BILLET PLANTING RESEARCH

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YieldYield results were obtained from field experiments on commercial farmsYield results were obtaine and whole stalk planting for oneand whole stalk planting for one experiment in plantcane, one experiment in firs experimentexperiment in second stubble. These experiments were cexperiment in second stubble. These experi League and cooperating growers.League and cooperating growers. Results wereLeague and cooperating growers. ResearchResearch Station, and an experiment was conducted to evaluate the effect of different chopper harvester settings on physical billet damage. All experiments were conducted with LCP 85-384.

SugarSugar per acreSugar per acre yields were similar in commercialSugar per acre yields were similar i andand whole stalks that had not receivedand whole stalks that had not received any special treatment.and whole st detected in the first year of the three-year experimentdetected in the first year of the three-year experiment in Laf evidentevident in second stubble. Sugar per acre yields alsoevident in second stubble. Sugar per acre yields also ininin Iberia Parish. Chemical treatmentsin Iberia Parish. Chemical treatments did not affect yield, exceptin Iberia Pa treatedtreated with an antreated with an antittreated with an antitranspirant (film-coating) at planting (Table 2). AAscensionAscension PaAscension Parish, whole stalks responded to starter fertilizer, but billets did not (Tabl plantcaneplantcane experiment on the Sugar Research Station, the sugar perplantcane experiment on the Sugar Re stalkstalk planting compared to billet planting, because ofstalk planting compared to billet planting, because of a hig ofof both biof both billet and wholeof both billet and whole stalk plantings were increased by the addition of plantingplanting (Table 4), but sugar yplanting (Table 4), but sugar yields were planting (Table 4), but sugar plants.plants. The 1x billet planting rate averaged nine running billetsplants. The 1x billet planting rate averaged n pass with the planter establishedpass with the planter established a 2x planting rate ofpass with the planter estab diddid not result indid not result in increased yield (Table 4). In a smalldid not result in increased yield (Table 4). I summersummer field day) examining the effect of planting rate, only stsummer field day) examining the effe increasedincreased as the planting rate increased from three to nine billetincreased as theplanting rate increased from increasesincreases in tonnage and sugar per acreincreases in tonnage and sugar per acre were recorded as the plantin maymay not have been significantmay not have been significant because the experiment contained only twomay not rate.

InIn an experiment to evaluate the effect of differentIn an experiment to evaluate the effect of different cho ofof physical damage billets sof physical damage billets sustain whof physical damage billets sustain wh combinationscombinations (Table 6). combinations (Table 6). Factorscombinations (Table 6). Factors combinations chopperschoppers (designed for cutting longerchoppers (designed for cutting longer billets for seedcane) and me aroundaround the base-cutter shafts. Facaround the base-cutter shafts. Factorsaround the base-cutter shafts. Fac harvesterharvester travelharvester travel downharvester travel down the row (approximately 1 mph) and removing (kicker(kicker bars) that facilitate the mov(kicker bars) that facilitate the movement (kicker bars) that fa experiment, the results suggested that the running the secondaryexperiment, the results suggested that the runnin billet damage, but the secondary fan did not increase billet damage in this experiment.

AA chopper harvester was available during the plantingA chopper harvester was available during the plan forfor the firfor the first time during 2000. This allowed experiments to be planted examining the effect of plantingplanting dplanting date and rate, factors that were difficult to incorporate into experiments on commer

farms.farms. In addition, another experiment evaluating the effectsfarms. In addition, another experiment evaluating plplantingplanting peplanting performance was planted. Finally, plantcane experiments were established on two during fall 2000.

ThereThere There coThere continues to be intense interest in billet planting within the Louisiana sug industry.industry. Spring shoot populations in billet plantings this season are adequateindustry. Spring shoot popula ofof multof multipof multiple freezes during the 2000-2001 winter. In research conducted over six growing seas usingusing machine-cutusing machine-cut billets, stand failures have not been observed whenusing machine-cut b werewere planted atwere planted at higher planting rates. Factors associated withwere planted at higher planting ra billetbillet length, excessive physical billet damage, light planting rate, improper billet length, excessive physic drainage,drainage, and herbicide injury. The addition of fertilizer at planting has improved yields in some,drainage, notnot all, experiments.not all, experiments. No chemical treatment to prevent stalk rot has been identified that con improves billet performance.

InIn most experiments, the yield ofIn most experiments, the yield of wholeIn most experiments, the yield c crop.crop. However, the yield of whole stalk and billet plantings have been comparable over the entire cropcrop cycle. Most of thecrop cycle. Most of the experiments have nowcrop cycle. Most of the experiments have withwith CP 70-321 showed itwith CP 70-321 showed it to be erratic in billet planting performance. Aswith CP 70-3 theirtheir ability to tolerate billet planting will need to be evaluated.their ability to tolerate billet planting will need highesthighest yields over time will be obtained with whole stalk planting. However, when cane is badly lodgedlodged,lodged, it malodged, it may be necessary to plant billets. Billets are more sensitive to any prob plantingplanting praplanting practices planting practices are very important when planting billets. Using th minimize problems should provide yields comparable to whole stalk planting.

TableTableLlCPLCP 85-384 yields from anLCP 85-384 yields from an experiment in Lafourche ParishLCP 85-38 stalkstalk plantingstalk planting of LCP 85-384 with and without two rates ofstalk planting of LCP 85-3

		Tons of cane per acre			Sugar per acre (lbs.)		
Planting	Fertilizer	1998	1999	2000	1998	1999	2000
Billet	None	44.1	57.7	46.3	9487	13285	9694
Billet	45-45-45	53.0	56.4	45.5	11204	13055	9480
Billet	90-90-90	51.6	55.1	43.1	11391	12645	8920
Whole	None	46.3	54.8	44.6	10068	12692	9428
Whole	45-45-45	56.0	56.9	45.1	12719	13194	9585
Whole	90-90-90	54.0	56.7	41.7	11893	13380	8596

TableTableYields of LCP 85-384 from an experiment inYields of LCP 85-384 from an experiment in Iberia ParishY
billets,billets, and short billetsbillets, and short billets treated with Tilt, Thimet, anbillets, and short bil
Tilt plus antitranspirant.[1]

Treatment	Tons of cane per acre[2]		Sugar per acre (lbs.)[2]	
	1999	2000	1999	2000
Whole stalk	42.5 ab	35.8 a	9712 ab	6991 a
Long billet	44.3 a	30.0 b	10095 a	6115 ab
Short billet	44.0 a	33.2 ab	10299 a	6570 ab
Short billet + Tilt	40.6 ab	31.4 b	9362 ab	6462 ab
Short billet + Thimet	38.0 b	30.8 b	8778 b	6100 ab
Short billet + Antitranspirant	40.9 ab	29.6 b	9480 ab	5787 b
Short billet + Tilt + Antitranspirant	37.3 b	32.9 ab	8475 b	6801 a

[1] Tilt (Syngenta, Inc.) is propiconazole fungicide; Thimet (American Cyanamid, Inc.) isTilt (Syngenta, Inc.) is pr
soilsoil appliedsoil applied insecticide; and the antitranspirant was Transfilm (PBI/Gordon, Inc.). Valuessoil appl
column followed by the same letter were not significantly different (P = 0.05).

