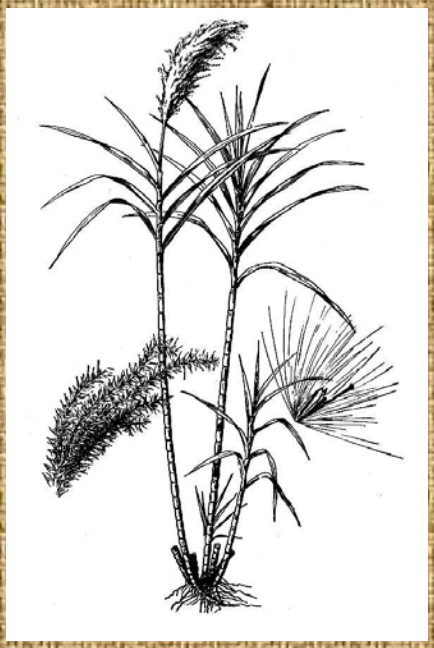
2004 Alternate Crops (Soybeans and Sugarcane) Report



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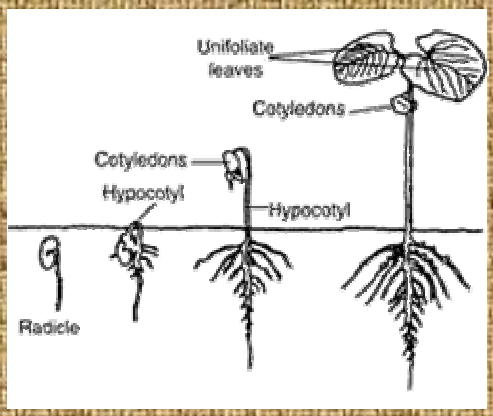

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Avoiding Soybean Insect Problems on the Upper Gulf Coast by Planting Maturity Group V and VI Soybeans

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Introduction

Maturity Group (MG) IV soybeans are normally planted early (Apr 1-15) on the Upper Gulf Coast of Texas in order to avoid potential drought conditions during late summer and also facilitate a timely harvest. However, MGIV soybeans are usually severely attacked by stink bugs [southern green stink bug (SGSB), *Nezara viridula*; green stink bug (GSB), *Acrosternum hilare*; and brown sting bug (BSB), *Euschistus servus*] during the critical pod-fill stage. Late MG soybeans (VIIs and VIIIs) are normally planted mid-May to mid-June and mature much later than MGIV soybeans. These later maturing soybeans can suffer from drought conditions during pod-fill and typically are exposed to inclement weather as harvest nears resulting in seed deterioration and harvesting problems. MGVII and VIII soybeans are often attacked by damaging populations of defoliating Lepidoptera [velvetbean caterpillar (VBC), *Anticarsia gemmatalis*; green cloverworm (GCW), *Plathypena scabra*; and soybean looper (SL), *Pseudoplusia includens*]. MGV and/or MGVI soybeans, however, planted on selected dates may avoid both severe stink bug and Lepidoptera pressure and mature under more favorable harvest conditions. The objective of this study was to monitor insect populations and damage and compare yield and seed quality among MGIV, V, VI, and VII soybeans planted across three dates.

Materials and Methods

The study consisted of three planting dates on a Morey silt loam at the TAMU Agricultural Research and Extension Center at Beaumont in 2004. RA 452 (MGIV) was planted on 17 Apr. Beds were cultivated prior to planting and First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A were applied preemergence (PRE) for early season weed control with a 4-row tractor-mounted spray tank and boom (35 gpa). S50-N3 (MGV), NC ROY (MGVI), and DP 7220RR (MGVII) were planted on 21 May. Beds were cultivated prior to planting but received no PRE herbicide. Honcho @ 1.5 qt/A was later post-directed on the DP 7220RR plots on 14 Jun with a hand-held 1-nozzle spray boom (15 gpa). S50-N3 and NC ROY plots were hand-hoed as needed early in the season and later post-directed with Basagran @ 1.5 pt/A, Blazer 2L @ 1.0 pt/A, Poast @ 1.5 pt/A, and Agri-Dex @ 1.0 pt/A on 16 Jul with the 1-nozzle hand-held spray boom (15 gpa). S50-N3, NC ROY, and DP 7220RR were again planted on 6 Jul. Beds were cultivated prior to planting and First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A were applied PRE for early season weed control with the tractor-mounted tank and boom (35 gpa). The second planting date (May 21) was cultivated on 5 Jul. The Apr 17 and Jul 6 planting dates received no post-emergence cultivation. Plot size for all

three planting dates consisted of 8 rows, 30 inch row width, trimmed to 43 ft (0.02 acres). Planting dates were randomized on the field and four replications of a treated (T) and untreated (U) plot for each variety paired within its respective planting dates (Table 1).

All planting dates were scouted for insects as the season progressed. As populations of stink bugs and/or Lepidoptera appeared in plots, sampling was begun. Sampling consisted of 20 sweeps with a canvas net down the entire length (43 ft) of one row in each plot. Contents of the net were transferred to a plastic bag, frozen and later all insects identified and counted in the lab. These baseline counts were begun on 13 Jul. Immediately following, Orthene 90S was applied @ 1.0 lb (AI)/A to all "treated" plots with a two-person hand-held spray boom (13- 80015 nozzles, 50 mesh screens, 20 ft spray swath, 20 gpa). Subsequent 20 sweeps per plot were conducted in an adjacent row approximately every 10 days for the remainder of the growing season (Table 2). Orthene 90S again was applied @ 1.0 lb (AI)/A at approximately 10 day intervals to all "treated" plots to ensure control of both stink bugs and Lepidoptera throughout the growing season (Table 2). "Untreated" plots received no insecticidal control. Vegetative and reproductive growth stages of each cultivar and within each planting date were recorded on the dates 20 sweeps were collected (Table 2).

At individual plot maturity, plant heights were measured and the 4 middle rows of each 8-row plot (43 ft long, 0.01 acres) were harvested with an Almaco SPC20 plot combine. Yields were determined and adjusted to 13% moisture and 60 lb/bu. A visual estimate of seed quality was also assessed (1 = excellent, 5 = very poor). All data were analyzed as a split plot using ANOVA and LSD (main plot = variety/planting date, subplot = treated or untreated for insects). Insect data were transformed using $\sqrt{x+0.5}$ before analysis.

Results

Southern green stink bug (SGSB) was the predominant pest species in the experiment. Lepidoptera larvae (VBC, GCW and SL) were also identified and counted but never present in damaging numbers. Populations peaked in early September at or below threshold and declined. Threecornered alfalfa hopper, grasshoppers, cucumber beetles, leafhoppers and predators (spiders and assassin bugs) were also counted but not present in significant numbers or any meaningful pattern among treatments. These data and Lepidoptera data are not presented in the tables. Populations of stink bugs (nymphs and adults) began to increase in RA 452 untreated plots in mid-July when soybeans were R4/5 (Tables 2, 4A, 5A, 6A and 7A). RA 452 (planted Apr 17) reached R4 (full pod) about 1 month earlier than NC ROY (MGVI) planted on 21 May. Previous research by the Project Investigators corroborate this observation - stink bugs begin infesting early planted MGIV soybeans during pod-fill. Planting MGIV soybeans in early to mid-April represents the Early Soybean Production System (ESPS) which is practiced on the Texas Upper Gulf Coast to avoid drought conditions during pod-fill and allow for timely harvest before the onset of inclement weather.

Reasons for the timing of this stink bug infestation are unknown, but the following are possibilities: 1) stink bugs build up populations on other hosts and "spill over" into ESPS soybeans during pod-fill; 2) stink bugs rapidly build up populations in ESPS soybeans prior to pod-fill and attack in high numbers during pod-fill; 3) ESPS soybeans release a volatile substance during pod-fill which attracts additional stink bugs; 4) once initial stink bug "colonizers" establish in ESPS soybeans, these insects release an aggregation pheromone which attracts other stink bugs; 5) stink

bug population dynamics coincide with ESPS soybeans during pod-fill. At any rate, stink bug nymphs and adults rapidly increased to above-threshold levels (threshold = 7 stink bugs per 20 sweeps) in RA 452 (ESPS) untreated plots from mid-July to mid-Aug when soybeans were in pod-fill (Tables 2, 4A, 5A, 6A and 7A).

A similar phenomenon was observed for S50-N3 (MGV) soybeans planted May 21 (Tables 4A, 5A, 6A and 7A). However, in this case, stink bugs (primarily SGSB) reached above-threshold densities later (early Aug), peaked during mid-Aug and rapidly declined thereafter. These dates also corresponded to pod-fill for the MGV cultivar (Table 2). In comparison, NC ROY planted May 21 was not exposed to high populations of stink bugs; in fact, populations of stink bugs were well below threshold for the entire season (Tables 4A, 5A, 6A and 7A).

Analyses of the stink bug data show for all sampling dates, stink bug populations were low and not statistically different between treated and untreated plots of NC ROY planted May 21 (Tables 4B, 5B, 6B and 7B). On the other hand, RA 452 untreated plots were so adversely affected by high stink bug populations, they were not able to be harvested until 16 days later than treated RA 452 plots (Table 3A). Conversely, there was little to no difference in harvest maturity between the treated and untreated NC ROY plots (May 21 planting) and, in fact, were able to be harvested on the same day.

Across treated and untreated plots, RA 452 matured on 9 Sep. The MGV cultivar, NC ROY and the MGVII cultivar planted May 21 matured Sep 28, Oct 14 and Oct 19, respectively (Table 3B). Thus, RA 452 and the May 21 plantings all avoided inclement weather during harvest. Across main plots, NC ROY planted May 21 yielded more than any other cultivar x planting date treatment (Table 3B). Although RA 452 treated plots outyielded NC ROY treated plots (only by 2.2 bu/A), the difference in yield between treated and untreated plots of RA 452 was 13.6 bu/A (Table 3A). The difference in yield between treated and untreated plots of NC ROY planted May 21 was only 3.7 bu/A. These data show the damaging effect of stink bugs on yield of RA 452. NC ROY did not suffer nearly as much because this MGVI cultivar planted May 21 avoided heavy populations of stink bugs. In addition, seed quality was greatly affected in RA 452 untreated plots (Table 3A). For the May 21 planting of NC ROY, seed quality was only slightly less in untreated than treated plots (Table 3A). The late planting date (Jul 6) resulted in statistically lower yields for all three cultivars when compared to the May 21 planting (Table 3B). Seed quality was also slightly poorer except for the MGV cultivar. Heavy infestations of stink bugs were not present in the Jul 6 planting, especially when compared to the early planted MGIV cultivar (Table 7A). Based on these data and previous research, the Project Investigators believe that planting a MGVI cultivar in May could avoid damaging stink bug populations typically associated with ESPS soybeans grown on the Upper Gulf Coast of Texas. Data also show that a MGVI cultivar planted in May can produce yields comparable, if not better, than ESPS soybeans or later MG soybeans. In addition, MGVI soybeans planted in mid-May (traditionally considered the optimum planting time for conventional cultivars) would allow for earlier harvest with less risk of weather-related harvest difficulties compared to planting MGVII and VIII cultivars commonly grown in counties east of Harris Co.

