating scale developed by Hills and Peters (1971).
[4] Mean root ratings are based upon root ratings of five individual roots per treatment in each of four replications.
[5] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[6] Percentage of roots with a rating of 1, 2, or 3.
[7] Percentage lodging was estimated in 1/1,000 A in one row of each treatment in each of four replications. Lodging was defined as a plant leaning 45° or more from vertical. Average lodging is presented as rounded, whole numbers.
[8] Yields have been calculated to bushels per acre at 15% moisture.
[9] Applied with modified SmartBox metering units.
[10] Force 3G was inadvertently applied at a reduced rate.
[11] The YieldGard Rootworm (YGRW) corn hybrid was Golden Harvest H-8588RW. All other treatments were applied to Golden Harvest H-8799 (the non-transgenic isoline of H-85588RW).

All sampled plants in the untreated check plots were lodged. More than 50% lodging was estimated in the plots treated with Cruiser (51%), Empower 2 applied in both a band (54%) and in furrow (58%), and YGRW corn (66%). Lodging in the Capture-treated plots was 32%. In general, the percentage lodging increased as the mean root rating increased from 4.0.

Average yields at the Urbana location ranged from 91.50 bushels per acre (untreated check) to 204.30 bushels per acre (Fortress 5G at 3.7 oz). Every treatment yielded significantly better than the untreated check. Aztec 2.1G (202.49), Force 3G (4 oz rate, applied in a band; 197.03), Fortress 2.5 G (196.71), Fortress 5G (4.5 oz rate; 204.30), Lorsban 15G (195.61), Lorsban 4E (197.33), and YGRW (201.64) each yielded significantly greater than Empower 2 applied in furrow. Three products yielded greater than 200 bushels per acre under severe rootworm pressure (Aztec 2.1G, Fortress 5G at 4.5 oz., and YGRW).

Reference Cited

Hills, T. M., and D. C. Peters. 1971. A method of evaluating post-plant insecticide treatments for control of western corn rootworm larvae. Journal of Economic Entomology 64: 764–765.

SECTION 2

Syngenta-sponsored evaluation of seed treatments and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*) in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at the Agricultural Engineering farm near Urbana.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 10 feet × 30 feet. Five randomly selected root systems were extracted from each four-row plot, washed, and rated for rootworm larval injury. Node injury ratings are based upon the 0-to-3 node injury scale developed by Oleson and Tollefson (2001).

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to a 5-inch, slope-compensating bander. All insecticides were applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 2.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Results from this study are presented in table 2.2. The level of rootworm larval injury in both the untreated check and the Poncho 1250 seed treatment (1.25 mg of active ingredient per seed) plots was severe, with more than two and one-half nodes destroyed (mean node injury rating of 2.60). The mean node injury ratings for the other three treatments were significantly lower. Additionally, the mean node injury rating for Force 3G (4.0 oz per 1000 feet of row; 0.6) was significantly lower than the mean node injury ratings for all treatments and the untreated check.

Reference Cited

Oleson, J., and J. Tollefson. 2001. Interactive node injury scale. Department of Entomology, Iowa State University, Ames. http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html.

TABLE 2.1 • Agronomic factors for Syngenta-sponsored evaluation of seed treatments and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), University of Illinois, 2004.

Planting date	16 May, 2004
Row spacing	30 inches
Seeding rate	33,000/acre
Previous crop	Trap crop (late planted corn and pumpkins)
Tillage	Fall—Chisel plow Spring—Field cultivator

TABLE 2.2 • Mean node injury ratings from the Syngenta-sponsored evaluation of seed treatments and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), University of Illinois, 2004.

Products	Rate[1,2]	Placement	Mean node injury rating[3,4]
A14115 Cruiser	0.138 mg 1.125 mg	Seed Seed	1.63 bc
Cruiser	1.25 mg	Seed	1.96 b
Force 3G	4.00 oz	Band	0.60 d
Poncho 1250	1.25 mg	Seed	2.60 a
Untreated check	—	—	2.60 a

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[4] Node injury ratings are based upon the 0-to-3 node injury scale developed by Oleson and Tollefson (2001).

SECTION 3

Evaluation of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), and their effects on emergence of western corn rootworm adults in Illinois, 2004

Ronald E. Estes, Jared B. Schroeder, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at the University of Illinois Agricultural Engineering farm near Urbana.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 10 feet × 30 feet. Five randomly selected root systems were extracted from each four-row plot, washed, and rated for rootworm larval injury. Node injury ratings are based upon the 0-to-3 node injury scale developed by Oleson and Tollefson (2001).

Emergence of corn rootworm adults from the soil was monitored by using two modified emergence cages per plot originally designed by Hein et al. (1985). The modified emergence cages used in this study had a hole cut into a lid that allowed for the continued growth of the corn plant throughout the growing season. In addition, a glass collection jar was attached above a separate hole on the lid, allowing easy retrieval of emerged adults without lifting the cages from the soil. Cages were placed over each of two random plants on 21 June, 2004 and monitored every Monday, Wednesday, and Friday until 10 September, 2004.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter with precision cone units. Force 3G was applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granules to a 5-inch, slope-compensating bander and applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 3.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright© 1982–2003 Gylling Data Management, Inc.) and SAS 9.1 (SAS Institute 2004).

Results and Discussion

Mean node injury ratings are presented in Table 3.2. The level of rootworm injury in one of the untreated checks (DAS isoline) was relatively low, with a node injury rating of 0.58 (slightly more than one half of a node injured). The other untreated check (PHI isoline), however, had a greater level of root injury, with a rating of 1.54 (more than one and one half nodes pruned). The different levels of rootworm injury in the two untreated check plots indicate that the level of rootworm pressure was variable in this trial. Overall, rootworm injury in the untreated check plots was low to moderate. Both Herculex RW (DAS-59122-7) treatments and one of the Force 3G treatments had significantly less rootworm injury than either of the untreated checks.

Total adult western corn rootworm emergence is presented in Table 3.3 and Figure 3.1. Emergence data were pooled across genetic backgrounds (PHI + DAS) for analysis. Overall, significantly more beetles emerged from both of the untreated checks and Force 3G treatments than Herculex RW (DAS-

TABLE 3.1 • Agronomic factors for efficacy trial of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), and their effects on emergence of adult western corn rootworms, University of Illinois, 2004.

Planting date	28 May, 2004
Row spacing	30 inches
Seeding rate	33,000/acre
Previous crop	Trap crop (late planted corn and pumpkins)
Tillage	Fall—Chisel plow Spring—Field cultivator

59122-7) treatment. Fewer than half as many beetles emerged from the Herculex RW (DAS-59122-7) treatment than from the Force 3G treatment. Nearly four times as many beetles emerged from the untreated check than from Herculex RW (DAS-59122-7) treatment. Peak emergence occurred on 26 July in the Force 3G treatment, 2 August in the untreated checks, and one week later (9 August) in the Herculex RW (DAS-59122-7) treatment.

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Hein, G. L., M. K. Bergman, R. G. Bruss, and J. J. Tollefson. 1985. Absolute sampling technique for corn rootworm (Coleoptera: Chrysomelidae) adult emergence that adjusts to fit common-row spacing. Journal of Economic Entomology 78: 1503–1506.

Oleson, J., and J. Tollefson. 2001. Interactive node injury scale. Department of Entomology, Iowa State University, Ames. http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html

TABLE 3.2 • Evaluation of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), University of Illinois, 2004.

Product (Isogenic Grouping)	Rate[1,2]	Placement	Mean node injury rating[3,4]
Herculex RW (DAS-59122-7) (PHI) Poncho 250	0.25 mg	— Seed	0.05 c
Herculex RW (DAS-59122-7) (DAS) Poncho 250	0.25 mg	— Seed	0.03 c
Force 3G (PHI isoline)	4.0 oz	Band	0.33 bc
Force 3G (DAS isoline)	4.0 oz	Band	0.13 c
Untreated check (PHI isoline)	—	—	1.54 a
Untreated check (DAS isoline)	—	—	0.58 b

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[4] Node injury ratings are based upon the 0-to-3 node injury scale developed by Oleson and Tollefson (2001).

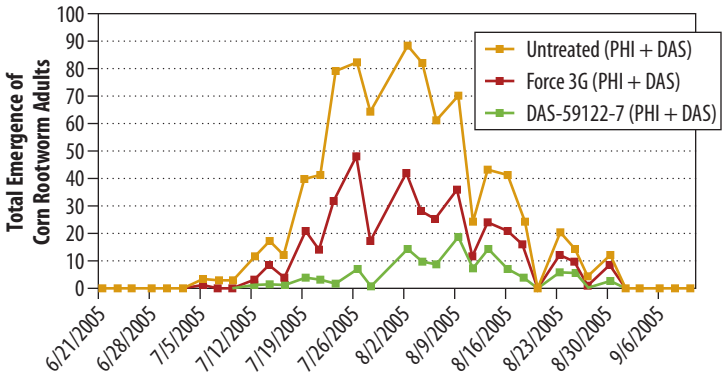

FIGURE 3.1 • Total number of western corn rootworm adults that emerged from the plots planted to Herculex RW (DAS-59122-7) and granular insecticides, University of Illinois, 2004.

TABLE 3.3 • Evaluation of Herculex RW (DAS-59122-7) and granular insecticides on adult western corn rootworm emergence per cage per sampling period, University of Illinois, 2004.

Product (Isogenic Grouping)	Rate[1,2]	Placement	Mean no. western corn rootworm adults per cage per sampling period[3]
Herculex RW (DAS-59122-7) (PHI +DAS)[4] Poncho 250	0.25 mg	— Seed	0.22 a
Force 3G (PHI + DAS)[5]	4.0 oz	Band	0.45 b
Untreated check (PHI + DAS)[5]	—	—	0.84 c

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Means followed by the same letter do not differ significantly (P = 0.05, Tukey's).
[4] Pooled average of Pioneer Hi-Bred International Herculex RW (DAS-59122-7) hybrid and Dow AgroSciences Herculex RW (DAS-59122-7) hybrid.
[5] Pooled average of Pioneer Hi-Bred International non-Herculex RW (DAS-59122-7) isoline and Dow AgroSciences non-Herculex RW (DAS-59122-7) isoline.

SECTION 4

Evaluation of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*) in Illinois, 2004

Ronald E. Estes, Jared B. Schroeder, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at the University of Illinois Agricultural Engineering farm near Urbana.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 10 feet × 30 feet. Five randomly selected root systems were extracted from each four-row plot, washed, and rated for rootworm larval injury. Node injury ratings are based upon the 0-to-3 node injury scale developed by Oleson and Tollefson (2001).

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter with precision cone units. Force 3G was applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granules to a 5-inch, slope-compensating bander and applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 4.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright© 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Mean node injury ratings are presented in Table 4.2. Due to a later-than-desired planting date, the level of rootworm pressure in this trial was low. The amount of rootworm injury in the untreated check was low to moderate, with an average node injury rating of 0.85 (less than one node injured). Mean node injury ratings for Force 3G (0.08) and Herculex RW (DAS-59122-7) (0.03), were significantly lower than the mean node injury rating for the untreated check.

Reference Cited

Oleson, J., and J. Tollefson. 2001. Interactive node injury scale. Department of Entomology, Iowa State University, Ames. http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html

TABLE 4.1 • Agronomic factors for efficacy trial of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), University of Illinois, 2004.

Planting date	24 May, 2004
Row spacing	30 inches
Seeding rate	33,000/acre
Previous crop	Trap crop (late planted corn and pumpkins)
Tillage	Fall—Chisel plow Spring—Field cultivator

TABLE 4.2 • Evaluation of Herculex RW (DAS-59122-7) and granular insecticides to manage corn rootworm larvae (*Diabrotica spp.*), University of Illinois, 2004.

Product	Rate[1,2]	Placement	Mean node injury rating[3]
Herculex RW (DAS-59122-7) Poncho 250	— 0.25 mg	— Seed	0.03 a
Force 3G	4.0 oz	Band	0.08 a
Untreated check (isoline)	—	—	0.85 b

[1] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

SECTION 5

Evaluation of insecticides to manage Japanese beetle grubs (*Popilla japonica* Newman) in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Locations

We established three trials on three different farms—Doug Foss Farm, Dwight, IL; Steve Meenen Farm, Melvin, IL; and Mark Wills Farm, Morris, IL.

Experimental Design and Methods

The experimental design was a randomized complete block with three replications. The plot size for each treatment was 5 feet × 30 feet. Estimates of plant populations (stand counts) were recorded at each of the three locations. Stand counts are based upon numbers of plants per 17.5 feet of row (1/1,000 acre). Yields were estimated in only one of the trials (Doug Foss Farm, Dwight). Yields are based upon the weights of the ears harvested from 1/1,000 of an acre, which were converted to bushels per acre at 15% moisture.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units or through modified SmartBox metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to either a 5-inch, slope-compensating bander or to the seed furrow. Capture 2EC was applied at a spray volume of 5 gallons per acre using a CO_2 system with stainless steel drop tubes with TeeJet 8001VS spray tips. Regent was applied through microtubes in furrow at a spray volume of 3 gallons per acre using a CO_2 system. All insecticides were applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 5.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Doug Foss Farm, Dwight—There were no significant differences in stand counts (Table 5.2) among any of the treatments, including the untreated check. However, there were significant differences in yield (Table 5.3) among the treatments, although the estimated yields were low when compared with the average yield for Illinois in 2004. The lower-than-expected yields may have been due to various agronomic and environmental factors, not necessarily solely from densities of Japanese beetle grubs. The mean yield from the Fortress 5G treatment was significantly higher (131.83 bu/A) than the mean yields from all other treatments. The mean yields from plots treated with Aztec 2.1G (99.09 bu/A), Discipline 2EC (99.20 bu/A), and Poncho 250 (95.92 bu/A), and from the untreated check plots (101.65 bu/A) were significantly higher than yields from the plots treated with one of the Regent seed treatments (1.0 fluid oz per cwt; 66.70 bu/A). However, these differences in yield did not seem to correspond with the differences in stand counts, which were not significant.

TABLE 5.1 • Agronomic factors for Japanese beetle grub trials, University of Illinois, 2004.

	Dwight	Melvin	Morris
Planting date	10 May, 2004	30 April, 2004	6 May, 2004
Hybrid	Golden Harvest H-8799	Golden Harvest H-8799	Golden Harvest H-8799
Row spacing	30 inches	30 inches	30 inches
Seeding rate	33,000/acre	33,000/acre	33,000/acre

TABLE 5.2 • Stand counts from the Japanese beetle grub trials, University of Illinois, 2004.

			Stand counts[1,2]		
Product	**Rate[3,4,5]**	**Placement**	**Dwight**	**Melvin**	**Morris**
Aztec 4.67G[6]	3.0 oz	Furrow	29.33 a	30.33 abc	31.33 abc
Aztec 2.1G	6.7 oz	Band	30.00 a	30.33 abc	31.33 abc
Capture 2EC	0.15 oz	Band	30.33 a	31.00 abc	31.67 abc
Cruiser	0.125 mg	Seed	31.00 a	30.00 bc	31.33 abc
Discipline 2EC	0.2 oz	Band	31.50 a	32.33 ab	31.33 abc
Force 3G	4.0 oz	Band	30.67 a	32.67 a	32.33 ab
Fortress 5G[6]	3.0 oz	Furrow	31.67 a	30.00 bc	32.67 a
Poncho 250	0.25 mg	Seed	29.33 a	30.00 bc	30.33 bc
Regent 6.2 FS	1.0 oz	Seed	31.33 a	30.33 abc	30.00 c
Regent 6.2 FS	0.5 oz	Seed	30.33 a	29.67 c	31.00 abc
Regent 4SC	0.24 oz	Furrow	31.00 a	29.33 c	33.00 a
Untreated check			28.67 a	29.00 c	32.67 a

[1]Stand counts based upon number of plants per 17.5 row feet (1/1,000 acre).
[2]Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[3]Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[4]Rates of application for Cruiser and Poncho seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[5]Rates of application for Regent seed treatments are fluid ounces (oz) per hundredweight (cwt) of seed.
[6]Applied with modified SmartBox metering units.

