MONITORING THE MOVEMENT OF THE MEXICAN RICE BORER TOWARD SUGARCANE AND RICE IN THE UPPER TEXAS RICE BELT AND WESTERN LOUISIANA

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Pheromone trap sampling for the Mexican rice borer (MRB), *Eoreuma loftini* (Dyar) (Lepidoptera: Crambidae), was continued during 2003 adjacent to sugarcane or rice fields in Southeast Texas and Southwest Louisiana. These cooperative studies between Texas A&M and the LSU AgCenter were initiated in 2000 to define the insect's range and assess its increasing threat to Louisiana.

In May 2003, two bucket-type MRB pheromone traps were set up in each county of the Texas Rice Belt (Chambers, Liberty, Jefferson, Orange, Waller, Austin, Colorado, Wharton, Brazoria, Galveston and Jackson). Extensive monitoring was also conducted in two western Louisiana parishes (Calcasieu and Jefferson Davis) adjacent to sugarcane fields. Traps were additionally placed at two sugarcane mills in Iberia and St. Mary parishes. The synthetic female *E. loftini* sex pheromone (Lureseptâ) was used as lure and periodically replaced every four to six weeks. An insecticidal strip (Vaportape ® II) was placed in each bucket to kill all trapped insects and prevent them from damaging each other. Insecticidal strips were replaced every six weeks. The traps were attached to a metal pole at a height of 3 to 4 feet above ground. Traps were monitored every week from May to November in 2003 in Texas, and every two weeks from June to December in Louisiana. Trap collections were placed in plastic bags and frozen for identification and enumeration.

E. loftini did not infest any new counties in 2003, however trap counts at the same location in the county of Galveston in Texas increased by 70% compared to 2002 (3755 vs. 2308). The insect is still not known to occur in Louisiana, but these high populations in Galveston are now within 50 - 60 miles of the new sugarcane production area near Beaumont, Texas, and 120 miles of sugarcane in Southwest Louisiana. In addition to extensive participation by Texas rice belt county agents and western Louisiana sugarcane parish agents, personnel from both the Texas Department of Agriculture (S.S. Nilakhe) and the Louisiana Department of Agriculture and Forestry (Tad Hardy) supervised collection efforts.

Table 1. Pheromone trap collections of Mexican rice borer (*Eoreuma loftini*) moths in Southeast Texas during 2003[1].

Texas Counties	May	June	July	August	September	October	November	December	Total
Austin		103	112	29	-	1044	-	375	1663
Brazoria	854	682	205	432	315	1389	786-	-	4663
Colorado	120	166	300	256	501	2048	187	133	3711
Galveston	195	661	735	507	651	647	293	66	3755
Jackson	120	235	227	236	78	135	-		1031
Waller	-	486	359	242	462	1656	305	9	3519
Wharton	171	38	38	268	102	160	142	-	919
No MRB Collected									
Chambers	0	0	0	0	0	0	0		0
Jefferson	0	0	0	0	0	0	0		0
Liberty	0	0	0	0	0	0	0		0
Orange	0	0	0	0	0	0	0		0

[1]Number of moths per two traps per month. Moths were removed from traps twice weekly; pheromone lures and insecticide strips replaced monthly.

EFFECTS OF DROUGHT STRESS AND SUGARCANE VARIETY ON RESISTANCE TO THE MEXICAN RICE BORER

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The Mexican rice borer (MRB), *Eoreuma loftini* (Dyar), is a serious threat to rice and sugarcane in Texas and potentially also to Louisiana. The MRB was first detected in the Lower Rio Grande Valley (LRGV) of Texas in 1980 and very rapidly became the dominant pest of sugarcane. By the end of the decade, its range had expanded into the rice production area of Texas. The MRB is now the major insect pest of sugarcane in the LRGV of Texas. With MRB established only 50-60 miles from new sugarcane production near Beaumont, TX, the invasion of Louisiana sugarcane fields is expected in the near future. Efforts are under way to develop more adequate management strategies in both Louisiana and Texas. Previous MRB studies have shown that LCP 85-384 was among the more susceptible varieties, and HoCP 85-845 the more resistant.

