INTERFERENCE OF PALMER AMARANTH (Amaranthus palmeri) WITH COTTON (Gossypium hirsutum)

By

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(Amaranthus palmeri) WITH COTTON

(Gossypium hirsutum)

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Abstract

Field experiments were conducted in 1996 at Perkins and Chickasha, OK, and in 1997 at Perkins and Altus, OK, to measure the effects of Palmer amaranth interference on cotton growth, yield, and fiber properties. Densities of Palmer amaranth ranged from 0 (weed-free check) to 12 plants 10 m^{-1} of row. Data for cotton lint yield vs. Palmer amaranth densities fit a linear model for weed densities $\leq$ 8 plants 10 m^{-1} of row at Perkins and Chickasha in 1996 and at Altus in 1997, but fit a linear model for all densities at Perkins in 1997. For each increase of one weed 10 m^{-1} of row, lint yield reductions were 62 kg ha^{-1} (or 10.7%) and 58 kg ha^{-1} (or 12%) at Perkins and Chickasha in 1996, respectively. At Altus and Perkins in 1997, for each increase of one weed 10 m^{-1} of row, lint yield was reduced 112 kg ha^{-1} (or 8.7%) and 71 kg ha^{-1} (or 5.9%), respectively. Data for lint yield vs. Palmer amaranth end-of-season volume fit a linear model. For each increase of 1 m^3 of weed $plot^{-1}$, cotton lint yield was reduced 1.6 and 1.5% at Perkins and Chickasha in 1996, respectively. In 1997 at Altus and Perkins, for each increase of 1 m^3 of weed $plot^{-1}$, lint yield was reduced 2.3 and 1.6 %, respectively. Data for lint yield vs. Palmer amaranth end-of-season biomass also fit a linear model. At Perkins and Chickasha in 1996, lint yield was reduced 5.2 and 5.5%, respectively, for each increase of 1 kg of weed biomass $plot^{-1}$. At Altus and Perkins in 1997, lint yield was reduced 7.2 and 9.3 %, respectively, for each increase of 1 kg of weed biomass $plot^{-1}$. Data for crop and weed growth over time, mid-season crop and weed biomass, and crop mapping were recorded for all experiments but

were not extensively analyzed due to variability. Fiber trait analyses revealed differences in micronaire among weed densities at Perkins and Chickasha in 1996 at the 95% significance level. No differences were observed for any fiber trait Altus in 1997. At Perkins in 1997, differences were observed among densities for micronaire between the 0.05 and the 0.10 probability levels, but no other trait was affected.

Nomenclature: Palmer amaranth, Amaranthus palmeri S. Wats. AMAPA; cotton, Gossypium hirsutum L. 'Paymaster HS-26'.

Key words: Competition, lint yield, weed volume, weed biomass, plant mapping, fiber traits.

Introduction

Palmer amaranth is an important weed in cotton across the Cotton Belt. With other pigweed species, it ranks as the most common and the second most troublesome weed in Oklahoma cotton (Dowler 1995). Other cotton-producing states, such as Texas and Arkansas, have also named Palmer amaranth as one of their most common weeds (Dowler 1995). A survey conducted in 1995 reported that the Amaranthus genera infested approximately 33,600 ha of Oklahoma cotton and caused a 13% lint yield reduction (Byrd 1996).

Palmer amaranth is an annual, broadleaf weed capable of growing more than 2 m tall. It can produce hundreds of thousands of seed which may remain dormant in the soil for years. Due to its large and aggressive growth, Palmer amaranth is able to detrimentally affect crop growth and yield by competing for light, water, space, and

nutrients. Extensive research has been reported on several weeds that grow in the same environment as Palmer amaranth though research particular to that weed's competition in cotton is limited.

Klingaman and Oliver (1994) reported that Palmer amaranth competition reduced soybean [Glycine max (L.) Merr.] yield 17 to 68% for densities of 0.33 to 10 plants m^{-1} of row, respectively, and that the weed was more than twice as competitive as redroot pigweed (Amaranthus retroflexus L.). Soybean height and canopy width were also significantly reduced during the competition with Palmer amaranth. When redroot pigweed was grown with cotton, Buchanan et al. (1980) reported yield reductions as high as 43 kg ha^{-1} for each weed 15 m^{-1} of row. Rushing et al. (1985) found that tumble pigweed (Amaranthus albus L.), a plant with much smaller stature that Palmer amaranth, could cause cotton lint yield reductions as high as 11 kg ha^{-1} for each weed 10 m^{-1} of row.

Snipes et al. (1982) conducted research on common cocklebur (Xanthium strumarium L.), a plant that can grow larger and more aggressively than redroot pigweed. Weed densities ranged from 0 to 32 plants 15 m^{-1} of row. Snipes et al. (1982) found that each common cocklebur 15 m^{-1} reduced machine-harvested cotton yield 57 to 90 kg ha^{-1}. Cotton stem height and stem diameter were reduced by 1 cm and 0.2 mm for each cocklebur plant 15 m^{-1} of row, respectively. The data showed a curvilinear response beyond 16 weeds 15 m^{-1} of row, indicating that intraspecific weed competition began to occur at that density. Byrd and Coble (1991) found over a 2-year period, that every common cocklebur plant 3 m^{-1} of row reduced cotton lint yield 6 to 27%.

Palmer amaranth's possible allelopathic properties have also been investigated (Menges 1987, 1988). Palmer amaranth were grown in the field, and its residue was then

incorporated into the soil. Growth of carrot (Daucus carota L. var. sativa) and onion (Allium cepa L.) were reduced 49% and 68%, respectively, following the residue incorporation (Menges 1987). Grain sorghum [Sorghum bicolor (L.) Moench.] and cabbage (Brassica oleracea, var. capitata L.) growth was also inhibited by Palmer amaranth residue in the soil in the later study done by Menges (1988).

Reports of Palmer amaranth resistance to the Dinitroaniline family of herbicides (Gossett et al. 1992), along with the increasing options for POST over-the-top herbicides in cotton, have increased the importance of information on the competitiveness of Palmer amaranth. Such information will be valuable in establishing economic herbicide treatment thresholds in agronomic crops such as cotton. Previous research on the competitiveness of Palmer amaranth in cotton is limited. Therefore, this research was initiated to measure the effects of Palmer amaranth interference on cotton growth, lint yield, and fiber properties.

Materials and Methods

Four field experiments were conducted in 1996 and 1997 at three locations. Experiments were conducted in 1996 in North Central Oklahoma near Perkins on a Teller fine sandy loam (a fine-loamy, mixed, thermic Udic Argiustoll) with a pH of 7.1 and an organic matter content of 0.7% and in South Central Oklahoma near Chickasha on a Reinach silt loam (a coarse-silty, mixed, thermic Pachic Haplustoll) with a pH of 7.7 and organic matter of 1.1%. Experiments were conducted again in 1997 at the Perkins site on a soil with a pH of 7.0 and an organic matter content of 0.5% and in Southwest Oklahoma near Altus on a Tillman-Hollister clay loam (a fine, mixed, thermic Pachic Paleustoll) with

a pH of 7.5 and organic matter of 0.9%. At Perkins and Chickasha in 1996, ammonium nitrate was applied at 48 kg N ha^{-1} while Perkins in 1997 received 44 kg N ha^{-1}. Altus in 1997 received urea at 83 kg N ha^{-1}. Experiments conducted near Perkins and Chickasha were irrigated as needed using a side-roll overhead sprinkler while near Altus furrow irrigation was employed.

Experimental Design

The experimental design was a randomized complete-block with four replications at each site. Plots were four rows wide by 13 m long with a row spacing of 91 cm at the sites near Perkins and Chickasha and a row spacing of 102 cm at the site near Altus. Planting dates for Perkins and Chickasha in 1996 were May 22 and May 21, respectively. Planting dates for Altus and Perkins in 1997 were May 29 and May 27, respectively. 'Paymaster HS-26', a stripper harvested cultivar, was planted at all locations. Before harvest, 1.5 m of row was removed from each end of the rows to be harvested to prevent an "end row" effect; thus, the harvested row length was 10 m.

Crop and Weed Establishment

In 1996, both experimental areas received a PRE treatment of prometryn [*N,N'*-bis(1-methylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine] plus metolachlor [2-chloro-*N*-(2-ethyl-6-methylphenyl)-*N*-(2-methoxy-1-methylethyl)acetamide] at rates of 1.1 kg ai ha^{-1} for each herbicide. In 1997, both experimental areas received a PRE treatment of metolachlor alone at a rate of 1.7 kg ai ha^{-1}. Herbicide rates were at or below recommended rates for the soils used to prevent Palmer amaranth or crop damage. Prometryn was removed as a treatment in 1997 to further reduce the risk of damage to the Palmer amaranth seedlings to be transplanted later. Following crop planting and prior to

the application of herbicide treatments, 25-cm diameter paper plates were used to cover the intended weed-transplanting sites to prevent the risk of herbicide damage to Palmer amaranth seedlings. Previous research by Pawlak et al. (1990) reported the use of 31-cm^2 covers over intended weed planting sites to prevent herbicide injury. Smith et al. (1990) and Rogers et al. (1996) reported the use of round paper covers over weed planting sites to prevent herbicide injury. On the same day as crop planting, the weeds were seeded into peat pellets in a greenhouse and allowed to grow to the 1-to-2 true leaf stage. Weeds were then transplanted approximately 5 cm from the crop in the left of rows 2, 3, and 4 to simulate weeds that may were missed by regular cultivation between rows. Eight weed densities of 0 (the weed-free check), 1, 2, 4, 6, 8, 10, and 12 plants 10 m^{-1} of crop row were tested. Research by Albers and Murray (1997) reported no differences in the propagation of common cocklebur (Xanthium strumarium L.) By direct seeding vs. peat pellets. All plots were hand-hoed throughout the season to prevent competition from unwanted weed species.

Monitoring of Crop and Weed Growth

For all four experiments, crop and weed growth were monitored by taking height and width measurements in centimeters throughout the growing season. Height measurements were taken from ground level to the apex of the plant. Width measurements were taken from the widest point on each plant. Measurements were initiated approximately 2 wk after emergence and were taken about every 2 wk until it was determined that no further growth was occurring from the weed or crop. One representative Palmer amaranth and one typical cotton plant were selected from rows 2 and 3 of each plot, and all data were taken from these plants throughout the season.

Recorded height and width data for both crop and weed were converted to cylindrical volumes for comparison of growth over time. Cylindrical volume of the crop was reported as cubic centimeters per plant since a volume per plot could not be accurately determined. Volume of the weed was reported as cubic meters per plot. This was done by calculating the cylindrical volume of the representative weed and multiplying this volume by the plot weed density.

Mid-Season Crop and Weed Biomass

Mid-season biomass for crop and weed was taken approximately 8 wk after emergence in both years. One representative Palmer amaranth plant from the center of row 4 in each plot was chosen to record area-of-influence data. Cotton biomass was taken by harvesting cotton plants at intervals of 0 to 25, 25 to 75, and 75 to 125 cm each direction from the centrally located Palmer amaranth plant. Also, any other Palmer amaranth plants growing in the range of 125 cm from the central weed were harvested for biomass. Both crop and weed were dried in ovens and total plant weights were recorded in order to observe any differences among the different weed densities.

Plant Mapping of Crop

On the same day as mid-season biomass data was taken, cotton plants growing at 25, 75, and 125 cm from the centrally located Palmer amaranth plant were harvested for plant mapping. Plant mapping techniques were similar to those described by Hake et al. (Undated). Plant mapping data recorded in these experiments consisted of plant height in centimeters from ground level to plant apex, position of first fruiting branch above the cotyledonary nodes, and number and position of any reproductive structures on the plant.

Total Weed Volume per Plot

Final recordings of Palmer amaranth heights and widths from the representative weeds in each plot were used to calculate cylindrical plant volumes in cubic meters. Those volumes were then converted to a total plot basis by multiplying the cylindrical plant volume by the plot weed density. In some plots with a higher weed density it was necessary to calculate weed volume per plot on a rectangular basis due to the fact that the weeds had grown together and were no longer competing as individuals. From the height and width measurements of the representative Palmer amaranth plants, plus the known length of the plots, a rectangular volume was calculated and reported for necessary plots. The calculated total plot volumes were then compared to cotton lint yield expressed as a percentage of the check.

End-of-Season Weed Biomass

Palmer amaranth plants growing in rows 2 and 3 of each plot were harvested from soil level at senescence at each location. In 1996, harvest of biomass took place on Sept. 12 near Perkins and on Oct 13 near Chickasha. In 1997, weeds near Altus were harvested on Oct 20 and near Perkins on Oct 16. Rows 2 and 3 were harvested collectively, and total plot weights were recorded. Samples containing portions of branches and main stems were collected from each plot, weighed at the time of harvest, dried, and reweighed to determine a percentage moisture content. Plot wet weights were then adjusted to a dry matter basis using the corresponding percentage moisture values. Dry weed weights in kilograms $plot^{-1}$ were then compared to cotton lint yield as a percentage of the check.

Crop Harvest

Cotton was harvested in 1996 on Dec. 5 and 6 at Perkins and Chickasha,

respectively, and in 1997 on Nov. 5 and 6 at Altus and Perkins, respectively. Plots were hand-harvested in 1996 due to wet conditions and were mechanically-harvested with a stripper in 1997. Cotton was harvested from the center two rows of each plot. It was weighed, mechanically deburred, and seed the cotton was weighed. Samples of seed-cotton were weighed, ginned and the lint weighed to determine a lint percentage for each plot. Plot weights of seedcotton were then converted to lint yield in kilograms hectare^{-1}.