Steve Meenen Farm, Melvin—The average stand count in the Force 3G plots (32,670 plants per acre) was significantly higher than the average stand counts in the plots treated with Cruiser (30,000 plant per acre), Fortress 5G (30,000 plants per acre), Poncho 250 (30,000 plants per acre), Regent 6.2FS (0.5 fluid oz per cwt; 29,670 plants per acre), and Regent 4SC (29,330 plants per acre), and than the average stand count in the untreated check (29,000 plants per acre) (Table 5.2). The average stand count in the plots treated with Discipline 2EC (32,330 plants per acre) was significantly higher than average stand counts in the plots treated with Regent 6.2FS (0.5 fluid oz per cwt) and Regent 4SC, and than the average stand count in the untreated check (Table 5.2).

Mark Wills Farm, Morris—Because the average stand count in the untreated check (32,670 plants per acre; Table 5.2) was not significantly different from the average stand counts of most of the treatments, differences in stand counts in this trial probably were not due to injury caused by Japanese beetle grubs. The average stand counts in plots treated with Regent 4SC (33,000 plants per acre) and Fortress 5G (32,670 plants per acre) and in the untreated check were significantly higher than the average stand counts in plots treated with Poncho 250 (30,330 plants per acre) and Regent 6.2FS (1.0 fluid oz per cwt; 30,000 plants per acre).

TABLE 5.3 • Yields from the Japanese beetle grub trial near Dwight, IL, University of Illinois, 2004.

Product	**Rate[1,2]**	**Placement**	**Yield (bu/A)[3,4]**
Aztec 4.67G[5]	3.0 oz	Furrow	90.63 bc
Aztec 2.1G	6.7 oz	Band	99.09 b
Capture 2EC	0.15 oz	Band	89.21 bc
Cruiser	0.125 mg	Seed	95.39 bc
Discipline 2EC	0.2 oz	Band	99.20 b
Force 3G	4.0 oz	Band	92.97 bc
Fortress 5G[5]	3.0 oz	Furrow	131.83 a
Poncho 250	0.25 mg	Seed	95.92 b
Regent 6.2 FS	1.0 oz	Seed	66.70 c
Regent 6.2 FS	0.5 oz	Seed	84.53 bc
Regent 4SC	0.24 oz	Furrow	93.67 bc
Untreated check			101.65 b

[1]Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2]Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3]Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[4]Ears harvested from 17.5 row feet (1/1000 acre), and weights converted to bushels per acre at 15% moisture.
[5]Applied with modified SmartBox metering units.

SECTION 6

Syngenta-sponsored evaluation of insecticides to manage Japanese beetle grubs (*Popilla japonica* Newman) in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Locations

We established three trials on three different farms—Doug Foss Farm, Dwight, IL; Steve Meenen Farm, Melvin, IL; and Mark Wills Farm, Morris, IL.

Experimental Design and Methods

The experimental design was a randomized complete block with three replications. The plot size for each treatment was 5 feet × 30 feet. Estimates of plant populations (stand counts) were recorded at each of the three locations. Stand counts are based upon numbers of plants per 17.5 feet of row (1/1,000 acre). Yields were estimated in only one of the trials (Doug Foss Farm, Dwight). Yields are based upon the weights of the ears harvested from 1/1,000 of an acre, which were converted to bushels per acre at 15% moisture.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to a 5-inch, slope-compensating bander. All insecticides were applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 6.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Doug Foss Farm, Dwight—The mean stand count in the plots with seed treatment A 14115 (0.139 mg a.i. per seed) (32,670 plants per acre; Table 6.2) were significantly higher than the mean stand counts in the plots with seed treatment A 14115 (0.278 mg a.i. per seed; 28,670 plants per acre) and seed treatment A 14115 (0.139 mg a.i. per seed) plus Force 3G (29,000 plants per acre). The lower-than-expected yields (Table 6.3) may have been due to various agronomic and environmental factors, not necessarily solely from densities of Japanese beetle grubs. Average yields ranged from 89 to 127.02 bushels per acre; however, there were no significant differences.

Steve Meenen Farm, Melvin, and Mark Wills Farm, Morris—Although Japanese beetle grubs were present at the time of planting, there were no significant differences in stand counts differences among any of the treatments, including the untreated check (Table 6.2).

TABLE 6.1 • Agronomic factors for the Syngenta-sponsored Japanese beetle grub trials, University of Illinois, 2004.

	Dwight	Melvin	Morris
Planting date	10 May, 2004	30 April, 2004	6 May, 2004
Row spacing	30 inches	30 inches	30 inches
Seeding rate	33,000/acre	33,000/acre	33,000/acre

TABLE 6.2 • Stand counts from the Syngenta-sponsored Japanese beetle grub trials, University of Illinois, 2004.

			Stand Counts[1,2]		
Product	**Rate**	**Placement**	**Dwight**	**Melvin**	**Morris**
A 14115	0.139 mg[3]	Seed	32.67 a	31.33 a	32.00 a
A 14115	0.209 mg[3]	Seed	30.33 ab	31.33 a	31.33 a
A 14115	0.278 mg[3]	Seed	28.67 b	27.33 a	30.00 a
Cruiser Maxim XL	0.125 mg[3] 3.5 g[4]	Seed Seed	30.00 ab	27.67 a	29.33 a
Cruiser Maxim XL	0.1875 mg[3] 3.5 g[4]	Seed Seed	30.00 ab	29.67 a	30.00 a
Cruiser Maxim XL	0.25 mg[3] 3.5 g[4]	Seed Seed	30.00 ab	28.00 a	30.67 a
Poncho 250 Captan 4L Allegiance	0.25 mg[3] 55.0 g[4] 2.0 g[4]	Seed Seed Seed	31.00 ab	29.33 a	30.33 a
Maxim XL	3.5 g[4]	Seed	30.33 ab	30.67 a	29.00 a
A 14115 Force 3G	0.139 mg[3] 3.0 oz[5]	Seed Band	29.00 b	29.33 a	31.00 a

[1] Stand counts based upon number of plants per 17.5 row feet (1/1,000 acre).
[2] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[3] Application rate is milligrams (mg) of active ingredient (a.i.) per seed.
[4] Application rate is grams (g) of active ingredient (a.i.) per 100 kilograms (kg) of seed.
[5] Rates of application for band placements are ounces (oz) of product per 1,000 feet of row.

TABLE 6.3 • Yields from the Syngenta-sponsored Japanese beetle grub trial near Dwight, IL, University of Illinois, 2004.

Product	**Rate**	**Placement**	**Yield (bu/A)[1,2]**
A 14115	0.139 mg[3]	Seed	127.02 a
A 14115	0.209 mg[3]	Seed	98.03 a
A 14115	0.278 mg[3]	Seed	98.65 a
Cruiser Maxim XL	0.125 mg[3] 3.5 g[4]	Seed Seed	92.18 a
Cruiser Maxim XL	0.1875 mg[3] 3.5 g[4]	Seed Seed	98.45 a
Cruiser Maxim XL	0.25 mg[3] 3.5 g[4]	Seed Seed	98.50 a
Poncho 250 Captan 4L Allegiance	0.25 mg[3] 55.0 g[4] 2.0 g[4]	Seed Seed Seed	103.34 a
Maxim XL	3.5 g[4]	Seed	89.00 a
A 14115 Force 3G	0.139 mg[3] 3.0 oz[5]	Seed Band	97.50 a

[1] Ears harvested from 17.5 row feet (1/1000 acre), and weights converted to bushels per acre at 15% moisture.
[2] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[3] Application rate is milligrams (mg) of active ingredient (a.i.) per seed.
[4] Application rate is grams (g) of active ingredient (a.i.) per 100 kilograms (kg) of seed.
[5] Rates of application for band placements are ounces (oz) of product per 1,000 feet of row.

SECTION 7

Pioneer Hi-Bred International-sponsored evaluation of insecticides to manage Japanese beetle grubs (*Popilla japonica* Newman) in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Locations

We established three trials on three different farms—Doug Foss Farm, Dwight, IL; Steve Meenen Farm, Melvin, IL; and Mark Wills Farm, Morris, IL.

Experimental Design and Methods

The experimental design was a randomized complete block with three replications. The plot size for each treatment was 5 feet × 30 feet. Estimates of plant populations (stand counts) were recorded at each of the three locations. Stand counts are based upon numbers of plants per 17.5 feet of row (1/1,000 acre). Yields were estimated in only one of the trials (Doug Foss Farm, Dwight). Yields are based upon the weights of the ears harvested from 1/1,000 of an acre, which were converted to bushels per acre at 15% moisture.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to a 5-inch, slope-compensating bander. All insecticides were applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation.

Agronomic Information

Agronomic information is listed in Table 7.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Doug Foss Farm, Dwight—Although average stand counts ranged from 29,000 to 32,330 plants per acre (Table 7.2), there were no significant differences in stand counts among any of the treatments, including the untreated check. Correspondingly, there also were no significant differences in yield among any of the treatments (Table 7.3).

Steve Meenen Farm, Melvin—Average stand counts ranged from 26,670 to 31,670 plants per acre (Table 7.2). The average stand count in the plots treated with the low rate Cruiser (0.125 mg a.i. per seed; 31,670 plants per acre) had a significantly higher stand count than the plots treated with the low rate of Poncho (0.125 mg a.i. per seed; 26,670 plants per acre). There were no other significant differences among any other treatments or the untreated check.

Mark Wills Farm, Morris—Although average stand counts ranged from 28,670 to 32,330 plants per acre (Table 7.2), there were no significant differences in stand counts among any of the treatments, including the untreated check.

TABLE 7.1 • Agronomic factors for the Pioneer Hi-Bred International-sponsored Japanese beetle grub trials, University of Illinois, 2004.

	Dwight	Melvin	Morris
Planting date	10 May, 2004	30 April, 2004	6 May, 2004
Row spacing	30 inches	30 inches	30 inches
Seeding rate	33,000/acre	33,000/acre	33,000/acre

TABLE 7.2 • Stand counts from the Pioneer Hi-Bred International-sponsored Japanese beetle grub trial, University of Illinois, 2004.

			Stand counts[1,2]		
Product	**Rate[3,4]**	**Placement**	**Dwight**	**Melvin**	**Morris**
Aztec 2.1G	6.7 oz	Band	31.00 a	29.33 ab	32.00 a
Cruiser	0.125 mg	Seed	29.00 a	31.67 a	30.00 a
Cruiser	0.25 mg	Seed	29.00 a	31.00 ab	31.00 a
Cruiser	1.25 mg	Seed	30.00 a	28.67 ab	31.67 a
Force 3G	5.0 oz	Band	32.33 a	29.67 ab	30.33 a
Poncho	0.125 mg	Seed	31.67 a	26.67 b	28.67 a
Poncho	0.25 mg	Seed	29.67 a	30.33 ab	32.33 a
Poncho	1.25 mg	Seed	31.33 a	30.33 ab	30.00 a
Untreated check	—	—	30.00 a	30.00 ab	29.67 a
Untreated check	—	—	31.33 a	28.67 ab	30.67 a

[1]Stand counts based upon number of plants per 17.5 row feet (1/1,000 acre).
[2]Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[3]Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[4]Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.

TABLE 7.3 • Yields from the Pioneer Hi-Bred International-sponsored Japanese beetle grub trial near Dwight, IL, University of Illinois, 2004.

Product	**Rate[1,2]**	**Placement**	**Yield (bu/A)[3,4]**
Aztec 2.1G	6.7 oz	Band	85.80 a
Cruiser	0.125 mg	Seed	105.06 a
Cruiser	0.25 mg	Seed	93.17 a
Cruiser	1.25 mg	Seed	73.13 a
Force 3G	5.0 oz	Band	105.58 a
Poncho	0.125 mg	Seed	101.61 a
Poncho	0.25 mg	Seed	91.89 a
Poncho	1.25 mg	Seed	97.64 a
Untreated check	—	—	94.94 a
Untreated check	—	—	107.52 a

[1]Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[2]Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[3]Yield taken from 17.5 row feet (1/1000 acre), and converted to bushels per acre at 15% moisture.
[4]Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

SECTION 8

Evaluation of insecticides to manage black cutworm larvae (*Agrotis ipsilon* Hufnagel) in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at the Agricultural Engineering farm near Urbana.

Experimental Design and Methods

The experimental design was a randomized complete block with three replications. The plot size for each treatment was 2.5 feet × 10 feet. Within each single row treatment, steel cutworm barriers (six inches in height) were placed surrounding a portion of row to contain the cutworm larvae. There was an average of 10 plants within each barrier. Three cutworm larvae (2nd to 3rd instar) per plant were placed in each of these barriers adjacent to the V2–V3 plants.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. Precision Planting finger pick-up style metering units were used. Granular insecticides were applied through modified Noble metering units mounted to each row. Plastic insecticide tubes directed the granular treatments to a 5-inch, slope-compensating bander. All granular insecticides were applied in front of the firming wheels. Cable-mounted tines were attached behind each of the row units to improve insecticide incorporation. Broadcast treatments were applied using a CO_2 backpack sprayer and a single-row hand boom. TeeJet 8002VS spray tips were calibrated to deliver a volume of 15 gallons per acre. At-planting broadcast applications were made over the top of each row, immediately following panting. Rescue applications were made one day following cutworm infestations.

Agronomic Information

Agronomic information is listed in Table 8.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Although we manually infested all plots with black cutworm larvae and contained the larvae within barriers, the amount of cutworm injury and plant cutting was relatively low. There were no significant differences in the number of plants with feeding injury among any of the treatments, including the untreated check, at 7, 14, or 21 days after treatment. The number of plants cut ranged from 0.00 to 1.00, much lower than plant-cutting levels desired for this experiment. The only significant differences in the amount of plant cutting among treatments occurred 7 days after treatment. The number of plants cut in the plots treated with both rates of Cruiser (0.25 mg a.i. per seed and 0.125 mg a.i. per seed; 1.00 and 0.67 plants cut, respectively) and with Mustang Max (0.67 plants cut) were not significantly different from the number of plants cut in the untreated check 7 days after treatment.

TABLE 8.1 • Agronomic factors for black cutworm insecticide efficacy trial, University of Illinois, 2004.

Planting date	13 September, 2004
Hybrid	Golden Harvest H-8799
Row spacing	30 inches
Seeding rate	33,000/acre
Previous crop	Soybeans
Tillage	Fall—Chisel plow Spring—Field cultivator

TABLE 8.2 • Evaluation (numbers of plants with feeding) of insecticides to manage black cutworm larvae, University of Illinois, 2004.