A field experiment was initiated in the Fall 2002 to evaluate the effect of variety (LCP 85-384 and HoCP 85-845), insecticide (seven applications of tebufenozide at 8-9oz [AI]/acre rate) and irrigation to reduce plant stress. Results from our first year of data showed a substantial reduction in percentage of bored internodes (from 71.4 to 40.9% for untreated LCP 85-384) and moth emergence per acre in irrigated plots (Tables 1 and 2). However, both irrigation and frequent insecticide applications were needed to lower injury below 10% bored internodes for both varieties. Yield data were not available; however, stressed plants showed a strong trend for being lighter and shorter (Table 1 and 2)

Greenhouse oviposition studies showed that drought stress increased the oviposition of MRB on both susceptible (HoCP 85-845) and resistant (LCP 85-384) sugarcane varieties (Table 3). Dry leaves were also significantly affected by water stress and were positively correlated with eggs laid. MRB is known to oviposit in cryptic sites on dried sugarcane leaves located on the lower part of the plant, i.e. between ground level and 80 cm height (van Leerdam et al. 1984). In our study, 100% of the eggs were laid on dry leaves or dry tips of leaves. Enhanced MRB injury under stress conditions may partially be explained by increased oviposition on stressed sugarcane plants via increased dry leaves.

Appreciation is also expressed to Dr. José Amador (TAES Center Director, Wesalco) and Dr. Allan T. Showler (USDA-ARS-Wesalco) for cooperation and participating in this research.

Table 1. Mean percentage of bored internodes, adult moth emergence, and sugarcane stalk height and weight at Ganado, Jackson County, TX, 2003.

Treatment			% bored internodes	Moth emergence/A[a]	Plant height (inch)	Plant weight (lb./plant)
Irrigated	LCP 85-384	T	6.6	3009	53.8	1.264
		U	40.9	55513	50.5	1.083
	HoCP 85-845	T	2.8	0	56.5	1.453
		U	23.2	25947	58.1	1.514
Non-irrigated	LCP 85-384	T	35.4	34027	39.4	0.740
		U	71.4	84177	34.6	0.693
	HoCP 85-845	T	17.9	12307	53.1	1.279
		U	44.7	47766	45.5	0.943

[a] Based on a ratio of *E. loftini* exit holes to bored internodes.
[b] Estimated as the product of the mean number of exit holes and the number of stalks per hectare

Table 2. Statistical comparison of *E. loftini* percentage of bored internodes, adult moth emergence, and sugarcane stalk height and weight at Ganado, Jackson County, TX, 2003.

Effect	% Bored internodes		Moth emergence/A		Plant height		Plant weight	
	F	*P > F*	*F*	*P > F*	*F*	*P > F*	*F*	*P > F*
Irrigation[1]	65.94	0.015	13.53	0.066	13.34	0.067	9.47	0.091
Variety[1]	66.38	0.015	13.36	0.067	27.88	0.034	29.39	0.032
Irrigation*Variety[1]	7.78	0.11	1.08	0.41	4.46	0.17	0.42	0.58
Insecticide[2]	212.81	0.0001	43.15	0.0028	4.70	0.096	3.75	0.13
Variety*Insecticide[2]	8.24	0.045	2.67	0.18	0.12	0.74	0.03	0.86
Irrigation*Insecticide[2]	0.094	0.39	0.07	0.80	2.47	0.19	1.02	0.37
Irrigation*Variety*Insecticide[2]	0.35	0.58	0.24	0.65	1.40	0.30	4.20	0.11

[1] df = 1, 2 for % bored internodes, moth emergence/ac, plant height and plant weight.
[2] df = 1, 4 for % bored internodes, moth emergence/ac, plant height and plant weight.

Table 3. Effects of sugarcane variety and drought stress on E. loftini oviposition. Greenhouse studies conducted at the Texas A&M Research and Extension Center at Weslaco, TX June-August 2003.