Table 1. Plot plan for planting dates, soybean cultivars[a] and treated (T) or untreated (U) designations for individual plots[b]. Beaumont, TX. 2004

Planting date	REP I		REP II	
May 21	NC ROY (T)	NC ROY (U)	NC ROY (U)	NC ROY (T)
Apr 17	RA 452 (U)	RA 452 (T)	RA 452 (T)	RA 452 (U)
Jul 6	DP 7220RR (U)	DP 7220RR (T)	DP 7220RR (T)	DP 7220RR (U)
May 21	S50-N3 (T)	S50-N3 (U)	S50-N3 (U)	S50-N3 (T)
Jul 6	NC ROY (T)	NC ROY (U)	NC ROY (U)	NC ROY (T)
May 21	DP 7220RR (U)	DP 7220RR (T)	DP 7220RR (T)	DP 7220RR (U)
Jul 6	S50-N3 (U)	S50-N3 (T)	S50-N3 (T)	S50-N3 (U)
	REP III		REP IV	
May 21	S50-N3 (T)	S50-N3 (U)	S50-N3 (U)	S50-N3 (T)
Jul 6	DP 7220RR (T)	DP 7220RR (U)	DP 7220RR (U)	DP 7220RR (T)
May 21	NC ROY (U)	NC ROY (T)	NC ROY (T)	NC ROY (U)
Jul 6	S50-N3 (U)	S50-N3 (T)	S50-N3 (T)	S50-N3 (U)
Apr 17	RA 452 (T)	RA 452 (U)	RA 452 (U)	RA 452 (T)
Jul 6	NC ROY (T)	NC ROY (U)	NC ROY (U)	NC ROY (T)
May 21	DP 7220RR (U)	DP 7220RR (T)	DP 7220RR (T)	DP 7220RR (U)

[a] RA 452 = MGIV, S50-N3 = MGV, NC ROY = MGVI, DP 7220RR = MGVII.
[b] Plot size (not to scale) = 8 rows, 30 inch row width, 43 ft long (0.02 acres).

Table 2. Insecticidal applications[a] and soybean growth stage at time of insect sampling (20 sweeps/plot) across four maturity groups (MGIV, V, VI, VII) and three planting dates (Apr 17, May 21, July 6). Beaumont, TX. 2004

Date	April 17	May 21			July 6		
	MGIV RA 452	MGV S50-N3	MGVI NC ROY	MGVII DP 7220RR	MGV S50-N3	MGVI NC ROY	MGVII DP 7220RR
July 13	R4	R2/3	R2	R1	V1	V1	V1
Applied Orthene 90S *(April 17 and May 21 plantings) on* ***July 13*** *(following pretreatment sweeps)*							
Applied Orthene 90S *(April 17 and May 21 plantings) on* ***July 21***							
July 23	R5	R3	R2/3	R1/2	V3	V3	V3
Applied Orthene 90S *(April 17 and May 21 plantings) on* ***Aug 2***							
Aug 3	R5/6	R4	R3	R2	V6/7	V6/7	V5
Applied Orthene 90S *(April 17 and May 21 plantings) on* ***Aug 13*** *(prior to 20 sweeps on Aug 13)*							
Aug 13	R6	R6	R5	R3/4	R2	R2	V8
Applied Orthene 90S *(all planting dates) on* ***Aug 22***							
Aug 23	R6/7	R6	R5	R4	R3	R2	R2
Applied Orthene 90S *(May 21 and July 6 plantings) on* ***Aug 31***							
Sep 1	---[b]	R7	R6	R5	R4	R4	R2
Sep 10	---	R7	R6	R5/6	R5	R5	R3
Applied Orthene 90S *(May 21 and July 6 plantings) on* ***Sep 16***							
Sep 20	---	---	R6	R6	R6	R6	R5
Applied Orthene 90S *(May 21/MGVII only and July 6 plantings) on* ***Sep 30***							
Oct 4	---	---	---	R7	---	R6	R6
Oct 14	---	---	---	---	---	---	R6

[a] Insecticidal applications consisted of Orthene 90S applied at 1.0 lb (AI)/acre only on plots designated as "treated" for insects.

[b] --- indicates plots already harvested or near maturity and 20 sweeps were discontinued.

Table 3A. Agronomic and yield data for the soybean maturity group/planting date vs. insects study. Beaumont, TX. 2004

Variety	Maturity group	Planting date	Treatment[a]	Plant ht. (in.)	Mature date	Seed qual.[b] (1-5)	Yield[c] (bu/A)
RA 452	IV	Apr 17	T	29	Sep 1	2.0	36.4
			U	30	Sep 17	4.6	22.8
S50-N3	V	May 21	T	33	Sep 22	2.4	28.4
			U	35	Oct 4	3.6	24.6
		Jul 6	T	27	Oct 14	2.4	18.9
			U	26	Oct 17	2.9	17.4
NC ROY	VI	May 21	T	26	Oct 13	2.3	34.2
			U	26	Oct 15	2.8	30.5
		Jul 6	T	25	Nov 7	2.5	27.9
			U	23	Nov 6	2.9	24.2
DP 7220RR	VII	May 21	T	31	Oct 16	3.0	25.0
			U	32	Oct 23	3.6	22.8
		Jul 6	T	26	Nov 12	3.0	23.1
			U	24	Dec 3	4.6	8.9

[a] Treatment: T = treated for insects with Orthene 90S @ 1.0 lb (AI)/A, U = untreated.
[b] Seed quality: Visual estimate (1 = excellent, 5 = very poor).
[c] Yield (bu/A): Adusted to 13% moisture and 60 lb/bu.
See Table 3B for statistical analysis of agronomic and yield data.

Table 3B. Statistical analysis of agronomic and yield data from Table 3A. Beaumont, TX. 2004

	Plant ht. (in.)	Mature date	Seed qual. (1-5)	Yield (bu/A)
Main plot (soybean maturity group/planting date) effects:				
RA 452 (MGIV) planted Apr 17	29c	Sep 9f	3.3b	29.6ab
S50-N3 (MGV) planted May 21	34a	Sep 28e	3.0c	26.5bc
S50-N3 (MGV) planted Jul 6	27d	Oct 16d	2.6d	18.2d
NC ROY (MGVI) planted May 21	26d	Oct 14d	2.5d	32.3a
NC ROY (MGVI) planted Jul 6	24e	Nov 6b	2.7d	26.1bc
DP 7220RR (MGVII) planted May 21	31b	Oct 19c	3.3b	23.9c
DP 7220RR (MGVII) planted Jul 6	25de	Nov 23a	3.8a	16.0d
Subplot (treated or untreated for insects) effects:				
Treated	28	Oct 12b	2.5b	27.7a
Untreated	28	Oct 21a	3.6a	21.6b
Interaction (main plot x subplot):	NS	SIG	SIG	NS

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).
[b] Yield (bu/A): Adusted to 13% moisture and 60 lb/bu.
Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

Table 4A. Southern green stink bug adult data for soybean maturity group/planting date vs. insects. Beaumont, TX. 2004

Variety	Maturity group	Planting Date	Trt[a]	× no. southern green stink bug adult/20 sweeps									
				Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
RA 452	IV	Apr 17	T	0.8	0	0.5	1.0	0	H[b]	H	H	H	H
			U	0.5	3.8	9.3	13.5	0.5	H	H	H	H	H
S50-N3	V	May 21	T	0.3	0.3	0.5	0.3	0	0.3	0	H	H	H
			U	0.3	1.0	1.5	8.3	0.3	1.0	0.3	H	H	H
		Jul 6	T	—	—	—	—	0	0.3	0.3	0	H	H
			U	—	—	—	—	0	0	0.5	0	H	H
NC ROY	VI	May 21	T	0	0	0	0.5	0	0	0.3	0	H	H
			U	0	0	0	0	0	1.3	0.8	0.3	H	H
		Jul 6	T	—	—	—	—	0	0	0	0	0	H
			U	—	—	—	—	0	0	0	0.5	1.3	H
DP 7220RR	VII	May 21	T	0	0.3	0.3	0.8	0.3	0	0	0	0	H
			U	0	0.5	0	0	0.3	0	0.8	0	0	H
		Jul 6	T	—	—	—	—	0	0.3	0	0	0	0
			U	—	—	—	—	0	0.8	0.3	0.3	1.0	1.0

[a] Treatment: T = treated for insects, U = untreated for insects.
[b] H = plots previously harvested.
See Table 4B for statistical analysis of southern green stink bug adult data.

Table 4B. Statistical analysis of southern green stink bug adult data from Table 4A. Beaumont, TX. 2004

	$\bar{x}$ no. southern green stink bug adult/20 sweeps[a]									
	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
Main plot (soybean maturity group/planting date) effects:										
RA 452 (MGIV/Apr 17)	0.6	1.9a	4.9a	7.3a	0.3	H[b]	H	H	H	H
S50-N3 (MGV/May 21)	0.3	0.6b	1.0b	4.3a	0.1	0.6	0.1	H	H	H
S50-N3 (MGV/Jul 6)	—	—	—	—	0	0.1	0.4	0	H	H
NC ROY (MGVI/May 21)	0	0c	0c	0.3b	0	0.6	0.5	0.1	H	H
NC ROY (MGVI/Jul 6)	—	—	—	—	0	0.6	0	0.3	0.6	H
DP 7220RR (MGVII/May 21)	0	0.4bc	0.1c	0.4b	0.3	0	0.4	0	0	H
DP 7220RR (MGVII/Jul 6)	—	—	—	—	0	0.5	0.1	0.1	0.5	0.5
Subplot (treated or untreated for insects) effects:										
Treated	0.3	0.1b	0.3b	0.6b	0	0.1b	0.1b	0	0	0
Untreated	0.2	1.3a	2.7a	5.4a	0.1	0.7a	0.4a	0.2	0.8	1.0
Interaction (main plot x subplot):										
	NS	SIG	SIG	SIG	NS	NS	NS	NS	NS	NS

[a] Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).
[b] H = plots previously harvested.