				Number of plants with feeding[1]		
Product	**Rate[2,3,4]**	**Placement**	**Application timing**	**7-DAT[5]**	**14-DAT[5]**	**21-DAT[5]**
Baythroid	1.6 oz	Broadcast	At planting	5.33 a	5.33 a	6.00 a
Cruiser	0.25 mg	Seed	At planting	4.00 a	4.33 a	4.33 a
Cruiser	0.125 mg	Seed	At planting	2.67 a	3.33 a	3.33 a
Force	4.0 oz	Band	At planting	4.33 a	4.67 a	4.67 a
Mustang Max	2.8 oz	Broadcast	At planting	3.00 a	3.33 a	3.33 a
Nufos	8.0 oz	Band	At planting	3.00 a	3.67 a	3.67 a
Poncho	0.25 oz	Seed	At planting	4.33 a	4.33 a	4.67 a
Warrior	2.56 oz	Broadcast	At planting	4.33 a	4.67 a	4.67 a
Warrior	2.56 oz	Broadcast	Rescue	1.33 a	5.67 a	5.67 a
Untreated check	—	—	—	5.00 a	5.00 a	5.33 a

[1] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[2] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[3] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[4] Rates of application for broadcast treatments are fluid ounces (oz) of product per acre.
[5] DAT = days after treatment.

TABLE 8.3 • Evaluation (numbers of plants cut) of insecticides to manage black cutworm larvae, University of Illinois, 2004.

				Number of plants cut[1]		
Products	**Rates[2,3,4]**	**Placement**	**Application timing**	**7-DAT[5]**	**14-DAT[5]**	**21-DAT[5]**
Baythroid	1.6 oz	Broadcast	At planting	0.00 b	0.33 a	0.33 a
Cruiser	0.25 mg	Seed	At planting	1.00 a	1.00 a	1.00 a
Cruiser	0.125 mg	Seed	At planting	0.67 ab	1.00 a	1.00 a
Force	4.0 oz	Band	At planting	0.00 b	0.33 a	0.33 a
Mustang Max	2.8 oz	Broadcast	At planting	0.67 ab	0.67 a	0.67 a
Nufos	8.0 oz	Band	At planting	0.00 b	0.00 a	0.00 a
Poncho	0.25 oz	Seed	At planting	0.00 b	0.00 a	0.00 a
Warrior	2.56 oz	Broadcast	At planting	0.00 b	0.00 a	0.00 a
Warrior	2.56 oz	Broadcast	Rescue	0.00 b	0.00 a	0.00 a
Untreated check	—	—	—	1.00 a	1.00 a	1.00 a

[1] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[2] Rates of application for band and furrow placements are ounces (oz) of product per 1,000 feet of row.
[3] Rates of application for seed treatments are milligrams (mg) of active ingredient (a.i.) per seed.
[4] Rates of application for broadcast treatments are fluid ounces (oz) of product per acre.
[5] DAT = days after treatment.

SECTION 9

Syngenta-sponsored evaluation of insecticides and fungicides to manage pests in soybeans, and effects on soybean yield in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at Kellogg Farms near Yorkville, IL.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 20 feet (8 rows) × 30 feet.

Two hundred sweeps were taken, using a standard 15-inch diameter sweep net, over the entire trial area immediately before application of the insecticides on 1 September. The center two rows of each plot were mechanically harvested using a Hege plot combine. Seed was weighed and converted to bushels per acre at 13% moisture.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. John Deere precision soybean meters were used. Insecticides were applied to the soybean foliage on September 1 with a CO_2 backpack sprayer and a four-row hand boom. TeeJet 8002VS spray tips were calibrated to deliver a volume of 20 gallons per acre.

Agronomic Information

Agronomic information is listed in Table 9.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

There were no diseases of soybean present in the trial area. Pretreatment numbers of insect pests were well below published economic thresholds (Table 9.2).

Yield data are presented in Table 9.3. There were no significant differences in yield among treatments, with one exception. The average yield in the plots treated Apron Maxx + Warrior + Quadris (64.99 bu/A) was significantly greater than the average yield in the plots treated only with Apron Maxx (55.24 bu/A).

TABLE 9.1 • Agronomic factors for the Syngenta-sponsored evaluation of insecticides and fungicides to manage pests in soybeans, University of Illinois, 2004.

Planting date	9 June, 2004
Row spacing	30 inches
Seeding rate	130,000/acre
Previous crop	Corn
Tillage	Spring—Field cultivator

TABLE 9.2 • Pretreatment numbers of insect pests in the Syngenta-sponsored evaluation of insecticides and fungicides to manage pests in soybeans, University of Illinois, 2004.

Average number of beetles per sweep			
Western corn rootworm (*Diabrotica virgifera virgifera*)	Northern corn rootworm (*Diabrotica barberi*)	Spotted cucumber beetle (*Diabrotica*	Bean leaf beetle (*Cerotoma trifurcate*)
0.98	0.006667	0.013333	0.013333

TABLE 9.3 • Yields from the Syngenta-sponsored evaluation of insecticides and fungicides to manage pests in soybeans, University of Illinois, 2004.

Product	Rate[1,2]	Application placement	Yield (bu/A)[3,4]
Check	—	—	63.60 ab
Apron Maxx RTA 0.159 ES	6.25 g	Seed	55.24 b
Apron Maxx RTA 0.159 ES Warrior W/ Zeon 1 CS	6.25 g 28.0 g	Seed Foliar	59.27 ab
Apron Maxx RTA 0.159 ES Warrior W/ Zeon 1 CS Quadris 2.08 SC	6.25 g 28.0 g 113.0 g	Seed Foliar Foliar	64.99 a
Apron Maxx RTA 0.159 ES Quadris 2.08 SC	6.25 g 113.0 g	Seed Foliar	58.32 ab
Apron Maxx RTA 0.159 ES Cruiser 5 Fs	6.25 g 50.0 g	Seed Seed	62.30 ab
Apron Maxx RTA 0.159 ES Cruiser 5 FS Warrior W/ Zeon 1 CS	6.25 g 50.0 g 28.0 g	Seed Seed Foliar	60.68 ab
Apron Maxx RTA 0.159 ES Cruiser 5 FS Warrior W/ Zeon 1 CS Quadris 2.08 SC	6.25 g 50.0 g 28.0 g 113.0 g	Seed Seed Foliar Foliar	59.04 ab
Apron Maxx RTA 0.159 ES Cruiser 5 FS Quadris 2.08 SC	6.25 g 50.0 g 113.0 g	Seed Seed Foliar	59.01 ab
Apron Maxx RTA 0.159 ES Mustang Max 0.8 EC	6.25 g 28.0 g	Seed Foliar	64.14 ab
Apron Maxx RTA 0.159 ES Lorsban 4 EC	6.25 g 560.0 g	Seed Foliar	61.29 ab
Allegiance-FL Rival 2.92 FS Gaucho 480 FS Baythroid 2 EC	4.0 g 91.0 g 62.5 g 49.0 g	Seed Seed Seed Foliar	61.96 ab

[1] Rates of application for foliar treatments are grams (g) of active ingredient (a.i.) per hectare.
[2] Rates of application for seed treatments are grams (g) of active ingredient (a.i.) per 100 kilograms of seed.
[3] Means followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).
[4] Yield estimate based upon 60 feet of row (2 rows by 30 feet).

SECTION 10

Bayer-sponsored evaluation of insecticides for general beetle (Coleoptera) control in soybeans in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Location

We established one trial at the Agricultural Engineering Farm near Urbana, IL.

Experimental Design and Methods

The experimental design was a randomized complete block with four replications. The plot size for each treatment was 20 feet by 30 feet.

Two hundred sweeps were taken, using a standard 15-inch diameter sweep net, over the entire trial area immediately before application of the insecticides. Twenty sweeps per plot were taken 7 and 14 days after treatment (DAT). Samples were sorted to determine the numbers of bean leaf beetles, Japanese beetles, western and northern corn rootworms, and spotted cucumber beetles.

Insecticide Application

Treatments were applied to R4 soybeans with a modified John Deere 6000 Hi-cycle sprayer with a 20-foot boom and a CO_2 spray system. TeeJet TT110015-VP spray tips were calibrated to deliver a volume of 20 gallons per acre.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Pretreatment numbers of beetles per sweep are presented in Table 10.1 Mean numbers of beetles per sweep 7 and 14 days after treatment are presented in Tables 10.2–10.6 Due to the low levels of insects present in the trial area, there were no significant differences in the numbers of any of the insect pests sampled among treatments, with one exception. The mean number of Japanese beetle adults in the plots treated with Trimax at 1.0 oz per acre (0.14) was significantly higher than the mean number of Japanese beetle adults in the plots treated with Baythroid 2 at 2.1 oz per acre (0.00) at 7 days after treatment (Table 10.5).

TABLE 10.1 • Pretreatment numbers of insect pests in the Bayer-sponsored evaluation of insecticides for general beetle (Coleoptera) control in soybeans, University of Illinois, 2004.

Average number of beetles per sweep				
Western corn rootworm (*Diabrotica virgifera virgifera*)	Northern corn rootworm (*Diabrotica barberi*)	Spotted cucumber beetle (*Diabrotica undecim-punctata howardi*)	Bean leaf beetle (*Cerotoma trifurcate*)	Japanese beetle (*Popillia japonica*)
0.42	0	0	0.46	0.095

TABLE 10.2 • Evaluation of insecticide efficacy for control of western corn rootworm beetles (*Diabrotica virgifera virgifera* LeConte) in Illinois, 2004.

		Mean numbers of western corn rootworm adults per sweep[1]	
Products	**Rate[2]**	**7-DAT[3]**	**14-DAT[3]**
Baythroid 2	2.1 oz	0.09 a	0.05 a
Baythroid 2	2.8 oz	0.04 a	0.06 a
Trimax	1.0 oz	0.14 a	0.10 a
Trimax	1.5 oz	0.11 a	0.02 a
Sevin	16 oz	0.15 a	0.10 a
Sevin	32 oz	0.14 a	0.06 a
Untreated Check	—	0.19 a	0.25 a

[1] Means followed by same letter do not significantly differ (P = 0.05, Duncan's New MRT).
[2] Rates are fluid ounces (oz) per acre.
[3] DAT = days after treatment.

TABLE 10.3 • Evaluation of insecticide efficacy for control of spotted cucumber beetles (*Diabrotica undecimpunctata howardi* Barber), University of Illinois, 2004.

		Mean numbers of spotted cucumber beetle adults per sweep[1]	
Products	**Rate[2]**	**7-DAT[3]**	**14-DAT[3]**
Baythroid 2	2.1 oz	0.01 a	0.00 a
Baythroid 2	2.8 oz	0.00 a	0.03 a
Trimax	1.0 oz	0.03 a	0.01 a
Trimax	1.5 oz	0.01 a	0.00 a
Sevin	16 oz	0.01 a	0.03 a
Sevin	32 oz	0.01 a	0.01 a
Untreated Check	—	0.00 a	0.04 a

[1]Means followed by same letter do not significantly differ (P = 0.05, Duncan's New MRT).
[2]Rates are fluid ounces (oz) per acre.
[3]DAT = days after treatment.

TABLE10.4 • Evaluation of insecticide efficacy for control of northern corn rootworm adults (*Diabrotica barberi* Smith & Lawrence), University of Illinois, 2004.

		Mean numbers of northern corn rootworm adults per sweep[1]	
Products	**Rates[2]**	**7-DAT[3]**	**14-DAT[3]**
Baythroid 2	2.1 oz	0.00 a	0.00 a
Baythroid 2	2.8 oz	0.00 a	0.00 a
Trimax	1.0 oz	0.00 a	0.00 a
Trimax	1.5 oz	0.00 a	0.00 a
Sevin	16 oz	0.00 a	0.00 a
Sevin	32 oz	0.00 a	0.00 a
Untreated Check		0.00 a	0.00 a

[1]Means followed by same letter do not significantly differ (P = 0.05, Duncan's New MRT).
[2]Rates are fluid ounces (oz) per acre.
[3]DAT = days after treatment.

TABLE 10.5 • Evaluation of insecticide efficacy for control of Japanese beetle adults (*Popilla japonica* Newman), University of Illinois, 2004.

		Mean numbers of Japanese beetle adults per sweep[1]	
Products	**Rate[2]**	**7-DAT[3]**	**14-DAT[3]**
Baythroid 2	2.1 oz	0.00 b	0.00 a
Baythroid 2	2.8 oz	0.01 ab	0.01 a
Trimax	1.0 oz	0.14 a	0.00 a
Trimax	1.5 oz	0.01 ab	0.00 a
Sevin	16 oz	0.08 ab	0.00 a
Sevin	32 oz	0.01 ab	0.00 a
Untreated Check	—	0.08 ab	0.01 a

[1]Means followed by same letter do not significantly differ (P = 0.05, Duncan's New MRT).
[2]Rates are fluid ounces (oz) per acre.
[3]DAT = days after treatment

TABLE 10.6 • Evaluation of insecticide efficacy for control of bean leaf beetle adults (*Cerotoma trifurcata* Forster), University of Illinois, 2004.

		Mean numbers of bean leaf beetle adults per sweep[1]	
Products	**Rate[2]**	**7-DAT[3]**	**14-DAT[3]**
Baythroid 2	2.1 oz	0.50 a	1.40 a
Baythroid 2	2.8 oz	0.18 a	0.65 a
Trimax	1.0 oz	0.66 a	1.05 a
Trimax	1.5 oz	1.39 a	1.50 a
Sevin	16 oz	1.84 a	2.10 a
Sevin	32 oz	0.76 a	1.05 a
Untreated Check	—	0.89 a	1.96 a

[1]Means followed by same letter do not significantly differ (P = 0.05, Duncan's New MRT).
[2]Rates are fluid ounces (oz) per acre.
[3]DAT = days after treatment.

SECTION 11

Evaluation of seed- and foliar-applied insecticides to manage bean leaf beetles (*Cerotoma trifurcata*) in soybeans in Illinois, 2004

Ronald E. Estes, Kevin L. Steffey, and Michael E. Gray

Location

We established two trials on two different farms—Larry D. Bush Farm, Morrison, IL; and David Macomber Farm, Lena, IL.

Experimental Design and Methods

The two trials in northern Illinois were planted during the first week of May: (Larry D. Bush Farm, Morrison, 4 May; David Macomber Farm, Lena, 5 May). The trials were established in fields adjacent to alfalfa and woodlands to increase the probability of bean leaf beetle infestations.

The experimental design was a randomized complete block with three replications. The plot size for each treatment was 30 feet (12 rows) × 100 feet. Insecticides were applied to the foliage two times during the growing season. The overwintering populations of bean leaf beetles were assessed at 7, 14, and 21 days after the first foliar-applied treatment (days after treatment, DAT). This initial insecticide treatment (not counting application of the insecticidal seed treatments) was applied on 19 May at soybean growth stage VE. Densities of bean leaf beetles were assessed as numbers of adults per meter of row. Three, 1-meter sub-samples were taken from each plot. The second insecticide treatment (not counting application of the insecticidal seed treatments) was applied on 29 July at the occurrence of the first generation of bean leaf beetles. Forty sweeps per plot were taken at 0, 7, 14, and 21 days after treatment (DAT) using a standard 15-inch diameter sweep net.

Planting and Insecticide Application

Trials were planted using a four-row, Almaco-constructed planter, with John Deere 7300 row units. John Deere precision soybean meters were used. Seed-applied insecticides were applied by the respective manufacturing companies. Foliar-applied insecticides were applied using a CO_2 backpack sprayer and a four-row hand boom. TeeJet 8002VS spray tips were calibrated to deliver a volume of 20 gallons per acre.