Fiber Quality Measurements

In 1996 and 1997, fiber samples were sent to the International Textile Center, Texas Tech University, Lubbock, TX, for fiber quality measurements. High volume instruments (HVI) were used to measure fiber micronaire, length, length uniformity, strength, and elongation.

Data Analyses

All data were analyzed using the appropriate analysis of variance statistical model. Lint yield and lint yield expressed as a percentage of the check were tested to fit linear or quadratic models using PROC GLM (SAS 1988).

Results and Discussion

Weed Density

Yields were significantly different among weed densities at the 0.05 probability level in each experiment (Table 1). Therefore, linear regression was used to measure the effects of weed density on cotton lint yield. In 1996 at Perkins, cotton lint yield vs. weed density fit a linear model for densities $\leq$ 8 weeds 10 m^{-1} of row (Figure 1). Densities > 8 weeds 10 m^{-1} of row fit a quadratic model ($Y = 608 - 97X + 5X^2$). This situation was

interpreted to mean that densities greater than 8 weeds resulted in intraspecific weed competition; therefore, only data for ≤ 8 weeds row^{-1} are presented for lint yield at Perkins in 1996. Similar observations were noted for Chickasha in 1996 and Altus in 1997. According to the Perkins 1996 data, cotton lint yield was reduced 62 kg ha^{-1} for each increase of one weed row^{-1} up to and including 8 (Figure 1). At Chickasha in 1996 the data again fit a quadratic model for densities > 8 weeds row^{-1} ($Y = 546 - 84X + 4X^2$). Lint yield reduction for densities ≤ 8 weeds was 58 kg ha^{-1} for each additional weed at Chickasha in 1996 (Figure 1). Densities ≤ 8 weeds 10 m^{-1} of row gave a lint yield reduction of 112 kg ha^{-1} at Altus in 1997 (Figure 1). The Altus data fit a quadratic model for densities > 8 weeds ($Y = 1295 - 175X + 8X^2$). At Perkins in 1997, all densities from 0 to 12 fit a linear model and thus gave no indication of intraspecific weed competition. Lint yield reduction for Perkins, determined using all densities, was 71 kg ha^{-1} for each increase of one weed row^{-1} (Figure 1).

Lint yield was also expressed as a percentage of the check to eliminate differential environmental conditions over time and locations. As with lint yield on a weight basis, lint yield reduction on a percentage of check basis for Perkins 1996 ($Y = 105 - 17X + 1X^2$), Chickasha 1996 ($Y = 108 - 17X + 1X^2$) and Altus 1997 ($Y = 101 - 14X + 1X^2$) fit a quadratic model for densities > 8 weeds row^{-1} while Perkins in 1997 ($Y = 94 - 6X$) maintained a linear relationship over all densities. Percentage lint yield loss for each increase of one weed row^{-1} at Perkins and Chickasha in 1996 was 10.7 and 11.5%, respectively, with weed densities ≤ 8 weeds (Figure 2). At Altus in 1997, percentage lint yield loss was 8.7% for each increase of one weed with densities ≤ 8 weeds (Figure 2). At Perkins in 1997, each increase of one weed row^{-1} reduced lint yield 5.9% over all densities

(Figure 2).

Monitoring of Crop and Weed Growth

Cotton growth data were recorded as cylindrical volumes per plant in cubic centimeters. Data were taken four times throughout the season. Weed growth data were recorded as cylindrical volumes per plot in cubic meters and were also taken four times. Trends were observed for increasing growth over time but no further analyzation of these data were performed. Raw data for crop and weed growth can be found in Appendix Tables 1 to 8.

Mid-Season Crop and Weed Biomass

Mid-season crop and weed biomass for all experiments exhibited great variability. Some differences between densities existed, but no definite trends were apparent. Variability for crop and weed biomass is believed to have been caused by the presence of more than one weed in the area of influence in plots with high weed densities. In the case of weed biomass, if other weeds besides the central weed fell into the area of influence, they were harvested also. Therefore, different numbers of weeds were harvested in different plots, and an accurate comparison of weed biomass among the different weed densities could not be measured. Therefore, no further analyses of the mid-season biomass data for crop or weed was attempted. Raw data for mid-season crop and weed biomass is provided in Appendix Tables 9 to 16.

Plant Mapping of Crop

Data for plant mapping of the crop also showed extreme variability and further analyses of the data were not pursued. Analysis of cotton mapping data by Morgan et al. (1997) in a similar study yielded no significant differences among weed densities due to its

extreme variability. It was determined that the plant mapping data would not provide good indicators of weed competition for these experiments. Raw data for plant mapping is provided in Appendix Tables 17 to 24.

Total Weed Volume per Plot

In 1996 at Perkins and Chickasha, data for total plot weed volume compared to cotton lint yield expressed as a percentage of the check fit a linear trend over all densities (Figure 3). For each increase of 1 m^3 $plot^{-1}$, cotton lint yield was reduced 1.6 and 1.5% at Perkins and Chickasha, respectively (Figure 3). At Altus in 1997, data for weed densities > 6 weeds row^{-1} fit a quadratic model ($Y = 102.0 - 3.4X + 0.04X^2$) with lint yield while data containing ≤ 6 weeds fit a linear model (Figure 3). From the latter data, for every increase of 1 m^3 $plot^{-1}$, cotton lint yield was reduced 2.3% at Altus in 1997 (Figure 3). At Perkins in 1997, lint yield was reduced 1.6% for each increase of 1 m^3 of weed volume over all densities (Figure 3).

End-of-Season Weed Biomass

Weed biomass compared to cotton lint yield expressed on a percent of check basis fit a linear model over all densities at all locations. In 1996 at Perkins and Chickasha, cotton lint yield was reduced 5.2 and 5.5% for each increase of 1 kg $plot^{-1}$ of weed biomass, respectively (Figure 4). In 1997 at Altus and Perkins, for each increase of 1 kg $plot^{-1}$ of weed biomass, cotton lint yield was reduced 7.2 and 9.3%, respectively (Figure 4).

Fiber Quality Measurements

In 1996 at Perkins, micronaire (fiber fineness) was the only fiber property that differed significantly among densities when compared to the weed-free check (Table 2).

The weed-free check differed from densities of 6 and 8 weeds 10 m^{-1} of row, but not from the others. In 1996 at Chickasha, micronaire was again the only fiber property exhibiting differences among weed densities (Table 2). The weed-free check was different from densities of 4, 6, 8, and 10 but not from the others. In 1997 at Altus, no differences among weed densities were detected compared to the weed-free check for any fiber property (Appendix Table 26). In 1997 at Perkins, no fiber property was affected at the 0.05 probability level (Appendix Table 26). Micronaire differences did exist between the 0.05 and the 0.10 probability levels, thus micronaire was considered marginally affected by the Palmer amaranth densities (Table 2). At Perkins and Chickasha in 1996 and Perkins in 1997, micronaire values were lower in the weed-free check than in plots with weed densities present (Table 2). This gave the impression that Palmer amaranth interference may have had a positive effect on micronaire. Data for all fiber properties at each experiment site are found in Appendix Tables 25 and 26.

Conclusions

Palmer amaranth demonstrated the potential to cause severe cotton lint yield reduction if left uncontrolled. Lint yield reductions due to densities of 0 to 8 weeds 10 m^{-1} of row in 1996 ranged from 10.7 to over 85% of the weed-free check at Perkins and from 11.5 to 92% at Chickasha. In 1997, lint yield reduction for weed densities of 0 to 8 row^{-1} ranged from 8.7 to over 69% at Altus and from 5.9 to over 70% for weed densities of 0 to12 plants row^{-1} at Perkins. As few as 1 to 2 Palmer amaranth plants 10 m^{-1} of row could cause sufficient lint yield losses to warrant a herbicide treatment. Palmer amaranth was so competitive that at densities > 8 plants 10 m^{-1} it exhibited intraspecific competition in three

of the four experiments.

The relationship of cotton lint yield to Palmer amaranth density is the most logical indicator of yield loss for producers. Weed volume and biomass also provided interesting indicators of yield loss. All four experiments showed a steady decline in lint yield as both weed volume and biomass increased.

Palmer amaranth densities appeared to have a positive effect on cotton micronaire at Perkins and Chickasha in 1996 and marginally at Perkins in 1997. The positive effects on micronaire however were greatly outweighed by the negative effects of the weed on lint yield.

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TABLE 1. Analyses of variance for cotton lint yield.

Source	df	Mean Squares			
		Perkins(1996)	Chickasha(1996)	Altus(1997)	Perkins(1997)
Rep	3	22494[a]	15569[a]	32817	52310[a]
Density	7	148458[a]	144702[a]	585948[a]	425552[a]
error	21	2248	3237	13489	16288
SED[b]		34	40	82	90
CV, %		15	22	16	17

[a]Significant at the 0.05 probability level.
[b]Standard error of the difference between two equally replicated means.

TABLE 2. Mean fiber micronaire relative to Palmer amaranth density.

Density[a]	Perkins(1996)	Chickasha(1996)	Altus(1997)	Perkins(1997)
0	3.6 c[b]	3.3 d	4.3 a	3.8[c]
1	3.9 abc	3.6 bcd	4.3 a	4.7
2	3.7 bc	3.4 cd	4.2 a	4.7
4	3.9 abc	3.7 bc	4.5 a	4.3
6	4.0 ab	3.7 bc	4.3 a	4.5
8	4.1 a	3.9 ab	4.7 a	4.9
10	3.8 abc	4.0 a	4.4 a	4.4
12	3.9 abc	3.6 bcd	4.4 a	4.8

[a]Weed density per plot.
[b]Means followed by the same letter are not significantly different at the 0.05 probability level (using the protected LSD).
[c]Significance for means at Perkins in 1997 fell between the 0.05 and the 0.10 probability level (using the protected LSD).

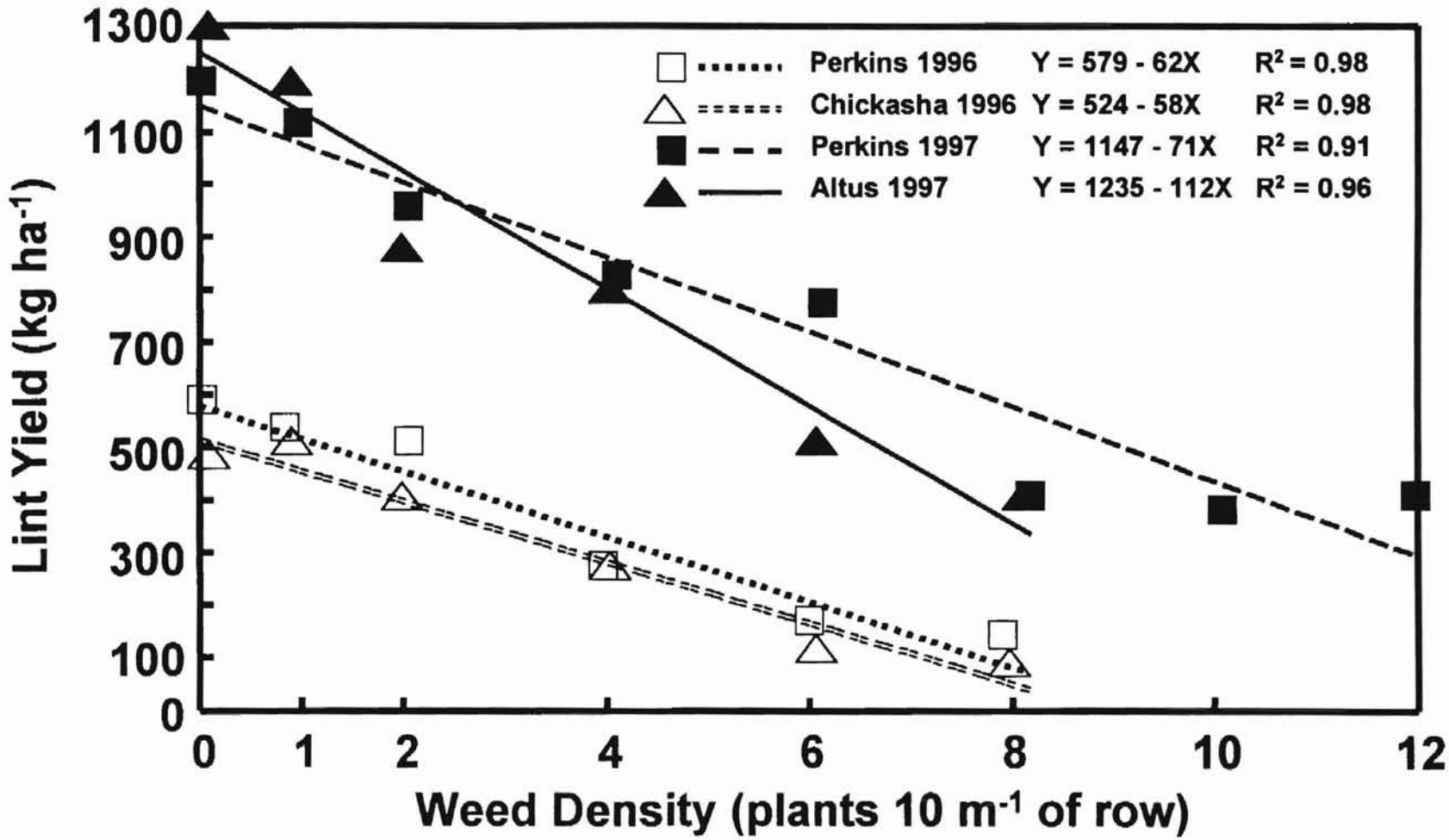

FIGURE 1. Mean cotton lint yield response to Palmer amaranth densities in four experiments.