Table 5A. Southern green stink bug nymph data for soybean maturity group/planting date vs. insects. Beaumont, TX. 2004

Variety	Maturity group	Planting Date	Trt[a]	$\bar{x}$ no. southern green stink bug nymph/20 sweeps									
				Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
RA 452	IV	Apr 17	T	0	0.5	0.5	3.5	0	H[b]	H	H	H	H
			U	0	9.0	13.0	2.0	0.5	H	H	H	H	H
S50-N3	V	May 21	T	0.3	0	0	0.3	0	0	0	H	H	H
			U	0	1.0	6.3	6.8	4.5	0.8	0.8	H	H	H
		Jul 6	T	—	—	—	—	0	0	0.3	0	H	H
			U	—	—	—	—	0	0.3	1.5	3.8	H	H
NC ROY	VI	May 21	T	0	0	0	0	0	0	0.3	0	H	H
			U	0	0.8	1.0	0	0.5	1.3	2.0	0.8	H	H
		Jul 6	T	—	—	—	—	0	0	0	0	0.3	H
			U	—	—	—	—	0	0	0	1.3	3.5	H
DP 7220RR	VII	May 21	T	0	0	0	0.3	0	0	0	0	0.3	H
			U	0	1.8	1.3	0	0	0.3	0.3	0.8	0	H
		Jul 6	T	—	—	—	—	0	0	0	0	0	0.8
			U	—	—	—	—	0	0	0	0.5	0.5	0.8

[a] Treatment: T = treated for insects, U = untreated for insects.
[b] H = plots previously harvested.

See Table 5B for statistical analysis of southern green stink bug nymph data.

Table 5B. Statistical analysis of southern green stink bug nymph data from Table 5A.
Beaumont, TX. 2004

	$\bar{x}$ no. southern green stink bug nymph/20 sweeps[a]									
	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
Main plot (soybean maturity group/planting date) effects:										
RA 452 (MGIV/Apr 17)	0	4.8a	6.8a	2.8a	0.3b	H[b]	H	H	H	H
S50-N3 (MGV/May 21)	0.1	0.5b	3.1b	3.5a	2.3a	0.4	0.4	H	H	H
S50-N3 (MGV/Jul 6)	—	—	—	—	0b	0.1	0.9	1.9	H	H
NC ROY (MGVI/May 21)	0	0.4b	0.5c	0b	0.3b	0.6	1.1	0.4	H	H
NC ROY (MGVI/Jul 6)	—	—	—	—	0b	0	0	0.6	1.9a	H
DP 7220RR (MGVII/May 21)	0	0.9b	0.6c	0.1b	0b	0.1	0.1	0.4	0.1b	H
DP 7220RR (MGVII/Jul 6)	—	—	—	—	0b	0	0	0.3	0.3b	0.8
Subplot (treated or untreated for insects) effects:										
Treated	0.1	0.1b	0.1b	1.0	0b	0b	0.1b	0b	0.2	0.8
Untreated	0	3.1a	5.4a	2.2	0.8a	0.4a	0.8a	1.4a	1.3	0.8
Interaction (main plot x subplot):										
	NS	SIG	SIG	SIG	SIG	NS	NS	NS	NS	NS

[a] Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).
[b] H = plots previously harvested.

Table 6A. Southern green stink bug (adult + nymph) data for soybean maturity group/planting date vs. insects. Beaumont, TX. 2004

				$\bar{x}$ no. southern green stink bug (adult + nymph)/20 sweeps									
Variety	Maturity group	Planting Date	Trt[a]	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
RA 452	IV	Apr 17	T	0.8	0.5	1.0	4.5	0	H[b]	H	H	H	H
			U	0.5	12.8	22.3	15.5	1.0	H	H	H	H	H
S50-N3	V	May 21	T	0.5	0.3	0.5	0.5	0	0.3	0	H	H	H
			U	0.3	2.0	7.8	15.0	4.8	1.8	1.0	H	H	H
		Jul 6	T	—	—	—	—	0	0.3	0.5	0	H	H
			U	—	—	—	—	0	0.3	2.0	3.8	H	H
NC ROY	VI	May 21	T	0	0	0	0.5	0	0	0.5	0	H	H
			U	0	0.8	1.0	0	0.5	2.5	2.8	1.0	H	H
		Jul 6	T	—	—	—	—	0	0	0	0	0.3	H
			U	—	—	—	—	0	1.3	0	1.8	4.8	H
DP 7220RR	VII	May 21	T	0	0.3	0.3	1.0	0.3	0	0	0	0.3	H
			U	0	2.3	1.3	0	0.3	0.3	1.0	0.8	0	H
		Jul 6	T	—	—	—	—	0	0.3	0	0	0	0.8
			U	—	—	—	—	0	0.8	0.3	0.8	1.5	1.8

[a] Treatment: T = treated for insects, U = untreated for insects.
[b] H = plots previously harvested.

See Table 6B for statistical analysis of southern green stink bug (adult + nymph) data.

Table 6B. Statistical analysis of southern green stink bug (adult + nymph) data from Table 6A. Beaumont, TX. 2004

	$\bar{x}$ no. southern green stink bug (adult + nymph)/20 sweeps[a]									
	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
Main plot (soybean maturity group/planting date) effects:										
RA 452 (MGIV/Apr 17)	0.6	6.6a	11.6a	10.0a	0.5b	H[b]	H	H	H	H
S50-N3 (MGV/May 21)	0.4	1.1b	4.1b	7.8a	2.4a	1.0	0.5ab	H	H	H
S50-N3 (MGV/Jul 6)	—	—	—	—	0b	0.3	1.3a	1.9	H	H
NC ROY (MGVI/May 21)	0	0.4b	0.5c	0.3b	0.3b	1.3	1.6a	0.5	H	H
NC ROY (MGVI/Jul 6)	—	—	—	—	0b	0.6	0b	0.9	2.5	H
DP 7220RR (MGVII/May 21)	0	1.3b	0.8c	0.5b	0.3b	0.1	0.5ab	0.4	0.1	H
DP 7220RR (MGVII/Jul 6)	—	—	—	—	0b	0.5	0.1b	0.4	0.8	1.3
Subplot (treated or untreated for insects) effects:										
Treated	0.3	0.3b	0.4b	1.6b	0b	0.1b	0.2b	0b	0.2b	0.8
Untreated	0.2	4.4a	8.1a	7.6a	0.9a	1.1a	1.2a	1.6a	2.1a	1.8
Interaction (main plot x subplot):										
	NS	SIG	SIG	SIG	SIG	NS	NS	NS	NS	NS

[a] Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).
[b] H = plots previously harvested.

Table 7A. Total phytophagous stink bugs[a] (adult + nymph) data for soybean maturity group/planting date vs. insects. Beaumont, TX. 2004

				x̄ no. total phytophagous stink bugs (adult + nymph)/20 sweeps									
Variety	Maturity group	Planting Date	Trt[a]	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
RA 452	IV	Apr 17	T	1.8	1.0	1.5	4.5	0	H[b]	H	H	H	H
			U	0.8	13.5	25.8	15.8	1.0	H	H	H	H	H
S50-N3	V	May 21	T	0.5	0.3	0.5	0.5	0	0.3	0.5	H	H	H
			U	0.3	2.5	9.0	15.8	7.0	3.3	2.0	H	H	H
		Jul 6	T	—	—	—	—	0	0.3	0.5	0.3	H	H
			U	—	—	—	—	0	0.3	2.8	7.0	H	H
NC ROY	VI	May 21	T	0.5	0	0	0.5	0	0	0.8	0	H	H
			U	0	0.8	1.5	0	0.5	3.0	4.5	1.3	H	H
		Jul 6	T	—	—	—	—	0	0	0.5	0	0.8	H
			U	—	—	—	—	0	1.3	0.5	2.8	6.5	H
DP 7220RR	VII	May 21	T	0	0.3	0.3	1.3	0.3	0	0.5	0.5	0.5	H
			U	0	2.5	1.3	0.5	0.5	0.3	2.0	1.3	0.3	H
		Jul 6	T	—	—	—	—	0	0.3	0	0	0.8	1.3
			U	—	—	—	—	0.3	0.8	1.0	3.0	8.3	3.0

[a] Total phytophagous stink bug = southern green stink bug (SGSB), green stink bug (GSB), and brown stink bug (BSB).

[b] Treatment: T = treated for insects, U = untreated for insects.

See Table 7B for statistical analysis of total phytophagous stink bugs (adult + nymph) data.

Table 7B. Statistical analysis of total phytophagous stink bugs (adult + nymph) data from Table 7A. Beaumont, TX. 2004

	$\bar{x}$ no. total phytophagous stink bugs (adult + nymph)/20 sweeps[a]									
	Jul 13	Jul 23	Aug 3	Aug 13	Aug 23	Sep 1	Sep 10	Sep 20	Oct 4	Oct 14
Main plot (soybean maturity group/planting date) effects:										
RA 452 (MGIV/Apr 17)	1.3a	7.3a	13.6a	10.1a	0.5b	H[b]	H	H	H	H
S50-N3 (MGV/May 21)	0.4b	1.4b	4.8b	8.1a	3.5a	1.8a	1.3ab	H	H	H
S50-N3 (MGV/Jul 6)	—	—	—	—	0b	0.3bc	1.6ab	3.6a	H	H
NC ROY (MGVI/May 21)	0.3b	0.4b	0.8c	0.3b	0.3b	1.5ab	2.6a	0.6b	H	H
NC ROY (MGVI/Jul 6)	—	—	—	—	0b	0.6abc	0.5b	1.4ab	3.6a	H
DP 7220RR (MGVII/May 21)	0b	1.4b	0.8c	0.9b	0.4b	0.1c	1.3ab	0.9b	0.4b	H
DP 7220RR (MGVII/Jul 6)	—	—	—	—	0.1b	0.5bc	0.5b	1.5ab	4.5a	2.1
Subplot (treated or untreated for insects) effects:										
Treated	0.7	0.4b	0.6b	1.7b	0b	0.1b	0.5b	0.2b	0.7b	1.3
Untreated	0.3	4.8a	9.4a	8.0a	1.3a	1.5a	2.1a	3.1a	5.0a	3.0
Interaction (main plot x subplot):										
	NS	SIG	SIG	SIG	SIG	SIG	NS	SIG	SIG	NS

[a] Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).
[b] H = plots previously harvested.