Agronomic Information

Agronomic information is listed in Table 11.1.

Climatic Conditions

Temperature and precipitation data are presented in Appendix I.

Statistical Analysis

Data were analyzed using ARM 7 (Agricultural Research Manager), revision 7.0.5. (Copyright © 1982–2003 Gylling Data Management, Inc.).

Results and Discussion

Larry D. Bush Farm, Morrison—Densities of bean leaf beetles for all treatments are presented in Table 11.2. Densities of bean leaf beetles were very low throughout the season. However, at 21 days after the first foliar-insecticide application, there were significantly more bean leaf beetles in the plots treated with Cruiser (0.22 per m), Gaucho (0.22 per m), and Mustang Max (0.22 per m) than in all other plots, except the untreated check (0.11 per m). There were no significant differences in densities of bean leaf beetles among treatments at any other time during the season.

Yields for all treatments are presented in Table 11.2. There was only one significant difference in yields among the treatments. The average yield in the plots treated with Gaucho (50.45 bu/A) was significantly higher than the average yield in the plots treated once with Warrior (39.12 bu/A).

David Macomber Farm, Lena—Densities of bean leaf beetles for all treatments are presented in Table 11.3. Densities of bean leaf beetles were very low throughout the season. There were no significant differences in numbers of beetles per meter of row at 7, 14, and 21 DAT after the first insecticide application. At 7 DAT after the second insecticide application, there were significantly more bean leaf beetles in the plots treated with Cruiser and in the untreated check (both with 0.142 beetle per sweep) than in the plots treated with Cruiser + Warrior (0.008 beetle per sweep), Mustang Max applied twice (0.017 beetle per sweep), and Warrior applied once (0.008 beetle per sweep) and twice (0.025 beetle per sweep).

Yields for all treatments are presented in Table 11.3. There were no significant differences in yield among all treatments.

TABLE 11.2 • Evaluation of seed- and foliar-applied insecticides to manage bean leaf beetles in soybeans, Morrison, University of Illinois, 2004.

		Avg. no. of bean leaf beetles per meter of row[1]			Avg. no. of bean leaf beetles per sweep[2]			
Product	**Rate[3]**	**7-DAT[4]**	**14-DAT[4]**	**21-DAT[4]**	**7-DAT[4]**	**14-DAT[4]**	**21-DAT[4]**	**Yield (bu/A)[5]**
Cruiser	2.0 oz	0.00 a	0.11 a	0.22 a	0.008 a	0.008 a	0.008 a	44.24 ab
Cruiser + Warrior[6]	2.0 oz 2.56 oz	0.00 a	0.11 a	0.00 b	0.000 a	0.000 a	0.000 a	42.35 ab
Gaucho	2.0 oz	0.00 a	0.11 a	0.22 a	0.000 a	0.000 a	0.000 a	50.45 a
Gaucho + Warrior[6]	2.0 oz 2.56 oz	0.00 a	0.11 a	0.00 b	0.000 a	0.000 a	0.000 a	42.76 ab
Lorsban 4E[7]	1 pt	0.00 a	0.00 a	0.00 b	0.000 a	0.000 a	0.000 a	40.23 ab
Mustang Max[7] (applied twice)	2.8 oz (early) 2.0 oz (late)	0.00 a	0.00 a	0.22 a	0.000 a	0.000 a	0.000 a	48.63 ab
Warrior[8]	2.56 oz	0.00 a	0.11 a	0.00 b	0.000 a	0.000 a	0.000 a	39.12 b
Warrior[7] (applied twice)	2.56 oz	0.00 a	0.00 a	0.00 b	0.000 a	0.000 a	0.000 a	48.11 ab
Untreated check	—	0.00 a	0.22 a	0.11 ab	0.008 a	0.000 a	0.025 a	42.68 ab

[1] Average number of beetles per meter of row, based upon three 1-m sub-samples per plot, four replications.
[2] Average number of beetles per sweep of a 15-inch diameter sweep net, 40 sweeps per plot, four replications.
[3] Rates for seed-applied insecticides are fluid ounces (oz) per hundred weight (cwt). Rates of foliar-applied insecticides are fluid ounces (oz) of product per acre.
[4] DAT = days after treatment.
[5] Yield estimate based upon 160 feet of row (2 rows by 80 feet).
[6] Application of Warrior in mid-July.
[7] First application of Lorsban, Mustang, and Warrior shortly after soybean emergence. Second application of Lorsban, Mustang, and Warrior in mid-July.
[8] Application of Warrior in mid-July.

TABLE 11.3 • Evaluation of seed- and foliar-applied insecticides to manage bean leaf beetles in soybeans, Lena, University of Illinois, 2004.

		Avg. no. of bean leaf beetles per meter of row[1]			Avg. no. of bean leaf beetles per sweep[2]			
Product	**Rate[3]**	**7-DAT[4]**	**14-DAT[4]**	**21-DAT[4]**	**7-DAT[4]**	**14-DAT[4]**	**21-DAT[4]**	**Yield (bu/A)[5]**
Cruiser	2.0 oz	0.00 a	0.00 a	0.67 a	0.142 a	0.058 a	0.008 a	52.14 a
Cruiser + Warrior[6]	2.0 oz 2.56 oz	0.00 a	0.00 a	0.56 a	0.008 c	0.033 a	0.017 a	57.78 a
Gaucho	2.0 oz	0.33 a	0.11 a	1.00 a	0.125 ab	0.025 a	0.042 a	53.58 a
Gaucho + Warrior[6]	2.0 oz 2.56 oz	0.22 a	0.33 a	0.44 a	0.108 abc	0.000 a	0.025 a	48.71 a
Lorsban 4E[7] (applied twice)	1 pt	0.00 a	0.00 a	0.67 a	0.058 abc	0.033 a	0.042 a	54.16 a
Mustang Max[7] (applied twice)	2.8 oz (early) 2.0 oz (late)	0.00 a	0.00 a	0.78 a	0.017 bc	0.042 a	0.017 a	44.94 a
Warrior	2.56 oz	0.22 a	0.22 a	0.67 a	0.008 c	0.017 a	0.000 a	49.67 a
Warrior[8] (applied twice)	2.56 oz	0.00 a	0.00 a	0.78 a	0.025 bc	0.033 a	0.050 a	50.58 a
Untreated check	—	0.11 a	0.33 a	0.78 a	0.142 a	0.017 a	0.017 a	41.34 a

[1] Average number of beetles per meter of row, based upon three 1-m sub-samples per plot, four replications.
[2] Average numbers of beetles per sweep of a 15-inch diameter sweep net, 40 sweeps per plot, four replications.
[3] Rates for seed-applied insecticides are fluid ounces (oz) per hundred weight (cwt). Rates of foliar-applied insecticides are fluid ounces (oz) of product per acre.
[4] DAT = days after treatment.
4 Yield estimate based upon 160 feet of row (2 rows × 80 feet).
[5] Application of Warrior in mid-July.
[6] First application of Lorsban, Mustang, and Warrior shortly after soybean emergence.

APPENDIX • Temperature and Precipitation

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.02	32	52	42
April 2	0.01	32	57	45
April 3	0.00	34	58	46
April 4	0.00	29	52	41
April 5	0.01	27	58	43
April 6	0.00	42	73	58
April 7	0.00	40	70	55
April 8	0.01	36	55	46
April 9	0.01	33	59	46
April 10	0.00	32	56	44
April 11	0.00	27	48	38
April 12	0.00	29	46	38
April 13	0.00	26	54	40
April 14	0.00	35	71	53
April 15	0.00	40	77	59
April 16	0.00	55	87	71
April 17	0.12	57	84	71
April 18	0.00	56	87	72
April 19	0.00	44	74	59
April 20	0.97	41	65	53
April 21	0.16	43	60	52
April 22	0.00	39	57	48
April 23	0.00	37	65	51
April 24	0.39	42	59	51
April 25	0.02	44	60	52
April 26	0.00	41	59	50
April 27	0.00	34	54	44
April 28	0.00	45	84	65
April 29	0.02	58	81	70
April 30	0.20	46	62	54
	1.94 (total)	**39.2 (average)**	**64.1 (average)**	**51.9 (average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.01	44	53	49
May 2	0.00	35	54	45
May 3	0.00	30	58	44
May 4	0.00	47	71	59
May 5	0.00	41	74	58
May 6	0.00	57	89	73
May 7	0.09	48	62	55
May 8	0.00	50	87	69
May 9	0.00	58	89	74
May 10	1.24	60	80	70
May 11	0.00	58	83	71
May 12	0.46	66	84	75
May 13	0.17	65	78	72
May 14	1.14	50	66	58
May 15	0.00	46	62	54
May 16	0.00	42	70	56
May 17	0.00	59	81	70
May 18	0.21	50	68	59
May 19	0.00	47	73	60
May 20	0.82	67	85	76
May 21	0.00	51	80	66
May 22	0.32	63	78	71
May 23	0.11	59	79	69
May 24	0.00	50	68	59
May 25	0.05	49	70	60
May 26	0.00	50	70	60
May 27	0.00	56	78	66
May 28	0.00	48	69	59
May 29	0.02	52	77	65
May 30	2.45	64	77	71
May 31	0.33	59	70	65
	7.42 (total)	**52.2 (average)**	**73.6 (average)**	**63.2 (average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.00	56	74	65
June 2	0.01	56	70	63
June 3	0.00	51	74	63
June 4	0.00	50	77	64
June 5	0.00	52	80	66
June 6	0.00	67	84	76
June 7	0.00	63	91	77
June 8	0.00	72	92	82
June 9	0.00	71	84	78
June 10	0.45	70	75	73
June 11	0.23	70	85	78
June 12	0.90	67	85	76
June 13	0.00	68	82	75
June 14	0.08	65	83	74
June 15	0.00	62	82	72
June 16	0.00	64	84	74
June 17	0.00	70	83	77
June 18	0.00	62	79	71
June 19	0.00	51	68	60
June 20	0.00	50	73	62
June 21	0.58	61	71	66
June 22	0.00	55	73	64
June 23	0.03	55	82	69
June 24	0.10	53	67	60
June 25	0.00	49	71	60
June 26	0.00	51	76	64
June 27	0.00	53	78	66
June 28	0.22	57	75	66
June 29	0.00	57	81	69
June 30	0.00	61	82	72
	2.6 (total)	**59.6 (average)**	**78.7 (average)**	**69.4(average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	58	86	72
July 2	0.00	60	86	73
July 3	0.40	68	82	75
July 4	0.04	69	83	76
July 5	0.11	64	82	73
July 6	0.00	65	80	73
July 7	0.00	59	70	65
July 8	0.00	53	77	65
July 9	0.56	59	73	66
July 10	0.00	66	84	75
July 11	0.00	62	86	74
July 12	0.00	67	84	76
July 13	0.00	65	88	77
July 14	0.00	62	80	71
July 15	0.00	60	83	72
July 16	0.02	65	81	73
July 17	0.00	60	77	69
July 18	0.00	57	82	70
July 19	0.00	58	81	70
July 20	0.00	67	88	78
July 21	0.40	71	86	79
July 22	0.11	66	87	77
July 23	0.00	54	75	65
July 24	0.00	53	70	62
July 25	0.00	57	75	66
July 26	0.00	55	76	66
July 27	0.00	55	82	69
July 28	0.00	57	81	69
July 29	0.00	60	82	71
July 30	0.00	65	74	70
July 31	0.00	61	82	72
	1.64 (total)	**61.2 (average)**	**80.7 (average)**	**71.2 (average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	57	86	72
August 2	0.00	65	85	75
August 3	0.84	65	88	77
August 4	0.30	58	75	67
August 5	0.00	54	73	64
August 6	0.00	50	76	63
August 7	0.00	52	75	64
August 8	0.00	56	80	68
August 9	0.00	62	84	73
August 10	0.01	58	65	62
August 11	0.00	50	60	55
August 12	0.00	46	63	55
August 13	0.00	48	72	60
August 14	0.00	46	71	59
August 15	0.00	42	75	59
August 16	0.14	47	76	62
August 17	0.11	58	79	69
August 18	0.41	57	75	66
August 19	0.00	54	70	62
August 20	0.00	54	74	64
August 21	0.00	46	73	60
August 22	0.00	47	80	64
August 23	0.00	61	84	73
August 24	0.20	64	77	71
August 25	0.14	64	72	68
August 26	0.02	65	80	73
August 27	0.67	68	83	76
August 28	0.22	56	72	64
August 29	0.00	53	70	62
August 30	0.00	49	78	64
August 31	0.00	52	80	66
	3.06 (total)	**55.0 (average)**	**75.8 (average)**	**65.7 (average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	55	80	68
September 2	0.00	56	82	69
September 3	0.00	53	82	68
September 4	0.00	57	83	70
September 5	0.20	65	84	75
September 6	0.00	54	77	66
September 7	0.00	51	71	61
September 8	0.00	50	70	60
September 9	0.00	49	75	62
September 10	0.00	46	79	63
September 11	0.00	53	82	68
September 12	0.00	51	83	67
September 13	0.00	54	84	69
September 14	0.00	61	84	73
September 15	0.46	66	83	75
September 16	0.00	50	70	60
September 17	0.60	47	73	60
September 18	0.00	46	76	61
September 19	0.00	49	79	64
September 20	0.00	46	78	62
September 21	0.00	47	82	65
September 22	0.00	43	82	63
September 23	0.00	52	83	68
September 24	0.00	53	79	66
September 25	0.00	43	73	58
September 26	0.00	39	76	58
September 27	0.00	37	78	58
September 28	0.00	43	68	56
September 29	0.00	38	69	54
September 30	0.00	32	73	53
	1.26(total)	**49.5 (average)**	**77.9 (average)**	**64.0 (average)**