Table 3. PlantcanePlantcane yieldPlantcane yields of LCP 85-384 from anPlantcane yields of LCP 85-384
plantingsplantings of billets and whole stalks with and without fertilizer (15-45plantings of billets a
planting.

Treatment	Tons of cane per acre[1]	Sugar per acre (lbs.)[1]
Billet	41.5 ab	8013 ab
Billet + Fertilizer	38.0 b	7391 b
Whole stalk	38.4 b	7160 b
Whole stalk + Fertilizer	45.4 a	8543 a

[1] Values within a column followed by the same letter were not significantly different (P = 0.05).

Table 4. PlantcanePlantcane yields of LCP 85-384Plantcane yields of LCP 85-384 from an experiment at comparingcomparing plantings of whole stalks and two rates of billets with and without starter fertilizer.

		Cane	Stalk		Juice		Sugar
Planting	Fertilizer	yield	Number	Weight	Brix	Sucrose	yield
		tons/A	1000/A	lbs.	%	%	lbs./A
1xBillet	0-0-0	40.7	46.7	1.74	16.6	14.4	8406
2xBillet	0-0-0	40.3	47.5	1.76	16.8	14.6	8655
Whole	0-0-0	44.4	45.2	1.97	16.6	14.4	9164
1xBillet	45-45-45	43.7	47.1	1.91	16.5	14.2	8880
2xBillet	45-45-45	42.9	45.7	1.97	16.5	14.2	8715
Whole	45-45-45	50.6	46.3	2.23	16.6	14.0	10104
LSD 0.05		2.6	NS	0.33	NS	NS	1004
		Mean Effects					
1xBillet		42.2	46.9	1.83	16.4	14.3	8643
2xBillet		42.1	46.6	1.87	16.6	14.4	8685
Whole		47.5	45.8	2.10	16.4	14.2	9634
LSD 0.05		1.8	NS	0.23	NS	NS	710
	0-0-0	42.1	46.5	1.82	16.7	14.5	8741
	45-45-45	45.8	46.4	2.04	16.4	14.1	9233
LSD 0.05		1.5	NS	0.19	NS	NS	NS

Table 5. Plantcane yield of LCP 85-384 planted with billets at three rates at the Sugar Research Station.

Planting	Cane	Stalk		Juice		Sugar
rate	yield	Number	Weight	Brix	Sucrose	yield
	tons/A	1000/A	lbs.	%	%	lbs./A
3	44.2	46.6	1.81	16.4	14.0	8837
5	44.4	49.2	1.81	15.9	13.5	8434
7	46.5	55.1	1.81	16.9	14.7	9796
9	48.6	54.7	1.99	17.0	14.7	10343
LSD 0.05	NS	4.9	NS	NS	NS	NS

Table 6. Effect of different chopper harvester settings on physical damage to sugarcane billets.

Harvester settings	Damaged buds/billet	Total wounds	Undamaged billets (%)
Seed choppers[1], primary fan only	0.32	1.1	42
Seed choppers, slow speed[2], primary only	0.26	1.6	34
Seed choppers, plus secondary fan	0.16	0.9	52
Seed choppers, primary only, leg wraps[3]	0.10	0.5	66
Seed choppers, primary, leg wraps, no kicker bars[4]	0.18	0.7	48
Seed choppers, primary, no kicker bars	0.24	1.2	34
Regular choppers/2 blades, primary fan only	0.34	1.5	30
Regular choppers/2 blades, slow speed, primary	0.36	2.4	20
Regular choppers/2 blades, plus secondary fan	0.38	1.8	32
LSD 0.05	0.21	0.6	-

[1] Billet choppers specially designed with only two blades for cutting longer billets (20-24 in.).
[2] Slow speed of harvester travel down the row (approx. 1 mph).
[3] Metal cylinders that bolt around base cutter shafts.
[4] Lateral bars on last drum to facilitate movement of billets into elevator hopper.

CULTURAL AND LAND MANAGEMENT PRACTICES RESEARCH IN SUGARCANE IN 2000

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in cooperation with St. Gabriel Research Station

SUMMARY

TwelveTwelve field experiments were conducted in 2000 to test the effectsTwelve field experiments were landland management practices onland management practices on yield componentsland management practices o fromfrom the breeding program were included in the experiments. Results frfrom the breeding program w practicespractices showed that subsequent canepractices showed that subsequent cane yields after thepractices sh iinin September and highest from planting in early November. This year, however, plantcane yields either did not respond or had the opposite response.

ResultsResults from date-of-harvest experiments showedResults from date-of-harvest experiments showe increasedincreased when harvested in December instead of earincreased when harvested in December inste varietiesvarieties was also greater when havarieties was also greater when harvestvarieties was also greater when harv whenwhen the plant and first stwhen the plant and first stubble wwhen the plant and first stubble were ha increasedincreased 9.7% as a resultincreased 9.7% as a result of harvesting plantcane in early December and 5.2% in crop was harvested in early December. Cane yields also increased 12.4% and 9.2%, respectively.

PlantingPlanting rates of seed cane as billets or whole stalks produced more responsPlanting rates of see thanthan in subsequent stubble crothan in subsequent stubble crops.than in subsequent stubble crops. The use cane,cane, but the use of 4 running billeted stalks wascane, but the use of 4 running billeted stalks was equa varietyvariety LCP 85-384. Above normal temperatures and below normal rainfavariety LCP 85-384. Abo growinggrowing season may have contributed togrowing season may have contributed to lessgrowing season may expected. Variety and starter fertilizers did interact with residue management.

OBJECTIVES

ThisThis research is designed to provide information onThis research is designed to provide information on growersgrowers produce maximumgrowers produce maximum economic yields and thereby a more profitablegrow annual progress report is presented to provide the latest availableannual progress report is presented to provide th asas a final recommendation for growers toas a final recommendation for growers to use all of these practices. Rec several years of research data.