Treatment	No. eggs/plant	No. egg masses/plant	No. dry leaves/plant	Water potential (bar)	Plant height (cm)
LCP 85-384	277.6	11.2	7.2	8.7	115.3
LCP 85-384 stressed	521.2	21.6	11.2	29.3	86.5
HoCP 85-845	160.2	9.9	4.7	8.1	86.6
HoCP 85-845 stressed	355.25	19.0	8.9	23.0	69.5
Effect	P-value	P-value	P-value	P-value	P-value
Variety	0.110	0.592	0.0015	0.211	< 0.0001
Stress	0.040	0.027	< 0.0001	0.0001	< 0.0001
Variety × Stress	0.817	0.909	0.946	0.350	0.021

COMPARISON OF DIFFERENT STRAINS OF SUGARCANE BORER FOR RESISTANCE TO TEBUFENOZIDE (CONFIRM®)

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The sugarcane borer (SCB), *Diatraea saccharalis* (F.), is responsible for more than 90% of injury by arthropods to sugarcane in Louisiana. Insecticides are the major management tool used to maintain yield losses below economic thresholds. The continuous use of the same insecticide or same class of insecticide for a long period of time will result in development of resistance in the target pest, especially if other management practices do not help reduce pest populations. Monitoring the development of resistance may help to make timely changes in control strategies and help prevent resistant genes from being fixed in the population. The average number of insecticide applications for sugarcane borer control in Louisiana sugarcane more than doubled between 1999 and 2003. Confirm® (Tebufenozide), a biorational insecticide, is an ecdysone agonist that causes the larvae to produce a malformed cuticle. Advantages of this compound include a strong specificity to certain Lepidopterous pests, and little to no toxicity to most beneficial parasitoids and predators in sugarcane fields. Combined with the heavy selection pressure due to its widespread use across Louisiana since 1997, assessing early resistance among field populations is indispensable to try to preserve the efficiency of this insecticide in the sugarcane industry.

SCB larvae were collected from three different locations in both 2002 and 2003 (Iberville, St. Mary, and Avoyelles-Rapides) and an additional location in 2003 (Lake Charles). Locations were chosen as representative of SCB tebufenozide selection pressure. An SCB strain mass-reared on an artificial diet at the USDA (ARS) Research Unit in Houma constituted a non-selected reference. Additionally reported in Table 1 and 2 is the 1995 baseline susceptibility data from the "Louisiana Mixed" culture of SCB prior to any Confirm use in the Louisiana sugarcane industry. This culture was made up of borer collections obtained from several places in the sugarcane area. The larvae were placed individually on artificial diet and reared until pupation (23 ± 1°C, 40 ± 5% RH, L:D 12:12). Pupae from each strain were left to incubate in containers in the same standard rearing conditions. The resulting eggs were sterilized with 50% ethanol and allowed to air dry. The eggs were left to hatch in an inflated plastic bag (10 by 5 by 30 cm) with moist filter paper. Larvae less than 24 hrs old were used for the initiation of the mortality baseline studies. The larvae for all locations were checked at seven days post treatment for mortality, which was defined as the absence of movement of the larvae when prodded. LD_{50} and LD_{90} dosages or concentrations necessary to kill 50 or 90% of the population sample are reported in Tables 1 and 2.

The "Louisiana Mixed" strain data was used as a baseline susceptibility strain for which LD_{50} and LD_{90} resistance ratios are computed to assess recent changes in susceptibility. Rapides / Avoyelles in 2002 had the lowest LD_{50} value. A significant increase in LD_{50} was determined at this location in 2003 when heavier tebufenozide selection pressure occurred. Iberia / St. Mary had relatively low LD_{50} values in both years, with a trend for an increase in 2003. Iberville had the highest LD_{50} value in 2002 when multiple applications of tebufenozide occurred on the St.

Gabriel Research Station where the strain was collected. LD_{50} values in 2003 at this location did not show a significant decrease despite no use of tebufenozide. No field resistance impacting control has yet been observed among SCB strains in the Louisiana sugarcane industry. However these results do show varying levels of resistance among strains brought in to test in the laboratory, suggesting the need for implementing resistance management strategies. Figure 1 shows the continuing increase of insecticide use in the Louisiana sugarcane industry, now approximately 2 applications, annually. The increasing acreage of LCP 85-384 building up area-wide populations also affects pest management.

Table 1. LD_{50} (ppm) and resistance ratio for several strains of *D. saccharalis*.