2004 Daily Weather Data for DeKalb, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.10	41	74	58
October 2	0.00	31	57	44
October 3	0.00	31	70	51
October 4	0.00	28	56	42
October 5	0.00	24	61	43
October 6	0.00	39	77	58
October 7	0.00	40	78	59
October 8	0.51	50	69	60
October 9	0.00	41	70	56
October 10	0.00	33	67	50
October 11	0.00	39	67	53
October 12	0.00	40	63	52
October 13	0.00	44	59	52
October 14	0.07	40	56	48
October 15	0.02	42	53	48
October 16	0.00	33	45	39
October 17	0.00	27	56	42
October 18	0.00	33	51	42
October 19	0.00	48	53	51
October 20	0.00	49	52	51
October 21	0.00	43	63	53
October 22	1.12	44	62	53
October 23	0.35	50	74	62
October 24	0.00	10	66	53
October 25	0.00	10	75	58
October 26	0.00	49	59	54
October 27	0.00	48	66	57
October 28	0.01	44	62	53
October 29	0.43	61	77	69
October 30	0.22	46	62	54
October 31	0.00	40	56	48
	2.83(total)	**40.6 (average)**	**63.1 (average)**	**52.0 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	31	53	42
April 2	0.00	31	50	41
April 3	0.00	33	57	45
April 4	0.00	31	61	46
April 5	0.00	24	51	38
April 6	0.00	24	57	41
April 7	0.00	41	72	57
April 8	0.00	39	71	55
April 9	0.00	30	55	43
April 10	0.00	33	61	47
April 11	0.00	28	56	42
April 12	0.00	28	57	43
April 13	0.00	27	46	37
April 14	0.00	25	53	39
April 15	0.00	34	69	52
April 16	0.00	44	75	60
April 17	0.00	54	84	69
April 18	0.00	58	86	72
April 19	0.00	64	87	76
April 20	0.00	41	73	57
April 21	0.95	46	66	56
April 22	0.00	42	63	53
April 23	0.00	38	55	47
April 24	0.00	40	66	53
April 25	1.29	41	64	53
April 26	0.00	41	64	53
April 27	0.00	33	61	47
April 28	0.00	36	54	45
April 29	0.00	49	79	64
April 30	0.18	56	76	66
	2.42 (total)	**38.1 (average)**	**64.1 (average)**	**51.1 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.61	45	71	58
May 2	0.03	36	50	43
May 3	T	32	54	43
May 4	0.00	35	56	46
May 5	0.00	41	65	53
May 6	0.00	45	74	60
May 7	0.00	52	87	70
May 8	0.61	48	59	54
May 9	0.00	55	86	71
May 10	0.00	65	86	76
May 11	0.00	52	84	73
May 12	0.07	63	84	74
May 13	0.18	64	84	74
May 14	0.25	64	80	72
May 15	0.40	48	66	57
May 16	0.00	39	60	50
May 17	0.00	42	71	57
May 18	0.05	61	82	72
May 19	0.08	50	73	62
May 20	0.00	52	77	65
May 21	0.11	61	81	71
May 22	0.00	63	87	75
May 23	0.22	68	83	76
May 24	0.13	52	78	65
May 25	0.65	52	72	62
May 26	0.00	50	70	60
May 27	0.00	52	69	61
May 28	0.00	48	80	64
May 29	0.00	48	69	59
May 30	0.00	51	80	66
May 31	2.65	62	62	72
	6.04 (total)	**51.8 (average)**	**74.2 (average)**	**63.0 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.08	57	74	66
June 2	T	58	80	69
June 3	0.38	52	72	62
June 4	0.00	46	75	61
June 5	0.00	50	77	64
June 6	0.00	61	79	70
June 7	0.00	61	83	72
June 8	0.00	66	88	77
June 9	0.00	71	90	81
June 10	0.38	69	84	77
June 11	1.40	68	77	73
June 12	0.26	66	85	76
June 13	T	66	85	76
June 14	0.00	66	81	74
June 15	T	63	83	73
June 16	0.00	62	79	71
June 17	0.00	66	83	75
June 18	0.00	63	82	73
June 19	0.00	54	83	69
June 20	0.00	47	67	57
June 21	T	56	73	65
June 22	0.33	59	71	65
June 23	0.00	55	72	64
June 24	0.00	58	80	69
June 25	0.06	53	70	62
June 26	0.00	56	76	66
June 27	0.00	54	76	65
June 28	T	60	77	69
June 29	0.00	55	73	64
June 30	0.00	59	79	69
	2.89 (total)	**59.2 (average)**	**78.5 (average)**	**63.0 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	56	84	70
July 2	0.00	62	85	74
July 3	0.00	65	87	76
July 4	0.60	69	82	76
July 5	0.00	67	83	75
July 6	T	64	86	75
July 7	0.00	60	84	72
July 8	0.00	55	69	62
July 9	0.00	57	78	68
July 10	0.25	64	80	72
July 11	0.00	63	84	74
July 12	0.00	66	86	76
July 13	0.00	64	86	75
July 14	0.08	60	86	73
July 15	0.00	59	80	70
July 16	0.00	62	82	72
July 17	0.30	61	82	72
July 18	0.05	56	75	66
July 19	0.00	56	81	69
July 20	0.00	63	82	73
July 21	0.00	70	88	79
July 22	0.00	70	90	80
July 23	0.00	62	88	75
July 24	0.00	52	76	64
July 25	0.00	57	72	65
July 26	0.00	56	76	66
July 27	0.00	52	75	64
July 28	0.00	53	80	67
July 29	0.00	56	84	70
July 30	0.25	62	82	72
July 31	0.00	63	71	67
	1.53 (total)	**60.7 (average)**	**81.4 (average)**	**71.1 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	58	81	70
August 2	0.00	63	88	76
August 3	3.30	62	88	75
August 4	0.00	56	90	73
August 5	0.00	57	75	66
August 6	0.00	49	75	62
August 7	0.00	49	76	63
August 8	0.00	53	76	65
August 9	0.00	54	79	67
August 10	0.35	57	84	71
August 11	0.00	50	65	58
August 12	0.00	46	62	54
August 13	0.00	48	62	55
August 14	0.00	47	72	60
August 15	0.00	45	72	59
August 16	0.00	45	75	60
August 17	0.00	49	77	63
August 18	1.07	60	82	71
August 19	1.03	61	75	68
August 20	0.22	54	72	63
August 21	0.07	51	69	60
August 22	0.00	50	73	62
August 23	0.00	53	80	67
August 24	0.00	62	85	74
August 25	0.20	65	81	73
August 26	1.07	65	76	71
August 27	0.12	67	82	75
August 28	0.90	69	84	77
August 29	0.40	60	87	74
August 30	0.00	52	74	63
August 31	0.00	54	80	67
	8.73 (total)	**55.2 (average)**	**77.3 (average)**	**66.3 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1		57	83	70
September 2		60	84	72
September 3		62	84	73
September 4		63	86	75
September 5		65	86	76
September 6		67	80	74
September 7		54	74	64
September 8		53	73	63
September 9		52	76	64
September 10		51	83	67
September 11		54	84	69
September 12		56	86	71
September 13		57	87	72
September 14		61	86	74
September 15		65	85	75
September 16	0.75	61	76	69
September 17		52	74	63
September 18		51	79	65
September 19		54	80	67
September 20		50	81	66
September 21		51	84	68
September 22		51	85	68
September 23		54	85	70
September 24		58	81	70
September 25		51	76	64
September 26		46	74	60
September 27		45	76	61
September 28		46	70	58
September 29	0.00	44	70	57
September 30		39	75	57
	(total)	**54.3 (average)**	**80.1 (average)**	**67.4 (average)**

2004 Daily Weather Data for Dwight, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1		41	74	58
October 2	0.45	37	62	50
October 3		34	69	52
October 4		37	58	48
October 5		30	62	46
October 6		32	76	54
October 7		42	79	61
October 8		48	68	58
October 9		48	71	60
October 10		41	67	54
October 11		41	66	54
October 12		42	62	52
October 13		46	59	53
October 14		43	57	50
October 15	0.72	43	53	48
October 16		40	48	44
October 17		29	56	43
October 18		32	49	41
October 19	0.11	43	52	48
October 20		47	55	51
October 21		48	62	55
October 22		46	66	56
October 23	0.12	51	75	63
October 24	0.23	45	68	57
October 25		42	76	59
October 26		45	65	55
October 27	0.07	51	65	58
October 28		46	67	57
October 29		50	79	65
October 30		57	62	60
October 31		41	62	52
	(total)	**42.5 (average)**	**64.2 (average)**	**53.6 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	29	50	40
April 2	0.00	30	58	44
April 3	0.00	32	53	43
April 4	0.00	27	52	40
April 5	0.00	26	58	42
April 6	0.00	42	72	57
April 7	0.00	41	69	55
April 8	0.00	39	55	47
April 9	0.00	33	56	45
April 10	0.00	31	51	41
April 11	0.00	26	46	36
April 12	0.00	26	45	36
April 13	0.00	24	53	39
April 14	0.00	31	70	51
April 15	0.01	43	73	58
April 16	0.00	53	86	70
April 17	0.02	53	79	66
April 18	0.00	53	81	67
April 19	0.00	45	72	59
April 20	1.28	40	63	52
April 21	0.06	39	56	48
April 22	0.00	36	56	46
April 23	0.00	33	63	48
April 24	0.33	40	56	48
April 25	0.03	40	56	48
April 26	0.00	39	55	47
April 27	0.00	32	52	42
April 28	0.07	44	84	64
April 29	0.00	58	77	68
April 30	0.20	44	58	51
	2.00 (total)	**37.6 (average)**	**61.8 (average)**	**49.7 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.00	40	53	47
May 2	0.00	35	52	44
May 3	0.00	30	57	44
May 4	0.00	45	72	59
May 5	0.00	39	74	57
May 6	0.00	59	78	69
May 7	0.13	46	64	55
May 8	0.00	48	77	63
May 9	0.07	55	87	71
May 10	0.18	60	75	68
May 11	0.10	57	79	68
May 12	0.22	64	82	73
May 13	0.29	57	76	67
May 14	0.38	46	58	52
May 15	0.00	39	61	50
May 16	0.00	40	70	55
May 17	0.50	57	81	69
May 18	0.03	48	63	56
May 19	0.00	44	71	58
May 20	0.00	67	83	75
May 21	0.00	47	75	61
May 22	1.14	60	75	68
May 23	0.34	56	77	67
May 24	0.00	48	64	56
May 25	0.05	47	69	58
May 26	0.00	46	67	57
May 27	0.00	53	78	66
May 28	0.00	50	69	60
May 29	0.01	49	72	61
May 30	1.18	63	76	70
May 31	0.53	56	71	64
	3.11 (total)	**50.0 (average)**	**71.2 (average)**	**60.6 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.00	55	69	62
June 2	0.00	55	72	64
June 3	0.00	53	73	63
June 4	0.00	49	75	62
June 5	0.00	52	79	66
June 6	0.04	62	83	73
June 7	0.00	63	87	75
June 8	0.00	71	91	81
June 9	0.00	70	85	78
June 10	1.36	66	73	70
June 11	0.36	67	83	75
June 12	0.37	61	87	74
June 13	0.00	68	82	75
June 14	0.13	63	81	72
June 15	0.00	59	81	70
June 16	0.05	64	85	75
June 17	0.26	64	79	72
June 18	0.00	57	74	66
June 19	0.00	51	67	59
June 20	0.00	49	71	60
June 21	0.06	58	69	64
June 22	0.00	54	72	63
June 23	0.00	55	79	67
June 24	0.29	49	65	56
June 25	0.00	44	70	56
June 26	0.00	50	74	62
June 27	0.02	53	76	64
June 28	0.17	56	74	64
June 29	0.00	54	80	67
June 30	0.00	63	80	72
	3.11 (total)	**57.8 (average)**	**77.2 (average)**	**67.5 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	60	84	72
July 2	0.00	60	83	72
July 3	0.67	64	79	72
July 4	0.00	68	82	75
July 5	0.14	62	80	71
July 6	0.00	62	75	69
July 7	0.01	54	68	61
July 8	0.00	52	75	64
July 9	0.11	57	73	65
July 10	0.00	63	80	72
July 11	0.06	61	83	72
July 12	0.08	65	83	74
July 13	0.00	63	89	76
July 14	0.00	61	80	71
July 15	0.00	61	83	72
July 16	0.00	63	80	72
July 17	0.00	61	75	68
July 18	0.00	58	80	69
July 19	0.00	57	80	69
July 20	0.01	66	89	78
July 21	1.59	70	83	77
July 22	0.09	65	82	76
July 23	0.00	57	73	65
July 24	0.00	55	69	62
July 25	0.00	53	75	64
July 26	0.00	54	74	64
July 27	0.00	54	82	68
July 28	0.00	58	80	69
July 29	0.00	61	80	71
July 30	0.00	63	76	70
July 31	0.00	61	81	71
	2.76 (total)	**60.3 (average)**	**79.2 (average)**	**69.8 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	62	85	74
August 2	0.01	66	83	75
August 3	1.79	66	86	76
August 4	0.28	62	77	70
August 5	0.00	54	73	64
August 6	0.00	50	76	63
August 7	0.00	54	73	64
August 8	0.00	58	79	69
August 9	0.12	61	81	71
August 10	0.00	55	65	60
August 11	0.00	51	60	56
August 12	0.00	50	67	59
August 13	0.00	48	71	60
August 14	0.00	47	73	60
August 15	0.00	46	75	61
August 16	0.20	53	76	65
August 17	0.05	60	76	68
August 18	0.00	56	76	66
August 19	0.00	50	68	59
August 20	0.00	52	76	64
August 21	0.00	47	71	59
August 22	0.00	52	81	67
August 23	0.00	63	84	74
August 24	0.75	63	78	71
August 25	0.01	65	78	72
August 26	0.59	65	81	73
August 27	0.03	67	82	75
August 28	0.63	53	69	61
August 29	0.00	53	70	62
August 30	0.00	53	79	66
August 31	0.00	55	79	67
	4.46 (total)	**56.0 (average)**	**75.7 (average)**	**65.9 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.01	58	81	70
September 2	0.00	61	83	72
September 3	0.00	60	82	71
September 4	0.00	59	83	71
September 5	0.00	65	82	74
September 6	0.07	59	74	67
September 7	0.00	50	71	61
September 8	0.00	51	71	61
September 9	0.00	5	72	61
September 10	0.00	51	81	66
September 11	0.00	57	83	70
September 12	0.00	57	84	71
September 13	0.00	58	84	71
September 14	0.01	64	85	75
September 15	0.41	63	78	71
September 16	0.00	51	69	60
September 17	0.00	48	73	61
September 18	0.00	52	76	64
September 19	0.00	54	80	67
September 20	0.00	53	78	66
September 21	0.00	52	73	68
September 22	0.00	59	72	71
September 23	0.00	52	71	67
September 24	0.00	52	74	63
September 25	0.00	47	72	60
September 26	0.00	45	76	61
September 27	0.00	43	78	61
September 28	0.00	44	65	55
September 29	0.00	38	69	54
September 30	0.00	37	74	56
	0.50 (total)	**53.0 (average)**	**77.5 (average)**	**65.3 (average)**