RESULTS AND DISCUSSION

TwelveTwelve field experiments were conducted in 2000 on the St. Gabriel Research Station to test thethe effects of various cultural and land management practices on thethe effects of various cultural and land man sugarcane.sugarcane. The newer cane varieties releasedsugarcane. The newer cane varieties released from the bree andand USDA at Houma were inand USDA at Houma were incland USDA at Houma were included in the e practices.

Date of Planting

AnAn experiment whichAn experiment which was initiated to test the effects of planting dates on theAn ex
ofof threeof three varieties was used to evaluate the residual effect of the same parameter on theof three varieties
cropcrop (Table 1). The ecrop (Table 1). The earliest (crop (Table 1). The earliest (September 2) planting da
lowerlower cane and sugar yields for all varieties. The variety Holower cane and sugar yields for all varieties.
plantingplanting date withplanting date with a Nov. 1 plant date producing 25% more sugar and 26% moreplanting
2 plant date. The least sensitive2 plant date. The least sensitive variety was LCP 85-384, which had2 plant date
sugarsugar and cane yields, respectively,sugar and cane yields, respectively, when cane was planted on Nov.sugar
plantingplanting on subsequent stubble yields consistently indicated that later planting wplanting on subs
contributingcontributing input for high yieldscontributing input for high yields (Tables 2, 3, 4). The response in T
inin this experiment as it did the previousin this experiment as it did the previous year for plantcanein this experin
toto evaluate plantcaneto evaluate plantcane yields this season showed higher yieldsto evaluate plantcane yields th
(Oct. 13) planting (Table 5).

Type and Rate of Planting

Plantcane yields didPlantcane yields did respond to seed type and seeding rate, which, in turn, werePlantc
byby starter fertilizer applications, date of planting, and variety. Sugar yieldsby starter fertilizer applications, date o
almostalmost 21% more with the highest planting rate across seed type when planted on Aualmost 21% more w
5).5). Higher billet rates had a negative effect compared to a three-runni5). Higher billet rates had a negative e
varietyvariety (Table 6), although the addition of 45-45-45 starter fertilizervariety (Table 6), although the addition o
allall types and rateall types and rates. A billet rall types and rates. A billet rate study using billets obtaine
difference in cane ordifference in cane or sugardifference in cane or sugar yield from three to nine running billets
seedseed cane had less effectseed cane had less effect on subsequent stubble crops (Tablesseed cane had less effect
yield of billet planting did increase almost 16% with a late (Nov. 1) planting date (Table 3).

Harvest Date on Subsequent Yields

ItIt is well established that later harvest of sugarcane often result in greater sugar yield. This
occurredoccurred in 2000 (Table 8) and also indicated later harvoccurred in 2000 (Table 8) and also indicated
varietiesvarieties because LCP 82-89 produced 18% morevarieties because LCP 82-89 produced 18% more sugar
inin Oct. Date ofin Oct. Date of harvest also can affect subsequent stubblein Oct. Date of harvest also can affect
harvestingharvesting the plantcane crop Nov. 15 instead of Aug. 15 resulted in a 15% increase in sugar yield
whenwhen the first stubble crop was hawhen the first stubble crop was harvested when the first stubble crop
residualresidual effect of date of plantcaneresidual effect of date of plantcane harvest extends into the second stubb
byby date of first stubble harvest and variety. An earlyby date of first stubble harvest and variety. An ea
ameliorated to some extent by a late first stubble harvest for variety CP 70-321 (Table 10).

Residue Management/Stubble Protection

OnlyOnly HoCP 85-845 responded to management inputs related toOnly HoCP 85-845 responded to manage
managementmanagement (Tablemanagement (Table 11). Compared to the check treatment,management (Table 11
canecane yield 19% when the harvest residuecane yield 19% when the harvest residue remained on the surface. C
CPCP 70-321) were not significantly affected when the harvest residue remained.CP 70-321) were not significantl

followedfollowed by covering the stubble with soil genfollowed by covering the stubble with soil generally in cover also tended to improve crop response to 45-45-45 starter fertilizer (Table 12).

Table 1. EffectEffect of daEffect of date of plantingEffect of date of planting on first stubble cane yield of three cane Research Station, 2000.

		First Stubble Cane - 2000					
					Normal Juice		
	Planting	Cane	Stalk	Stalk			Sugar
	1998	T/A	1000/A	lbs.	%	%	lbs/A
LCP 82-89	Sept. 2	35.3	34.2	2.07	17.7	14.5	7365
	Oct. 1	41.2	41.7	2.04	16.7	13.6	7941
	Nov. 1	42.0	39.9	2.26	17.1	14.1	8446
LCP 85-384	Sept. 2	40.4	40.8	2.15	17.4	15.0	8731
	Oct. 1	42.4	42.7	2.26	17.1	14.8	9014
	Nov. 1	43.2	46.3	2.08	17.8	15.3	9596
HoCP 85-845	Sept. 2	31.6	31.8	2.19	17.0	14.2	6400
	Oct. 1	38.5	31.8	2.62	17.1	14.4	7968
	Nov. 1	39.9	30.9	2.70	16.7	14.1	7988
LSD .05 Treatments		3.9	3.7	0.31	NS	1.2	924
				Mean Effect			
	Sept. 2	35.8	35.6	2.14	17.3	14.6	7499
	Oct. 1	40.7	38.7	2.31	17.0	14.3	8308
	Nov. 1	41.7	39.0	2.35	17.2	14.6	8677
LSD .05 Means		2.1	2.2	0.18	NS	NS	534

Planted with a 3-stalk rate on each date in 1998 and harvested as first stubble in 2000.

Table 2. EffectEffect of dateEffect of date of planting, seed size and starter fertilizer on theEffect of date of planting, see
85-845 on the St. Gabriel Research Station, 2000.