Evaluation of Southern Regional MGVI, MGVII and MGVIII Soybean Lines in Cooperation with Dr. Jim Heitholt

Project investigator: Dr. M.O. Way
Technicians: M.S. Nunez and R.G. Wallace
Graduate student: R.A. Wolff
Student assistants: M.S. Weiss and J.M. Lee
Administrative support: C.D. Tribble

Introduction

The objective of this research was to assess yield, seed quality and maturity date on experimental Maturity Group (MG) VI, MGVII and MGVIII soybean lines grown on the Texas Upper Gulf Coast. The research consisted of 33 Preliminary MGVI entries, 18 Uniform MGVI entries, 24 Preliminary MGVII entries, 15 Uniform MGVII entries, and 18 Preliminary MGVIII entries. These five tests were part of a larger scope of Southern Regional soybean research conducted by Dr. Jim Heitholt (Soybean Agronomist, Texas A&M University Agricultural Research and Extension Center at Dallas).

Materials and Methods

The soybean plantings were conducted on a Morey silt loam at the Texas Agricultural Research and Extension Center at Beaumont in 2004. Beds for the tests were pulled on 30 Mar (30 in. row width) and later cultivated on 16 Apr. The beds were again cultivated just prior to planting on 21 May. Plot size was four rows, 30 inch row width, trimmed to 15 ft long (0.003 acres). The Preliminary tests consisted of two replications and the Uniform tests consisted of three replications, each test in an individually randomized complete block. First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A were applied preemergence (PRE) on 25 May for early season weed control with a 4-row tractor-mounted spray tank and boom (35 gpa). Plots were cultivated once during the growing season on 5 Jul. On 11 Aug, an aerial application of Mustang Max @ 4oz/A and Tracer @ 2 oz/A was applied to all plots for insect control (mainly Lepidoptera larvae). There were no irrigations. Lodging was not observed in any plots.

The two middle rows of each plot (15 ft long, 0.0015 acres) were harvested individually at maturity by hand or with an Almaco SPC20 plot combine. Plant heights also were measured at maturity. Yields were determined, adjusted to 13% moisture and 60 lb/bu and analyzed using ANOVA and LSD (Tables 1-5). Seed quality also was assessed and given a visual rating (1 = excellent, 5 = very poor).

Results

The Preliminary and Uniform MG VI soybean lines generally yielded higher than the MGVII and MGVII lines. Test means were 32.1 and 32.6 bu/A, respectively (Tables 1-2). Highest yield overall was 48.4 bu/A (Table 2, Uniform MGVI). The earlier maturing soybeans also experienced noticeably better seed quality at harvest. The MGVII soybean lines yielded somewhat less than the MGVI lines. Test means were 25.2 and 28.3 bu/A (Tables 3-4). Seed quality also declined in these later maturing soybeans. The Preliminary MGVIII lines yielded lowest with the worst seed quality (Table 5). These latest maturing lines were subjected to inclement weather conditions during pod-fill and as harvest approached. Some MGVIII lines, in particular, were not able to fully mature resulting in green stems and extremely poor pod condition. Test mean for the MGVIII lines was 19.3 bu/A.

Table 1. Evaluation of Preliminary MGVI soybean lines at Beaumont, TX. 2004

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
R01-2195	Oct 10	20	2.0	***44.9***
NC ROY	Oct 19	26	2.3	***43.5***
NCC02-329	Oct 16	22	2.3	***43.4***
VS22-518	Oct 9	26	4.0	***41.7***
Au00-058	Oct 21	30	2.5	***40.7***
VS22-513	Oct 8	24	4.0	***40.0***
R97-818	Oct 8	23	2.5	***39.4***
NCC02-340	Oct 15	20	2.8	***39.4***
Au00-505	Oct 20	25	2.0	***37.5***
SC01-778RR	Nov 3	25	1.8	***37.3***
BOGGS RR	Oct 18	24	2.0	***36.8***
NCC02-307	Oct 16	22	2.8	***36.3***
VS22-577	Oct 9	24	3.5	***36.0***
N01-10974	Oct 14	26	2.8	***35.6***
R00-654	Oct 14	21	3.3	***35.2***
R01-2346	Oct 15	20	3.0	***34.1***
NTCPR01-42	Oct 27	23	2.0	***34.1***
Au00-027	Oct 16	27	2.3	***32.1***
VS22-524	Oct 8	23	3.0	31.9
SC01-669RR	Oct 16	25	2.0	29.2
NCC02-123-RR	Oct 14	24	2.5	28.7
G03-614RR	Nov 13	21	2.5	27.9
NCC02-317	Oct 16	23	3.0	27.8
VS22-523	Oct 4	20	3.0	27.3
Au00-1540	Oct 27	23	3.0	26.3
DILLON	Oct 14	24	3.3	26.2
VS22-451	Oct 13	23	4.5	25.2
R01-2731F	Oct 14	22	3.3	22.9
SC01-698RR	Nov 5	27	2.8	22.4
Derry	Oct 18	55	3.0	22.3
SC01-173	Oct 23	24	2.0	20.3
Randolph	Oct 9	20	3.0	16.7
Asmara	Oct 16	15	4.0	15.1

Test mean = 32.1 bu/A CV = 19.9% LSD(0.05) = 13.0 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 2. Evaluation of Uniform MGVI soybean lines at Beaumont, TX. 2004

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
R99-1888	Oct 15	23	2.8	***48.4***
NC ROY	Oct 23	25	1.7	***46.3***
BOGGS RR	Oct 17	23	2.3	35.8
R97-1801	Oct 14	19	2.8	35.2
R99-541	Oct 15	19	2.7	34.6
R96-1559	Oct 6	22	2.5	34.4
R98-209	Oct 14	25	2.7	34.1
VS21-441	Oct 7	42	2.2	33.6
VS21-443	Oct 12	17	3.0	33.1
VS20-394	Nov 7	23	2.8	32.4
SC00-1741	Nov 10	25	3.0	31.6
NTCPPR-01-163	Oct 18	24	3.0	29.9
DILLON	Oct 15	23	2.8	29.1
Au99-2006	Oct 25	23	2.3	28.7
VS21-449	Oct 13	15	3.2	28.6
VS20-402	Oct 19	19	2.5	26.1
Au99-1849	Oct 16	15	2.2	25.3
VS20-405	Oct 12	21	2.5	19.8

Test mean = 32.6 bu/A CV = 14.5% LSD(0.05) = 7.9 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 3. Evaluation of Preliminary MGVII soybean lines at Beaumont, TX. 2004

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
N01-11777	Nov 5	19	3.3	***40.4***
G03-830RR	Oct 28	30	3.0	***34.6***
BENNING	Nov 6	29	3.0	***34.4***
N01-11136	Nov 25	22	4.0	***33.3***
N02-7084	Nov 3	24	3.0	***31.4***
Au00-1478	Nov 8	33	3.0	***31.2***
SC01-796RR	Nov 28	28	3.5	29.7
Au00-255	Nov 14	28	3.0	29.3
Au00-1090	Nov 29	27	4.0	26.2
N01-110665-1	Oct 11	18	2.5	25.6
SC01-786RR	Nov 14	23	2.3	25.5
G03-940RR	Dec 8	32	4.3	25.4
HASKELL RR	Nov 30	30	4.8	25.1
Au00-1170	Nov 7	27	3.3	25.1
G03-557RR	Nov 3	26	3.5	24.4
SC01-779RR	Nov 19	29	3.3	23.2
G03-926RR	Dec 4	31	4.5	22.2
SC01-784RR	Oct 31	24	2.5	21.9
SC01-783RR	Nov 8	24	2.8	20.9
SC01-819RR	Dec 5	29	4.0	18.7
G03-364RR	Dec 10	22	4.8	17.2
Tyrone	Oct 13	58	3.5	15.6
G03-630RR	Dec 5	31	4.5	13.0
G03-332RR	Dec 11	26	5.0	10.6

Test mean = 25.2 bu/A CV = 20.0% LSD(0.05) = 10.4 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 4. Evaluation of Uniform MGVII soybean lines at Beaumont, TX. 2004

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
G00-3322	Nov 14	19	2.7	***36.2***
SC99-605	Nov 9	21	2.8	***34.8***
N99-8137	Nov 14	19	3.0	***33.4***
G00-3209	Nov 28	21	3.7	***33.3***
N00-370	Nov 3	25	3.2	***33.0***
G00-3213	Nov 7	18	3.3	***32.8***
BENNING	Nov 4	28	3.0	***31.6***
G99-2721	Nov 30	23	3.7	***29.6***
N97-9693	Nov 20	23	4.0	***28.6***
N97-9658	Dec 1	21	4.2	***28.3***
HASKELL RR	Dec 7	28	4.5	25.1
G03-G1126RR	Nov 12	22	3.7	24.3
SC98-318	Nov 14	20	3.3	22.3
G99-2678	Dec 6	25	4.7	16.3
SC00-601RR	Dec 13	28	4.7	14.3

Test mean = 28.3 bu/A CV = 18.6% LSD(0.05) = 8.9 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 5. Evaluation of Preliminary MGVIII soybean lines at Beaumont, TX. 2004

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
SC02-122	Nov 22	22	3.0	***34.1***
SC01-798RR	Dec 6	28	4.5	***28.6***
COOK	Dec 16	30	4.3	***28.5***
SC01-794RR	Dec 8	29	4.0	***28.2***
SC01-832RR	Dec 10	31	4.3	***25.6***
NTC02AXB-717	Nov 15	22	2.0	***24.5***
G03-548RR	Dec 8	30	4.5	***22.5***
SC01-793RR	Dec 4	31	4.8	***21.2***
G03-394RR	Nov 26	29	4.0	16.9
SC01-809RR	Dec 22	26	4.8	16.9
SC01-803RR	Dec 25	27	4.8	15.3
SC01-805RR	Dec 23	27	4.8	15.2
G03-533RR	Dec 9	27	4.8	14.2
G03-695RR	Dec 11	25	4.8	13.9
PRICHARD RR	Dec 7	23	4.0	13.2
G03-425RR	Dec 12	39	4.5	12.3
G03-952RR	Dec 15	28	4.8	11.5
G03-893RR	Dec 25	32	5.0	4.7

Test mean = 19.3 bu/A CV = 36.9% LSD(0.05) = 15.0 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Evaluation of Syngenta Advanced Soybean Lines in Cooperation with Dr. Glenn Bowers

Project investigator: Dr. M.O. Way
Technicians: M.S. Nunez and R.G. Wallace
Graduate student: R.A. Wolff
Student assistants: M.S. Weiss and J.M. Lee
Administrative support: C.D. Tribble

Introduction

The objective of this research was to assess yield, seed quality and maturity date on experimental soybean lines grown on the Texas Upper Gulf Coast. Soybean entries were provided by Dr. Glenn Bowers (Soybean Physiologist, Syngenta). The research consisted of Advanced Test 560 (36 entries), Advanced Test 567 (25 entries) and Advanced Test 570 (36 entries).