Parish Locations	Year	LD_{50} ppm[a]	95% Confidence Interval LCL	95% Confidence Interval UCL	Resistance Ratio[b]
Iberville	2002	0.454	0.277	0.780	2.70*
Iberville	2003	0.396	0.344	0.462	2.36*
Lake Charles	2003	0.350	0.238	0.455	2.08*
Rapides / Avoyelles	2003	0.301	0.265	0.345	1.79*
Iberia / St. Mary	2003	0.298	0.260	0.343	1.77*
Iberia / St. Mary	2002	0.198	0.179	0.226	NS
Houma	2003	0.162	0.067	0.330	NS
Rapides / Avoyelles	2002	0.161	0.137	0.185	NS
[c]Louisiana Mixed	1995	0.168	0.151	0.189	-

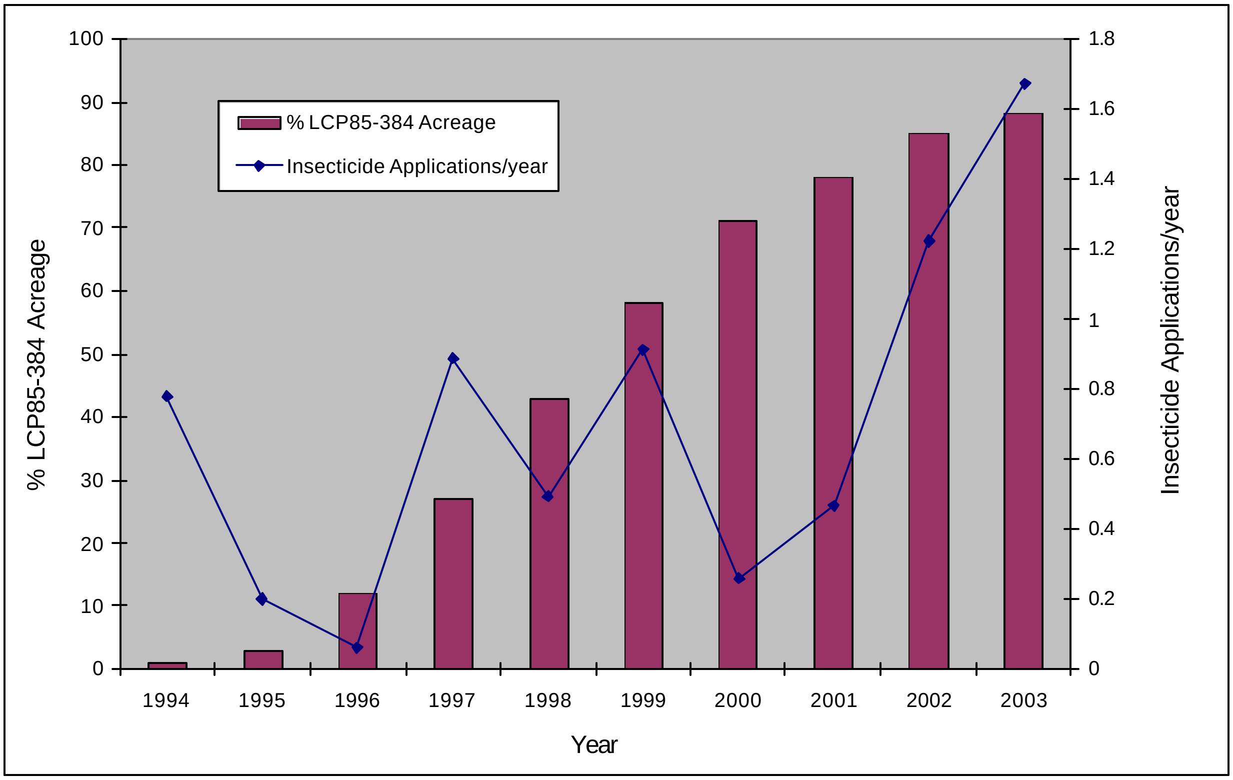
[a]Dose in milligrams of Confirm insecticide per kg of treated diet necessary to kill 50% of the 1st instar larvae.
[b]Resistance ratio determined in comparison to "Louisiana Mixed" strain.
[c]Rodriguez, L.M., T.E. Reagan, and J.A. Ottea. 2001. Susceptibility of *Diatraea saccharalis* (Lepidoptera: Crambidae) to
tebufenozide. Journal of Economic Entomology 94(6): 1464-1470.
*$P \leq 0.05$.