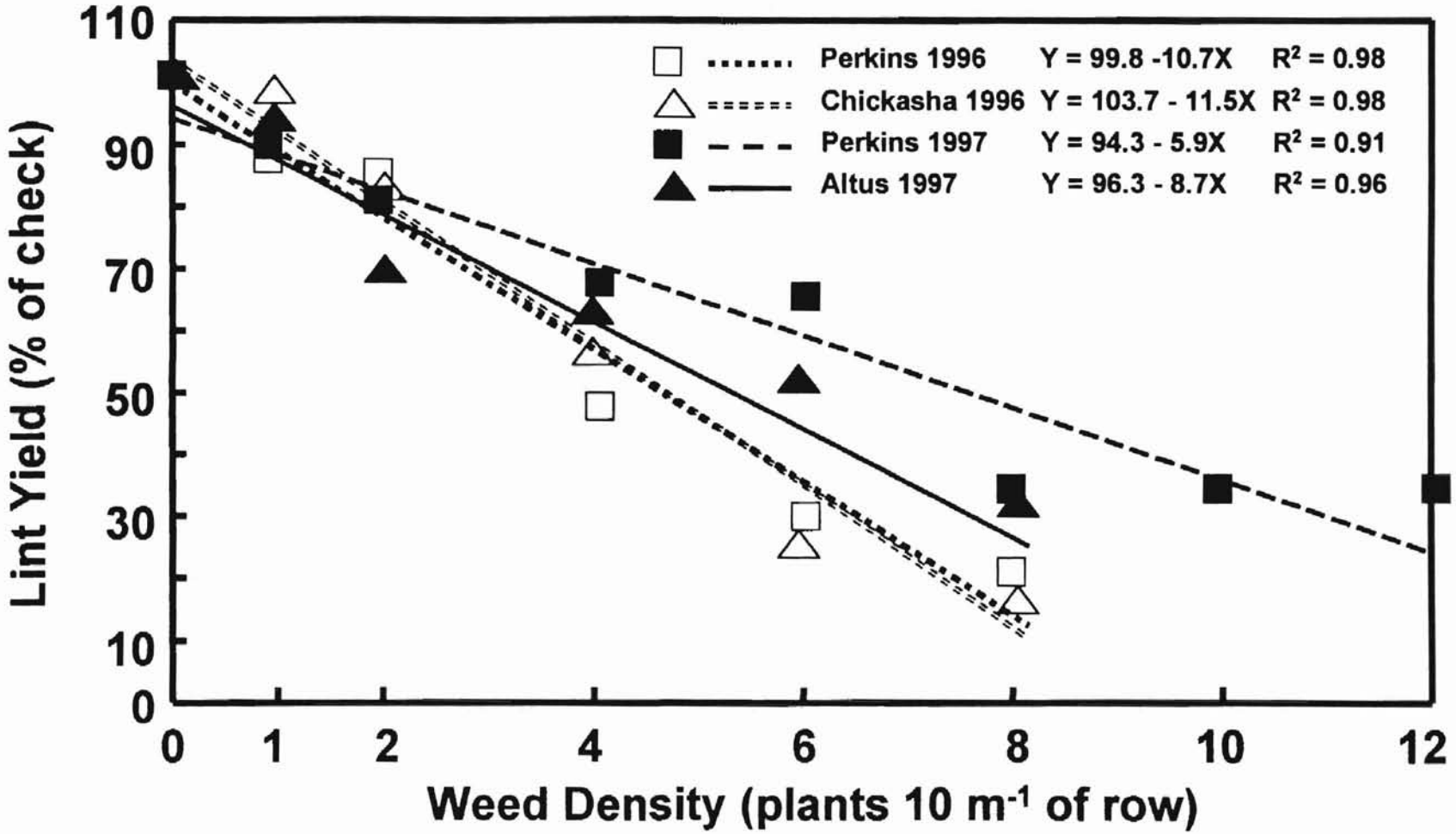

FIGURE 2. Mean cotton lint yield response (as a percentage of the check) to Palmer amaranth densities in four experiments.

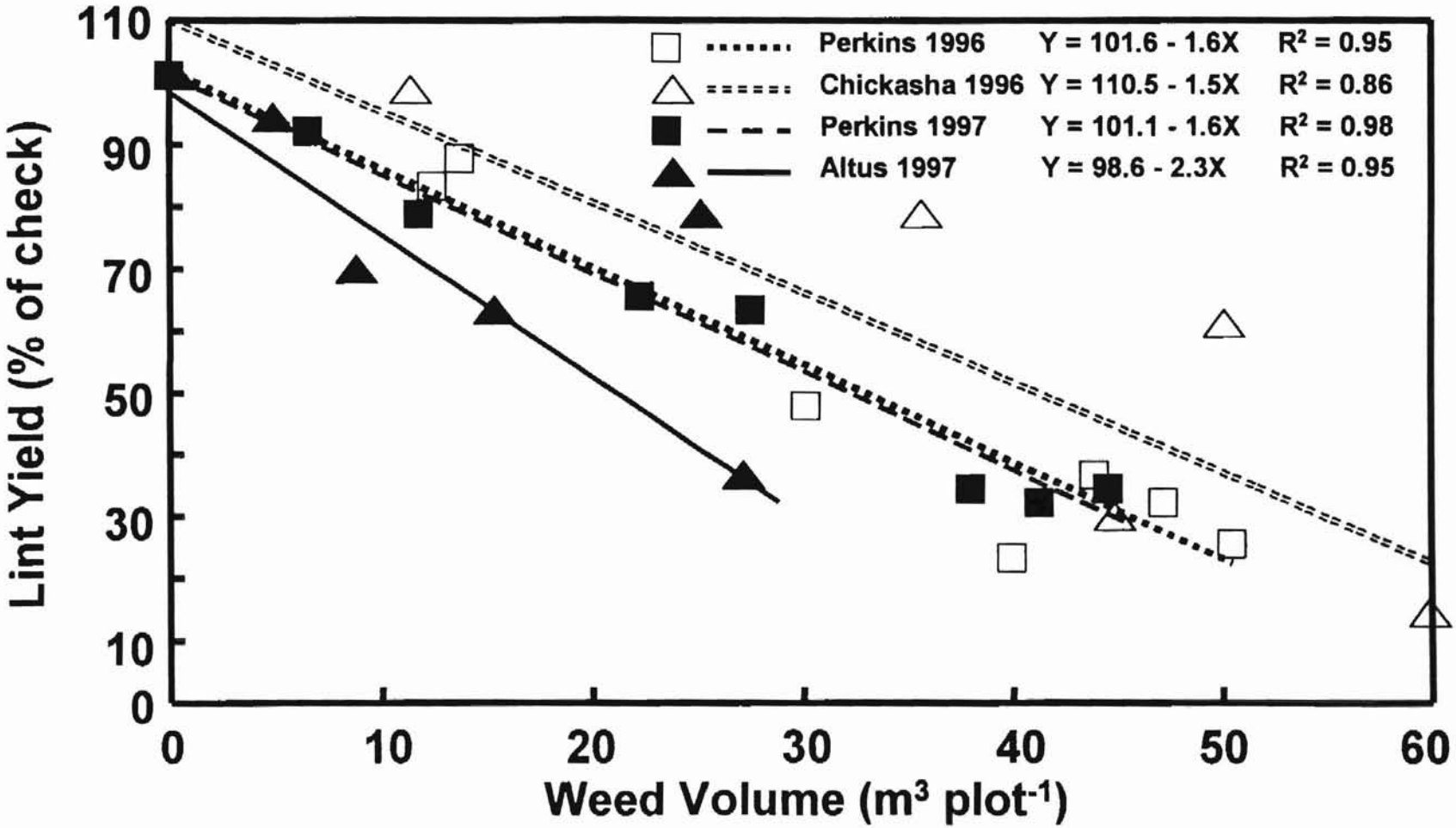

FIGURE 3. Mean cotton lint yield response as a (percentage of the check) to Palmer amaranth end -of-season volume in four experiments.

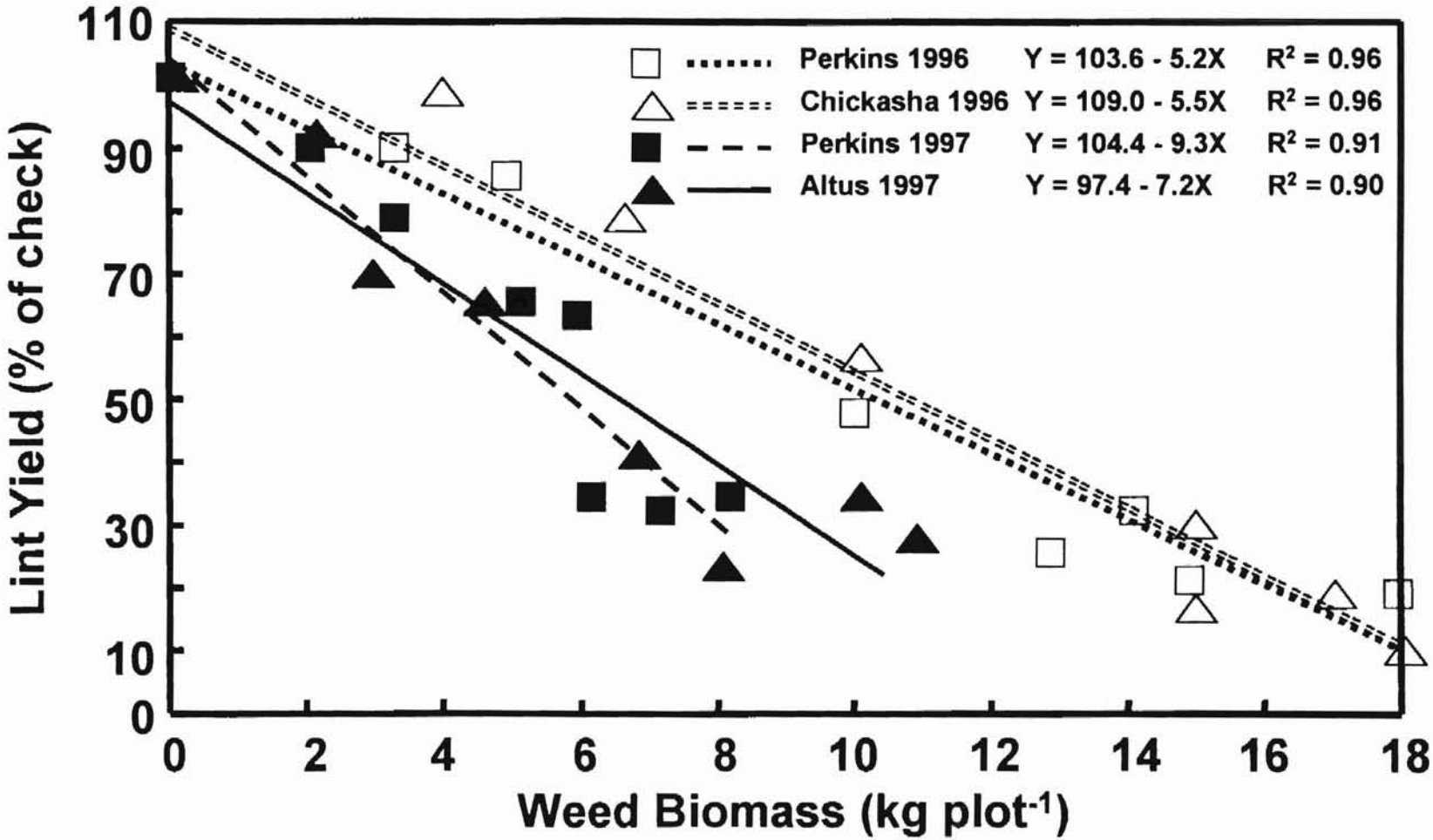

FIGURE 4. Mean cotton lint yield response (as a percentage of the check) to Palmer amaranth end -of-season biomass in four experiments.

Appendix

APPENDIX TABLE 1. Cotton volume from 7 through 16 WAE at Perkins in 1996.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			7	9	12	16
			cm^3			
1	101	0	9194	20212	122678	231457
2	201	0	12100	90070	291753	379302
3	307	0	7008	70336	181722	172359
4	401	0	6510	83768	243064	280097
1	107	1	3607	25323	32612	22289
2	202	1	2931	27409	10186	26823
3	301	1	2164	22226	18197	8799
4	405	1	5396	38713	86540	32460
1	106	2	5483	73243	181671	75252
2	203	2	4306	32321	136723	31341
3	304	2	1939	21509	14689	15915
4	402	2	2260	8067	13812	9506
1	105	4	906	3136	3964	4720
2	204	4	3035	12779	75560	13918
3	306	4	3772	14831	21286	16660
4	406	4	1851	26027	35731	11392
1	102	6	4923	15945	15815	14761
2	205	6	4905	23175	22562	22645
3	303	6	2417	15742	12214	17484
4	404	6	3748	22768	25425	14054
1	108	8	3470	10371	20552	12839
2	206	8	1570	5812	7805	8468
3	308	8	2080	11614	14508	8942
4	403	8	3051	17475	15506	7592
1	104	10	4150	25787	23969	12381
2	207	10	9151	37143	40617	38109
3	305	10	2373	18618	15801	14195
4	408	10	3843	12351	14477	17842
1	103	12	12401	30690	44303	45029
2	208	12	3200	12707	20488	19514
3	302	12	3117	8702	7713	10681
4	407	12	1614	7143	5836	9537

[a]Weed density per plot.