Materials and Methods

The soybean plantings were conducted on a Morey silt loam at the Texas Agricultural Research and Extension Center at Beaumont in 2004. Beds for the tests were pulled on 30 Mar (30 inch row width) and later cultivated on 16 Apr. The beds were again cultivated just prior to planting on 21 May. Plot size was four rows, 30 inch row width, trimmed to 15 ft long (0.003 acres). All tests consisted of two replications, each test in an individually randomized complete block. First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A were applied preemergence (PRE) on 25 May for early season weed control with a 4-row tractor-mounted spray tank and boom (35 gpa). Plots were cultivated once during the growing season on 5 Jul. On 11 Aug, an aerial application of Mustang Max @ 4oz/A and Tracer @ 2 oz/A was applied to all plots for insect control (mainly Lepidoptera larvae). There were no irrigations. Lodging was not observed in any plots.

The two middle rows of each plot (15 ft long, 0.0015 acres) were harvested at maturity by hand or with an Almaco SPC20 plot combine. Plant heights also were measured at maturity. Yields were determined, adjusted to 13% moisture and 60 lb/bu and analyzed using ANOVA and LSD (Tables 1-3). Seed quality also was assessed and given a visual rating (1 = excellent, 5 = very poor).

Results

The earlier maturing entries (Table 1, Advanced Test 560) tended to yield higher with better seed quality partly due to an earlier harvest under more favorable environmental conditions. Seed quality in later maturing entries suffered from deteriorating weather conditions during late pod-fill and approaching harvest (Tables 2-3, Advanced Tests 567 and 570). Drought conditions existed during at least a portion of the reproductive stage for all three tests. Some entries may have been affected more than others. Yields ranged from 43.8 bu/A (Advanced Test 567) to 8.3 bu/A (Advanced Test 570). Soybean lines from Advanced Test 560 (Maturity Groups 5.7-6.4) performed best overall with a test mean of 32.8 bu/A (Table 1). Many soybean lines were not adaptable to the Upper Gulf Coast environment. Although they had acceptable yields, they often suffered from poor seed quality at harvest. Other lines, however, yielded well with acceptable seed quality.

Table 1. Evaluation of Syngenta Advanced Test 560 soybean lines (MG 5.7-6.4) at Beaumont, TX.

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
S59-V6	Sep 29	23	2.0	***42.2***
BA045418	Oct 18	24	3.5	***40.6***
P96-B21	Oct 3	27	2.5	***39.1***
BA044398	Oct 12	25	3.0	***38.8***
BA020119	Oct 7	26	2.5	***38.8***
02KG294211	Sep 30	27	2.0	***37.9***
AG6202	Oct 9	25	2.3	***37.7***
02KG294773	Oct 3	19	2.5	***37.4***
P95B96	Oct 5	21	1.5	***37.4***
02KG294292	Oct 17	24	4.3	***36.7***
02KG292876	Oct 3	26	3.0	***36.4***
BA020320	Oct 4	21	2.5	***35.8***
02KG294260	Oct 16	22	3.5	***35.1***
02KG294717	Oct 15	22	3.3	***34.9***
02KG294537	Oct 2	21	2.5	33.5
BA04694	Oct 15	20	3.0	33.5
02KG294818	Oct 13	19	3.5	33.5
AG5901	Oct 5	22	1.5	33.2
S64-J1	Oct 15	29	3.0	33.1
02KG294201	Sep 30	20	1.5	33.0
02KG294722	Oct 7	22	2.5	31.8
02KG293304	Oct 16	24	3.3	31.6
02KG294306	Oct 10	21	3.0	31.3
02KG294199	Oct 3	19	2.0	31.2
02KG293285	Sep 30	27	3.0	31.1
02KG294274	Oct 8	23	4.0	30.9
S57-P1	Oct 3	19	2.0	30.8
BA042641	Oct 2	23	2.5	29.3
02KG294317	Oct 5	16	2.5	28.5
02KG294719	Oct 20	20	3.8	28.2
02KG294237	Oct 15	21	3.8	26.9
BA047074	Oct 19	23	4.3	25.4
02KG294259	Oct 16	21	4.8	25.3
02KG293733	Oct 15	20	3.0	23.9
02KG294423	Oct 4	21	3.5	23.1
02KG295571	Oct 15	26	4.3	21.4

Test mean = 32.8 bu/A CV = 12.5% LSD(0.05) = 8.3 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 2. Evaluation of Syngenta Advanced Test 567 soybean lines (MG 5.9-8.0) at Beaumont, TX.

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
BA016127	Oct 19	26	2.8	***43.8***
BA114580	Oct 19	24	2.5	***43.2***
BA113181	Oct 12	23	2.5	***43.1***
P95B97	Oct 15	20	2.5	***37.7***
BA018231	Oct 30	26	2.8	***36.5***
BA114927	Oct 15	28	3.3	***36.2***
HBK5992	Oct 13	22	3.0	***34.7***
BA820219	Oct 19	21	1.8	***33.7***
Benning	Nov 4	27	3.0	***33.0***
BA823370	Oct 19	24	2.0	***32.8***
BA115314	Oct 17	25	3.0	***32.8***
BA115340	Oct 17	20	3.3	31.8
BA114985	Oct 28	27	3.5	31.5
Prichard	Nov 26	30	4.5	30.9
BA743303	Oct 11	25	4.5	28.5
BA114473	Oct 29	24	3.5	27.6
BA115977	Dec 6	29	4.8	26.9
BA114828	Nov 25	23	3.8	24.6
BA016647	Nov 19	27	4.8	24.4
BA016627	Dec 17	29	4.8	24.0
BA115346	Nov 3	29	4.3	22.4
BA016710	Dec 5	27	4.8	21.3
BA114535	Nov 8	23	4.5	21.2
BA115972	Dec 15	31	5.0	20.7
BA018091	Dec 12	22	5.0	14.5

Test mean = 30.3 bu/A CV = 18.3% LSD(0.05) = 11.5 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Table 3. Evaluation of Syngenta Advanced Test 570 soybean lines (MG 6.3-8.0) at Beaumont, TX.

Strain or check variety	Mature date	Plant ht. (inches)	Seed quality[a] (1-5)	Yield[b] (bu/A)
DP6880RR	Oct 25	29	3.3	***42.7***
H6255RR	Oct 19	25	2.8	***40.7***
01KG118459	Nov 25	25	3.0	***39.5***
DP7220RR	Oct 18	27	2.3	***37.7***
02KG295569	Oct 16	25	2.3	***37.3***
AG7601	Nov 10	30	2.0	***35.1***
02KG294600	Oct 25	26	2.5	***34.6***
02KG294022	Oct 20	22	2.8	***34.6***
S76-L9	Nov 12	27	1.8	***32.3***
02KG294012	Oct 17	23	2.5	***31.0***
BA020262	Nov 24	28	4.3	30.6
BA922834	Nov 16	23	3.8	30.0
02KG294296	Oct 18	25	4.3	29.4
01KG120503	Nov 19	29	3.0	29.2
02KG295402	Oct 18	29	2.8	28.8
02KG295568	Oct 17	24	3.3	28.5
02KG295495	Oct 20	26	3.3	27.1
02KG292641	Dec 4	27	4.0	26.4
BA046119	Nov 7	26	3.3	26.3
02KG295228	Nov 9	24	3.0	24.9
02KG295168	Nov 21	25	3.8	24.4
02KG295446	Nov 13	28	3.8	23.7
BA947474	Dec 11	28	4.0	21.9
BA046116	Nov 17	22	3.8	21.1
01KG120477	Dec 12	31	4.5	20.6
02KG295201	Nov 21	27	3.8	20.0
02KG294646	Oct 23	19	4.0	19.5
02KG295355	Dec 6	31	5.0	16.7
01KG120539	Dec 13	30	4.5	15.5
02KG292572	Dec 24	35	4.8	14.8
01KG118460	Dec 12	33	5.0	14.2
BA947343	Dec 7	29	5.0	14.2
02KG295562	Dec 8	29	5.0	12.5
S73-Z5	Dec 8	25	4.8	12.1
02KG292580	Dec 14	29	4.8	9.3
BA947045	Dec 19	34	5.0	8.3

Test mean = 25.2 bu/A CV = 22.7% LSD(0.05) = 11.8 bu/A

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).

[b] Yields in bold italics are not statistically different than the highest yielding entry at the 5% level (ANOVA, LSD).

Determining the Influence of Seed Treatments of Cruiser 5FS and Foliar Applications of Quadris on Soybean Yield

Beaumont, TX

2004

Syngenta

CHRONOLOGICAL INFORMATION and PRODUCTION PRACTICES

Mar 31	Seed treated by SYNGENTA (see Tables for treatment descriptions, rates and timings)
May 21	Cultivated beds prior to planting (Morey silt loam)
May 22	Planted 222 seeds per 25 ft of row (Variety = S73-Z5, MGVII) Plot size = 4 rows, 30 inch row width, 25 ft long, 0.006 acres, 4 replications
May 24	Applied First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A preemergence (PRE) with a 4-row tractor-mounted spray tank and boom (35 gpa) for early season weed control
June 1	Counted adult and nymph thrips on 20 plants/plot Estimated defoliation (%) on 20 plants/plot
June 7	Counted number of plants in 3 ft section of the 2 middle rows of each plot (stand count)
June 22	Counted threecornered alfalfa hopper (TCAH) girdles on main stem and petioles of 5 plants/plot Estimated defoliation (%) on 5 plants/plot Measured plant height (inches) and vegetative growth stage on 5 plants/plot
July 5	Cultivated rows
July 29	Applied foliar application treatments of Quadris @ 6.0 oz/acre with a 2-row hand-held spray boom (8002 cone nozzles, 50 mesh screens, 12 gpa spray volume) Soybeans at growth stage R3 at time of application
Aug 16	Plots evaluated by Tom Isakeit for southern blight, leaf spot, web blight Only trace amounts of diseases noted (all < 1% of leaf area or plant affected)
Aug 28	Treated all plots with Karate Z @ 0.03 lb (AI)/acre for late season Lepidoptera control with a 2-row hand-held spray boom (8002 cone nozzles, 50 mesh screens, 12 gpa spray volume)
Dec 15	Harvested plots with an Almaco SPC20 plot combine (Size harvested plot = 2 middle rows, 30 inch row width, 25 ft long, 0.003 acres) Yields determined and adjusted to 13% moisture and 60 lb/bu Visual estimate of seed quality assessed (1 = excellent, 5 = very poor)

Thrip and TCAH girdle data were transformed using $\sqrt{x+0.5}$ before analysis.
Defoliation data were subjected to arcsine transformation before analysis.
All data were analyzed using ANOVA and LSD at the 5% level.