			First Stubble Cane - 2000				
Planting Date	Seed Stalk Size	Starter Fert. N-P-K	Cane Yield	Stalk No.	Stalk Wt.	Normal Sucrose	Sugar Yield
1998		lbs/A	T/A	1000/A	lbs.	%	lbs/A
Sept. 1	Whole	0-0-0	47.6	40.6	2.48	11.4	7353
	Whole	45-45-45	46.0	35.0	2.79	11.5	7148
	Billet	0-0-0	50.0	39.4	2.66	11.6	7947
	Billet	45-45-45	47.0	38.1	2.61	11.3	7233
Nov. 1	Whole	0-0-0	47.1	36.6	2.74	11.7	7538
	Whole	45-45-45	51.0	37.9	2.86	12.1	8570
	Billet	0-0-0	47.2	36.6	2.54	12.5	8179
	Billet	45-45-45	47.5	38.9	2.57	12.2	8010
LSD .05 Treatments			4.1	NS	NS	NS	979
			Mean Effect				
Sept. 1			47.6	38.3	2.64	11.5	7420
Nov. 1			48.2	37.5	2.68	12.1	8074
	Whole		47.9	37.5	2.72	11.7	7652
	Billets		47.9	38.3	2.60	11.9	7842
		0-0-0	48.0	38.3	2.61	11.8	7754
		45-45-45	47.9	37.5	2.71	11.8	7740
LSD .05 Date Means			NS	NS	NS	0.6	490
LSD .05 Seed Size Means			NS	NS	NS	NS	NS
LSD .05 Starter Fert. Means			NS	NS	NS	NS	NS

PlantedPlanted with each seed size on each datePlanted with each seed size on each date in 1998 and harvested as first stub
rate,rate, the whole stalks were cut by hand 18 inches long in the plantingrate, the whole stalks were cut by hand 18 inches l
inin the planting furrow in 1998 and normalin the planting furrow in 1998 and normal fertilizer practice was followed in t

TableTable 1.Effect Effect of date of planting, seed size, and starterEffect of date of planting, seed size, and starter fertilizer on
85-384 on the St. Gabriel Research Station, 2000.

Planting Date	Seed Stalk Size	Starter Fertilizer N-P-K	Second Stubble Cane - 2000				
			Cane Yield	Stalk No.	Stalk Wt.	Normal Sucrose	Sugar Yield
1997		lbs/A	T/A	1000/A	lbs.	%	lbs/A
Sept. 2	Whole	0-0-0	35.9	45.0	1.60	13.2	6675
	Billets	0-0-0	34.4	44.7	1.38	13.0	6300
	Billets	45-45-45	34.6	48.5	1.44	12.9	6257
Nov. 1	Whole	0-0-0	38.3	49.3	1.50	12.6	6740
	Billets	0-0-0	40.2	51.4	1.49	13.1	7408
	Billets	45-45-45	39.8	49.7	1.62	12.9	7237
LSD .05 Treatments			4.6	6.0	NS	NS	NS
			Mean Effect				
Sept. 2			34.9	46.1	1.47	13.1	6411
Nov. 1			39.4	50.1	1.54	12.9	7128
	Whole	0-0-0	37.1	47.2	1.55	12.9	6708
	Billets	0-0-0	37.3	48.1	1.44	13.1	6854
	Billets	45-45-45	37.2	49.1	1.53	12.9	6747
LSD .05 Date Means			2.6	3.5	NS	NS	677
LSD .05 Seed Size Means			NS	NS	NS	NS	NS

LCPLCP 85-384 was planted at a four-stalkLCP 85-384 was planted at a four-stalk rate on two dates in 1997 and the stalk
inches long. The starter fertilizer was applied in the planting furrow.

Table 4. EffectEffect of date and rate of planting on first stubble cane yield Effect of date and rate of planting on f
Gabriel Research Station, 2000.

Cane Variety	Planting Date	Rate Of Planting	First Stubble Cane - 2000 Cane Yield	Stalk No.	Stalk Wt.	Normal Sucrose	Sugar Yield
	1998	Stalks	T/A	1000/A	lbs.	%	lbs/A
LCP 82-89	Sept. 2	3	35.3	34.2	2.07	14.5	7365
		4	36.9	35.7	2.21	15.0	7976
		4-Billet	38.6	36.0	2.38	15.3	8599
		5	37.7	39.3	2.06	14.2	7674
	Oct. 1	3	41.2	41.7	2.04	13.6	7941
		4	39.5	42.0	2.33	14.2	8023
		4-Billet	41.7	41.7	2.29	13.9	8225
		5	38.9	40.5	2.05	13.8	7615
	Nov. 1	3	42.0	39.9	2.26	14.1	8446
		4	40.0	39.6	2.46	13.6	7763
		4-Billet	39.9	40.8	2.11	14.2	8083
		5	39.9	40.5	2.29	13.5	7638
LSD .05 Treatments			3.4	3.7	0.29	1.3	NS
			Mean Effect				
	Sept. 2		37.1	36.3	2.18	14.8	7904
	Oct. 1		40.3	41.5	2.18	13.9	7951
	Nov. 1		40.5	40.2	2.28	13.9	7983
		3	39.5	38.6	2.12	14.1	7918
		4	38.8	39.1	2.33	14.3	7921
		4-Billet	40.6	39.5	2.26	14.4	8302
		5	38.8	40.1	2.14	13.8	7642
LSD .05 Date Means			1.7	1.9	NS	0.7	NS
LSD .05 Rate Means			NS	NS	0.17	NS	NS

PlantedPlanted with each rate on each date in 1998 and harvested as firstPlanted with each rate on each date in 1998 and ha
billet rate, the whole stalks were cut by hand 18 inches long in the planting furrow.

TableTable 5.EffectEffect of date of planting, seed size and rate of planting on the yield of plantcaneEffect of date of planting, s
on the St. Gabriel Research Station, 2000.

			Plantcane - 2000				
Cane Variety	Planting Date	Planting Rate	Cane Yield	Stalk No.	Stalk Wt.	Normal Sucrose	Sugar Yield
	1999		T/A	1000/A	lbs.	%	lbs/A
LCP 85-384	Aug. 16	3 Whole	37.4	38.9	2.12	15.1	8114
		4 Whole	41.8	40.6	2.28	15.1	9138
		4 Billet	33.2	38.3	2.03	14.9	7149
		5 Billet	42.0	41.4	2.25	15.3	9286
	Oct .13	3 Whole	35.6	36.3	2.56	14.1	7185
		4 Whole	37.1	36.8	2.56	14.3	7570
		4 Billet	38.6	38.0	2.24	14.2	7859
		5 Billet	38.0	36.8	2.30	14.4	7868
HoCP 85-	Aug. 16	3 Whole	39.9	29.0	3.11	13.1	7335
		4 Whole	41.8	31.5	2.90	13.0	7616
		4 Billet	39.8	33.2	2.49	13.7	7705
		5 Billet	39.7	33.3	2.59	13.4	7528
	Oct. 13	3 Whole	39.6	30.2	2.88	12.3	6744
		4 Whole	40.1	31.0	2.83	13.1	7385
		4 Billet	42.0	34.3	2.53	12.5	7343
		5 Billet	40.4	32.4	2.72	13.2	7466
LSD .05 Treatments			5.1	4.6	0.46	0.7	1133
			Mean Effect				
	Aug. 16		39.5	35.8	2.47	14.2	7984
	Oct. 13		38.9	34.5	2.58	13.5	7428
		3 Whole	38.1	33.6	2.67	13.6	7345
		4 Whole	40.2	35.0	2.64	13.9	7927
		4 Billet	38.4	36.0	2.32	13.8	7514
		5 Billet	40.0	36.0	2.47	14.1	8037
LSD .05 Date			NS	NS	NS	0.3	400
LSD .05 Rate			NS	2.3	0.23	0.4	566

PlantcanePlantcane was planted on two dates in 1999. For the billet rates, the whole stalksPlantcane was planted on two date
long in the planting furrow.