APPENDIX TABLE 2. Cotton volume from 6 through 15 WAE at Chickasha in 1996.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			6	8	12	15
			cm^3			
1	102	0	5336	59209	125381	390026
2	201	0	9445	73269	74918	65467
3	307	0	15616	71018	186235	589388
4	407	0	33378	143443	45739	293043
1	105	1	1877	20956	28343	52861
2	202	1	9277	67475	70069	80389
3	302	1	14701	38088	20358	122397
4	404	1	9853	17069	13874	57024
1	107	2	1152	19407	12169	30233
2	203	2	10753	51312	31606	54092
3	305	2	13628	78971	42753	54530
4	408	2	14216	56958	44960	71855
1	106	4	3154	23469	36115	95738
2	204	4	9193	60947	46395	19505
3	304	4	13324	58137	22091	52772
4	405	4	4310	78881	20673	58269
1	103	6	1193	16577	4017	8095
2	205	6	2513	31120	23067	4869
3	308	6	14139	65308	56912	39618
4	401	6	5220	45721	11001	244912
1	101	8	5787	15140	28125	4180
2	206	8	1617	22632	15543	13173
3	303	8	7403	37253	23437	46873
4	406	8	27120	71197	23185	141176
1	104	10	3393	14861	9548	17207
2	207	10	1058	3569	2238	2813
3	301	10	5918	21134	13461	52143
4	403	10	6499	44086	14984	17775
1	108	12	3372	10142	17692	21297
2	208	12	1872	22962	6430	26365
3	306	12	75985	18794	8909	45048
4	402	12	11247	55509	28132	69185

[a]Weed density per plot.

APPENDIX TABLE 3. Cotton volume from 3 through 11 WAE at Altus in 1997.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			3	6	8	11
			cm^3			
1	101	0	774	14964	94749	263129
2	201	0	996	24778	94049	28699
3	307	0	867	20849	139972	319787
4	404	0	350	9696	172896	314870
1	106	1	1246	18337	94303	167369
2	202	1	1181	15738	51889	87475
3	305	1	462	7448	53612	11213
4	408	1	393	10829	20004	31214
1	107	2	427	17990	53812	67134
2	203	2	689	14946	83596	201682
3	302	2	310	19744	87024	100040
4	401	2	694	8008	16815	34879
1	104	4	632	6190	31587	59621
2	204	4	1227	8880	40915	60054
3	301	4	1303	14799	50539	86977
4	402	4	646	4472	52770	105101
1	108	6	835	22828	62190	138457
2	205	6	798	17572	18568	36537
3	303	6	319	19139	11961	14763
4	406	6	1285	30362	73487	98924
1	103	8	821	15128	71211	140810
2	206	8	361	23560	52601	87372
3	308	8	304	8992	15108	45310
4	405	8	1314	11745	40088	56881
1	102	10	1177	11935	35562	60805
2	207	10	624	8670	26704	74577
3	304	10	453	13143	39889	54403
4	407	10	891	5671	28349	35681
1	105	12	487	10211	24647	81151
2	208	12	614	6663	31591	58008
3	306	12	443	6201	15712	29746
4	403	12	800	18447	25277	41186

[a]Weed density per plot.

APPENDIX TABLE 4. Cotton volume from 3 through 12 WAE at Perkins in 1997

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			3	5	8	12
			cm^3			
1	107	0	323	637	5235	21458
2	201	0	1020	6623	33843	235604
3	305	0	865	3494	26276	138358
4	405	0	544	6498	18787	163573
1	103	1	481	7473	10311	26300
2	202	1	821	3846	14883	39080
3	303	1	384	3692	18164	74488
4	404	1	326	3304	7146	36091
1	106	2	558	2653	7508	43262
2	203	2	502	6154	14049	16764
3	301	2	653	1833	13610	12939
4	407	2	488	3934	7846	32381
1	102	4	1111	11424	25189	51876
2	204	4	480	6177	13502	56124
3	302	4	505	2910	15141	53579
4	408	4	386	4866	22507	80140
1	105	6	232	1351	5837	14502
2	205	6	365	3537	14225	49227
3	308	6	838	4605	12093	46528
4	403	6	544	3974	13250	34638
1	104	8	656	5368	14968	29571
2	206	8	856	7503	23870	42636
3	307	8	1020	5635	22131	54912
4	401	8	1379	3976	12205	28419
1	101	10	1165	5002	21609	71297
2	207	10	675	6474	13918	39332
3	306	10	653	1413	2260	12463
4	406	10	611	6281	4940	16505
1	108	12	674	4672	19061	103969
2	208	12	369	4257	13264	44470
3	304	12	480	1710	3366	3391
4	402	12	865	4177	5429	11815

[a]Weed density per plot.

APPENDIX TABLE 5. Palmer amaranth volume from 7 through 16 WAE at Perkins in 1996.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			7	9	12	16
			m^3			
1	101	0	-	-	-	-
2	201	0	-	-	-	-
3	307	0	-	-	-	-
4	401	0	-	-	-	-
1	107	1	1.83	6.23	7.60	13.50
2	202	1	1.35	4.82	5.90	11.67
3	301	1	1.53	5.46	8.60	13.57
4	405	1	1.56	5.50	10.30	12.98
1	106	2	0.003	0.17	0.38	0.99
2	203	2	1.47	5.66	11.40	16.16
3	304	2	1.00	5.46	11.90	14.80
4	402	2	1.43	6.56	11.00	15.52
1	105	4	6.17	18.25	17.50	38.33
2	204	4	6.63	15.87	19.60	24.94
3	306	4	4.00	17.24	25.00	26.69
4	406	4	3.54	11.33	19.50	30.38
1	102	6	5.63	13.03	26.70	40.67
2	205	6	9.18	16.44	40.00	29.36
3	303	6	8.42	14.04	46.00	29.09
4	404	6	5.20	20.67	54.00	89.04
1	108	8	12.30	30.53	36.70	51.82
2	206	8	10.72	49.38	42.70	45.13
3	308	8	8.84	27.18	38.20	52.61
4	403	8	9.80	27.61	53.30	67.23
1	104	10	10.85	53.28	31.89	57.65
2	207	10	12.00	24.71	40.25	42.69
3	305	10	17.14	39.86	69.12	80.07
4	408	10	7.10	21.93	41.30	33.81
1	103	12	1.55	7.46	36.00	36.56
2	208	12	6.23	21.76	23.80	45.05
3	302	12	13.17	39.83	46.50	40.48
4	407	12	12.70	54.49	38.90	36.75

[a]Weed density per plot.

APPENDIX TABLE 6. Palmer amaranth volume from 6 through 15 WAE at Chickasha in 1996.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			6	8	12	15
			m^3			
1	102	0	-	-	-	-
2	201	0	-	-	-	-
3	307	0	-	-	-	-
4	407	0	-	-	-	-
1	105	1	1.73	6.55	5.50	14.22
2	202	1	0.95	3.43	5.60	7.50
3	302	1	0.80	4.01	6.50	12.70
4	404	1	1.14	2.72	7.90	11.40
1	107	2	4.37	11.13	29.50	79.50
2	203	2	5.19	13.14	15.30	41.00
3	305	2	1.35	3.90	5.70	21.00
4	408	2	0.59	3.63	8.00	23.00
1	106	4	7.03	16.83	24.80	60.60
2	204	4	2.50	11.09	13.50	39.00
3	304	4	7.53	19.37	26.40	84.00
4	405	4	3.93	9.17	11.40	17.80
1	103	6	8.92	11.25	24.50	41.89
2	205	6	15.33	23.96	49.00	37.50
3	308	6	2.40	20.47	37.30	62.00
4	401	6	1.88	20.72	22.00	40.00
1	101	8	7.86	28.40	30.00	43.58
2	206	8	15.80	41.25	56.50	79.33
3	303	8	10.03	18.16	44.50	57.90
4	406	8	6.72	25.64	52.60	69.00
1	104	10	14.32	30.53	49.00	40.39
2	207	10	24.50	65.02	61.30	98.30
3	301	10	15.78	27.03	30.50	35.22
4	403	10	7.18	20.90	46.00	72.00
1	108	12	8.84	27.58	43.00	65.20
2	208	12	25.87	31.72	69.00	82.00
3	306	12	19.45	42.23	35.00	52.00
4	402	12	16.80	44.37	30.11	72.00

[a]Weed density per plot.

APPENDIX TABLE 7. Palmer amaranth volume from 3 through 11WAE at Altus in 1997.

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			3	6	8	11
			m^3			
1	101	0	-	-	-	-
2	201	0	-	-	-	-
3	307	0	-	-	-	-
4	404	0	-	-	-	-
1	106	1	0.0005	0.10	0.68	1.17
2	202	1	0.0011	0.18	0.70	3.63
3	305	1	0.003	0.70	2.50	3.43
4	408	1	0.003	1.01	3.30	9.90
1	107	2	0.023	3.94	8.80	14.81
2	203	2	0.0015	0.10	0.93	2.41
3	302	2	0.0052	1.36	5.17	10.08
4	401	2	0.032	3.51	7.80	7.52
1	104	4	0.03	2.51	9.16	13.35
2	204	4	0.0036	0.73	3.60	21.28
3	301	4	0.025	3.88	9.40	20.69
4	402	4	0.0174	3.20	6.40	9.47
1	108	6	0.02	4.39	10.10	20.48
2	205	6	0.077	6.62	18.20	25.59
3	303	6	0.032	5.16	17.90	21.95
4	406	6	0.03	6.47	19.00	35.17
1	103	8	0.02	2.65	10.40	27.60
2	206	8	0.03	5.90	15.50	42.66
3	308	8	0.011	2.21	6.50	51.33
4	405	8	0.017	2.22	7.90	48.80
1	102	10	0.055	9.75	23.00	34.44
2	207	10	0.03	6.95	27.00	39.69
3	304	10	0.065	10.87	29.00	40.13
4	407	10	0.03	9.28	27.00	45.00
1	105	12	0.05	5.37	15.30	31.50
2	208	12	0.06	8.23	25.00	34.25
3	306	12	0.051	10.61	34.00	39.19
4	403	12	0.06	13.28	36.50	47.79

[a]Weed density per plot.

APPENDIX TABLE 8. Palmer amaranth volume from 3 through 12 WAE at Perkins in 1997

Rep	Plot	Density[a]	Weeks after emergence (WAE)			
			3	5	8	12
			m^3			
1	107	0	-	-	-	-
2	201	0	-	-	-	-
3	305	0	-	-	-	-
4	405	0	-	-	-	-
1	103	1	0.00042	0.27	0.90	9.53
2	202	1	0.006	0.32	3.73	9.31
3	303	1	0.002	0.14	1.73	4.64
4	404	1	0.003	0.26	1.83	4.57
1	106	2	0.005	0.55	3.80	19.15
2	203	2	0.04	1.16	4.94	5.72
3	301	2	0.003	0.38	3.93	8.73
4	407	2	0.004	0.21	4.60	11.75
1	102	4	0.03	2.50	15.60	40.43
2	204	4	0.0005	0.26	6.80	19.83
3	302	4	0.02	1.70	9.67	21.97
4	408	4	0.004	0.33	3.60	10.73
1	105	6	0.01	2.25	11.95	33.37
2	205	6	0.006	0.35	6.60	14.85
3	308	6	0.01	1.56	12.16	39.34
4	403	6	0.003	0.65	9.40	22.26
1	104	8	0.05	3.90	28.10	36.01
2	206	8	0.03	2.53	20.77	43.38
3	307	8	0.02	1.37	15.06	43.98
4	401	8	0.003	1.61	18.42	39.28
1	101	10	0.03	3.40	17.50	31.87
2	207	10	0.03	2.30	19.90	47.23
3	306	10	0.003	2.03	27.50	46.70
4	406	10	0.023	3.24	27.55	50.49
1	108	12	0.07	5.17	24.90	31.57
2	208	12	0.009	0.85	16.80	34.29
3	304	12	0.03	3.46	31.58	49.42
4	402	12	0.07	7.30	20.95	41.71

[a]Weed density per plot.

APPENDIX TABLE 9. Mid-season cotton biomass data at Perkins in 1996.

Rep	Plot	Density[a]	Distance from weed (cm)		
			0-25	25-75	75-125
			g		
1	101	0	112	281	267
2	201	0	159	250	322
3	307	0	208	278	126
4	401	0	137	205	303
1	107	1	59	170	307
2	202	1	24	142	251
3	301	1	8	62	126
4	405	1	52	163	250
1	106	2	24	108	261
2	203	2	17	93	223
3	304	2	23	116	240
4	402	2	14	42	221
1	105	4	127	317	194
2	204	4	4	40	183
3	306	4	11	153	171
4	406	4	10	119	227
1	102	6	10	103	95
2	205	6	28	121	57
3	303	6	20	66	32
4	404	6	29	157	80
1	108	8	138	140	84
2	206	8	25	150	204
3	308	8	24	86	56
4	403	8	8	114	77
1	104	10	12	46	35
2	207	10	12	30	22
3	305	10	15	58	48
4	408	10	85	103	133
1	103	12	35	104	123
2	208	12	17	54	82
3	302	12	25	58	47
4	407	12	11	56	101

[a]Weed density per plot.

APPENDIX TABLE 10. Mid-season cotton biomass data at Chickasha in 1996.

Rep	Plot	Density[a]	Distance from weed (cm)		
			0-25	25-75	75-125
			g		
1	102	0	218	361	325
2	201	0	193	289	469
3	307	0	173	157	458
4	407	0	367	339	592
1	105	1	11	83	120
2	202	1	6	54	202
3	302	1	85	211	339
4	404	1	326	260	406
1	107	2	4	14	145
2	203	2	17	39	175
3	305	2	12	58	404
4	408	2	212	427	401
1	106	4	2	106	101
2	204	4	8	69	230
3	304	4	22	128	542
4	405	4	125	325	474
1	103	6	3	21	31
2	205	6	13	54	23
3	308	6	78	147	277
4	401	6	9	85	81
1	101	8	16	76	41
2	206	8	4	43	22
3	303	8	149	76	99
4	406	8	22	294	239
1	104	10	4	15	15
2	207	10	3	2	14
3	301	10	17	72	131
4	403	10	35	55	61
1	108	12	5	24	6
2	208	12	7	25	45
3	306	12	45	103	86
4	402	12	30	132	125

[a]Weed density per plot.