Determining the Influence of Seed Treatments of Cruiser 5FS and Foliar Applications of Quadris on Soybean Yield

Discussion

A significant difference among treatments occurred early in the season with respect to thrip counts (thrips were identified as *Frankliniella occidentalis*). Thrips were not found in plots seed-treated with Cruiser 5FS (Table 1). Plots were inspected for threecornered alfalfa hopper girdles but revealed no damage (Table 2). Otherwise, plots across all treatments developed similarly in the early growing season and there were no significant differences in yield or seed quality at harvest (Table 3). The variety S73-Z5 proved to be not very adaptable to the Upper Gulf Coast environmental conditions as evidenced by extremely poor seed quality in all plots. No significant conclusions can be drawn as to the effectiveness of the Cruiser 5FS seed treatments and/or foliar applications of Quadris in increasing soybean yield.

Table 1. SYNGENTA soybean seed treatment test [thrips (*Frankliniella occidentalis*) and defoliation data on June 1]. Beaumont,TX. 2004

	Rate	No. thrips/plant[b]			Defoliation[c]
Treatment[a]	g (AI)/100 kg seed	Nymphs	Adults	Total	(%)
Untreated	---	4 c	3 b	7 c	2
Fungicide only	6.25	4 c	3 b	7 bc	2
Fungicide + Cruiser 5FS	6.25 + 50.0	0 a	0 a	0 a	2
Fungicide + Quadris	6.25 + 6.0 fl oz/ac	2 b	3 b	5 b	3
Fungicide + Cruiser 5FS + Quadris	6.25 + 50.0 + 6.0 fl oz/A	0 a	0 a	0 a	0
					NS

[a] Treatment: Fungicide (APRON MAXX RTA + MOLY 0.166 ES) and Cruiser 5FS applied as seed treatments; Quadris applied as foliar spray (6.0 fl oz/A) at R3 growth stage.
[b] Derived from the mean of 20 plants/plot.
[c] Visual estimate of defoliation derived from the mean of 20 plants/plot.
Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

Table 2. SYNGENTA soybean seed treatment test (plant characteristics, threecornered alfalfa hopper, and defoliation data on June 22). Beaumont, TX. 2004

Treatment[a]	Rate g (AI)/100 kg seed	Growth stage	Plant ht. (inches)	Threecornered alfalfa hopper girdles[b]			Defol.[c] (%)
				Main stem	Petioles	Total	
Untreated	---	V6	22	0	0	0	3
Fungicide only	6.25	V6	21	0	0	0	2
Fungicide + Cruiser 5FS	6.25 + 50.0	V6	21	0	0	0	2
Fungicide + Quadris	6.25 + 6.0 fl oz/ac	V7	23	0	0	0	2
Fungicide + Cruiser 5FS + Quadris	6.25 + 50.0 + 6.0 fl oz/A	V6	22	0	0	0	2
		NS	NS	NS	NS	NS	NS

[a] Treatment: Fungicide (APRON MAXX RTA + MOLY 0.166 ES) and Cruiser 5FS applied as seed treatments; Quadris applied as foliar spray (6.0 fl oz/A) at R3 growth stage.
[b] Derived from the mean of 5 plants/plot.
[c] Visual estimate of defoliation derived from the mean of 5 plants/plot.
Means in all columns are not significantly (NS) different at the 5% level (ANOVA, LSD).

Table 3. SYNGENTA soybean seed treatment test (plant stand, yield and seed quality). Beaumont, TX. 2004

Treatment[a]	Rate lb (AI)/100 kg seed	Plants/ft of row[b]	Yield (bu/acre)[c]	Seed quality (1-5)[d]
Untreated	---	6 c	9.7	5.0
Fungicide only	6.25	8 ab	12.1	5.0
Fungicide + Cruiser 5FS	6.25 + 50.0	7 ab	8.4	5.0
Fungicide + Quadris	6.25 + 6.0 fl oz/ac	7 bc	16.0	5.0
Fungicide + Cruiser 5FS + Quadris	6.25 + 50.0 + 6.0 fl oz/A	8 a	12.6	5.0
			NS	NS

[a] Treatment: Fungicide (APRON MAXX RTA + MOLY 0.166 ES) and Cruiser 5FS applied as seed treatments; Quadris applied as foliar spray (6.0 fl oz/A) at R3 growth stage.
[b] Derived by counting number of plants in a 3 ft. section of each of the two middle rows/plot.
[c] Yields adjusted to 13% moisture and 60 lb/bu.
[d] Visual estimate of seed quality (1 = excellent, 5 = very poor).
Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

MGIV Soybean Insecticide Screening Experiment

Texas Agricultural Experiment Station
Beaumont, TX
2004

CHRONOLOGICAL INFORMATION

Mar 30	Pulled beds for experiment (Morey silt loam)
Apr 16	Cultivated beds (30 inch row width)
Apr 17	Planted RA 452 (MGIV soybean) at a rate of 8 viable seed per foot of row Plot size later trimmed to 8 rows, 30 inch row width, 40 ft long, 4 replications (0.018 acres)
Apr 21	Applied First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A preemergence (PRE) with a 2-row hand-held spray boom (15 gpa)
Jul 28	Soybeans at R4 growth stage. Stink bug populations noted as on the increase as well as some soybean loopers
Aug 3	Pretreatment samples are collected (20 sweeps/plot down entire length of one row). Soybeans at growth stage R5. Samples were placed in plastic bags, frozen and insects later identified and counted. Subsequent 20 sweep samples were collected on an adjacent row to previous sampling.
Aug 4	Mustang Max at three rates and Karate Z at one rate (Tables 1-6) were applied to selected plots with a 2-person hand-held spray boom pressurized with CO_2 at 25 psi (13- 80015 nozzles, 50 mesh screens, 20 ft spray swath, 20 gpa spray volume).
Aug 6	20 sweeps/plot [2 days after treatment (DAT)]. Soybeans at R5.
Aug 9	20 sweeps/plot (5 DAT). Soybeans at R5/6.
Aug 13	20 sweeps/plot (9 DAT). Soybeans at R6.
Aug 16	20 sweeps/plot (12 DAT). Soybeans at R6.
Aug 20	20 sweeps/plot (16 DAT). Soybeans at R6.
Aug 25	Final 20 sweeps/plot (21 DAT). Soybeans at R7.
Sep 9	Harvested all plots except untreated which were still green-stemmed and not fully mature Size harvested plot = 4 middle rows, 30 in row width, 40 ft long (0.009 acres)
Sep 17	Harvested untreated plots

Note: Yields were determined and adjusted to 13% moisture and 60 lb/bu. Seed quality was assessed and given a visual rating (1 = excellent, 5 = very poor). Insect counts were transformed using $\sqrt{x+0.5}$ and all data analyzed using ANOVA and LSD (Tables 1-6).

MGIV Soybean Insecticide Screening Experiment

Beaumont, TX
2004

Discussion

Southern green stink bug (SGSB), *Nezara viridula*, was the predominant insect pest in this experiment. All treatments performed equally well in controlling this species (Tables 1-3). The low rate of Mustang Max was slightly less effective than the mid and high rate at controlling all species of stink bugs [SGSB, green stink bug (*Acrosternum hilare*) and brown stink bug (*Euschistus servus*)] (Table 4). Lepidoptera larvae (velvetbean caterpillar, green cloverworm and soybean looper) and threecornered alfalfa hopper (TCAH) were not significant pests during pod-fill and approaching maturity. TCAH data are not presented due to their presence in extremely low numbers. Lepidoptera larvae were on the increase at 5 DAT (Table 5) but not in significant numbers to jeopardize yield. Mustang Max and Karate Z appeared to have little or no residual effect on controlling Lepidoptera larvae in this experiment.

Although Mustang Max (all rates) and Karate Z treatments outyielded untreated plots, there was not a statistical difference. Yields in insecticide treated plots ranged from 27.6 to 23.7 bu/A compared to 20.2 bu/A in untreated plots. However, all plots with insecticide treatments (low, mid and high rate of Mustang Max, and Karate Z) benefitted with significantly better seed quality at harvest than untreated plots (Table 6).

Table 1. Southern green stink bug nymph counts in the insecticide screening test with MGIV soybeans. Beaumont, TX. 2004

Treatment	Rate lb(AI)/acre	No./20 sweeps						
		PRE[a]	2 DAT[b]	5 DAT	9 DAT	12 DAT	16 DAT	21 DAT
Mustang Max	0.018	13	0 b	1 b	0	0	0	0
Mustang Max	0.022	9	1 b	0 b	0	0	0	0
Mustang Max	0.025	14	0 b	1 b	0	0	0	0
Karate Z	0.030	20	1 b	0 b	0	0	0	0
Untreated	—	15	11 a	7 a	2	1	1	0
		NS			NS	NS	NS	NS

[a] PRE = pretreatment.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

Table 2. Southern green stink bug adult counts in the insecticide screening test with MGIV soybeans. Beaumont, TX. 2004

Treatment	Rate lb(AI)/acre	No./20 sweeps						
		PRE[a]	2 DAT[b]	5 DAT	9 DAT	12 DAT	16 DAT	21 DAT
Mustang Max	0.018	3	0 b	1 b	1 b	0 b	1	0
Mustang Max	0.022	4	0 b	0 b	0 b	0 b	1	0
Mustang Max	0.025	6	0 b	1 b	1 b	1 b	0	0
Karate Z	0.030	5	1 b	1 b	0 b	0 b	0	0
Untreated	—	5	5 a	14 a	5 a	3 a	2	0
		NS					NS	NS

[a] PRE = pretreatment.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

Table 3. Southern green stink bug (nymph and adult) counts in the insecticide screening test with MGIV soybeans. Beaumont, TX. 2004

Treatment	Rate lb(AI)/acre	No./20 sweeps						
		PRE[a]	2 DAT[b]	5 DAT	9 DAT	12 DAT	16 DAT	21 DAT
Mustang Max	0.018	16	0 b	2 b	1 b	0 b	1 b	0
Mustang Max	0.022	13	1 b	1 b	0 b	0 b	1 b	0
Mustang Max	0.025	19	0 b	1 b	1 b	1 b	0 b	0
Karate Z	0.030	25	1 b	1 b	0 b	0 b	0 b	0
Untreated	—	20	16 a	20 a	7 a	4 a	3 a	0
		NS						NS