Table 6. Effect of seed size, rate of planting and starter fertilizer on the plantcane yield of LCP 85-384 on the St. Gabriel Research Station, 2000.

Seed Stalk Size and Rate	Starter Fertilizer	Cane Yield	Plantcane - 2000 Stalk No.	Stalk Wt.	Normal Juice Brix	Normal Juice Sucrose	Sugar Yield
		T/A	1000/A	lbs.	%	%	lbs/A
Whole	0-0-0	44.4	45.2	1.97	16.6	14.4	9164
1X Billet	0-0-0	40.7	46.7	1.74	16.6	14.4	8406
2X Billet	0-0-0	40.3	47.5	1.76	16.8	14.6	8655
Whole	45-45-45	50.6	46.3	2.23	16.3	14.0	10104
1X Billet	45-45-45	43.7	47.1	1.91	16.5	14.2	8880
2X Billet	45-45-45	42.9	45.7	1.97	16.5	14.2	8715
LSD .05 Treatments		2.6	NS	0.33	NS	NS	1004
			Mean Effect				
Whole		47.5	45.8	2.10	16.4	14.2	9634
1X Billet		42.2	46.9	1.83	16.4	14.3	8643
2X Billet		42.1	46.6	1.87	16.6	14.4	8685
	0-0-0	42.1	46.5	1.82	16.7	14.5	8741
	45-45-45	45.8	46.4	2.04	16.4	14.1	9233
LSD .05 Rate Means		1.8	NS	0.23	NS	NS	710
LSD .05 Fall Fert. Mean		1.5	NS	0.19	NS	NS	580

PlantedPlanted with each seed size inPlanted with each seed size in 1999 and harvested as plantcane in 2000.Planted with ea
andand planted with a mechanical planter. Starter fertilizer was applied in the pland planted with a mechanical planter
normal fertilizer practice was followed in the spring of 2000.
Whole = 3 running stalks.
1X Billet = 6-9 running billets.
2X Billet = 12-18 running billets.

Table 7. EffectEffect of rate of plantinEffect of rate of planting Effect of rate of planting billets on the yield of LCP 85-
Station, 2000.

	Plantcane - 2000					
Planting Rate	Cane Yield	Stalk No.	Stalk Wt.	Normal Juice Brix	Normal Juice Sucrose	Sugar Yield
	T/A	1000/A	lbs.	%	%	lbs/A
	LCP 85-384					
3 Billets	44.2	46.6	1.81	16.4	14.0	8837
5 Billets	44.4	49.2	1.81	15.9	13.5	8434
7 Billets	46.5	55.1	1.81	16.9	14.7	9796
9 Billets	48.6	54.7	1.99	17.0	14.7	10343
LSD .05 Treatment	NS	4.9	NS	NS	NS	NS

The billets were cut with a combine harvester and hand planted in 1999.

TableTable 8. Effect of date of harvest on the plantcane yieldEffect of date of harvest on the plantcane yield of two cane varieti
Station, 2000.

		Plantcane - 2000					
Cane Variety	Harvest Date	Cane Yield	Stalk No.	Stalk Wt.	Normal Juice Brix	Normal Juice Sucrose	Sugar Yield
	2000	T/A	1000/A	lbs.	%	%	lbs/A
CP 70-321	Oct. 4	32.1	32.1	2.39	14.7	11.7	5164
	Dec. 4	36.2	31.8	2.62	15.6	13.2	6743
LCP 82-89	Oct. 4	35.9	42.1	1.93	14.5	11.1	5347
	Dec. 4	38.6	41.8	2.12	16.9	14.4	7980
LSD .05 Treatments		2.8	1.4	0.48	0.9	1.3	966
		Mean Effect					
	Oct. 4	34.0	37.1	2.16	14.5	11.4	5256
	Dec. 4	37.4	36.8	2.37	16.3	13.8	7361
LSD .05 Means		2.0	NS	NS	0.6	0.9	683

PlantcanePlantcane was harvested on each date in2000. ThePlantcane was harvested on each date in2000. The first stubble c
and the yield data will be collected.

Table 9. EffectEffect of date of harvesting plantcane in 1999 onEffect of date of harvesting plantcane in 1999 on the sub
on Commerce soil on the St. Gabriel Research Station, 2000.

Cane Variety	Plantcane Harvest Date	First Stubble Cane - 2000					
		Cane Yield	Stalk No.	Stalk Wt.	Normal Juice		Sugar Yield
					Brix	Sucrose	
	1999	T/A	1000/A	lbs.	%	%	lbs/A
LCP 82-89	Aug. 15	32.0	35.0	2.05	17.3	14.2	6482
	Sept. 15	31.8	39.4	1.65	16.7	13.5	6060
	Oct. 12	35.8	40.0	1.78	17.0	13.6	6871
	Nov. 15	37.0	37.6	2.07	17.5	14.0	7386
LCP 85-384	Aug. 15	36.2	43.6	1.81	17.1	14.7	7686
	Sept. 15	40.6	55.5	1.52	16.3	13.6	7802
	Oct . 12	39.3	44.9	1.77	16.8	14.0	7869
	Nov. 15	45.0	48.7	1.75	16.5	14.1	9032
HoCP 85-845	Aug. 15	34.1	36.5	2.00	16.3	13.3	6376
	Sept. 15	33.4	34.4	1.96	16.5	13.5	6343
	Oct. 12	32.6	33.0	2.14	16.1	13.1	5985
	Nov. 15	41.0	34.7	2.35	16.9	14.0	7282
LSD .05 Treatments		2.1	2.6	0.24	0.8	1.1	888
		Mean Date Effect					
	Aug. 15	34.1	38.4	1.95	16.9	14.1	6848
	Sept. 15	35.3	43.1	1.71	16.5	13.5	6735
	Oct. 12	35.9	39.3	1.90	16.6	13.6	6908
	Nov. 15	39.5	40.3	2.06	17.0	14.0	7900
LSD .05 Means		1.2	1.5	0.14	NS	NS	513

TheThe plantcane of each variety was harvested on fourThe plantcane of each variety was harvested on four dates in 1999 an
in October 2000.