APPENDIX TABLE 11. Mid-season cotton biomass data at Altus in 1997.

Rep	Plot	Density[a]	Distance from weed (cm)		
			0-25	25-75	75-125
			g		
1	101	0	74	112	123
2	201	0	115	129	164
3	307	0	82	157	166
4	404	0	92	114	140
1	106	1	-	-	-
2	202	1	7	120	138
3	305	1	25	119	166
4	408	1	12	77	118
1	107	2	63	134	61
2	203	2	14	49	119
3	302	2	86	169	186
4	401	2	14	91	115
1	104	4	41	85	149
2	204	4	26	72	175
3	301	4	39	120	163
4	402	4	5	75	140
1	108	6	34	80	115
2	205	6	21	52	24
3	303	6	36	81	45
4	406	6	18	56	74
1	103	8	40	95	107
2	206	8	57	104	70
3	308	8	37	100	71
4	405	8	37	102	91
1	102	10	48	53	60
2	207	10	14	49	65
3	304	10	13	55	57
4	407	10	23	77	59
1	105	12	20	39	30
2	208	12	80	111	104
3	306	12	25	44	48
4	403	12	12	11	20

[a]Weed density per plot.

APPENDIX TABLE 12. Mid-season cotton biomass data at Perkins in 1997.

Rep	Plot	Density[a]	Distance from weed (cm)		
			0-25	25-75	75-125
			g		
1	107	0	58	85	61
2	201	0	89	118	95
3	305	0	23	148	114
4	405	0	62	88	127
1	103	1	69	152	79
2	202	1	16	90	167
3	303	1	22	101	142
4	404	1	22	50	64
1	106	2	7	37	85
2	203	2	41	87	128
3	301	2	17	76	63
4	407	2	109	56	42
1	102	4	28	64	16
2	204	4	30	96	111
3	302	4	55	104	81
4	408	4	41	88	37
1	105	6	17	51	58
2	205	6	5	42	82
3	308	6	21	87	49
4	403	6	3	22	67
1	104	8	16	79	44
2	206	8	18	51	39
3	307	8	18	66	38
4	401	8	3	9	9
1	101	10	50	47	49
2	207	10	14	6	36
3	306	10	10	34	38
4	406	10	7	24	10
1	108	12	30	64	82
2	208	12	73	98	76
3	304	12	13	74	24
4	402	12	20	73	59

[a]Weed density per plot.

APPENDIX TABLE 13. Mid-season Palmer amaranth biomass at Perkins in 1996.

Rep	Plot	Density[a]	Biomass
			kg
1	101	0	-
2	201	0	-
3	307	0	-
4	401	0	-
1	107	1	0.74
2	202	1	2.74
3	301	1	-
4	405	1	1.74
1	106	2	1.40
2	203	2	1.08
3	304	2	1.08
4	402	2	1.66
1	105	4	0.22
2	204	4	-
3	306	4	2.00
4	406	4	0.78
1	102	6	3.58
2	205	6	1.56
3	303	6	2.42
4	404	6	1.54
1	108	8	1.48
2	206	8	1.52
3	308	8	3.40
4	403	8	-
1	104	10	1.44
2	207	10	3.70
3	305	10	3.01
4	408	10	2.10
1	103	12	1.76
2	208	12	1.82
3	302	12	2.70
4	407	12	3.52

[a]Weed density per plot.

APPENDIX TABLE 14. Mid-season Palmer amaranth biomass data at Chickasha in 1996.

Rep	Plot	Density[a]	Biomass
			kg
1	102	0	-
2	201	0	-
3	307	0	-
4	407	0	-
1	105	1	2.26
2	202	1	3.58
3	302	1	1.86
4	404	1	0.10
1	107	2	3.42
2	203	2	3.06
3	305	2	2.38
4	408	2	0.76
1	106	4	2.38
2	204	4	2.02
3	304	4	2.08
4	405	4	0.40
1	103	6	2.78
2	205	6	4.76
3	308	6	3.42
4	401	6	5.28
1	101	8	3.94
2	206	8	5.76
3	303	8	2.52
4	406	8	2.40
1	104	10	3.92
2	207	10	4.26
3	301	10	2.80
4	403	10	3.52
1	108	12	6.80
2	208	12	3.40
3	306	12	4.04
4	402	12	3.14

[a]Weed density per plot.

APPENDIX TABLE 15. Mid-season Palmer amaranth biomass data at Altus in 1997.

Rep	Plot	Density[a]	Biomass
			kg
1	101	0	-
2	201	0	-
3	307	0	-
4	404	0	-
1	106	1	-
2	202	1	0.38
3	305	1	0.50
4	408	1	0.70
1	107	2	0.20
2	203	2	0.80
3	302	2	0.18
4	401	2	0.86
1	104	4	0.30
2	204	4	0.50
3	301	4	0.50
4	402	4	0.65
1	108	6	0.62
2	205	6	2.19
3	303	6	1.80
4	406	6	1.62
1	103	8	0.65
2	206	8	0.64
3	308	8	0.92
4	405	8	1.10
1	102	10	1.00
2	207	10	0.86
3	304	10	1.69
4	407	10	1.24
1	105	12	1.50
2	208	12	1.30
3	306	12	1.92
4	403	12	2.65

[a]Weed density per plot.

APPENDIX TABLE 16. Mid-season Palmer amaranth biomass data at Perkins in 1997.

Rep	Plot	Density[a]	Biomass
			kg
1	107	0	-
2	201	0	-
3	305	0	-
4	405	0	-
1	103	1	0.10
2	202	1	0.40
3	303	1	0.40
4	404	1	0.70
1	106	2	0.70
2	203	2	0.50
3	301	2	0.30
4	407	2	0.20
1	102	4	1.00
2	204	4	0.80
3	302	4	0.15
4	408	4	0.20
1	105	6	0.90
2	205	6	0.84
3	308	6	0.80
4	403	6	1.20
1	104	8	1.00
2	206	8	0.56
3	307	8	1.30
4	401	8	1.30
1	101	10	1.10
2	207	10	1.30
3	306	10	1.65
4	406	10	1.44
1	108	12	0.70
2	208	12	0.80
3	304	12	1.42
4	402	12	2.00

[a]Weed density per plot.

APPENDIX TABLE 17. Mid-season cotton mapping data at Perkins in 1996 (East).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	0	25	78	32	7	13-2, 15-2, 18-1, 17-1, 22-1, 23-1
1	101	0	75	52	22	8	18-1
1	101	0	125	53	22	12	-
1	102	6	25	40	15	-	-
1	102	6	75	60	25	11	12-1, 16-1
1	102	6	125	20	11	-	-
1	103	12	25	54	18	-	-
1	103	12	75	48	18	11	-
1	103	12	125	28	17	7	-
1	104	10	25	18	13	-	-
1	104	10	75	24	15	-	-
1	104	10	125	42	19	5	7-1, 10-1, 12-1, 14-1, 16-1
1	105	4	25	82	20	6	11-1, 12-2, 13-1, 14-1, 15-1, 16-1, 17-1
1	105	4	75	68	18	6	12-1
1	105	4	125	65	19	10	-
1	106	2	25	58	24	9	10-1, 12-1, 15-1, 18-1
1	106	2	75	71	27	6	22-1
1	106	2	125	40	18	-	-
1	107	1	25	57	20	8	-
1	107	1	75	50	16	10	-
1	107	1	125	63	29	5	19-1, 21-1, 25-1, 27-1
1	108	8	25	45	18	7	-
1	108	8	75	50	24	9	10-1, 12-1, 14-1, 16-1, 18-1
1	108	8	125	56	22	10	15-1, 19-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 17 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	71	25	9	22-1
2	201	0	75	73	27	8	9-1, 15-1, 17-1, 21-1
2	201	0	125	73	29	8	12-1, 18-1, 24-1
2	202	1	25	37	14	8	-
2	202	1	75	74	28	8	16-1, 18-1, 20-1
2	202	1	125	77	29	4	10-1, 13-1, 15-1, 18-2, 19-1, 21-1, 23-1
2	203	2	25	34	16	9	-
2	203	2	75	42	14	10	-
2	203	2	125	77	23	3	10-1, 11-1, 16-1
2	204	4	25	17	12	-	-
2	204	4	75	54	22	2	-
2	204	4	125	72	27	6	17-1, 19-1, 21-1, 22-1, 25-1
2	205	6	25	49	18	5	16-1
2	205	6	75	55	27	8	14-1, 16-1
2	205	6	125	34	18	9	-
2	206	8	25	47	19	8	8-2, 16-1
2	206	8	75	69	23	7	14-1, 16-1, 20-1, 22-1
2	206	8	125	87	28	6	11-1
2	207	10	25	41	26	10	-
2	207	10	75	18	12	-	-
2	207	10	125	38	18	6	-
2	208	12	25	37	14	-	-
2	208	12	75	51	21	8	16-1, 18-1
2	208	12	125	43	20	10	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 17 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	1	25	32	12	-	-
3	301	1	75	35	18	10	-
3	301	1	125	62	25	9	17-1, 19-1, 22-1
3	302	12	25	36	15	-	-
3	302	12	75	28	13	-	-
3	302	12	125	27	13	-	-
3	303	6	25	37	14	9	-
3	303	6	75	41	22	10	-
3	303	6	125	13	12	-	-
3	304	2	25	37	17	11	-
3	304	2	75	37	16	-	-
3	304	2	125	54	19	9	10-1, 12-1, 15-1
3	305	10	25	25	17	13	13-1
3	305	10	75	43	22	8	-
3	305	10	125	23	14	8	-
3	306	4	25	21	9	4	-
3	306	4	75	-	-	-	-
3	306	4	125	52	25	9	16-1, 18-1
3	307	0	25	84	35	8	16-1, 24-1, 28-1, 31-1
3	307	0	75	87	35	7	9-2, 14-3, 15-2, 21-1, 23-1, 25-1, 27-1
3	307	0	125	56	27	11	23-1
3	308	8	25	40	17	8	-
3	308	8	75	29	22	10	-
3	308	8	125	18	12	9	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 17 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	0	25	76	30	9	13-1, 27-1
4	401	0	75	67	26	8	16-1, 20-1, 22-1
4	401	0	125	76	31	7	10-4, 11-2, 13-2, 15-2, 17-2, 19-3, 21-2, 23-2, 25-1
4	402	2	25	35	18	12	12-1
4	402	2	75	56	23	9	-
4	402	2	125	56	23	7	17-1, 18-1, 19-1
4	403	8	25	16	11	-	-
4	403	8	75	61	22	6	17-1, 18-1
4	403	8	125	56	26	7	15-1, 21-1, 23-1
4	404	6	25	40	20	9	16-1
4	404	6	75	55	25	8	21-1, 23-1
4	404	6	125	20	13	-	-
4	405	1	25	47	21	9	-
4	405	1	75	74	23	6	14-1, 16-1
4	405	1	125	78	26	5	12-1, 16-1, 18-1, 20-1, 22-1
4	406	4	25	24	16	6	-
4	406	4	75	76	23	7	11-1
4	406	4	125	75	23	2	2-2, 14-1, 19-1
4	407	12	25	37	18	12	15-1
4	407	12	75	50	22	11	15-1, 17-1, 19-1
4	407	12	125	48	21	8	-
4	408	10	25	65	30	8	20-1, 22-1
4	408	10	75	19	17	-	-
4	408	10	125	61	27	7	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 18 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures
			cm	cm	no.		
4	401	0	25	74	18	6	9-1, 11-1, 13-1, 14-1, 15-1
4	401	0	75	82	16	5	12-1, 13-1, 14-1, 15-1
4	401	0	125	45	12	-	-
4	402	2	25	31	15	-	-
4	402	2	75	60	16	4	7-1, 8-1, 13-1
4	402	2	125	60	15	9	-
4	403	8	25	45	17	8	-
4	403	8	75	48	13	7	-
4	403	8	125	38	11	-	-
4	404	6	25	28	11	-	-
4	404	6	75	55	15	4	7-1, 9-1, 10-1
4	404	6	125	38	16	6	9-1, 10-1, 11-1, 12-1
4	405	1	25	31	9	1	-
4	405	1	75	74	16	3	3-1, 5-1, 6-1
4	405	1	125	68	17	6	12-1, 13-1
4	406	4	25	10	9	-	-
4	406	4	75	29	12	-	-
4	406	4	125	68	18	6	8-1, 9-1, 11-1, 12-1, 14-1
4	407	12	25	22	13	-	-
4	407	12	75	24	12	-	-
4	407	12	125	52	16	9	12-1, 14-1
4	408	10	25	73	20	5	15-1, 16-1, 17-1, 18-1
4	408	10	75	26	13	5	-
4	408	10	125	65	17	6	9-1, 10-1, 11-1, 12-1, 13-1, 14-1