Table 2. LD_{90} (ppm) and resistance ratio for several strains of *D. saccharalis*.

Parish Locations	Year	LD_{90} ppm[a]	95% Confidence Interval LCL	95% Confidence Interval UCL	Resistance Ratio[b]
Lake Charles	2003	1.612	0.885	7.597	3.91*
Iberville	2003	1.362	1.045	1.991	3.31*
Iberville	2002	1.357	0.787	16.391	3.29*
Iberia / St. Mary	2003	1.026	0.816	1.398	2.49*
Rapides / Avoyelles	2003	0.799	0.657	1.042	1.94*
Houma	2003	0.790	0.371	15.393	NS
Rapides / Avoyelles	2002	0.458	0.370	0.637	NS
Iberia / St. Mary	2002	0.431	0.351	0.602	NS
[c]Louisiana Mixed	1995	0.412	0.326	0.620	-

[a]Dose in milligrams of Confirm insecticide per kg of treated diet necessary to kill 90% of the 1st instar larvae.
[b]Resistance ratio determined in comparison to "Louisiana Mixed" strain.
[c]Rodriguez, L.M., T.E. Reagan, and J.A. Ottea. 2001. Susceptibility of *Diatraea saccharalis* (Lepidoptera: Crambidae) to
tebufenozide. Journal of Economic Entomology 94(6): 1464-1470.
*$P \leq 0.05$.

Fig. 1. Average number of insecticide applications per acre for control of the sugarcane borer each year and the proportion of acreage in the variety LCP85-384.



ASSESSMENT OF VARIETAL RESISTANCE TO THE SUGARCANE BORER

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Sugarcane resistance to the sugarcane borer (SCB), *Diatraea saccharalis*, is categorized as a combination of physical characteristics that hinder boring (i.e. rind hardness, leaf-sheath appression), variety specific tolerance to boring, and antibiosis mechanisms that contribute to differences in survival in larvae that have bored into the stalks. The extent of this resistance also is influenced by the severity of infestations. Heavy borer pressure results in more bored internodes even in varieties considered highly resistant. Several factors contributing to seasonal area-wide SCB infestation levels include weather conditions, predator and parasite numbers, indigenous borer populations, and effectiveness of insecticidal controls. Expansive acreage of varieties with elevated moth production increases endemic SCB populations and imposes additional pressure on the remaining acreage of more resistant varieties. A minimal component in the practice of host plant resistance in entomology involves the encouragement of breeding programs not to release varieties more susceptible to key insect pests than those varieties already commonly grown. This is particularly important when there is evidence that the susceptible variety has the potential to enhance pest populations. For this reason, we also report moth production for each variety in these tests.

Twelve sugarcane varieties of the L01, HoCP00 series, and Ho95-988 kept in the variety development program were evaluated for resistance/susceptibility to SCB during 2003. All varieties were planted on November 15, 2002, at the Lanaux farm in St. John Parish in a randomized complete block design with four replications, except the additional standard varieties with eight replications each (HoCP 91-555, LCP 85-384, HoCP 85-845, and HoCP 96-540). No chemical controls for SCB were applied in the test, and natural control from fire ants was suppressed by applying granular Lorsban in late June. A 16-stalk sample was cut from each plot on November 10, 2004 (four replications = 64 stalks of L01, HoCP00 series, and Ho95-988, and 128 stalks per commercial variety). Sample stalks were examined to determine the number of bored internodes, moth emergence holes, and the total number of internodes at the end of the season.

Significant differences among the varieties were detected, with Ho95-988 (31.6% bored internodes) being the most susceptible, and nearly twice as susceptible as LCP 85-384 (16.52% bored internodes), the most widely planted variety. Emergence per acre from each variety also differed significantly, with the highest numbers emerging from Ho95-988 (91,643), and the lowest number (13,687) emerging from the most resistant commercial variety to sugarcane borer, HoCP 85-845. These results are presented in Table 1.

Table 1. Sugarcane borer injury and moth production in plant cane L01, HoCP00 series, and Ho95-988 varieties and four commercial varieties during 2003, Lanaux Farm near Edgard, LA. Test was planted November 15, 2002, samples harvested November 10, 2003.