Table 10. EffectEffect of date of harvest in plantcaneEffect of date of harvest in plantcane and first stuEffect of date of varieties on the St. Gabriel Research Station, 2000.

Harvest Date		Second Stubble Cane - 2000				
Plant Cane	1ST Stubble	Cane Yield	Stalk No.	Stalk Wt.	Normal Sucrose	Sugar Yield
1998	1999	T/A	1000/A	lbs.	%	lbs/A
		CP 70-321				
Oct. 1	Oct. 1	26.6	28.3	2.07	12.0	4375
	Nov. 1	29.8	30.5	2.09	12.0	4909
	Dec. 1	34.2	34.5	2.37	12.4	5918
Dec. 1	Oct. 1	33.7	36.9	2.02	12.6	5913
	Nov. 1	34.0	36.6	1.98	11.9	5563
	Dec. 1	37.3	32.1	2.55	11.3	5769
		LCP 82-89				
Oct. 1	Oct. 1	28.1	40.5	1.69	12.2	4782
	Nov. 1	28.7	28.4	2.27	11.7	4596
	Dec. 1	26.2	29.3	2.02	11.6	4175
Dec. 1	Oct. 1	29.4	37.8	1.75	11.7	4751
	Nov. 1	29.6	32.3	2.05	11.4	4565
	Dec. 1	31.3	36.3	1.96	11.7	4995
LSD .05 Treat.		4.3	6.2	0.32	1.2	822
		Mean Effect				
Oct. 1		28.9	31.9	2.08	12.0	4792
Dec. 1		32.5	35.3	2.05	11.8	5259
	Oct. 1	29.5	35.9	1.88	12.1	4955
	Nov. 1	30.5	32.0	2.10	11.7	4908
	Dec. 1	32.2	33.0	2.22	11.8	5214
LSD .05 Plantcane		1.8	2.5	NS	NS	335
LSD .05 1st Stubble		2.2	3.1	0.16	NS	NS

PlantcanePlantcane was harvested in October and December in 1998. First stubble cane was harvested inPlantcane was h NovemberNovember and DecemberNovember and December in 1999. Second stubble yield was measured on the same pl

Table 11. EffectEffect of stEffect of stubbleEffect of stubble protection on the first stubble yield of three cane varieties
Research Station, 2000.

Harvest System	Stubble Protection Treatment	First Stubble Cane - 2000					
		Cane Yield	Stalk No.	Stalk Wt.	Normal Juice		Sugar Yield
					Brix	Sucrose	
	1999	T/A	1000/A	lbs.	%	%	lbs/A
		CP 70-321					
Soldier	Burn-Check	39.8	32.6	2.52	15.8	12.9	7154
Combine	Burn-Cover	41.7	34.2	2.62	16.5	13.8	8176
Combine	Trash	37.3	31.8	2.55	17.2	14.7	7874
		LCP 82-89					
Soldier	Burn-Check	37.8	35.2	2.23	17.0	13.9	7497
Combine	Burn-Cover	42.0	39.7	2.13	16.7	13.5	8056
Combine	Trash	40.0	38.4	2.17	17.2	14.1	8069
		HoCP 85-845					
Soldier	Burn-Check	41.7	36.5	2.34	16.7	13.9	8218
Combine	Burn-Cover	37.2	35.2	2.19	16.7	14.1	7461
Combine	Trash	33.6	32.8	2.15	16.2	13.5	6413
LSD .05 Treatments		4.3	3.9	NS	1.2	1.4	1063
		Mean Effect					
Soldier	Burn-Check	39.8	34.8	2.36	16.5	13.6	7623
Combine	Burn-Cover	40.3	36.4	2.31	17.0	13.8	7897
Combine	Trash	37.0	34.3	2.29	16.5	14.1	7452
LSD .05 Means		2.5	NS	NS	NS	NS	NS

TheThe buThe burn plots wereThe burn plots were harvested with each harvest system and the trash was removed by bu
cover was applied over the cane stubbles immediately after harvesting plantcane in 1999.

Table 12. EffectEffect of fall-applied starterEffect of fall-applied starter fertilizer and soil cover on first stubble yieldEffec
on the St. Gabriel Research Station, 2000.

Starter Fertilizer $N-P_2O_5-K_2O$	Soil Cover	First Stubble Cane - 2000					
		Cane Yield	Stalk No.	Stalk Wt.	Normal Juice Brix	Normal Juice Sucrose	Sugar Yield
lbs/A		T/A	1000/A	lbs.	%	%	lbs/A
		LCP 82-89					
0-0-0	Check	36.2	39.4	1.85	17.0	13.8	7084
0-0-0	Cover	38.2	42.3	1.82	16.5	13.1	7050
45-45-45	Check	35.2	43.0	1.62	16.6	13.2	6576
45-45-45	Cover	35.8	40.6	1.94	16.5	13.1	6630
		LCP 85-384					
0-0-0	Check	44.6	48.6	1.90	16.6	13.9	8784
0-0-0	Cover	43.4	51.3	1.75	16.6	13.8	8509
45-45-45	Check	39.6	48.1	1.63	16.3	13.6	7579
45-45-45	Cover	42.5	51.0	1.66	16.5	13.8	8325
		HoCP 85-845					
0-0-0	Check	36.2	35.4	2.06	16.8	13.4	6833
0-0-0	Cover	34.0	36.1	2.04	16.3	13.2	6318
45-45-45	Check	33.4	34.0	2.07	16.2	12.9	6008
45-45-45	Cover	34.4	35.2	2.12	16.2	13.3	6478
LSD .05 Treat.		4.4	3.2	0.41	NS	0.9	731
		Mean Effect					
0-0-0		38.8	42.2	1.90	16.6	13.5	7430
45-45-45		36.8	42.0	1.84	16.4	13.3	6933
	Check	37.5	41.4	1.85	16.6	13.5	7144
	Cover	38.0	42.8	1.89	16.4	13.4	7218
LSD .05 Fall Fert.		1.8	NS	NS	NS	NS	299
LSD .05 Cover		NS	1.3	NS	NS	NS	NS

TheThe fall fertilizer was applied in the planting furrowThe fall fertilizer was applied in the planting furrow as a starter fe
after plantcane harvest in 1999.