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 18 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	1	25	24	13	-	-
3	301	1	75	50	15	8	14-1
3	301	1	125	30	14	-	-
3	302	12	25	26	10	-	-
3	302	12	75	24	10	9	-
3	302	12	125	19	10	-	-
3	303	6	25	29	14	-	-
3	303	6	75	29	12	-	-
3	303	6	125	29	11	-	-
3	304	2	25	25	10	3	-
3	304	2	75	64	15	7	9-1
3	304	2	125	93	20	6	8-4, 9-2, 10-1, 11-2, 12-2, 13-1, 14-1, 15-1, 17-1, 18-1
3	305	10	25	33	14	5	-
3	305	10	75	21	13	-	-
3	305	10	125	39	15	6	7-1
3	306	4	25	28	14	-	-
3	306	4	75	59	19	9	9-1, 12-2
3	306	4	125	53	17	7	9-2, 11-1
3	307	0	25	70	17	6	11-1, 12-1, 14-1, 15-1, 16-1, 17-1
3	307	0	75	47	14	-	-
3	307	0	125	76	20	5	9-1, 10-1, 11-2
3	308	8	25	53	24	8	-
3	308	8	75	46	15	7	-
3	308	8	125	35	18	7	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 18 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	70	16	6	14-1
2	201	0	75	58	12	1	-
2	201	0	125	74	18	5	9-1, 10-1, 11-1, 12-1, 14-1
2	202	1	25	40	14	5	11-1, 12-1
2	202	1	75	33	13	7	-
2	202	1	125	52	15	6	-
2	203	2	25	44	14	6	-
2	203	2	75	52	14	9	11-1, 12-1, 14-1
2	203	2	125	62	16	6	8-1, 13-1
2	204	4	25	17	12	7	-
2	204	4	75	46	14	7	8-1, 10-1, 11-1
2	204	4	125	60	17	6	10-1, 13-1
2	205	6	25	53	13	8	10-1, 13-1
2	205	6	75	39	16	8	-
2	205	6	125	34	12	7	8-1
2	206	8	25	42	16	6	-
2	206	8	75	47	14	-	-
2	206	8	125	40	14	7	-
2	207	10	25	19	13	-	-
2	207	10	75	27	15	6	-
2	207	10	125	18	9	1	-
2	208	12	25	21	10	-	-
2	208	12	75	31	11	2	2-1
2	208	12	125	31	14	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 18. Mid-season cotton mapping data at Perkins in 1996 (West).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	0	25	59	14	7	9-1, 10-1
1	101	0	75	69	26	7	13-1, 15-1
1	101	0	125	75	19	9	12-1, 13-1, 14-1, 15-1
1	102	6	25	18	12	-	-
1	102	6	75	37	18	5	12-1, 13-1, 14-1
1	102	6	125	43	14	7	7-1
1	103	12	25	46	14	7	9-1
1	103	12	75	50	17	7	11-1, 12-1
1	103	12	125	64	16	8	8-1, 9-1, 10-1, 11-1, 15-1
1	104	10	25	22	11	-	-
1	104	10	75	27	12	2	-
1	104	10	125	42	13	6	8-1, 9-1
1	105	4	25	75	15	5	7-1, 10-1, 11-1
1	105	4	75	74	28	9	-
1	105	4	125	87	33	12	18-1, 20-1, 26-1, 28-1
1	106	2	25	15	13	-	-
1	106	2	75	69	16	7	9-1, 11-1, 12-1, 13-1, 15-1
1	106	2	125	32	13	-	-
1	107	1	25	29	16	7	-
1	107	1	75	73	31	6	11-2, 15-2, 17-2, 23-1, 25-1
1	107	1	125	82	22	6	8-1, 9-1, 11-3, 12-1, 13-1, 14-2, 17-1
1	108	8	25	36	11	10	-
1	108	8	75	59	15	6	11-1
1	108	8	125	45	14	8	9-1, 10-1

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 19. Mid-season cotton mapping data at Chickasha in 1996 (North).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	8	25	53	18	11	13-1, 15-1, 17-1
1	101	8	75	63	21	11	-
1	101	8	125	48	20	9	13-1, 17-1
1	102	0	25	78	28	8	19-1, 21-1, 23-1
1	102	0	75	35	11	-	-
1	102	0	125	74	25	8	19-2, 21-2, 23-1
1	103	6	25	31	10	-	-
1	103	6	75	17	6	-	-
1	103	6	125	12	4	1	-
1	104	10	25	12	6	-	-
1	104	10	75	35	10	-	-
1	104	10	125	20	9	-	-
1	105	1	25	35	13	-	-
1	105	1	75	27	20	9	-
1	105	1	125	59	20	8	-
1	106	4	25	15	7	-	-
1	106	4	75	39	11	8	-
1	106	4	125	54	17	7	10-1
1	107	2	25	24	10	-	-
1	107	2	75	12	9	-	-
1	107	2	125	82	34	8	11-1, 18-1, 20-1, 25-1, 30-1
1	108	12	25	22	16	8	-
1	108	12	75	66	19	7	-
1	108	12	125	21	8	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 19 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	52	12	-	-
2	201	0	75	68	23	7	-
2	201	0	125	57	14	-	-
2	202	1	25	27	10	-	-
2	202	1	75	51	18	9	13-1, 16-1
2	202	1	125	46	12	-	-
2	203	2	25	20	8	-	-
2	203	2	75	16	7	-	-
2	203	2	125	62	20	8	8-1, 16-1
2	204	4	25	8	8	-	-
2	204	4	75	62	19	10	14-1
2	204	4	125	64	18	8	-
2	205	6	25	21	9	-	-
2	205	6	75	75	24	11	15-1, 17-1, 19-1, 23-1
2	205	6	125	13	7	-	-
2	206	8	25	19	8	-	-
2	206	8	75	30	10	-	-
2	206	8	125	27	10	-	-
2	207	10	25	-	-	-	-
2	207	10	75	16	9	-	-
2	207	10	125	20	8	-	-
2	208	12	25	21	8	-	-
2	208	12	75	18	6	-	-
2	208	12	125	5	5	-	-

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 19 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	10	25	40	12	5	-
3	301	10	75	23	12	6	9-1, 11-1
3	301	10	125	32	12	-	-
3	302	1	25	79	30	6	6-1, 23-1, 25-1, 30-1
3	302	1	75	71	19	7	12-1
3	302	1	125	76	33	6	6-2, 9-1, 17-2, 23-1, 25-1, 27-1, 29-1
3	303	8	25	73	25	5	17-1
3	303	8	75	70	27	6	8-1, 10-1, 19-2
3	303	8	125	23	7	-	-
3	304	4	25	33	17	5	-
3	304	4	75	52	13	7	-
3	304	4	125	83	33	5	5-4, 6-2, 11-1, 27-1
3	305	2	25	41	15	7	-
3	305	2	75	83	26	7	-
3	305	2	125	25	9	-	-
3	306	12	25	23	9	-	-
3	306	12	75	20	8	-	-
3	306	12	125	43	16	12	-
3	307	0	25	85	23	9	11-1
3	307	0	75	64	19	10	-
3	307	0	125	93	25	7	23-1
3	308	6	25	79	26	5	15-1
3	308	6	75	89	22	11	15-1
3	308	6	125	98	33	5	13-1, 15-1, 17-2

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 19 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	6	25	23	9	-	-
4	401	6	75	76	27	8	24-1, 27-1
4	401	6	125	38	11	-	-
4	402	12	25	18	7	-	-
4	402	12	75	55	20	6	10-1
4	402	12	125	63	19	5	11-1, 13-1, 15-1
4	403	10	25	33	10	-	-
4	403	10	75	17	6	-	-
4	403	10	125	56	18	5	-
4	404	1	25	89	31	7	11-1, 19-1
4	404	1	75	57	16	7	-
4	404	1	125	85	28	7	21-2, 24-1, 26-1
4	405	4	25	30	9	1	-
4	405	4	75	81	24	1	1-4, 2-3, 13-1, 15-2, 17-2, 21-1
4	405	4	125	85	24	6	15-1
4	406	8	25	47	13	-	-
4	406	8	75	71	21	5	-
4	406	8	125	66	18	6	10-1, 12-1
4	407	0	25	59	20	7	11-1, 15-1, 17-1, 19-1
4	407	0	75	87	30	4	4-1, 6-2, 8-2, 11-2, 17-2, 21-1
4	407	0	125	71	28	5	5-1, 7-2, 10-2, 12-1, 14-4, 15-2, 16-2, 18-3, 20-2, 22-1, 24-1, 28-2
4	408	2	25	61	16	4	-
4	408	2	75	75	22	6	9-1, 19-1
4	408	2	125	87	29	9	11-1, 14-2, 16-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 20. Mid-season cotton mapping data at Chickasha in 1996 (South).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	8	25	29	8	-	-
1	101	8	75	18	6	-	-
1	101	8	125	18	7	-	-
1	102	0	25	76	15	7	8-1, 12-1
1	102	0	75	93	19	4	4-1, 5-2, 8-1, 9-1, 11-1, 12-2, 13-1, 14-1, 15-1
1	102	0	125	78	17	6	-
1	103	6	25	27	9	-	-
1	103	6	75	54	12	8	9-1
1	103	6	125	27	9	-	-
1	104	10	25	32	9	-	-
1	104	10	75	21	8	-	-
1	104	10	125	25	9	-	-
1	105	1	25	29	9	-	-
1	105	1	75	53	12	8	8-1, 9-1, 10-1
1	105	1	125	71	15	5	-
1	106	4	25	13	6	-	-
1	106	4	75	78	15	4	9-1
1	106	4	125	38	5	2	-
1	107	2	25	22	9	-	-
1	107	2	75	69	13	6	-
1	107	2	125	31	8	-	-
1	108	12	25	-	-	-	-
1	108	12	75	10	3	-	-
1	108	12	125	17	6	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 20 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	81	17	5	-
2	201	0	75	76	17	5	7-1, 8-1, 10-1, 11-1
2	201	0	125	39	12	-	-
2	202	1	25	26	10	-	-
2	202	1	75	33	8	-	-
2	202	1	125	93	21	5	6-3, 7-1
2	203	2	25	71	16	5	8-1
2	203	2	75	41	11	-	-
2	203	2	125	63	16	5	6-1, 9-1, 10-2
2	204	4	25	36	9	-	-
2	204	4	75	64	15	7	8-1
2	204	4	125	57	12	-	-
2	205	6	25	30	8	-	-
2	205	6	75	48	10	-	-
2	205	6	125	32	9	-	-
2	206	8	25	24	7	-	-
2	206	8	75	54	11	-	-
2	206	8	125	12	5	-	-
2	207	10	25	20	6	-	-
2	207	10	75	24	6	-	-
2	207	10	125	30	9	-	-
2	208	12	25	30	11	-	-
2	208	12	75	65	13	5	6-1, 7-1
2	208	12	125	58	13	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 20 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	10	25	67	14	7	-
3	301	10	75	70	14	2	10-1
3	301	10	125	92	20	4	9-1, 11-1, 12-1, 14-2, 15-1, 16-1
3	302	1	25	27	8	-	-
3	302	1	75	75	14	2	7-1
3	302	1	125	88	15	4	5-1, 6-2, 7-1, 8-1, 9-1, 10-1, 12-1
3	303	8	25	87	18	4	8-2, 9-1, 10-1, 12-1, 13-1, 14-1, 15-1
3	303	8	75	50	12	-	-
3	303	8	125	54	16	9	10-1
3	304	4	25	41	9	-	-
3	304	4	75	76	13	-	-
3	304	4	125	96	21	5	7-1, 8-2, 10-2, 13-1, 14-1, 15-1, 17-1
3	305	2	25	25	7	-	-
3	305	2	75	61	12	-	-
3	305	2	125	102	12	1	1-9
3	306	12	25	42	11	-	-
3	306	12	75	43	12	-	-
3	306	12	125	44	13	-	-
3	307	0	25	47	13	7	9-11
3	307	0	75	77	17	5	12-1
3	307	0	125	86	17	6	9-1, 10-1
3	308	6	25	77	16	6	11-1, 14-1
3	308	6	75	14	6	-	-
3	308	6	125	25	8	-	-