2004 Daily Weather Data for Freeport, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.11	43	71	57
October 2	0.00	32	55	44
October 3	0.00	35	70	53
October 4	0.00	32	55	44
October 5	0.00	28	61	45
October 6	0.00	40	76	58
October 7	0.30	45	73	59
October 8	0.44	49	70	60
October 9	0.00	43	70	57
October 10	0.00	38	68	53
October 11	0.00	38	65	52
October 12	0.00	43	64	54
October 13	0.03	45	54	50
October 14	0.00	42	51	47
October 15	0.05	42	52	47
October 16	0.00	32	44	38
October 17	0.00	27	54	41
October 18	0.08	41	51	46
October 19	0.01	46	51	49
October 20	0.00	47	52	50
October 21	0.00	445	62	54
October 22	0.55	45	60	53
October 23	0.42	53	72	63
October 24	0.00	42	66	54
October 25	0.00	44	69	57
October 26	0.43	49	55	52
October 27	0.00	48	57	53
October 28	0.02	47	62	55
October 29	0.34	61	77	69
October 30	0.01	47	61	54
October 31	0.00	43	54	49
	2.79 (total)	**42.3 (average)**	**61.4 (average)**	**51.9 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	32	51	42
April 2	0.00	32	48	40
April 3	0.00	33	55	44
April 4	0.00	29	61	45
April 5	0.00	27	50	39
April 6	0.00	34	55	45
April 7	0.00	39	70	55
April 8	0.00	42	74	58
April 9	0.00	30	57	44
April 10	0.00	34	61	48
April 11	0.00	30	59	45
April 12	0.00	30	54	42
April 13	0.00	28	47	38
April 14	0.00	25	52	39
April 15	0.00	40	68	54
April 16	0.00	48	73	61
April 17	0.00	57	81	69
April 18	0.00	57	85	71
April 19	0.00	64	86	75
April 20	0.00	47	79	63
April 21	1.35	50	67	59
April 22	0.00	44	66	55
April 23	0.03	38	54	46
April 24	0.00	41	67	54
April 25	0.22	53	52	58
April 26	0.00	41	51	51
April 27	0.00	35	53	49
April 28	0.00	40	55	48
April 29	T	48	77	63
April 30	T	56	74	65
	1.60 (total)	**40.1 (average)**	**63.7 (average)**	**51.9 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.02	44	76	60
May 2	0.16	37	48	43
May 3	0.21	35	55	45
May 4	0.00	38	55	47
May 5	0.00	43	62	53
May 6	0.00	47	74	61
May 7	0.00	55	88	72
May 8	0.10	50	65	58
May 9	0.00	57	87	72
May 10	0.00	65	86	76
May 11	0.17	62	85	74
May 12	0.00	62	84	73
May 13	0.09	64	85	75
May 14	0.48	63	79	71
May 15	0.28	48	68	58
May 16	0.00	40	55	48
May 17	0.00	47	71	59
May 18	0.00	63	80	72
May 19	0.27	51	80	66
May 20	0.00	54	78	66
May 21	0.00	66	79	73
May 22	0.00	69	87	78
May 23	0.33	67	83	75
May 24	0.07	55	75	65
May 25	1.09	55	77	66
May 26	0.00	52	72	62
May 27	0.00	55	70	63
May 28	0.00	50	80	65
May 29	0.00	48	71	60
May 30	0.00	57	80	69
May 31	1.65	61	84	73
	4.92 (total)	**53.5 (average)**	**74.8 (average)**	**64.2 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.13	55	71	63
June 2	0.00	55	77	66
June 3	0.35	47	68	58
June 4	0.00	43	72	58
June 5	0.00	51	76	64
June 6	0.00	61	78	70
June 7	0.00	60	82	71
June 8	0.00	68	86	77
June 9	0.00	70	90	80
June 10	0.19	68	81	75
June 11	2.38	66	77	72
June 12	T	69	86	78
June 13	0.00	66	88	77
June 14	T	64	81	73
June 15	0.00	66	84	75
June 16	0.18	66	78	72
June 17	2.20	68	80	74
June 18	T	62	71	72
June 19	T	48	79	64
June 20	0.00	43	63	53
June 21	0.00	51	68	60
June 22	0.10	57	69	63
June 23	0.00	48	61	55
June 24	0.00	48	76	62
June 25	0.60	38	73	56
June 26	0.00	45	66	56
June 27	0.00	50	74	62
June 28	0.00	57	77	67
June 29	0.00	50	74	62
June 30	0.00	54	78	66
	6.13 (total)	**56.5 (average)**	**76.5 (average)**	**66.5 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	55	81	68
July 2	0.00	60	84	72
July 3	0.17	69	85	77
July 4	1.07	68	77	73
July 5	0.00	64	82	73
July 6	T	65	84	75
July 7	T	61	83	72
July 8	0.00	54	70	62
July 9	T	59	73	66
July 10	2.90	66	86	76
July 11	0.06	69	81	75
July 12	T	69	87	78
July 13	0.00	63	84	74
July 14	0.97	53	86	70
July 15	0.00	58	80	69
July 16	0.00	61	81	71
July 17	0.51	60	82	71
July 18	T	58	77	68
July 19	0.00	55	80	68
July 20	0.00	63	81	72
July 21	T	69	85	77
July 22	0.00	69	88	79
July 23	0.07	64	86	75
July 24	0.00	53	77	65
July 25	T	57	73	65
July 26	0.00	57	73	65
July 27	T	46	72	59
July 28	0.00	52	79	66
July 29	0.00	56	82	69
July 30	0.50	61	80	71
July 31	0.20	63	72	68
	6.45 (total)	**60.5 (average)**	**80.4 (average)**	**70.5 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	57	82	70
August 2	0.00	64	85	75
August 3	0.02	61	86	74
August 4	0.91	67	87	77
August 5	0.00	57	80	69
August 6	0.00	47	74	61
August 7	0.00	48	73	61
August 8	0.00	48	76	62
August 9	0.00	55	79	67
August 10	0.42	59	84	72
August 11	0.00	50	69	60
August 12	0.00	48	67	58
August 13	T	48	61	55
August 14	0.00	52	70	56
August 15	0.00	53	73	58
August 16	0.00	58	76	62
August 17	0.08	48	77	67
August 18	T	61	81	71
August 19	T	63	80	72
August 20	0.09	56	68	62
August 21	0.46	48	64	56
August 22	0.00	51	75	63
August 23	0.00	56	80	68
August 24	T	63	85	74
August 25	1.07	64	83	74
August 26	0.96	66	77	72
August 27	0.00	67	83	75
August 28	0.23	66	85	76
August 29	0.48	59	84	72
August 30	0.00	46	69	58
August 31	0.00	52	76	64
	4.72 (total)	**55.1 (average)**	**77.1 (average)**	**66.1 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	58	84	71
September 2	0.00	59	84	72
September 3	0.00	63	85	74
September 4	0.00	64	86	75
September 5	0.00	64	87	76
September 6	0.00	66	82	74
September 7	M	55	77	66
September 8	0.00	53	76	65
September 9	0.00	52	78	65
September 10	0.00	50	83	67
September 11	0.00	52	84	68
September 12	0.00	55	86	71
September 13	0.00	58	87	73
September 14	0.00	63	84	74
September 15	0.11	64	85	75
September 16	0.36	64	79	72
September 17	0.00	52	76	64
September 18	0.00	50	81	66
September 19	0.00	52	80	66
September 20	0.00	48	82	65
September 21	0.00	49	85	67
September 22	0.00	50	86	68
September 23	0.00	54	86	70
September 24	0.00	58	83	71
September 25	0.00	53	78	66
September 26	0.00	47	75	61
September 27	0.00	46	76	61
September 28	0.00	47	71	59
September 29	0.00	44	71	58
September 30	0.00	39	75	57
	0.47 (total)	**54.3 (average)**	**81.1 (average)**	**67.9 (average)**

2004 Daily Weather Data for Melvin, Illinois (Midwest Climate Center)

**Weather data from Paxton weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	M	42	75	59
October 2	0.10	40	66	53
October 3	0.00	33	70	52
October 4	0.00	38	62	50
October 5	0.000	30	63	47
October 6	0.00	32	76	54
October 7	0.00	4	80	60
October 8	0.00	49	69	59
October 9	0.31	53	72	63
October 10	0.00	40	69	55
October 11	0.00	40	67	54
October 12	0.00	43	62	53
October 13	0.27	46	56	51
October 14	0.07	42	56	59
October 15	0.21	43	53	58
October 16	0.00	40	51	46
October 17	0.00	30	59	45
October 18	0.77	35	49	42
October 19	0.30	43	51	47
October 20	0.02	46	55	51
October 21	M	49	61	55
October 22	0.00	47	69	58
October 23	M	53	74	64
October 24	M	44	70	57
October 25	0.00	43	76	60
October 26	0.00	47	66	57
October 27	0.63	52	62	57
October 28	0.00	48	68	58
October 29	0.36	53	79	66
October 30	0.14	59	68	64
October 31	0.00	42	65	54
	3.18 (total)	**43.3 (average)**	**65.1 (average)**	**54.5 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	37	55	46
April 2	0.00	34	31	48
April 3	0.00	34	59	47
April 4	0.00	30	54	42
April 5	0.01	32	65	49
April 6	0.02	45	75	60
April 7	0.00	42	73	58
April 8	0.00	42	65	54
April 9	0.00	34	62	48
April 10	0.00	33	54	44
April 11	0.00	26	53	40
April 12	0.00	28	51	40
April 13	0.00	25	57	41
April 14	0.00	32	71	52
April 15	0.00	46	77	62
April 16	0.00	53	89	71
April 17	0.02	57	87	72
April 18	0.00	63	83	73
April 19	0.00	47	73	60
April 20	1.16	48	71	60
April 21	0.05	46	60	53
April 22	0.00	44	56	50
April 23	0.00	38	66	52
April 24	0.28	49	61	55
April 25	0.01	47	57	52
April 26	0.00	42	62	52
April 27	0.00	35	61	48
April 28	0.00	48	87	68
April 29	0.13	59	78	67
April 30	0.44	48	67	58
	2.12 (total)	**41.5 (average)**	**66.2 (average)**	**53.9 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.01	46	57	52
May 2	0.02	38	55	47
May 3	0.00	35	58	47
May 4		45	65	55
May 5		40	78	59
May 6		60	89	75
May 7		53	69	61
May 8		55	88	72
May 9		65	89	77
May 10		60	78	69
May 11		61	86	74
May 12		67	82	75
May 13		55	77	66
May 14		45	57	51
May 15		40	64	52
May 16		48	73	61
May 17		65	85	75
May 18	0.01	58	70	64
May 19	0.00	70	79	75
May 20	0.00	70	84	77
May 21	0.00	68	91	80
May 22	0.07	65	83	74
May 23	0.15	58	82	70
May 24	0.31	51	77	64
May 25	0.00	54	70	62
May 26	0.00	51	72	62
May 27	0.00	59	79	69
May 28	0.00	55	76	66
May 29	0.00	57	82	70
May 30	1.32	63	80	72
May 31	0.05	57	74	66
	(total)	**55.3 (average)**	**75.8 (average)**	**65.6 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.00	55	76	66
June 2	0.00	55	70	63
June 3	0.00	51	76	64
June 4	0.00	56	76	66
June 5	0.00	57	82	70
June 6	0.00	68	84	76
June 7	0.00	67	89	78
June 8	0.00	72	91	82
June 9	0.00	71	78	75
June 10	0.45	69	82	76
June 11	0.00	71	85	78
June 12	0.00	65	87	76
June 13	0.00	68	82	75
June 14	0.63	64	81	73
June 15	0.00	64	80	72
June 16	0.00	69	84	77
June 17	0.00	65	81	73
June 18	0.00	60	78	69
June 19	0.00	51	70	61
June 20	0.00	50	71	61
June 21	0.00	61	77	69
June 22	0.00	56	75	66
June 23	0.00	56	82	69
June 24	0.00	53	69	61
June 25	0.00	51	71	61
June 26	0.00	48	78	63
June 27	0.00	58	72	65
June 28	0.15	54	75	65
June 29	0.00	51	80	66
June 30	0.00	55	82	69
	1.23 (total)	**59.7 (average)**	**78.8 (average)**	**69.3 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	64	85	75
July 2	0.37	67	84	76
July 3	0.71	70	78	74
July 4	0.00	68	84	76
July 5	0.00	65	82	74
July 6	0.12	62	79	71
July 7	0.00	58	72	65
July 8	0.00	57	76	67
July 9	1.02	69	84	77
July 10	0.00	68	85	77
July 11	2.14	66	85	76
July 12	0.01	67	87	77
July 13	0.00	68	91	80
July 14	0.00	62	81	72
July 15	0.00	62	83	73
July 16	0.00	63	84	73
July 17	0.00	62	76	69
July 18	0.00	58	81	70
July 19	0.02	61	81	71
July 20	0.00	69	88	79
July 21	0.00	71	87	79
July 22	0.45	66	80	73
July 23	0.00	62	75	69
July 24	0.00	57	67	62
July 25	0.00	56	74	65
July 26	0.00	54	76	65
July 27	0.00	50	82	66
July 28	0.00	55	80	68
July 29	0.00	60	81	71
July 30	0.00	63	73	68
July 31	0.00	63	88	76
	4.84 (total)	**62.7 (average)**	**80.9 (average)**	**71.8 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	61	85	73
August 2	0.00	61	86	74
August 3	0.00	69	89	79
August 4	0.70	60	80	70
August 5	0.02	54	74	64
August 6	0.00	48	77	63
August 7	0.00	53	75	64
August 8	0.00	57	81	69
August 9	0.15	62	85	74
August 10	0.00	55	66	61
August 11	0.00	48	66	57
August 12	0.00	47	65	56
August 13	0.00	45	73	59
August 14	0.00	47	74	61
August 15	0.00	46	76	61
August 16	0.74	53	79	66
August 17	0.06	60	81	71
August 18	1.70	62	76	69
August 19	0.00	57	71	64
August 20	0.36	54	74	64
August 21	0.00	53	75	64
August 22	0.00	60	81	69
August 23	0.00	62	84	73
August 24	0.00	67	81	74
August 25	0.48	66	74	70
August 26	0.00	68	87	78
August 27	0.53	69	84	77
August 28	0.17	58	75	67
August 29	0.00	54	73	64
August 30	0.00	55	81	68
August 31	0.00	53	81	67
	4.91 (total)	**56.8 (average)**	**77.7 (average)**	**67.3 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	59	83	71
September 2	0.00	62	84	73
September 3	0.00	61	84	73
September 4	0.00	63	86	75
September 5	0.00	67	86	77
September 6	0.00	58	79	69
September 7	0.00	50	75	63
September 8	0.00	49	75	62
September 9	0.00	47	80	64
September 10	0.00	57	85	71
September 11	0.00	58	86	72
September 12	0.00	56	86	71
September 13	0.00	61	88	75
September 14	0.01	65	88	77
September 15	2.64	63	76	70
September 16	0.01	52	76	64
September 17	0.00	48	79	64
September 18	0.00	56	82	69
September 19	0.00	59	84	72
September 20	0.00	54	81	68
September 21	0.00	54	84	69
September 22	0.00	53	84	69
September 23	0.00	59	85	72
September 24	0.00	56	80	68
September 25	0.00	53	78	66
September 26	0.00	49	77	63
September 27	0.01	44	79	62
September 28	0.00	47	70	59
September 29	0.00	38	70	54
September 30	0.00	48	76	62
	2.76 (total)	**54.9 (average)**	**80.9 (average)**	**67.9 (average)**