LONG-TERM EVALUATION OF THE EFFECTS OF COMBINE TRASH BLANKET ON YIELD
(Cycle One Results)

H. P. Viator
Iberia Research Station

SUMMARY

A study designed toA study designed to evaluate the long-term consequences and benefits of the trashA s generatedgenerated by combine harvesting was initiate usingLCP 85-384generated by combine harvesting was init beginningbeginning withbeginning with the plantcane harvest, three treatments will be established for all ratoonbe cycle-cycle- ratoon cane grown on rows withcycle- ratoon cane grown on rows with thecycle- ratoon cane grown o whichwhich the trash blanket will be removed in the fall (TBR), and ratoon cane grown on rows with residueresidue from theresidue from the combining of cane burned standing (BSTB). The third ratoonresidue from oneone was harvested in 2000. one was harvested in 2000. As an average of allone was harvested in 2000. As an significantlysignificantly higher thansignificantly higher than that for GCTB. Three-year average yields for BSTB, 7,664,7,664, 7,569 and7,664, 7,569 and 6,723 pounds of sugar per acre, respectively.7,664, 7,569 and 6,723 pounds fallow period to monitor differences in N and C content of the treatments.

INTRODUCTION

ResearchResearch underResearch under Louisiana conditions has consistently shown a two to four tons o acreacre decrease in yield when combine residue is not racre decrease in yield when combine residue is no WaitingWaiting to remove trash in February or March by either burning,Waiting to remove trash in February or Ma coconsconsistentconsistent positive results relative to fall removal. The trash blanket negatively influences ratoo yieldsyields by trapping soil moisture, loweringyields by trapping soil moisture, lowering soil tempyields by chemicals.chemicals. Thechemicals. The positive chemicals. The positive effects of the green cane trash b reductionreduction in soil erosion, cold protection, andreduction in soil erosion, cold protection, and the suppress bebe the enhanbe the enhancement ofbe the enhancement of soil organic matter. South African research under shownshown that long-term trash retention (green-cane harvesting) allowed for lower N shown that long-term tr ratesrates after arates after a number of years. The primary objective of this research effort is to evaluate therates a of residue management on cane yield and soil organic properties on a long-term basis.

PROCEDURES

InIn November 1997, a field ofIn November 1997, a field of LCP 85-384In November 1997, a field of LC ofof the rows in eachof the rows in each half was burned standing prior to combining. The rows of cane inof the ro two-thirds of each halftwo-thirds of each half were green chopped,two-thirds of each half were green chopped, a thethe field bythe field by the combine. Shortly after harvestthe field by the combine. Shortly after harvest the t topstops oftops of half of the rows receiving the combine residue intops of half of the rows receiving the combine treatmentstreatments are: 1) ratoon cane grown on rows with residue ftreatments are: 1) ratoon cane grown standing,standing, 2) ratoon cane grown on rows with rstanding, 2) ratoon cane grown on rows with restandi ratoon cane grown on rows from which combine residue was removed. These same

Research is partially supported by a financial grant from the American Sugar Cane League.

treatmentstreatments will be initiated with plantcane and imposed for each ratoon croptreatments will be initiated w cyclescycles (cycles (threecycles (three ratoon crops per cycle). Standard herbicide and cultural practices will b for all treatments. Cane yield and juice quality will be determined at a commercial sugar mill.

TreatmentTreatment plots are three rows wide and 365 feet in length, arrangedTreatment plots are three ro designdesign and replicated twice. Long-term effedesign and replicated twice. Long-term effects design a measuringmeasuring the direct effects on cane and sugar yield over timemeasuring the direct effects on cane a mattermatter content of the soil will be monitored. An appropriate matter content of the soil will be monitored determine significant differences among the treatment means.

RESULTS

AsAs an average of allAs an average of all three ratoon cropsAs an average of all three ratoon crops (cycle acreacre yields (table 1) for the cane burned standing prior to harvestacre yields (table 1) for the cane burned sta werewere both significantly higher than that for green-chopped cane grown on rowere both significantly higher than t waswas not removed. was not removed. These results arewas not removed. These results are comparable to yie researchers.researchers. researchers. It should beresearchers. It should be noted that spring emergence occurred un inin 1998 (over 30in 1998 (over 30 inchesin 1998 (over 30 inches of rain was recorded Jan. - Mar.), under fairly inin 1999 (approximately 9 inches ofrainin 1999 (approximately 9 inches of rain was recorded Jan. -in 1999 (approx inin 2000 (only 6.7 inches of rain fell Jan.in 2000 (only 6.7 inches of rain fell Jan. - Mar.).in 2000 (only 6.7 inche increasinglyincreasingly lower yieldsincreasingly lower yields with each successive ratoon crop. The yield advan of residue increased to approximately 1,500 pounds of sugar/acre by third ratoon.

Table 1. Influence of combine residue management on sugarcane yields as an average of the first, second and third ratoon crops of cycle one.

Residue Management	tons cane/acre	pounds sugar/acre	CRS
Burned standing prior to harvest (BSTB)	44.3 a	7,664 a	175 a
Combine residue removed in fall (TBR)	44.7 a	7,569 a	170 b
Combine residue allowed to remain (GCTB)	41.2 a	6,723 b	164 c

Means within columns followed by the same letter are not significantly different (P = .10)

SUGARCANE ON CLAY SOIL RESPONDS TO IRRIGATION

H. P. Viator
Iberia Research Station

Ronald Hebert, Jr.
Ronald Hebert Farms, Jeanerette, La.

SUMMARY

SeveralSeveral droughts during the past decade in Louisiana have caused an intensification in the interestinterest in supplemental irrigation for sugarcaneinterest in supplemental irrigation for sugarcane productio researchresearch in Louisiana has been conducted onresearch in Louisiana has been conducted on light-research i heavy-textured,heavy-textured, clay soil is particularly vulnerable to extended periods of soil moisture deficit. The objectiveobjective of thisobjective of this investigation was to evaluateobjective of this investigation was to eval AlligatorAlligator clay soil. Irrigation was scheduled when stalksAlligator clay soil. Irrigation was scheduled when for the irrigation infor the irrigation in July at which time growth was morefor the irrigation in July at which tim acre-inchesacre-inches of water was supplied in furrows throughacre-inches of water was supplied in furrows th totaltotal of only 19.9 inches of rain from May through October, a rainfall deficit of 15.1total of only 19.9 inche comparedcompared to a 25-year average for the same period. Prior to the first significant rainfall of the drought,drought, irrigated cane grew at approximately twice the rate of the unirrigated cane,drought, irrigated can aa height difference of about 20 inches at harvest. Cane and sugara height difference of about 20 inches at harvest. betweenbetween the irrigated and control plots. Both irrigated cane and sugar yields were 44% higher than that of the control plots. On a perthat of the control plots. On a per acre basis, the additional 10 tons of cane wer $27.