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 20 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	6	25	28	8	2	-
4	401	6	75	21	8	-	-
4	401	6	125	55	12	-	-
4	402	12	25	56	7	7	9-1, 10-1
4	402	12	75	-	-	-	-
4	402	12	125	48	13	-	-
4	403	10	25	23	8	-	-
4	403	10	75	21	6	-	-
4	403	10	125	71	16	6	-
4	404	1	25	99	19	5	8-1, 9-1, 11-1, 13-1, 14-1, 15-1, 17-1
4	404	1	75	69	16	5	7-1
4	404	1	125	75	16	5	5-1, 10-1, 11-1, 12-1, 14-1
4	405	4	25	74	15	6	-
4	405	4	75	99	19	4	4-1, 5-1, 6-2, 8-2, 12-1, 13-1, 15-1, 16-1
4	405	4	125	75	17	6	-
4	406	8	25	34	7	-	-
4	406	8	75	94	19	5	5-1, 7-1, 9-1, 10-1, 12-1, 13-1, 16-1, 17-1
4	406	8	125	81	17	5	5-1, 10-1, 13-1
4	407	0	25	92	17	7	7-2, 8-1, 9-1, 11-1, 12-1, 13-1, 14-1, 15-1
4	407	0	75	57	13	9	10-1
4	407	0	125	86	16	7	11-1, 12-1, 14-1
4	408	2	25	56	11	-	-
4	408	2	75	76	14	5	10-1, 11-1
4	408	2	125	103	20	5	5-1, 8-1, 10-1, 11-1, 13-1, 16-1, 18-1, 19-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 21. Mid-season cotton mapping data at Altus in 1997 (East).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	0	25	66	18	7	7-3, 8-1, 10-3, 11-2, 12-2, 13-1, 16-1
1	101	0	75	57	15	5	5-1, 8-1, 9-1, 10-2, 11-2, 12-1
1	101	0	125	63	13	3	9-1, 10-1, 11-1
1	102	10	25	65	14	6	6-1, 7-1, 8-1, 9-1, 10-1
1	102	10	75	35	8	-	-
1	102	10	125	54	12	7	7-1, 8-1, 9-1, 10-1, 11-1, 12-1
1	103	8	25	65	14	6	6-1, 8-1, 10-1
1	103	8	75	63	14	4	5-1, 6-1, 7-1, 8-1, 11-1
1	103	8	125	54	12	-	-
1	104	4	25	62	13	4	4-2, 6-1, 7-1
1	104	4	75	63	15	6	6-3, 7-2, 8-1, 9-1, 10-2, 11-1
1	104	4	125	56	12	7	7-1, 8-1, 9-1
1	105	12	25	67	12	6	6-1, 7-1, 8-1, 9-1, 10-1, 11-1
1	105	12	75	62	13	8	8-1, 9-1, 10-1
1	105	12	125	51	10	-	-
1	106	1	25	-	-	-	-
1	106	1	75	-	-	-	-
1	106	1	125	-	-	-	-
1	107	2	25	69	13	8	8-2, 9-1, 10-1, 11-1, 12-1
1	107	2	75	69	17	6	6-1, 7-2, 8-3, 9-2, 10-2, 11-1, 12-1, 13-1, 14-1, 15-1
1	107	2	125	44	12	6	6-1, 7-1, 8-1
1	108	6	25	50	12	8	8-1
1	108	6	75	66	16	7	7-1, 8-1, 9-1, 10-2, 11-1, 13-1
1	108	6	125	53	11	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 21 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	59	15	7	7-1, 8-1, 9-1, 10-1, 11-1, 12-1
2	201	0	75	39	11	8	8-1, 9-1, 10-1
2	201	0	125	68	15	6	6-2, 7-1, 8-1, 9-1, 10-1, 11-1, 13-1
2	202	1	25	37	8	-	-
2	202	1	75	36	6	-	-
2	202	1	125	75	18	5	5-1, 7-2, 8-3, 9-3, 10-3, 14-1, 15-1, 16-1
2	203	2	25	48	13	8	8-1, 9-1, 11-1
2	203	2	75	53	13	5	5-1, 6-1, 7-1, 8-1, 9-1
2	203	2	125	56	16	8	8-1, 9-1, 10-1, 11-2, 12-1, 13-1
2	204	4	25	55	11	6	6-1, 7-1, 8-1
2	204	4	75	47	13	9	9-1, 11-1
2	204	4	125	78	17	7	7-2, 8-2, 9-3, 10-3, 11-3, 12-2, 13-2, 14-1, 15-1
2	205	6	25	56	13	7	7-1, 9-1, 10-1
2	205	6	75	46	9	5	5-1, 6-1, 7-1, 8-1
2	205	6	125	31	8	-	-
2	206	8	25	60	12	6	6-1, 7-1, 8-1, 9-1
2	206	8	75	55	15	6	7-1, 9-2, 11-1, 12-1
2	206	8	125	57	13	5	5-1, 6-1, 7-2, 8-2, 9-1
2	207	10	25	44	10	6	6-1, 7-1
2	207	10	75	42	10	-	-
2	207	10	125	58	12	7	7-1, 8-1, 9-1, 10-1, 11-1, 12-1
2	208	12	25	70	13	4	6-1, 7-1, 8-1, 9-2, 10-1, 11-1
2	208	12	75	63	12	6	6-2, 7-1, 8-2, 10-1
2	208	12	125	63	12	6	6-1, 7-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 21 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	4	25	64	12	5	5-1, 6-1, 7-1, 8-1, 9-1, 10-1
3	301	4	75	50	12	7	7-1, 8-1, 9-1, 10-1
3	301	4	125	58	11	3	3-2, 5-1, 7-1, 8-2, 9-2
3	302	2	25	72	14	6	6-1, 9-1, 10-1, 11-1, 12-1
3	302	2	75	60	12	7	7-1, 8-1, 9-1
3	302	2	125	66	14	3	3-1, 4-4, 7-3, 9-1, 10-2, 11-1, 12-1
3	303	6	25	37	10	7	7-1
3	303	6	75	57	13	7	7-1, 8-1, 9-1, 10-1, 11-1
3	303	6	125	45	12	8	8-1, 10-1
3	304	10	25	47	8	-	-
3	304	10	75	64	15	6	6-1, 7-1, 8-1, 9-2, 10-2, 11-1, 12-1, 13-1
3	304	10	125	53	10	5	5-1, 6-1, 7-1, 8-1
3	305	1	25	50	10	5	5-1, 6-1, 7-1, 9-1
3	305	1	75	62	13	6	6-2, 7-2, 8-2, 9-2, 10-1, 11-1
3	305	1	125	70	12	5	5-2, 6-3, 8-3, 9-2, 10-2, 11-2, 12-1, 13-1
3	306	12	25	49	11	-	-
3	306	12	75	65	11	4	4-1, 5-1, 7-1, 9-1
3	306	12	125	61	11	6	6-1, 7-1
3	307	0	25	59	15	5	5-1, 6-1, 7-1, 8-1, 9-2, 10-1, 11-1, 12-1
3	307	0	75	61	15	4	4-1, 6-1, 7-2, 8-1, 9-1, 10-2, 11-1, 12-2
3	307	0	125	66	16	7	7-2, 8-1, 10-1, 11-1, 12-1, 13-1
3	308	8	25	67	12	5	5-1, 6-1, 7-1, 8-1, 9-1, 10-1
3	308	8	75	62	13	5	5-2, 6-2, 7-2, 8-1, 9-1, 10-1, 11-1
3	308	8	125	58	11	5	5-1, 6-1, 7-1, 8-1, 9-1, 10-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 21 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	2	25	28	6	-	-
4	401	2	75	59	13	6	6-1, 7-1, 8-2, 9-2, 10-2, 11-1, 12-1
4	401	2	125	61	14	7	7-2, 8-2, 9-2, 11-1, 12-1
4	402	4	25	41	13	-	-
4	402	4	75	69	16	7	7-3, 8-1, 9-2, 10-2, 11-1, 12-1, 13-1
4	402	4	125	63	11	7	7-1, 8-1, 9-1
4	403	12	25	40	13	8	8-1
4	403	12	75	37	10	-	-
4	403	12	125	35	6	-	-
4	404	0	25	61	12	4	4-1, 5-1, 6-2, 7-2, 8-2, 9-1, 10-1
4	404	0	75	62	13	5	5-2, 6-2, 7-2, 8-1, 9-2, 10-1, 11-1
4	404	0	125	64	12	5	8-2, 9-1, 10-1, 11-1
4	405	8	25	64	11	6	6-1, 8-1, 9-1, 10-1
4	405	8	75	74	12	3	3-3, 6-2, 7-2, 8-1, 9-1
4	405	8	125	60	13	6	6-1, 7-1, 9-1, 10-1, 11-1
4	406	6	25	51	10	5	5-1, 6-2, 7-1, 8-1, 9-1
4	406	6	75	50	16	6	6-1, 7-2, 8-1, 9-1, 10-1, 11-2, 12-2
4	406	6	125	46	8	-	-
4	407	10	25	33	6	-	-
4	407	10	75	65	15	7	7-1, 8-1, 10-1, 12-1, 13-1
4	407	10	125	61	12	7	7-1, 8-1, 9-1, 10-1
4	408	1	25	45	10	5	5-1, 6-1, 7-1
4	408	1	75	65	12	5	5-2, 7-2, 8-2, 9-2, 10-1, 11-1
4	408	1	125	47	15	7	9-2, 10-1, 11-1, 12-1, 13-1

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 22. Mid-season cotton mapping data at Altus in 1997 (West).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	0	25	43	12	7	7-1, 8-1, 9-1, 10-1
1	101	0	75	49	12	8	8-1, 9-1, 10-1
1	101	0	125	62	16	9	9-1, 10-1, 11-1, 12-1, 13-1, 14-1
1	102	10	25	48	11	5	5-1, 7-1, 8-1, 9-1
1	102	10	75	59	14	7	7-1, 8-1, 10-1, 11-1
1	102	10	125	57	13	7	7-1, 8-1, 9-1, 10-1, 11-1, 12-1
1	103	8	25	65	12	7	7-2, 8-2, 9-1, 12-2
1	103	8	75	69	14	3	3-1, 8-1, 10-1, 11-1
1	103	8	125	63	15	6	6-1, 7-1, 8-1, 9-1, 11-1, 12-1, 13-1
1	104	4	25	71	13	4	4-1, 6-1, 7-1, 8-2, 9-2, 10-1
1	104	4	75	62	15	7	7-1, 8-1, 9-2, 10-1, 11-1, 12-1
1	104	4	125	62	14	5	5-1, 6-1, 7-1, 8-1, 9-2, 10-2, 12-1, 13-1
1	105	12	25	24	7	-	-
1	105	12	75	45	10	8	8-1, 9-2
1	105	12	125	44	13	-	-
1	106	1	25	-	-	-	-
1	106	1	75	-	-	-	-
1	106	1	125	-	-	-	-
1	107	2	25	58	11	8	8-1, 10-1
1	107	2	75	67	15	6	6-1, 7-1, 8-2, 9-3, 10-2, 11-2
1	107	2	125	65	16	6	6-1, 7-2, 9-2, 10-2, 11-1, 12-2, 13-1, 14-1
1	108	6	25	43	9	5	5-1, 6-1, 8-1
1	108	6	75	57	16	6	6-1, 7-1, 8-1, 10-2, 11-1, 12-2, 13-1, 14-1
1	108	6	125	71	13	5	5-1, 6-2, 7-2, 8-2, 9-2, 10-1, 11-1, 12-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 22 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	72	15	5	5-2, 6-1, 7-2, 8-1, 9-2, 10-1, 11-2, 12-1, 13-1
2	201	0	75	51	11	4	4-1, 5-1, 6-1, 7-1, 8-1, 9-1
2	201	0	125	53	12	5	5-1, 6-1, 7-2, 8-1, 10-1, 11-1
2	202	1	25	41	9	6	6-1, 7-1, 8-1
2	202	1	75	62	13	6	6-1, 7-3, 8-3, 9-2, 10-1, 11-1, 12-1
2	202	1	125	52	9	5	5-1, 7-1, 8-1
2	203	2	25	43	9	7	7-1
2	203	2	75	38	7	-	-
2	203	2	125	60	14	7	7-1, 8-1, 9-1, 10-1, 11-1, 12-1, 13-1
2	204	4	25	63	11	8	8-1, 9-1, 10-1
2	204	4	75	56	13	8	8-1
2	204	4	125	49	11	5	5-1, 6-1, 7-1, 8-1
2	205	6	25	52	10	-	-
2	205	6	75	54	11	6	6-1, 7-1, 9-1
2	205	6	125	35	8	-	-
2	206	8	25	60	15	9	9-1, 10-1, 12-1, 13-1
2	206	8	75	43	11	5	5-1, 6-2, 7-2
2	206	8	125	42	11	-	-
2	207	10	25	34	7	-	-
2	207	10	75	53	12	6	6-1
2	207	10	125	58	15	4	8-1, 9-2, 10-1, 11-1, 12-1, 14-1
2	208	12	25	68	14	5	5-1, 6-3, 7-2, 8-3, 9-3, 10-2, 11-2, 12-1
2	208	12	75	76	15	6	6-1, 7-1, 8-1, 10-1, 11-2, 12-1, 13-1
2	208	12	125	73	13	4	4-1, 5-1, 7-2, 8-1, 9-1, 10-1

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 22 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	4	25	66	14	6	6-1, 8-2, 9-1, 11-1, 12-1
3	301	4	75	67	13	5	5-1, 6-2, 7-2, 8-2, 9-1, 10-1, 11-1
3	301	4	125	67	16	7	7-2, 9-2, 10-2, 11-2, 12-2, 13-1, 14-1
3	302	2	25	59	13	6	6-1, 8-1, 11-1, 12-1, 13-1
3	302	2	75	60	16	7	7-2, 8-2, 9-1, 10-2, 11-2, 12-2, 13-1, 14-1, 15-1
3	302	2	125	74	18	5	5-1, 6-2, 7-3, 8-3, 9-3, 10-3, 11-3, 12-2, 13-2, 14-1, 15-1, 16-1
3	303	6	25	65	12	6	6-1, 7-1, 8-1, 9-1, 10-1
3	303	6	75	46	12	7	7-1, 9-1
3	303	6	125	50	9	6	6-1, 8-1
3	304	10	25	47	12	7	7-1, 9-1, 10-1
3	304	10	75	63	12	7	7-1, 8-1, 9-1, 10-1, 11-1
3	304	10	125	61	10	6	6-1, 7-1
3	305	1	25	49	8	-	-
3	305	1	75	62	14	5	5-2, 6-3, 7-2, 8-1, 9-2, 10-2, 11-1, 12-1
3	305	1	125	71	12	4	4-3, 5-1, 6-2, 7-3, 8-1, 9-1, 10-1
3	306	12	25	47	10	8	8-1
3	306	12	75	45	12	11	11-1
3	306	12	125	50	10	-	-
3	307	0	25	48	14	9	9-1, 10-1, 11-1, 12-1
3	307	0	75	66	12	8	6-1, 7-1, 9-2, 10-1
3	307	0	125	63	14	5	5-1, 7-2, 8-1, 9-2, 10-1, 11-2, 12-1
3	308	8	25	60	13	7	7-1, 8-1, 9-1, 10-1, 11-1
3	308	8	75	68	15	6	6-2, 7-2, 8-1, 9-2, 10-2, 11-1, 13-1, 14-1
3	308	8	125	59	13	8	8-1, 9-1, 11-1, 12-1

