

# Presence and significance of Soybean Stem Borer, *Dectes texanus texanus*, in Kansas soybean variety trials.

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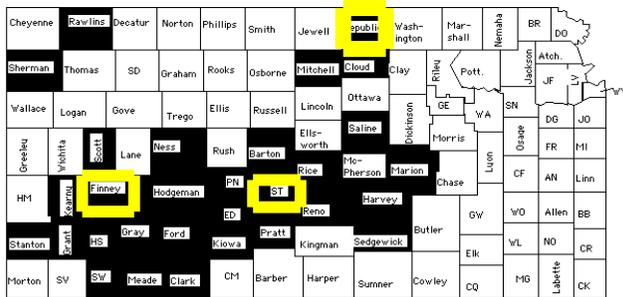
**Abstract:** During the last two years, K-State and the Kansas Soybean Commission have supported numerous studies on the soybean stem borer (*Dectes texanus texanus*). The soybean stem borer adult is a small (15mm), gray longhorn beetle that causes insignificant damage by leaf-feeding. It lays eggs on the petioles of mid- to upper canopy leaves. Larvae are small (1.5-15mm), legless, and live entirely within the soybean plant, tunneling extensively within the leaf petiole and downward inside the main stem. When a larva reaches the plant base, it girdles the stem near ground level, increasing the likelihood that the plant will lodge, hence making harvesting much more difficult. At the end of the 2000 growing season, four varietal evaluation trials located in three different counties across the state were sampled. Each replicated trial had been established by researchers in the Agronomy Department and involved between 25 and 45 varieties of soybeans. For each variety and replication, five plants were examined. We recorded the number of plants lodged and number of plants with obvious signs of tunneling. Results from the year 2000 trials indicate that some significant differences among varieties may exist.

## Experimental Design:

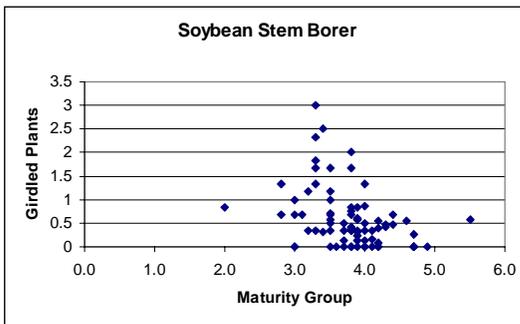
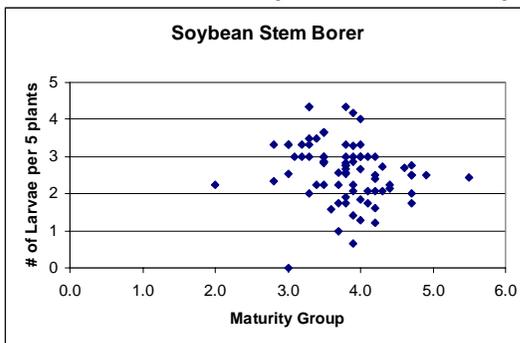
The plots were set up with either three or four replications in a complete randomized block design. The varieties were planted in four-row wide plots where the rows were 76 cm apart. The outside rows were used for stem borer infestation and damage determinations while the inner two rows were reserved for yield assessments. For each variety in each replication, we examined five consecutive plants in one of the outside rows. We first checked to see if any were girdled and lodged and then we split the stems to check for the presence of a larva and tunneling within the stem.

## Known Distribution of the Soybean Stem Borer as of December 1, 2000

Kansas State University



Soybean varietal trials were located in counties outlined in yellow (one trial in both Finney and Republic counties and two in Stafford).



**Summary:** At the time of sampling (around the time the soybeans would be harvested), the cultivars entered in the Year 2000 Kansas soybean variety trials exhibited a wide range of damage from the soybean stem borer. From zero to 93.3% of plants showed signs of stem tunneling; from zero to 86.7% of the soybean stems contained larva, and from zero to 60% of the plants were girdled and laying on the ground. Future studies will focus on the varieties that received the lowest levels of infestation in these trials to determine if they consistently have less damage than other varieties.