2004 Daily Weather Data for Monmouth, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.09	44	70	57
October 2	0.01	33	60	47
October 3	0.00	38	73	56
October 4	0.00	38	57	48
October 5	0.00	31	65	48
October 6	0.00	42	75	59
October 7	0.43	50	77	64
October 8	0.73	51	69	60
October 9	0.01	40	71	56
October 10	0.00	42	67	55
October 11	0.00	41	64	53
October 12	0.00	46	61	54
October 13	0.00	49	67	58
October 14	0.28	44	51	48
October 15	0.00	44	54	49
October 16	0.00	32	50	41
October 17	0.01	27	57	42
October 18	0.13	44	51	48
October 19	0.04	44	53	49
October 20	0.00	48	54	51
October 21	0.00	50	61	56
October 22	1.96	55	62	59
October 23	0.02	46	72	59
October 24	0.01	39	70	55
October 25	0.00	38	70	59
October 26	0.60	52	59	56
October 27	0.00	49	58	54
October 28	0.02	50	67	59
October 29	0.00	64	80	72
October 30	0.01	44	64	54
October 31	0.01	35	64	50
	4.36 (total)	**43.9 (average)**	**63.6 (average)**	**53.8 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	32	52	42
April 2	0.00	31	52	42
April 3	0.00	34	58	46
April 4	0.00	31	59	45
April 5	0.00	29	52	41
April 6	0.00	28	59	44
April 7	0.00	42	73	58
April 8	0.00	42	69	56
April 9	0.00	36	60	48
April 10	0.00	41	57	49
April 11	0.00	29	50	40
April 12	0.00	33	51	42
April 13	0.00	27	48	38
April 14	0.00	29	53	41
April 15	0.00	36	70	53
April 16	0.00	51	73	62
April 17	0.00	59	85	72
April 18	0.00	59	86	3
April 19	0.00	67	87	78
April 20	0.00	49	73	61
April 21	1.03	49	66	58
April 22	0.00	43	64	54
April 23	0.00	40	55	48
April 24	0.00	40	60	50
April 25	0.54	48	61	55
April 26	T	45	61	53
April 27	0.00	35	67	51
April 28	0.00	39	55	47
April 29	0.00	53	81	67
April 30	0.22	58	76	67
	1.79 (total)	**41.2 (average)**	**63.8 (average)**	**52.5 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.39	44	69	57
May 2	0.01	37	51	44
May 3	0.02	35	55	45
May 4	0.00	39	56	48
May 5	0.00	39	67	53
May 6	0.00	49	73	61
May 7	0.72	48	89	69
May 8	0.05	49	57	53
May 9	0.39	57	87	72
May 10	0.04	68	88	78
May 11	0.05	59	82	71
May 12	0.00	64	83	74
May 13	0.12	65	84	75
May 14	0.33	64	80	72
May 15	0.62	49	64	57
May 16	0.00	42	61	52
May 17	0.00	50	71	61
May 18	0.37	63	82	73
May 19	0.05	50	71	61
May 20	0.00	55	76	66
May 21	0.01	59	83	71
May 22	T	60	80	70
May 23	0.37	59	80	70
May 24	0.01	51	78	65
May 25	0.52	52	71	62
May 26	0.00	49	71	60
May 27	0.00	54	69	62
May 28	0.00	48	81	65
May 29	0.00	50	68	59
May 30	0.36	55	79	67
May 31	1.34	63	79	71
	5.77 (total)	**52.4 (average)**	**73.7 (average)**	**63.1 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.09	57	72	65
June 2	0.00	56	81	69
June 3	T	50	69	60
June 4	0.00	45	73	59
June 5	0.00	51	78	65
June 6	0.00	62	81	72
June 7	0.00	64	85	75
June 8	0.00	70	88	79
June 9	0.00	73	91	82
June 10	0.29	69	83	76
June 11	0.65	69	74	72
June 12	1.06	67	86	77
June 13	0.00	69	85	77
June 14	0.00	68	81	75
June 15	0.55	62	86	74
June 16	0.00	64	80	72
June 17	0.00	68	83	76
June 18	0.00	64	83	74
June 19	0.00	57	80	69
June 20	0.00	51	68	60
June 21	0.01	58	73	66
June 22	0.38	59	71	65
June 23	0.00	54	74	64
June 24	T	61	81	71
June 25	0.01	55	69	62
June 26	0.00	53	72	62
June 27	0.00	57	77	67
June 28	0.15	59	78	69
June 29	0.01	54	75	65
June 30	0.00	54	81	68
	3.2 (total)	**60.0 (average)**	**78.6 (average)**	**69.3 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	58	83	71
July 2	0.00	63	86	75
July 3	0.00	69	88	79
July 4	0.23	70	81	76
July 5	0.03	68	84	76
July 6	0.10	66	84	75
July 7	0.05	61	87	74
July 8	T	55	69	62
July 9	0.00	62	77	70
July 10	0.79	65	79	72
July 11	0.00	66	87	77
July 12	T	65	86	76
July 13	T	66	86	76
July 14	T	62	85	74
July 15	0.00	61	81	71
July 16	0.00	66	83	75
July 17	0.11	62	82	72
July 18	0.00	62	79	71
July 19	0.00	58	84	71
July 20	T	65	81	73
July 21	0.00	71	88	80
July 22	0.00	70	90	80
July 23	0.22	63	90	77
July 24	0.00	53	75	64
July 25	0.00	58	75	66
July 26	0.00	56	74	66
July 27	0.01	56	76	65
July 28	0.00	57	81	69
July 29	0.00	57	83	70
July 30	0.24	64	83	74
July 31	0.00	64	74	69
	1.78 (total)	**62.5 (average)**	**81.9 (average)**	**72.2 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	60	83	72
August 2	0.00	68	89	79
August 3	0.00	66	87	77
August 4	1.49	68	90	79
August 5	0.04	57	75	66
August 6	0.00	52	74	63
August 7	0.00	53	76	65
August 8	0.00	58	76	67
August 9	0.00	64	81	73
August 10	0.00	53	86	70
August 11	0.00	52	66	59
August 12	T	48	62	55
August 13	0.00	48	63	56
August 14	0.00	50	73	62
August 15	0.00	50	74	62
August 16	0.00	47	77	62
August 17	0.03	56	78	67
August 18	1.20	61	83	72
August 19	0.68	59	75	67
August 20	0.44	55	72	64
August 21	0.02	55	73	64
August 22	0.00	53	73	63
August 23	0.00	63	81	72
August 24	0.00	52	85	69
August 25	0.70	65	81	73
August 26	1.43	65	81	73
August 27	0.60	68	83	76
August 28	2.29	56	79	68
August 29	0.17	56	76	66
August 30	0.00	52	73	63
August 31	0.00	56	77	67
	9.09 (total)	**57.0 (average)**	**77.5 (average)**	**67.3 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	58	82	70
September 2	0.00	63	83	73
September 3	0.00	62	83	73
September 4	0.00	64	84	74
September 5	0.00	66	86	76
September 6	0.00	69	87	78
September 7	0.07	53	80	67
September 8	0.00	53	73	63
September 9	0.00	52	72	62
September 10	0.00	50	75	63
September 11	0.00	58	81	70
September 12	0.00	59	83	71
September 13	0.00	54	85	70
September 14	0.00	55	86	71
September 15	0.00	66	87	77
September 16	1.23	60	84	72
September 17	0.00	53	74	64
September 18	0.00	52	73	63
September 19	0.00	56	79	68
September 20	0.00	53	81	67
September 21	0.00	53	81	67
September 22	0.00	50	83	67
September 23	0.00	55	85	70
September 24	0.00	60	85	73
September 25	0.00	52	80	66
September 26	0.00	48	75	62
September 27	0.00	42	73	58
September 28	0.00	45	81	63
September 29	0.00	44	68	56
September 30	0.00	38	69	54
	1.30 (total)	**54.8 (average)**	**79.9 (average)**	**67.4 (average)**

2004 Daily Weather Data for Morris, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.00	40	73	57
October 2	0.40	35	74	55
October 3	0.00	36	58	47
October 4	0.00	35	62	49
October 5	0.00	60	56	43
October 6	0.00	36	62	49
October 7	0.00	43	76	60
October 8	0.23	47	80	64
October 9	0.21	45	67	56
October 10	0.00	44	72	58
October 11	0.00	39	66	53
October 12	0.00	43	65	54
October 13	0.26	51	62	57
October 14	M	44	57	51
October 15	0.49	42	58	50
October 16	M	40	47	44
October 17	M	30	55	43
October 18	0.03	34	57	46
October 19	0.01	43	48	46
October 20	M	48	54	51
October 21	0.00	46	55	51
October 22	0.00	47	64	56
October 23	0.27	52	65	59
October 24	0.22	45	76	61
October 25	0.00	37	67	52
October 26	0.00	43	78	61
October 27	0.07	44	77	61
October 28	0.00	47	68	58
October 29	0.09	49	66	58
October 30	M	57	80	59
October 31	M	42	59	51
	(total)	**42.2 (average)**	**66.1 (average)**	**54.2 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	33	54	44
April 2	0.00	33	60	47
April 3	0.00	30	56	43
April 4	0.00	30	54	42
April 5	0.00	30	62	46
April 6	0.00	30	63	47
April 7	0.00	44	71	58
April 8	0.00	43	71	57
April 9	0.00	36	61	49
April 10	0.00	42	55	49
April 11	0.00	27	53	40
April 12	0.00	28	51	40
April 13	0.00	28	56	42
April 14	0.00	30	57	44
April 15	T	32	76	54
April 16	T	49	76	63
April 17	0.00	50	85	68
April 18	0.00	55	83	69
April 19	0.00	62	84	73
April 20	1.02	42	66	54
April 21	0.00	47	60	54
April 22	0.00	38	59	49
April 23	0.00	41	59	50
April 24	0.00	40	59	50
April 25	0.00	45	57	51
April 26	0.00	38	60	49
April 27	0.00	33	58	46
April 28	0.00	32	57	45
April 29	0.10	52	79	66
April 30	0.50	58	78	68
	1.62 (total)	**39.3 (average)**	**64.0 (average)**	**51.7 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.00	45	65	55
May 2	0.03	38	54	46
May 3	0.00	31	61	46
May 4	0.00	39	60	50
May 5	0.00	38	76	57
May 6	0.15	41	78	60
May 7	0.28	50	87	69
May 8	0.00	47	61	54
May 9	0.00	57	89	73
May 10	0.30	57	90	74
May 11	0.26	60	80	70
May 12	0.52	61	83	72
May 13	0.42	64	79	72
May 14	0.19	51	80	66
May 15	0.00	38	63	51
May 16	0.00	44	72	58
May 17	1.42	52	75	64
May 18	T	61	85	73
May 19	0.00	47	76	61
May 20	0.16	52	78	65
May 21	0.97	61	79	70
May 22	0.33	47	80	66
May 23	0.00	52	82	73
May 24	0.29	60	82	66
May 25	0.00	52	73	62
May 26	0.00	63	70	59
May 27	0.00	50	84	63
May 28	0.00	51	80	65
May 29	1.00	51	72	52
May 30	0.49	52	80	55
May 31	0.06	59	77	58
	6.87 (total)	**50.36 (average)**	**75.5 (average)**	**62.9 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.08	53	76	65
June 2	0.37	56	76	66
June 3	0.00	52	72	62
June 4	0.00	51	77	64
June 5	0.00	50	79	65
June 6	0.00	61	84	73
June 7	0.00	64	88	76
June 8	0.00	68	90	79
June 9	0.19	69	93	81
June 10	0.60	70	86	78
June 11	T	66	75	71
June 12	0.00	62	86	74
June 13	0.00	69	90	80
June 14	0.21	62	86	74
June 15	0.00	60	85	73
June 16	T	63	82	73
June 17	0.00	67	86	77
June 18	0.00	67	81	74
June 19	0.00	51	78	65
June 20	0.00	49	70	60
June 21	0.75	58	75	67
June 22	0.00	53	72	63
June 23	0.00	54	75	65
June 24	0.00	53	84	69
June 25	0.00	45	66	56
June 26	0.00	49	73	61
June 27	0.37	53	80	67
June 28	0.00	59	80	70
June 29	0.00	50	77	64
June 30	0.00	54	83	69
	2.57 (total)	**57.9 (average)**	**80.2 (average)**	**69.1 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	55	89	72
July 2	0.00	61	87	74
July 3	0.37	65	88	77
July 4	0.00	68	85	77
July 5	0.62	62	86	74
July 6	0.00	64	80	72
July 7	0.00	58	72	65
July 8	0.00	51	71	61
July 9	1.80	57	77	67
July 10	0.00	64	85	75
July 11	0.00	64	89	77
July 12	0.00	64	88	76
July 13	0.00	64	92	78
July 14	0.00	64	93	79
July 15	0.00	62	88	75
July 16	0.00	61	86	74
July 17	0.00	62	86	74
July 18	0.00	57	82	70
July 19	0.00	56	85	71
July 20	0.00	60	90	75
July 21	0.00	69	85	77
July 22	0.00	69	87	78
July 23	0.41	62	87	75
July 24	0.00	55	77	66
July 25	0.00	58	78	68
July 26	0.00	52	79	66
July 27	0.00	51	85	68
July 28	0.00	54	883	69
July 29	0.00	56	86	71
July 30	0.00	60	78	69
July 31	0.00	60	77	69
	3.20 (total)	**60.2 (average)**	**83.9 (average)**	**72.1 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	59	88	74
August 2	T	62	87	75
August 3	0.95	62	90	76
August 4	0.00	67	75	71
August 5	0.00	57	76	67
August 6	0.00	50	80	65
August 7	0.00	51	78	65
August 8	0.00	53	83	68
August 9	0.00	64	87	76
August 10	0.00	57	66	62
August 11	0.00	49	62	56
August 12	0.00	50	67	59
August 13	0.00	50	73	62
August 14	0.00	48	76	62
August 15	0.00	45	81	63
August 16	0.10	48	80	64
August 17	0.18	51	81	66
August 18	0.16	60	77	69
August 19	0.00	54	72	63
August 20	T	54	77	66
August 21	0.00	51	75	63
August 22	0.00	49	86	68
August 23	0.02	59	87	73
August 24	1.10	60	81	71
August 25	0.25	63	78	71
August 26	0.75	66	84	75
August 27	0.19	67	84	76
August 28	0.30	66	70	68
August 29	0.00	52	71	62
August 30	0.00	51	83	67
August 31	0.00	52	82	67
	4.00 (total)	**55.1 (average)**	**78.8 (average)**	**67.0 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	55	86	69
September 2	0.00	56	85	71
September 3	0.00	57	85	71
September 4	0.00	57	88	73
September 5	0.00	61	86	74
September 6	0.00	66	77	72
September 7	0.00	50	73	62
September 8	0.00	51	75	63
September 9	0.00	50	76	63
September 10	0.00	49	84	67
September 11	0.00	50	87	69
September 12	0.00	53	86	70
September 13	0.00	53	86	70
September 14	0.00	54	88	71
September 15	0.66	63	80	72
September 16	0.00	55	73	64
September 17	0.00	51	77	64
September 18	0.00	53	79	66
September 19	0.00	54	83	69
September 20	0.00	51	80	66
September 21	0.00	46	83	65
September 22	0.00	45	83	64
September 23	0.00	45	83	64
September 24	0.00	52	79	66
September 25	0.00	46	74	60
September 26	0.00	44	78	61
September 27	0.00	41	80	61
September 28	0.00	42	68	55
September 29	0.00	39	71	55
September 30	0.00	37	77	57
	0.66 (total)	**50.9 (average)**	**80.2 (average)**	**65.6 (average)**