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 22 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	2	25	53	15	7	7-1, 8-1, 9-1, 11-1, 12-1, 13-1
4	401	2	75	52	10	5	5-3, 6-1, 7-3, 8-2
4	401	2	125	60	15	5	5-1, 6-1, 7-2, 8-2, 9-1, 11-1, 12-1
4	402	4	25	28	8	-	-
4	402	4	75	68	13	5	5-2, 6-1, 7-1, 8-1, 9-1, 10-1
4	402	4	125	66	15	6	6-1, 7-2, 9-1, 10-2, 11-2, 12-1, 13-1
4	403	12	25	31	6	-	-
4	403	12	75	30	7	-	-
4	403	12	125	37	9	-	-
4	404	0	25	54	9	5	5-1, 6-1
4	404	0	75	70	13	4	4-2, 5-3, 6-2, 7-3, 8-2, 9-2, 10-1, 11-1, 12-1
4	404	0	125	50	9	-	-
4	405	8	25	63	12	5	5-1, 7-1, 8-1, 10-1
4	405	8	75	43	12	7	7-1, 8-1, 10-1
4	405	8	125	67	12	6	6-1, 7-1, 8-1, 9-1, 10-1, 11-1
4	406	6	25	52	9	-	-
4	406	6	75	55	13	8	8-1, 9-1, 11-1
4	406	6	125	53	10	7	7-1, 9-1
4	407	10	25	60	11	6	6-1, 7-1, 8-2, 9-1, 10-1
4	407	10	75	38	10	-	-
4	407	10	125	58	14	7	7-1, 9-1, 10-1, 11-1
4	408	1	25	42	14	9	9-1, 10-1
4	408	1	75	58	14	6	6-1, 8-2, 9-1, 10-1, 11-1, 12-1
4	408	1	125	54	10	5	5-1, 6-1, 7-1, 9-1, 10-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 23. Mid-season cotton mapping data at Perkins in 1997 (East).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	10	25	52	11	-	-
1	101	10	75	40	6	3	-
1	101	10	125	53	11	3	-
1	102	4	25	40	3	-	-
1	102	4	75	53	13	4	-
1	102	4	125	45	12	7	-
1	103	1	25	42	6	2	-
1	103	1	75	63	12	2	3-1
1	103	1	125	58	13	4	-
1	104	8	25	42	14	-	-
1	104	8	75	51	13	-	-
1	104	8	125	50	9	-	-
1	105	6	25	46	13	4	-
1	105	6	75	59	13	2	2-3, 4-1, 5-2
1	105	6	125	37	9	2	-
1	106	2	25	41	11	-	-
1	106	2	75	52	16	3	-
1	106	2	125	56	12	3	3-1, 5-1, 10-1
1	107	0	25	66	12	4	5-1, 8-1, 9-1, 10-1, 11-1, 12--2
1	107	0	75	45	13	12	12-1, 13-1
1	107	0	125	49	13	1	13-1
1	108	12	25	37	11	4	-
1	108	12	75	54	13	8	-
1	108	12	125	48	7	1	1-2, 2-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 23 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	72	12	1	-
2	201	0	75	65	12	4	4-2, 9-1
2	201	0	125	54	15	4	4-1
2	202	1	25	45	12	-	-
2	202	1	75	60	14	4	14-1
2	202	1	125	48	13	-	-
2	203	2	25	60	12	3	-
2	203	2	75	73	13	3	3-2, 10-1
2	203	2	125	78	17	2	2-2, 3-2, 4-2, 11-1, 12-1, 13-2, 14-1, 15-1
2	204	4	25	35	4	-	-
2	204	4	75	56	11	-	-
2	204	4	125	65	9	1	1-1, 2-2, 9-1
2	205	6	25	-	-	-	-
2	205	6	75	64	14	-	-
2	205	6	125	56	9	2	-
2	206	8	25	47	15	-	-
2	206	8	75	53	13	-	-
2	206	8	125	46	13	-	-
2	207	10	25	42	10	-	-
2	207	10	75	39	10	-	-
2	207	10	125	62	12	1	1-1, 2-1
2	208	12	25	63	13	4	-
2	208	12	75	46	11	-	-
2	208	12	125	51	11	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 23 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height[c]	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	2	25	36	10	-	-
3	301	2	75	59	14	4	-
3	301	2	125	55	14	4	10-1
3	302	4	25	39	13	5	-
3	302	4	75	57	11	4	4-1
3	302	4	125	69	14	4	-
3	303	1	25	30	5	-	-
3	303	1	75	55	12	-	-
3	303	1	125	65	12	-	-
3	304	12	25	54	13	2	-
3	304	12	75	46	12	-	-
3	304	12	125	52	10	2	2-1
3	305	0	25	38	11	-	-
3	305	0	75	67	14	2	2-2, 3-3
3	305	0	125	31	13	4	-
3	306	10	25	32	7	-	-
3	306	10	75	47	8	-	-
3	306	10	125	59	12	3	3-1
3	307	8	25	48	12	-	-
3	307	8	75	35	9	3	-
3	307	8	125	63	14	-	-
3	308	6	25	46	11	-	-
3	308	6	75	56	14	3	4-1
3	308	6	125	55	12	3	3-2, 4-2, 8-1

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 23 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	8	25	21	8	-	-
4	401	8	75	38	8	3	-
4	401	8	125	28	6	-	-
4	402	12	25	61	13	6	-
4	402	12	75	65	15	2	-
4	402	12	125	36	13	-	-
4	403	6	25	-	-	-	-
4	403	6	75	21	5	-	-
4	403	6	125	49	13	1	-
4	404	1	25	51	9	-	-
4	404	1	75	62	13	6	10-1, 11-1
4	404	1	125	49	10	3	4-2
4	405	0	25	51	10	-	-
4	405	0	75	57	12	2	-
4	405	0	125	69	8	2	2-2
4	406	10	25	13	4	-	-
4	406	10	75	20	8	-	-
4	406	10	125	19	10	-	-
4	407	2	25	53	13	3	-
4	407	2	75	43	10	-	-
4	407	2	125	58	14	4	10-1, 11-1, 12-1, 13-1
4	408	4	25	25	10	-	-
4	408	4	75	51	11	4	-
4	408	4	125	48	10	-	-

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 24. Mid-season cotton mapping data at Perkins in 1997 (West).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
1	101	10	25	48	11	-	-
1	101	10	75	69	14	3	-
1	101	10	125	54	10	-	-
1	102	4	25	35	9	-	-
1	102	4	75	52	13	5	11-1
1	102	4	125	29	5	1	-
1	103	1	25	71	10	2	2-1, 3-3
1	103	1	75	61	12	8	8-1
1	103	1	125	52	15	3	11-1, 12-1
1	104	8	25	57	13	-	-
1	104	8	75	56	14	5	-
1	104	8	125	57	11	1	11-1
1	105	6	25	49	10	3	-
1	105	6	75	39	12	5	5-1, 11-1
1	105	6	125	52	11	-	-
1	106	2	25	42	11	4	-
1	106	2	75	43	14	5	-
1	106	2	125	50	11	3	4-1, 5-1
1	107	0	25	59	15	3	4-2, 11-1, 12-1, 13-1
1	107	0	75	49	8	1	-
1	107	0	125	53	12	4	6-1, 7-2, 8-1, 9-2, 11-1
1	108	12	25	40	11	-	-
1	108	12	75	53	12	5	-
1	108	12	125	51	13	3	3-2

[a]Weed density per plot.

[b]Distance from the weed of influence.

[c]Node of the first fruiting branch.

[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 24 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
2	201	0	25	60	15	4	6-1, 11-1
2	201	0	75	58	14	3	12-1, 13-1
2	201	0	125	60	13	3	-
2	202	1	25	45	10	4	-
2	202	1	75	67	16	5	5-1, 7-1, 11-1
2	202	1	125	64	14	4	5-1, 11-1
2	203	2	25	68	14	1	3-2
2	203	2	75	52	13	5	-
2	203	2	125	63	11	4	-
2	204	4	25	52	13	2	4-1
2	204	4	75	56	12	4	-
2	204	4	125	62	13	3	3-3, 4-2, 5-2
2	205	6	25	60	3	2	-
2	205	6	75	58	13	3	3-2
2	205	6	125	53	13	-	-
2	206	8	25	55	7	-	-
2	206	8	75	52	14	3	-
2	206	8	125	51	8	-	-
2	207	10	25	29	11	-	-
2	207	10	75	45	11	-	-
2	207	10	125	53	12	3	-
2	208	12	25	62	10	3	3-1
2	208	12	75	64	14	3	3-1
2	208	12	125	62	14	2	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 24 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
3	301	2	25	61	14	5	-
3	301	2	75	51	13	4	4-1, 9-1
3	301	2	125	51	15	4	5-1
3	302	4	25	54	9	-	-
3	302	4	75	72	15	4	12-1, 14-1
3	302	4	125	68	12	5	5-1, 8-1, 9-1
3	303	1	25	63	12	-	-
3	303	1	75	76	15	4	4-3
3	303	1	125	73	7	3	3-4, 4-4, 7-1
3	304	12	25	55	13	-	-
3	304	12	75	46	13	-	-
3	304	12	125	22	6	-	-
3	305	0	25	68	18	1	1-3, 5-2, 13-1, 14-1, 15-1, 16-1
3	305	0	75	40	12	5	5-1
3	305	0	125	40	11	-	-
3	306	10	25	47	12	3	-
3	306	10	75	48	9	-	-
3	306	10	125	57	13	-	-
3	307	8	25	34	7	2	-
3	307	8	75	40	7	3	5-1
3	307	8	125	61	14	11	11-1, 12-1, 13-1
3	308	6	25	50	11	-	-
3	308	6	75	59	13	3	-
3	308	6	125	49	14	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 24 (cont'd).

Rep	Plot	Density[a]	Distance[b]	Height	Node	NFFB[c]	Position of Reproductive Structures[d]
			cm	cm	no.		
4	401	8	25	-	-	-	-
4	401	8	75	36	11	-	-
4	401	8	125	-	-	-	-
4	402	12	25	56	12	5	-
4	402	12	75	19	5	-	-
4	402	12	125	40	10	-	-
4	403	6	25	-	-	-	-
4	403	6	75	-	-	-	-
4	403	6	125	-	-	-	-
4	404	1	25	36	12	-	-
4	404	1	75	43	11	-	-
4	404	1	125	34	8	4	-
4	405	0	25	47	16	8	13-1
4	405	0	75	48	12	3	3-1, 4-1
4	405	0	125	57	13	3	3-1
4	406	10	25	17	8	-	-
4	406	10	75	39	11	3	-
4	406	10	125	32	13	-	-
4	407	2	25	49	10	-	-
4	407	2	75	66	7	4	4-2
4	407	2	125	49	11	-	-
4	408	4	25	58	13	6	10-1
4	408	4	75	52	13	4	-
4	408	4	125	45	11	-	-

[a]Weed density per plot.
[b]Distance from the weed of influence.
[c]Node of the first fruiting branch.
[d]Numbers prior to the dash indicate the node above the cotyledonary node. Numbers following the dash indicate the number of squares or other reproductive structures on that branch.

APPENDIX TABLE 25. Mean fiber quality relative to Palmer amaranth density at Perkins and Chickasha in 1996.

Density[a]	Perkins					Chickasha				
	Fiber length	Length uniformity	Strength	Micronaire	Elongation	Fiber length	Length uniformity	Strength	Micronaire	Elongation
	cm	%	mN tex^{-1}	unit	%	cm	%	mN tex^{-1}	unit	%
0	2.67	82	314	3.6 c[b]	10.0	2.79	80	294	3.3 d	9.9
1	2.69	80	284	3.9 abc	9.9	2.82	82	294	3.6 bcd	9.5
2	2.64	80	304	3.7 bc	9.9	2.77	80	294	3.4 cd	9.7
4	2.69	81	294	3.9 abc	9.9	2.74	81	284	3.7 bc	10.0
6	2.72	82	314	4.0 ab	9.9	2.74	80	275	3.7 bc	10.0
8	2.69	80	275	4.1 a	9.8	2.72	80	284	3.9 ab	10.1
10	2.72	82	304	3.8 abc	9.8	2.72	80	275	4.0 a	10.0
12	2.69	81	304	3.9 abc	9.6	2.77	81	284	3.6 bcd	9.8
LSD (0.05)	NS	NS	NS	0.3	NS	NS	NS	NS	0.3	NS

[a]Weed density per plot.

[b]Means followed by the same letter are not significantly different at the 0.05 probability level (using the protected LSD).

APPENDIX TABLE 26. Mean fiber quality relative to Palmer amaranth density at Altus and Perkins in 1997.

Density[a]	Altus					Perkins				
	Fiber length	Length uniformity	Strength	Micronaire	Elongation	Fiber length	Length uniformity	Strength	Micronaire	Elongation
	cm	%	mN tex^{-1}	unit	%	cm	%	mN tex^{-1}	unit	%
0	2.70	82	304	4.3	7.0	2.72	83	304	3.8	6.6
1	2.71	83	294	4.3	6.8	2.69	83	294	4.7	6.9
2	2.74	82	294	4.2	6.9	2.69	83	294	4.7	6.7
4	2.71	82	284	4.5	6.9	2.72	83	294	4.3	6.7
6	2.74	83	294	4.3	6.9	2.72	84	314	4.5	6.8
8	2.74	83	284	4.7	6.9	2.69	83	284	4.9	6.6
10	2.74	82	294	4.4	7.0	2.72	83	294	4.4	6.8
12	2.71	82	294	4.4	6.9	2.74	83	294	4.8	6.8
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

[a]Weed density per plot.

VITA

Matthew Warren Rowland

Candidate for the Degree of

Master of Science

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