Variety	% Bored internodes	Stalks/acre*	Moths/acre production
Ho95-988	31.64a	43,126	91,643a
HoCP 91-555	24.48ab	45,829	76,288ab
HoCP 00-950	19.20abc	44,054	48,184abc
HoCP 00-930	18.64bc	44,054	45,634bcd
LCP 85-384	16.52bc	46,373	43,837bcd
HoCP 00-927	14.02bc	43,127	37,332cd
L01-292	12.27c	42,199	32,789cd
L01-283	11.94c	50,094	32,091cd
HoCP 00-960	11.98c	39,379	26,212cd
HoCP 96-540	8.51c	42,199	23,078cd
L01-299	12.05c	40,747	14,813d
HoCP 85-845	8.85c	30,946	13,687d

Means within columns followed by the same letter are not significantly different ($P \leq 0.05$, LSD).

*Stand counts provided by Dr. Kenneth Gravois, Sugar Station.

Acknowledgment: The sugarcane entomology program would like to express appreciation for help from other members of the sugarcane variety development and breeding program for their assistance in cutting the seed-cane and helping to select the varieties for evaluation. Additionally, Dr. W. H. White (USDA-ARS) provided the USDA varieties used in these studies.

SMALL PLOT ASSESSMENT OF INSECTICIDES AGAINST THE SUGARCANE BORER

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A study was conducted at the Louisiana State University AgCenter Sugar Research Station, St. Gabriel, LA (Iberville Parish). Eight different insecticide treatments, in addition to an untreated check, were evaluated for season-long control of the sugarcane borer (SCB) *Diatraea saccharalis* (F.) (Lepidoptera: Crambidae) in a randomized complete block design with five replications in a field of HoCP91-555 plant cane planted in August 2002. Insecticide treatments were applied to three-row plots (6 ft x 30 ft) on 19 Jul and 17 Aug using a CO_2 sprayer mounted on an all-terrain vehicle with an 8005 flat-fan nozzle (one per row) delivering 10 gpa at 35 psi. Prior to test initiation, Lorsban 15G (15lb/acre) was applied to suppress fire ant predation on SCB larvae. SCB damage to sugarcane was assessed by counting the number of bored internodes and total number of internodes from 80 randomly selected stalks from each of eight treatments and the untreated check (16 stalks per plot) from each plot at the time of harvest (1 Dec). Data were analyzed using a one-way analysis of variance (Proc Mixed) with means separated with Tukey's HSD ($P<0.05$).

All of the insecticide-treated plots resulted in less than 10% bored internodes (economic injury level) and were significantly different from the untreated check of 28.8% bored internodes as shown in Table 1. None of the insecticides differed significantly from each other.

Table 1. Results of small plot test on (SCB) *Diatraea saccharalis* (F.), St. Gabriel Research Station, 2003.

Treatment/ Formulation[a]	Rate (oz/A)	% Bored Internodes[b]
Karate Z	1.92	5.9b
Diamond 0.83EC	6.00	5.6b
Mustang Max 0.8EC	4.00	4.8b
GF-317	0.017	4.1b
Confirm 2F	8.00	3.3b
Diamond 0.83EC	12.00	2.3b
Baythroid 2E	2.10	2.1b
Diamond 0.83EC	9.00	2.0b
Check	--	28.8a
F-value		20.3

[a]All treatments were applied with Latron CS-7 at 0.25% vol/vol.

[b]Means within column followed by the same letter are not significantly different ($P<0.05$, Tukey's HSD).

SUGARCANE YELLOW LEAF AND THE SUGARCANE APHID IN LOUISIANA

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Sugarcane yellow leaf virus (SCYLV) causes yellow leaf, a serious disease of sugarcane in some parts of the world, that was first detected in Louisiana in 1996. The sugarcane aphid, *Melanaphis sacchari* (Zehntner), is primarily responsible for vectoring SCYLV. This aphid was first discovered in Louisiana in 1999. In the tropics, the visible symptom of infection is that the midvein of upper leaves on mature sugarcane stalks turns bright yellow. The yellowing may spread to the leaf blade, and the upper surface of the midvein may turn reddish-pink. However, in Louisiana, symptoms are seldom observed because of the short growing season, frosts, and ripener application. Heavy infestations of sugarcane aphids often result in copious amounts of honeydew production, which results in senescence of lower leaves. The yellow sugarcane aphid, *Sipha flava* (Forbes), also occurs on sugarcane and other cereal crops grown in the Western Hemisphere. Damage by the yellow sugarcane aphid is characterized by reddish marks on the leaf and early leaf senescence. Objectives of this research were to (1) to determine the spread and rate of increase of SCYLV in fields of sugarcane and (2) to determine population dynamics of both *Melanaphis sacchari* and *Sipha flava.*