[a] PRE = pretreatment.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

Table 4. Total phytophagous stink bug nymph and adult (southern green stink bug, *Piezodorus guildinii*, brown stink bug) counts in the insecticide screening test with MGIV soybeans. Beaumont, TX. 2004

Treatment	Rate lb(AI)/acre	No./20 sweeps						
		PRE[a]	2 DAT[b]	5 DAT	9 DAT	12 DAT	16 DAT	21 DAT
Mustang Max	0.018	19	1 b	6 b	1 b	2	1	0
Mustang Max	0.022	14	1 b	1 c	0 b	1	1	0
Mustang Max	0.025	22	1 b	2 c	1 b	4	1	0
Karate Z	0.030	26	3 b	4 bc	1 b	2	1	0
Untreated	—	22	19 a	21 a	8 a	5	3	0
		NS				NS	NS	NS

[a] PRE = pretreatment.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

Table 5. Total Lepidoptera larvae (soybean looper, green cloverworm, velvetbean caterpillar) counts in the insecticide screening test with MGIV soybeans. Beaumont, TX. 2004

Treatment	Rate lb(AI)/acre	No./20 sweeps						
		PRE[a]	2 DAT[b]	5 DAT	9 DAT	12 DAT	16 DAT	21 DAT
Mustang Max	0.018	2	1	3	4	4	4	0
Mustang Max	0.022	2	0	3	1	4	2	0
Mustang Max	0.025	1	1	3	1	4	4	1
Karate Z	0.030	2	1	4	3	7	4	0
Untreated	—	3	3	4	3	2	2	1
		NS	NS	NS	NS	NS	NS	NS

[a] PRE = pretreatment.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

Table 6. Mean yield and seed quality in MGIV soybean insecticide screening test. Beaumont, TX. 2004

Treatment	Rate lb (AI)/acre	Yield[a] (bu/acre)	Seed quality (1-5)[b]
Mustang Max	0.018	25.6	3.3a
Mustang Max	0.022	23.7	3.1a
Mustang Max	0.025	25.8	3.4a
Karate Z	0.030	27.6	3.5a
Untreated	—	20.2	4.4b
		NS	

[a] Yield (bu/acre): Adjusted to 13% moisture and 60 lb/bu.
[b] Seed quality (1-5): visual estimate, 1 = excellent, 5 = very poor.
Means in a column followed by the same or no letter are not statistically (NS) different at the 5% level (ANOVA, LSD).

MGVII Soybean Insecticide Screening Experiment

Texas Agricultural Experiment Station
Beaumont, Texas
2004

May 22 Planted Pioneer 97B52 RR (MGVII) on a Levac soil at viable seed per foot of row
Plot size = 8 rows, 40 ft long, 30 inch row width, 4 replications (0.018 acres)

May 24 Applied First Rate @ 0.75 oz/acre and Dual II Magnum @ 2.5 pt/acre preemergence (PRE) with a 4-row tractor-mounted spray tank and boom (35 gpa) for early season weed control

June 18 Applied Honcho (glyphosate) @ 1.0 qt/acre by airplane for early-mid season weed control
Note: Cultivation was not required for duration of season.

Aug 27 Pretreatment samples collected (20 sweeps/plot with a canvas net down entire length of one row in each plot). Subsequent 20 sweeps were collected in the row adjacent to previous sampling. Samples were placed in a plastic bag, frozen and insects later identified and counted.
Treatments were arranged in a randomized complete block. Immediately following collection of pretreatment samples, insecticide treatments were applied using a 2-person hand-held spray boom pressurized with CO_2 at 25 psi (13- 80015 nozzles, 50 mesh screens, 20 ft spray swath, 20 gpa spray volume).
Soybeans were at R5 growth stage.

Aug 30 20 sweeps/plot [3 days after treatment (DAT)]
Soybeans at R5 growth stage

Sep 6 20 sweeps/plot (10 DAT)
Soybeans at R5/R6 growth stage

Sep 13 Final 20 sweeps/plot (17 DAT)
Soybeans at R6 growth stage

Oct 15 Soybeans at late R6 growth stage, leaves yellowing, beginning of leaf drop

Dec 4 Due to adverse weather and poor harvesting conditions, plots were hand-harvested, carried out of the field, and later threshed with an Almaco SPC20 plot combine.
Size harvested plot = 1 row, 30 inch row width, 25 ft long (0.0014 acres)

Note: Yields were determined and adjusted to 13% moisture and 60 lb/bu. Seed quality was assessed and given a visual rating (1 = excellent, 5 = very poor). Insect counts were transformed using $\sqrt{x+0.5}$ and all data analyzed using ANOVA and LSD (Tables 1-4).

MGVII Soybean Insecticide Screening Experiment
Beaumont, TX
2004

Discussion

Velvetbean caterpillar (VBC), *Anticarsia gemmatalis*, was the predominant insect pest at R5 growth stage when pretreatment sweeps were collected and insecticide treatments applied. At 3 DAT Intrepid 2F, Steward SC (high rate), Tracer, Lannate, Asana XL and Karate Z provided excellent control of this pest (Table 1). Steward SC (low and mid rate), GF-317 and KN128-149 were less effective but did provide some level of control. VBC populations were declining in all plots (including the untreated) at 10 DAT. All three Intrepid 2F rates, the high rate of Steward SC, GF-317, the high rate of KN128-149, Tracer, Lannate, Asana XL and Karate Z provided excellent control of VBC up to and through 10 DAT (Table 1). Stink bugs (southern green stink bug, green stink bug and brown stink bug) were not present in significant numbers throughout the sampling period. Conclusions as to the effectiveness of treatments on these pests cannot be drawn (Table 2). Threecornered alfalfa hopper (TCAH) were not present in significant numbers at time of insecticide applications but most treatments showed some level of control at 3 DAT (Table 3). However, populations were dramatically on the rise by 10 DAT in almost all treatments (perhaps little to no residual activity on TCAH).

Although all treatments provided some level of VBC control, yields and seed quality throughout the test were very poor (Table 4). Plots did experience a period of low rainfall during the reproductive stage and irrigation was not applied. More importantly, however, the variety (Pioneer 97B52) may not be adaptable to the Upper Gulf Coast environment. Weather conditions also deteriorated in the latter stages of pod-fill and as harvest approached resulting in extremely poor seed quality.

Table 1. Velvetbean caterpillar counts in the MGVII soybean insecticide screening experiment. Beaumont, TX. 2004

Treatment	Rate lb (AI)/acre	PRE[a]	3 DAT[b]	10 DAT	17 DAT
Intrepid 2F	0.031	58 b	3 abc	0 a	0 a
Intrepid 2F	0.063	29 a	2 abc	0 a	0 a
Intrepid 2F	0.100	57 b	1 a	0 a	0 ab
Steward SC	0.045	54 b	12 f	3 de	0 ab
Steward SC	0.065	50 b	13 f	2 cd	1 bc
Steward SC	0.100	48 b	3 bc	1 abc	0 a
GF-317	0.010	30 a	7 de	1 abc	0 ab
KN128-149	0.045	51 b	9 ef	5 ef	0 a
KN128-149	0.065	28 a	4 cd	2 bcd	1 ab
Tracer	0.034	50 b	1 ab	0 ab	1 ab
Lannate	0.380	49 b	1 ab	1 abc	1 ab
Asana XL	0.036	52 b	1 ab	0 a	0 ab
Karate Z	0.030	52 b	2 abc	0 ab	0 a
Untreated	---	48 b	22 g	8 f	2 c

[a] PRE = pretreatment sweeps.
[b] DAT = days after treatment.
Means in a column followed by the same letter are not significantly different at the 5% level (ANOVA, LSD).

Table 2. Total phytophagous stink bug nymph and adult (southern green stink bug, green stink bug and brown stink bug) counts in the MGVII soybean insecticide screening experiment. Beaumont, TX. 2004

Treatment	Rate lb (AI)/acre	PRE[a]	3 DAT[b]	10 DAT	17 DAT
Intrepid 2F	0.031	2	1 a	6 d	5
Intrepid 2F	0.063	2	1 ab	3 abcd	4
Intrepid 2F	0.100	1	4 c	1 a	6
Steward SC	0.045	1	1 a	2 abcd	5
Steward SC	0.065	1	0 a	1 a	6
Steward SC	0.100	1	1 a	2 abc	6
GF-317	0.010	0	1 a	1 a	2
KN128-149	0.045	0	0 a	2 abc	4
KN128-149	0.065	2	1 a	1 ab	5
Tracer	0.034	1	1 a	4 bcd	4
Lannate	0.380	1	1 a	2 abcd	5
Asana XL	0.036	1	1 a	2 ab	1
Karate Z	0.030	1	0 a	0 a	1
Untreated	---	2	3 bc	5 cd	2
		NS			NS

[a] PRE = pretreatment sweeps.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

Table 3. Threecornered alfalfa hopper (nymph + adult) counts in the MGVII soybean insecticide screening experiment. Beaumont, TX. 2004

Treatment	Rate lb (AI)/acre	PRE[a]	3 DAT[b]	10 DAT	17 DAT
Intrepid 2F	0.031	6	11 bc	37 de	26
Intrepid 2F	0.063	6	3 a	12 ab	12
Intrepid 2F	0.100	8	13 c	28 bcde	32
Steward SC	0.045	6	7 abc	17 abcd	16
Steward SC	0.065	5	4 ab	24 bcde	22
Steward SC	0.100	6	4 ab	18 abcde	20
GF-317	0.010	5	3 a	17 abc	14
KN128-149	0.045	10	7 abc	38 e	25
KN128-149	0.065	8	5 ab	23 bcde	16
Tracer	0.034	5	8 abc	27 bcde	23
Lannate	0.380	8	4 a	19 abcde	11
Asana XL	0.036	4	5 ab	14 ab	15
Karate Z	0.030	5	3 a	7 a	8
Untreated	---	10	11 bc	34 cde	32
		NS			NS

[a] PRE = pretreatment sweeps.
[b] DAT = days after treatment.
Means in a column followed by the same or no letter are not significantly (NS) different at the 5% level (ANOVA, LSD).