Sampled Soybean Varieties	Maturity Group	Avg. num ber larvae out of 5 plants	Statistical Separation	Larvae per 5 plants	Statistical Separation
Z-Public / M 2021	2.0	0.8	ghi	2.2	cde
Dekalb / DK828-51	2.8	0.7	ghi	3.3	abc
M Händ / 8287	2.8	1.3	cdghi	2.3	bode
Advanced Genetics / AG Galaxy 1	3.0	1.0	deghi	3.3	abc
Gamst / 338	3.0	0.0	i	0.0	f
RK / S38-28	3.0	0.0	i	3.3	abc
Z-Public / M 3010	3.0	0.7	ghi	2.5	bode
Dekalb / DK831-51	3.1	0.7	ghi	3.0	abc
Agrow / AG 3201	3.2	0.3	ghi	3.0	abc
M Händ / 9A3205 TS	3.2	1.2	cdghi	3.3	abc
Agrow / AG 3302	3.3	0.3	ghi	2.0	cdef
Dyna-Gm / DG-3336	3.3	1.7	abdefg	3.3	abc
Hoegemeyer / 333	3.3	3.0	a	3.0	abc
M Händ / 9A331	3.3	1.8	abde	3.5	abc
Pioneer / 93B34	3.3	1.3	bcdghi	4.3	a
S the / 3398-8	3.3	2.3	abc	4.3	a
K-8oy / KS3494	3.4	0.3	ghi	2.2	cde
Pioneer / 93B41	3.4	2.5	ab	3.5	abc
Dekalb / DK838-51	3.5	0.3	ghi	3.7	abc
M Händ / 8355	3.5	1.2	cdghi	3.7	ab
M Händ / 9A350	3.5	0.0	i	2.3	cde
M Händ / 9B351	3.5	0.5	ghi	2.8	abcd
M Händ / 9G351STS	3.5	1.0	deghi	3.7	ab
Pioneer / 93B51	3.5	0.7	ghi	2.9	abc
Pioneer / 93B53	3.5	0.6	ghi	2.9	abcd
S the / 3500-0	3.5	1.7	abdefg	3.0	abc
US Seeds / USS350	3.5	0.7	ghi	3.0	abc
M WestSeed / G3644S	3.6	0.0	i	1.6	def
Agrow / AG3702	3.7	0.3	ghi	1.0	ef
Hoegemeyer / 379	3.7	0.1	hi	2.6	abode
US Seeds / USS371	3.7	0.5	ghi	1.8	cdef
W Mason / 3700	3.7	0.0	i	2.3	cde
Agrow / A3834	3.8	0.8	ghi	2.8	abode
Gamst / D385	3.8	2.0	abcd	4.3	a
K-8oy / M accon	3.8	0.7	ghi	2.5	bode
M Händ / 8388	3.8	0.3	ghi	3.8	abc
Myocogen / 5383	3.8	0.8	ghi	2.8	abcd
NC+ / 3A85STS	3.8	0.3	ghi	2.7	abode
NC+ / 4N26	3.8	0.0	i	1.8	cdef
Pioneer / 93B82	3.8	0.0	i	2.8	abode
Pioneer / 93B84	3.8	0.4	ghi	1.9	cdef
S the / 3870-0	3.8	0.4	ghi	2.6	abode
W Hmose / 9738	3.8	1.7	abdefg	3.3	abc
Dyna-Gm / DG-3395	3.9	0.6	ghi	2.9	abcd
Gamst / D398	3.9	0.6	ghi	3.3	abc
M Händ / 8393	3.9	0.0	i	0.7	ef
M Händ / 8396TS	3.9	0.8	ghi	4.2	a
M WestSeed / G3996	3.9	0.1	hi	1.4	def
Triumph / TR3939RR	3.9	0.3	ghi	3.0	abc
Z-Public / K1370	3.9	0.3	ghi	2.1	cde
Z-Public / W Hmose 82	3.9	0.2	ghi	2.2	cde
Dekalb / CX400	4.0	0.5	ghi	3.0	abc
Dyna-Gm / DG-3402STS	4.0	0.9	efghi	3.0	abc
Hoegemeyer / 402TS	4.0	0.0	i	4.0	ab
M Händ / 9A401STS	4.0	0.1	hi	1.9	cdef
Myocogen / 5404	4.0	1.3	bcdghi	3.3	abc
RK / S42-11	4.0	0.3	ghi	2.7	abode
Pioneer / 94801	4.0	0.0	i	1.3	ef
Advanced Genetics / AG4188S TS	4.1	0.0	i	1.8	cdef
W Hmose / 8440	4.1	0.3	ghi	3.0	abc
Z-Public / K1444	4.1	0.2	hi	2.1	cde
K-8oy / S Hmose land	4.2	0.1	i	1.2	ef
NC+ / 3A87	4.2	0.0	i	3.0	abc
US Seeds / USE421	4.2	0.0	i	2.5	bode
Z-Public / HS934118	4.2	0.4	ghi	2.4	bode
Z-Public / K1380	4.2	0.1	i	1.6	def
Z-Public / K1410	4.2	0.5	ghi	2.1	cde
M Händ / 8431	4.3	0.4	ghi	2.7	abode
Z-Public / K1459	4.3	0.5	ghi	2.1	cde
Z-Public / K1454	4.4	0.7	ghi	2.2	cde
Z-Public / K1457	4.4	0.5	ghi	2.2	cde
K-8oy / KS4694	4.6	0.5	ghi	2.7	abode
DeLaphe / DP3478	4.7	0.0	i	2.0	cdef
DeLaphe / DP4748S	4.7	0.0	i	2.5	bode
S the / 4702-2	4.7	0.0	i	1.8	cdef
S the / 4790	4.7	0.3	ghi	2.5	bode
US Seeds / USE471	4.7	0.0	i	2.8	abode
DeLaphe / DP4909	4.9	0.0	i	2.5	bode
S the / EX3900-0	5.5	0.6	ghi	2.4	bode
Advanced Genetics / AG3920	0.7	0.7	ghi	3.0	abc