2004 Daily Weather Data for Morrison, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1		40	69	55
October 2		33	59	46
October 3		33	71	52
October 4		36	56	46
October 5		28	63	46
October 6		31	76	54
October 7		41	74	58
October 8	0.83	46	71	59
October 9		42	70	56
October 10		39	68	54
October 11		39	64	52
October 12		41	62	52
October 13		44	61	53
October 14		43	53	48
October 15		41	53	47
October 16		37	48	43
October 17		27	54	41
October 18		29	52	41
October 19		44	53	49
October 20		46	53	50
October 21		47	62	55
October 22		48	64	56
October 23	2.20	50	72	64
October 24		41	68	55
October 25		40	70	55
October 26		44	58	51
October 27		49	59	54
October 28		47	66	57
October 29	0.12	51	75	64
October 30		50	57	54
October 31		40	55	48
	2.28 (total)	**42.4 (average)**	**64.0 (average)**	**53.5 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	36	49	43
April 2	0.00	36	57	47
April 3	0.00	34	64	49
April 4	0.00	32	52	42
April 5	0.00	30	57	44
April 6	T	36	71	54
April 7	0.00	49	75	62
April 8	0.00	40	60	50
April 9	0.00	36	61	49
April 10	0.00	42	57	50
April 11	0.00	35	55	45
April 12	0.00	33	49	41
April 13	0.00	31	52	42
April 14	0.00	32	67	50
April 15	0.00	40	72	56
April 16	0.00	50	81	66
April 17	0.00	60	85	73
April 18	0.00	57	85	71
April 19	0.00	54	79	67
April 20	0.94	52	71	62
April 21	T	51	69	61
April 22	0.40	43	52	48
April 23	0.00	41	67	54
April 24	0.26	49	63	56
April 25	0.06	46	64	55
April 26	0.00	41	65	53
April 27	0.00	39	56	48
April 28	0.01	41	77	59
April 29	T	54	74	64
April 30	0.21	48	76	62
	1.88 (total)	**42.3 (average)**	**65.4 (average)**	**54.1 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.28	43	50	47
May 2	0.04	41	56	49
May 3	0.00	38	56	47
May 4	0.03	40	61	51
May 5	0.00	47	75	61
May 6	0.00	54	87	71
May 7	0.00	53	74	64
May 8	0.00	51	86	69
May 9	0.00	59	86	73
May 10	0.20	65	84	75
May 11	0.11	63	84	74
May 12	0.42	62	85	74
May 13	0.73	64	77	71
May 14	0.40	51	72	62
May 15	0.00	50	59	55
May 16	0.00	45	72	59
May 17	0.05	56	81	69
May 18	1.15	58	81	70
May 19	0.00	53	79	66
May 20	0.00	68	81	75
May 21	0.00	70	87	79
May 22	0.00	69	85	77
May 23	0.02	65	76	71
May 24	0.00	55	81	68
May 25	0.63	60	72	66
May 26	0.03	56	71	64
May 27	T	59	84	72
May 28	0.00	53	74	64
May 29	0.00	49	80	65
May 30	0.26	64	85	75
May 31	0.03	57	75	66
	4.38 (total)	**55.4 (average)**	**76.0 (average)**	**66.1 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	T	54	80	67
June 2	0.12	55	71	63
June 3	0.00	53	74	64
June 4	0.00	49	78	64
June 5	0.00	58	79	69
June 6	T	62	83	73
June 7	0.00	60	87	74
June 8	0.00	70	91	81
June 9	0.04	69	80	75
June 10	2.21	68	77	73
June 11	0.23	70	88	79
June 12	0.02	68	90	79
June 13	0.00	66	84	75
June 14	0.00	64	87	76
June 15	0.40	67	83	75
June 16	0.42	70	83	77
June 17	0.00	70	83	77
June 18	0.00	66	83	75
June 19	0.00	52	70	61
June 20	0.01	49	73	61
June 21	0.01	56	74	65
June 22	0.00	55	73	64
June 23	0.00	51	80	66
June 24	0.06	56	71	69
June 25	0.24	49	70	60
June 26	0.00	52	76	64
June 27	0.01	54	78	66
June 28	0.00	58	77	68
June 29	0.00	53	79	66
June 30	0.00	56	82	69
	3.77 (total)	**59.3 (average)**	**79.8 (average)**	**69.8 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	60	86	76
July 2	0.10	63	84	74
July 3	0.78	69	79	74
July 4	0.06	69	83	76
July 5	0.02	65	84	75
July 6	1.10	66	85	76
July 7	T	60	74	67
July 8	T	58	75	67
July 9	0.20	66	90	78
July 10	1.32	68	85	77
July 11	0.05	69	87	78
July 12	T	69	87	78
July 13	0.60	66	90	78
July 14	0.00	64	81	73
July 15	0.00	63	83	73
July 16	0.00	62	83	73
July 17	1.00	63	79	71
July 18	0.00	61	81	71
July 19	0.00	60	83	72
July 20	0.00	63	87	75
July 21	0.00	69	90	80
July 22	0.02	73	86	80
July 23	0.00	61	79	70
July 24	0.00	58	73	66
July 25	T	60	72	66
July 26	0.00	56	74	65
July 27	0.00	53	79	66
July 28	0.00	59	82	71
July 29	0.00	59	82	71
July 30	0.48	65	74	70
July 31	0.00	64	83	74
	5.73 (total)	**63.3 (average)**	**81.9 (average)**	**72.8 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	61	87	74
August 2	T	65	85	75
August 3	0.00	63	88	76
August 4	0.15	65	83	74
August 5	0.00	57	75	66
August 6	0.00	53	75	64
August 7	0.00	51	77	64
August 8	0.00	54	81	68
August 9	0.86	60	85	73
August 10	0.00	58	72	65
August 11	0.00	50	68	59
August 12	T	48	66	57
August 13	0.00	51	72	62
August 14	0.00	48	73	61
August 15	0.00	51	76	64
August 16	0.00	51	79	65
August 17	0.00	55	83	69
August 18	0.05	62	84	73
August 19	0.00	64	72	68
August 20	0.44	55	68	62
August 21	0.00	52	78	65
August 22	0.00	54	82	68
August 23	T	58	86	72
August 24	0.11	66	86	76
August 25	1.07	66	75	71
August 26	0.10	67	85	76
August 27	0.36	71	86	79
August 28	0.27	66	85	76
August 29	0.18	57	69	63
August 30	0.00	53	78	66
August 31	0.00	58	82	70
	3.59 (total)	**57.7 (average)**	**78.7 (average)**	**68.4 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	59	84	72
September 2	0.00	61	84	73
September 3	0.00	64	85	75
September 4	0.00	63	88	76
September 5	0.00	64	88	76
September 6	0.00	64	83	74
September 7	T	57	77	67
September 8	0.00	56	75	66
September 9	0.00	54	79	67
September 10	0.00	54	84	69
September 11	0.00	55	84	70
September 12	0.00	56	86	71
September 13	0.00	58	88	73
September 14	0.00	61	83	72
September 15	2.18	62	85	74
September 16	0.01	60	80	70
September 17	0.00	54	76	65
September 18	0.00	52	81	67
September 19	0.00	55	80	68
September 20	0.00	51	82	67
September 21	0.00	51	85	68
September 22	0.00	51	76	69
September 23	0.00	56	76	71
September 24	0.00	59	84	72
September 25	0.00	57	79	68
September 26	0.00	50	74	62
September 27	0.00	52	75	64
September 28	0.00	51	71	61
September 29	0.00	47	71	59
September 30	0.00	43	76	60
	2.19 (total)	**55.9 (average)**	**81.3 (average)**	**68.9 (average)**

2004 Daily Weather Data for Urbana, Illinois (Midwest Climate Center)

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.00	46	77	62
October 2	0.04	38	61	50
October 3	0.00	31	72	52
October 4	0.00	39	61	50
October 5	0.00	34	63	49
October 6	0.00	36	76	56
October 7	0.00	41	81	61
October 8	0.00	62	68	65
October 9	0.23	51	73	62
October 10	0.00	45	70	58
October 11	0.00	44	67	56
October 12	0.00	48	55	52
October 13	0.17	44	55	51
October 14	0.03	41	54	48
October 15	0.13	45	56	51
October 16	T	33	52	43
October 17	0.00	29	60	45
October 18	0.62	43	50	47
October 19	0.63	44	51	48
October 20	0.01	49	56	53
October 21	0.00	47	59	53
October 22	0.00	46	67	57
October 23	0.42	53	76	65
October 24	0.16	42	68	55
October 25	0.00	44	78	61
October 26	0.00	50	65	58
October 27	0.71	50	59	55
October 28	0.01	49	65	57
October 29	0.25	64	80	72
October 30	0.30	46	70	58
October 31	0.00	42	66	54
	3.71 (total)	**44.5 (average)**	**64.8 (average)**	**55.0 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
April 1	0.00	33	50	42
April 2	0.00	35	52	44
April 3	0.00	33	58	46
April 4	0.00	33	59	46
April 5	0.00	30	50	40
April 6	0.00	30	56	43
April 7	0.00	42	72	57
April 8	0.00	44	68	56
April 9	0.00	37	55	46
April 10	0.00	36	57	47
April 11	0.00	62	57	45
April 12	0.00	62	48	40
April 13	0.00	61	44	38
April 14	0.00	62	51	42
April 15	0.00	64	69	52
April 16	0.02	47	73	60
April 17	0.00	59	84	72
April 18	0.00	57	84	71
April 19	0.00	62	85	74
April 20	0.00	48	72	60
April 21	0.70	47	65	56
April 22	0.00	46	64	55
April 23	0.00	43	55	49
April 24	0.00	43	68	56
April 25	0.00	45	59	52
April 26	0.60	45	62	54
April 27	0.00	37	60	49
April 28	0.00	36	54	45
April 29	0.00	48	78	63
April 30	0.30	58	77	68
	1.62 (total)	**41.2 (average)**	**62.9 (average)**	**52.1 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
May 1	0.34	44	66	55
May 2	0.00	40	50	45
May 3	0.00	33	55	44
May 4	0.00	34	56	45
May 5	0.00	44	66	55
May 6	0.00	44	72	58
May 7	0.00	53	86	70
May 8	0.30	47	57	52
May 9	0.00	50	86	68
May 10	0.15	58	86	72
May 11	0.03	60	85	73
May 12	0.01	59	82	71
May 13	0.49	66	83	75
May 14	1.81	64	79	72
May 15	0.69	50	67	59
May 16	0.00	41	60	51
May 17	0.00	43	70	57
May 18	0.48	62	81	72
May 19	0.04	51	66	59
May 20	0.00	50	74	62
May 21	0.00	58	83	71
May 22	0.05	56	80	68
May 23	0.60	65	81	73
May 24	0.00	55	78	67
May 25	0.30	52	78	65
May 26	0.00	52	70	62
May 27	0.00	53	69	61
May 28	0.00	48	80	64
May 29	0.00	48	66	57
May 30	0.03	51	77	64
May 31	2.20	64	77	71
	7.52 (total)	**51.5 (average)**	**73.1 (average)**	**62.3 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
June 1	0.10	56	69	63
June 2	0.00	55	76	66
June 3	0.00	50	67	59
June 4	0.00	46	70	58
June 5	0.00	46	75	61
June 6	0.00	60	78	69
June 7	0.00	64	83	74
June 8	0.00	64	87	76
June 9	0.00	73	90	82
June 10	0.12	69	84	77
June 11	0.85	68	74	71
June 12	4.02	66	85	76
June 13	0.00	64	84	74
June 14	0.00	64	84	74
June 15	0.43	64	84	74
June 16	0.00	65	80	73
June 17	0.00	67	82	75
June 18	0.00	65	82	74
June 19	0.00	56	80	68
June 20	0.00	51	66	59
June 21	0.00	55	73	64
June 22	0.31	61	72	67
June 23	0.00	56	74	65
June 24	0.00	56	81	69
June 25	0.03	55	67	61
June 26	0.00	52	71	62
June 27	0.00	52	77	65
June 28	0.00	59	80	70
June 29	T	56	75	66
June 30	0.00	56	81	69
	5.86 (total)	**59.0 (average)**	**77.7 (average)**	**68.4 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
July 1	0.00	61	83	72
July 2	0.00	64	87	76
July 3	0.03	69	87	78
July 4	0.45	70	84	77
July 5	0.00	68	84	76
July 6	0.03	64	81	73
July 7	0.03	62	85	74
July 8	0.00	56	69	63
July 9	0.00	58	77	68
July 10	1.10	64	80	72
July 11	0.00	66	83	75
July 12	0.00	67	86	77
July 13	0.00	68	85	77
July 14	0.00	64	84	74
July 15	0.00	62	80	71
July 16	0.00	62	82	72
July 17	0.00	63	83	73
July 18	0.00	62	78	70
July 19	0.00	62	82	72
July 20	0.00	62	82	72
July 21	0.05	69	88	79
July 22	0.02	70	88	79
July 23	0.00	66	91	79
July 24	0.00	58	74	66
July 25	0.00	60	73	67
July 26	0.00	60	76	68
July 27	0.00	62	75	69
July 28	0.00	60	84	72
July 29	0.00	60	89	75
July 30	0.17	63	86	75
July 31	0.14	65	77	71
	2.02 (total)	**63.5 (average)**	**82.0 (average)**	**72.8 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
August 1	0.00	63	87	75
August 2	0.00	63	88	76
August 3	0.00	70	88	79
August 4	1.15	67	91	79
August 5	0.07	63	75	69
August 6	0.00	55	74	65
August 7	0.00	55	76	66
August 8	0.00	55	76	66
August 9	0.00	58	80	69
August 10	0.00	59	85	72
August 11	0.00	54	65	60
August 12	0.00	50	62	56
August 13	0.00	50	61	56
August 14	0.00	51	71	61
August 15	0.00	50	73	62
August 16	0.00	51	78	65
August 17	0.01	53	77	65
August 18	0.01	61	82	72
August 19	0.55	61	75	68
August 20	0.00	58	71	65
August 21	0.19	55	72	64
August 22	0.00	52	74	63
August 23	0.00	53	80	67
August 24	0.00	65	84	75
August 25	2.13	66	79	73
August 26	1.06	67	75	71
August 27	1.10	68	82	75
August 28	2.15	67	83	75
August 29	0.13	59	76	68
August 30	0.00	53	72	63
August 31	0.00	54	83	69
	8.55 (total)	**58.3 (average)**	**77.3 (average)**	**67.8 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
September 1	0.00	59	81	70
September 2	0.00	61	81	71
September 3	0.00	63	83	73
September 4	0.00	66	83	75
September 5	0.00	67	83	75
September 6	0.00	67	85	76
September 7	0.02	57	80	69
September 8	0.00	57	75	66
September 9	0.00	57	71	64
September 10	0.00	55	75	65
September 11	M	54	83	69
September 12	M	57	85	71
September 13	M	57	86	72
September 14	0.00	55	86	71
September 15	0.00	65	86	76
September 16	0.90	63	85	74
September 17	0.00	57	73	65
September 18	0.00	55	71	63
September 19	0.00	57	77	67
September 20	0.00	54	78	66
September 21	0.00	53	78	66
September 22	0.00	55	83	69
September 23	0.00	53	82	68
September 24	0.00	58	84	71
September 25	0.00	54	79	67
September 26	0.00	50	72	61
September 27	0.00	49	71	60
September 28	0.00	49	74	62
September 29	0.00	49	67	58
September 30	0.00	44	67	56
	0.92 (total)	**56.6 (average)**	**78.1 (average)**	**67.4 (average)**

2004 Daily Weather Data for Yorkville, Illinois (Midwest Climate Center)

**Weather data from Joliet weather station*

Date	Precipitation (inches)	Low Temperature (°F)	High Temperature (°F)	Mean Temperature (°F)
October 1	0.00	44	78	61
October 2	0.44	40	74	57
October 3	0.00	37	57	47
October 4	0.00	37	70	54
October 5	0.00	35	55	45
October 6	M	33	76	55
October 7	0.00	49	75	62
October 8	0.07	48	78	63
October 9	0.32	50	67	59
October 10	0.01	43	68	56
October 11	0.00	44	64	54
October 12	0.00	47	65	56
October 13	0.13	49	62	56
October 14	0.03	48	64	56
October 15	0.25	47	58	53
October 16	0.07	41	54	48
October 17	0.00	30	47	39
October 18	0.00	30	55	43
October 19	M	43	52	48
October 20	0.00	49	53	51
October 21	0.00	49	56	53
October 22	0.00	46	63	55
October 23	M	50	57	63
October 24	0.50	47	76	62
October 25	0.00	45	67	56
October 26	0.00	44	76	60
October 27	0.06	55	68	52
October 28	0.00	51	67	59
October 29	0.11	49	67	58
October 30	0.11	62	79	71
October 31	M	42	59	51
	2.10 (total)	**45.0 (average)**	**65.3 (average)**	**55.2 (average)**