Table 4. Yield and seed quality in the MGVII soybean insecticide screening experiment. Beaumont, TX. 2004

Treatment	Rate lb (AI)/acre	Seed quality[a] (1-5)	Yield[b] (bu/A)
Intrepid 2F	0.031	4.8	5.9
Intrepid 2F	0.063	5.0	10.6
Intrepid 2F	0.100	4.6	7.0
Steward SC	0.045	4.5	8.9
Steward SC	0.065	4.5	8.3
Steward SC	0.100	4.8	7.7
GF-317	0.010	5.0	8.3
KN128-149	0.045	4.6	5.7
KN128-149	0.065	4.6	9.5
Tracer	0.034	4.9	8.0
Lannate	0.380	4.6	7.3
Asana XL	0.036	4.8	8.0
Karate Z	0.030	4.9	8.9
Untreated	---	4.5	7.9
		NS	NS

[a] Seed quality: Visual estimate (1 = excellent, 5 = very poor).
[b] Yield adjusted to 13% moisture and 60 lb/bu.
Means are not significantly (NS) different at the 5% level (ANOVA, LSD).

Soybean Performance Trial at Beaumont, TX. 2004

Project Investigator: M.O. Way
Technicians: R.G. Wallace and M.S. Nunez
Student Assistants: M. Weiss and B. Wolff
Administrative Support: C.D. Tribble

Introduction

The objective of this experiment was to compare yield performance and seed quality of soybeans representing maturity groups (MG) V, VI and VII. Previous research indicates earlier maturing soybeans (MGV and VI) may avoid inclement weather (typical of the Upper Gulf Coast) as harvest maturity approaches resulting in higher yield and better seed quality than later maturing soybeans.

Materials and Methods

Nine cultivars were selected for the experiment. Beds were cultivated and planted (Morey silt loam soil) on 21 May. Plot size was 4 rows, 30 inch row width, 15 ft long with 3 replications. First Rate @ 0.75 oz/acre and Dual II Magnum @ 2.5 pt/acre were applied on 24 May preemergence with a tractor-mounted spray tank and boom (35 gpa) for early season weed control. Beds were cultivated mid-season on 5 Jul. Orthene 90S @ 1.0 lb (AI)/acre and Tracer @ 2.0 oz/acre were applied on 5 Aug with a two-person hand-held spray boom (20 gpa) for mainly Lepidoptera control. The two middle rows of each plot (15 ft long) were harvested at maturity with an Almaco SPC20 plot combine. Plant height and pod height were also recorded at maturity. Yields were determined and adjusted to 13% moisture and 60 lb/bu. Seed quality was assessed and given a visual rating (1 = excellent, 5 = very poor). Yield was analyzed using ANOVA and LSD.

Results

It was not a particularly favorable year for soybeans. The plots experienced substantial rain early in the season and a drought period during the reproductive period. Irrigation was not applied. Inclement weather conditions as maturity approached resulted in less than satisfactory pod quality in most cultivars, especially the later maturing MGVIIs. S50-NC (MGV) had the best seed quality. The top four yielding cultivars were either MGVIs or MGVs (Table 1). The MGVII cultivars generally fared worse in both yield and seed quality than the earlier maturing MGVs and VIs. On average, the MGV and VI cultivars matured 30 days earlier (Oct 13) than MGVII cultivars (Nov 12).

Table 1. Soybean performance trial at Beaumont, TX. 2004

Variety	Company	Maturity group	Plant ht. (inches)	Pod ht. (inches)	Mature date	Qual.[a] (1-5)	Yield[b] (bu/A)
NC ROY	NCSU	VI	23	2	Oct 29	3.0	41.5a
AG6202	Asgrow	VI	26	2	Oct 17	2.7	40.7ab
DKB57-51	DeKalb	V	22	1	Sep 28	2.5	35.7abc
S50-NC	Syngenta	V	31	1	Sep 25	2.0	33.4abcd
DP7220RR	Deltapine	VII	26	1	Oct 29	3.7	28.8bcd
97B52RR	Pioneer	VII	25	1	Nov 16	2.8	24.1cde
H7242RR	Jacob Hartz	VII	28	2	Nov 19	3.2	23.8cde
DKB64-51	DeKalb	VI	23	0	Oct 30	3.8	22.6de
AG7601	Asgrow	VII	25	2	Nov 18	3.2	15.7e
Test Mean = 29.6 bu/acre		CV = 23.8%	LSD(.05) = 12.2 bu/acre				

[a] Qual.: visual estimate of seed quality (1 = excellent, 5 = very poor).
[b] Yield adjusted to 13% moisture and 60 lb/bu.
Yields followed by the same letter are not significantly different at the 5% level (ANOVA, LSD).

Evaluating Sugarcane Varieties in Southeast Texas. Beaumont, TX. 2004

Project Investigators:	Mo Way[1], W. White (USDA-Houma, LA) and E. Richard (USDA-Houma, LA)
Technicians:	M.S. Nunez and R.G. Wallace
Graduate Students:	Luis Espino and B.A. Wolff
Intern:	J. Lee
Student Assistants:	M. Weiss, A. Brown, R. McCormick, C. Gibbs

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Cooperator:
Steve Stelly, sugarcane farmer, Chambers County

Introduction

A nascent sugarcane industry is attempting to gain a foothold in SE Texas. Thus, the main objective of these studies is to assist in establishing a viable sugarcane industry in SE Texas. In 2003, collaborators from USDA/Houma, LA supplied the Entomology Project with six and three lines of sugarcane and energy cane, respectively. These lines were planted in the fall of 2003. In the late fall of 2004, these plots were harvested as seed increase plots and planted on Steve Stelly's farm in Chambers County. See attached details. The objective of this study is to harvest seed increase plots on Stelly's farm in the fall of 2005 and plant the harvested cane in replicated, large plot tests to be harvested in the fall of 2006. Cane yield and agronomic data will be collected from these tests to assist SE Texas sugarcane farmers.

Sugarcane Increase in Chambers Co. in 2004-05

East *West*

Field road .....

U.S.D.A. sugarcane plantings ---------- 3 rows

2-row gap .....

HoCP 85-845 (410 ft.) ----------| *Gap* | HoCP 91-555 (400 ft.) ---------- 3 rows

2-row gap .....

LCP 85-384 (180 ft.) --| *Gap* | HoCP 96-540 (400 ft.)----------| *Gap* | Ho 95-988 (280 ft.) --- 3 rows

2-row gap .....

HoCP 00-961 (280 ft.) -------| *Gap* | HoCP 91-552 (290 ft.) ----------| Fallow ..... 3 rows

2-row gap .....

TucCP 77-42 (300 ft.) ----------| *Gap* | L97-128 (450 ft.) ---------- 3 rows

North

CHRONOLOGICAL INFORMATION

Oct 25-26	Hand-harvested all plots except L97-128 (3 rows each) and laid on beds
Oct 28	Planted all plots at Steve Stelly's except L97-128 (3-row plots)
Oct 29	Hand-harvested L97-128 at Beaumont and stored in back of truck (3 rows)
Nov 16	Planted L97-128 at Steve Stelly's (3 row plot)
Jan 21	Visited with Steve Stelly at cane site in Chambers Co. He reported that all plots emerged well. Plots were presently burned down from recent freezes but he expects them to reemerge in good shape. Beds have a light cover of winter grass. No problem weeds. Steve reports he plans to fertilize and work beds probably sometime in Feb.

Sugarcane Variety Seed Increase
Beaumont, TX

2003-04

HoCP 96-540 (3 rows x 35 ft.)	TucCP 77-42 (energy cane) (3 rows x 24 ft.)
	HoCP 91-552 (energy cane) (3 rows x 24 ft.)
HoCP 91-555 (3 rows x 35 ft.)	HoCP 00-961 (energy cane) (3 rows x 24 ft.)
HoCP 85-845 (3 rows x 35 ft.)	L 97-128 (3 rows x 35 ft.)
LCP 85-384 (3 rows x 35 ft.)	Ho 95-988 (3 rows x 35 ft.)
3 rows	3 rows

Chronological Information

2003 .....

Oct 30	Planted test, row width = 6 ft., 5 ft. alleys between plots Large plots are 35 ft. long, small plots are 24 ft. long
Oct 31	Packed rows
Nov 3	Applied Sencor DF @ 2.0 lb/acre (14 gpa application rate)

2004 .....

Apr 5	Topdressed with urea @ 100 lb N/acre and cultivated
May 28	Post-directed Asulox @ 6.0 pt/acre and Agri-Dex @ 1% v/v
Jun 4	Applied Confirm 2F @ 8 oz/acre (15 gpa application rate)
Sep 1	Post-directed Asulox @ 6.0 pt/acre and Agri-Dex @ 1% v/v
Oct 25-26	Hand-harvested all plots except L97-128
Oct 28	Planted all plots except L97-128 at Steve Stelly's (3 row plots)
Oct 29	Hand-harvested L97-128 at Beaumont
Nov 16	Planted L97-128 at Steve Stelly's (3 row plot)

Mexican Rice Borer Detected East of Harris County in 2004.

Project Investigators: Mo Way[1] and T.E. Reagan (LSU, Baton Rouge, LA)
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Graduate Students: F.P.F. Reay-Jones, Juis Espino and B.A. Wolff
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Brent Batchelor, CEA, Matagorda County
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Julio Castillo, Farm Services Manager, Garret Farms, Brazoria County
Joel Ardoin, CEA, Orange County
David LeCompte, rice farmer, Galveston County
Zan Matthies, CEA, Calhoun County
Ron Holcomb, CEA Liberty County
Doug Smith, CEA, Harris County
Rick Jahn, CEA, Wharton County
Chris Schneider, CEA, Jackson County
Jack Vawter, Farm Operations Mgr., TAES Eagle Lake, Colorado County

Introduction

Durring the fall of 2004, three Mexican rice borer (MRB), *Eoreuma loftini*, moths were found in a Texas Agricultural Experiment Station MRB pheromone trap located near the edge of a sugarcane field about 3 miles west of the junction of FM 1406 and FM 1663 in Chambers County. Due to these moth captures, the Louisiana Department of Agriculture and Forestry (LDAF) quarantined the sugar cane within a 1 mile radius of the trap. In other words, following the detection of MRB near sugarcane in SE Texas, LDAF did not want SE Texas sugarcane entering Louisiana for processing. A meeting was held on September 27, 2004 in Baton Rouge, LA where representatives from LDAF, Texas Department of Agriculture, USDA, LSU, Texas A&M University and private sugarcane interests in both Louisiana and Texas discussed the quarantine. In short, the meeting did not result in a relaxation of the quarantine.

Following the moth captures, sugarcane in fields near the trap were sampled for MRB larvae/pupae. Over a period of several weeks, about 600 sugarcane stalks were dissected and inspected for MRB larvae/pupae. No live or dead MRB larvae/pupae were found in the sugarcane.