During the summer of 2002, 42 fields located throughout the sugarcane-growing region were sampled for incidence of SCYLV. During the summer of 2003, a subset of 17 of the previously sampled fields was selected to determine the rate of increase from 2002 to 2003. Fifty leaves were sampled in each field and processed in the laboratory using a tissue-blot, enzyme-immunoassay for virus detection. Infection level increased in only five of 17 (29 %) fields that were re-sampled, and incidence of SCYLV increased from 0-3 x in these fields.

Another series of field studies was continued to determine the spread and rate of increase over time in four selected sugarcane fields. Fields were located in Rapides, Iberville (two fields), and Iberia parishes. Single plant cane fields in both Iberville and Rapides parishes were selected in November 2001 and monitored through August 2003. Second ratoon fields in both Iberville and Iberia parishes were selected in April 2002 and monitored through August 2003 and October 2003, respectively. A contiguous grid was set up in each field resulting in 144 quadrat plots. In each of the 144 plots, four leaves per plot (two leaves on each of the two plot rows) were randomly sampled at different times. Leaves were processed with the same tissue-blot, enzyme-immunoassay used in the statewide survey. Initial infection levels were low in three fields and increased to only 1-2% during the subsequent ratoon crop. One field for which monitoring began in second ratoon had an initial infection level of 12% that increased to 25%. However, the plot infection frequency began at 35% and increased to 70%. The rate of infection increase was highest between the April and June sampling dates at three locations. The increase of SCYLV infection over time at one location is shown in Figure 1.

M. sacchari and *S. flava* infestations were monitored bi-weekly during April through July in 2002 and 2003. Infestations were monitored in each plot on the 3rd or 4th leaf down from the whorl on four randomly selected plants (two leaves on each of the two-plot rows). Both aphids infested all test locations each season. The aphid survey data at each location during two seasons suggests sugarcane aphids migrate to sugarcane fields in the spring then colonize and increase to peak population densities during the summer. The initial migration may be responsible for the rise in incidence of virus detected during the June sampling in study fields in each of two years (Figure 1). The lower rates of infection increase detected in some fields during late summer and fall suggests that, as the aphids settle to reproduce, they do not move extensively and spread infection from plant to plant.

The generally slow rate of SCYLV infection increase in both the survey fields and the extensively monitored study fields is encouraging. Infection levels were low in three study fields after two seasons despite annual infestions with the sugarcane aphid. This suggests that many aphids migrating into the fields were not carrying the virus, and inoculum levels in the industry must still be low. SCYLV was added to the tissue culture seedcane certification standards beginning in 2004. It is hoped that by providing sources of seedcane with little or no virus infection, yellow leaf disease levels in the industry can be kept low.

Table 1. Statewide survey for SCYLV in 17 sugarcane fields in 2002 and 2003.

Parish	2002 Infection	2003 Infection	Magnitude increase
Ascension	0%	0%	0
Calcasieu	2%	0%	0
Calcasieu	0%	0%	0
Iberia	0%	0%	0
Iberville	8%	8%	0
Jefferson Davis	24%	26.5%	1.1x
Lafourche	0%	0%	0
Pointe Coupee	0%	0%	0
Rapides	0%	0%	0
St. James	2%	0%	0
St. John	10%	12%	1.2x
St. Martin	2%	6%	3x
St. Mary	2%	2%	0
St. Mary	0%	0%	0
Terrebonne	4%	8%	2x
Vermilion	0%	0%	0
West Baton Rouge	14%	24%	1.7x

Figure 1. Progression of Sugarcane Yellow Leaf Virus infection and sugarcane aphid population dynamics in a field of LCP85-384 in Iberville Parish during plant cane (2002) and first rattoon (2003).