INTRODUCTION

PreviousPrevious irrigation studies in Louisiana have generally indicated a lack oPrevious irrigation sugarcanesugarcane to supplemental water. In all of the published investigations, sugarcane in the un-irrigated controlcontrol plots benefitted from timelycontrol plots benefitted from timely rainfall either during the drought o InIn 1998, we conducted and reported on (Sugar Bulletin Vol. 78 NoIn 1998, we conducted and reported on (S measuremeasure the response to irrigation of LCP 85-384 grown onmeasure the response to irrigation of LCP 85- responseresponse to irrigation water in that study wasresponse to irrigation water in that study was attributed to t excessiveexcessive winter rainfall.excessive winter rainfall. That dry soil conditions depress growth of caneexces clayclay soils is wellclay soils is well documented. Root development tends to be less extensive on clay soil, res ininin less use of the available soil-water reservoir. A study toin less use of the available soil-water reservoir. A study onon a heavy-textured, clay soilon a heavy-textured, clay soil to supplemental irrigation water was conducted duri 2000.

EXPERIMENTAL METHODS

TheThe experiment site was an Alligator clayThe experiment site was an Alligator clay soil, and the crop 85-384.85-384. Plots of85-384. Plots of the two treatments, irrigated and non-irrigated sugarcane, consisted of85-3 rows.rows. An interplot buffer zone ofrows. An interplot buffer zone of eight rows (46.7 feet) was established t of irrigation water between irrigated and control plots.

TheThe year 2000 was one of the driest since records began in 1889,The year 2000 was one of the driest since
thethe initiation of the studthe initiation of the study in Mthe initiation of the study in May to the late-October
precipitationprecipitation for May-October, based on area records for a 2precipitation for May-October, based o
situationsituation was worsened by the occurrence of a relatively drysituation was worsened by the occurrence of
drought.

ApproximatelyApproximately 3 acre-inches of irrigation water were supplied in fApproximately 3 acre
dates:dates: May 5, May 25, July 21, anddates: May 5, May 25, July 21, and August 28, 2000.dates: May 5, M
waterwater was pumped. Weekly growth measurements were recorded from early May twater was pumped. Weekly
harvest.harvest. Irrigations were scheduled when growth slowed to 2harvest. Irrigations were scheduled when gro
July irrigation at which time the growth was more than 2 inches per week.

RESULTS

StalksStalks elongated at an accelerated rate in the irrigated plots Stalks elongated at an accelerated ra
significantsignificant rainfall (1.14 inchessignificant rainfall (1.14 inches onsignificant rainfall (1.14 inches on June

the rate of the control. The height advantage for irrigated cane was maintained throughout
the growing season, eventually attaining a 19.3-inch disparity at harvest. It is important to note
thatthat the drought-sthat the drought-stressed cthat the drought-stressed cane in the control plots did not comp
September.September. Both the control and irrigated plots grew 14 inches from the drought-breaking,
SeptemberSeptember 8-10 rains to the late-October harvest, thereby maiSeptember 8-10 rains to the late-Oc
developed earlier in the growing season.

AsAs can be seen in table 1, cane and sugar yields As can be seen in table 1, cane and sugar yields v
betweenbetween the control and irrigatedbetween the control and irrigated plots.between the control and irrigated p
yieldsyields than did the control plots. In contrast tyields than did the control plots. In contrast to beltw

SeptemberSeptember rains that ended the1998 drought, identical CRSs of 213 lbsSeptember rains that ended the19 thethe 2000 studythe 2000 study suggestthe 2000 study suggest normal maturity for the drought-stressed cane. Cl drydry conditions that prevailed thedry conditions that prevailed the month prior to harvest, accounting for averag less than an inch per week for the entire month of October 2000.

Table 1. The influence of irrigation water on the yield and quality of cane grown on clay.

Irrigation treatment	Yields of Sugar, lbs/ac	Yields of Cane, tons/ac	CRS, lbs/ton
Irrigated	7,072	33.2	213
Control	4,921	23.1	213
P=	.08	.06	.96

OBSERVATIONS

WhileWhile While it is risWhile it is risky to draw comparisons of the results of sugarcane studies differentdifferent seasons involving different soil types, a few observations about the contrary results obtainedobtained with the two irobtained with the two irrigatioobtained with the two irrigation studies are wa appearingappearing to be similar in duration and severity, were notably dissimilar in consequences. Although bothboth years had an extended drought from May through late summer, the 1998 drought was preceded byby an exceedingly wet January - Marchby an exceedingly wet January - March period and followedby an exceedi thethe drought, overthe drought, over 60 inchesthe drought, over 60 inches of rain were recorded for most of the S andand weekly-recordedand weekly-recorded growth measurements strongly indicate, theand weekly-recorded g excessiveexcessive rains in the winter and spring sustained adequate cane growth onexcessive rains in the winter soil moisture was replenished by the September rains.

CaneCane suffering through the drought of 2000, howCane suffering through the drought of 2000, hov storedstored from preceding winter rains. Instored from preceding winter rains. In fact, the soil moisture deficit fo thethe second highest on record since 1889, with a total of only 6.67 inches of rain fallingthe second highest on reco throughthrough March 2000. It can easily be argued that the 2000 drought actually started with a relatively drydry 1999 fall and extended through an exceedingly dry January-June 2000 period. Like thedry 1999 fall and ex of 1998, the drought of 2000 was alleviated by early-September rains.

AlsAlsoAlso complicatAlso complicating the comparison of the results from the irrigation experiments differencedifference in soil type. A direct comparison of the effects of soil texture on irrigation efficacy was notnot available in either study. It is, however, likely anot available in either study. It is, however, likely a resp observed on clay in 1998 and on silt loam in 2000.

UsingUsing estimates from the 1998 irrigation study, cost to supply each Using estimates from the 1998 water totaled $2.44 (unadjusted forwater totaled $2.44 (unadjusted for millwater totaled $2.44 (unadjusted for m 1010 tons of cane obtained by pumping appr10 tons of cane obtained by pumping approximatel10 tons of cane $27.$27. This confirms what other researchers$27. This confirms what other researchers have discovered$27. This 11 acre-inch of water will provide a1 acre-inch of water will provide a yield of about 1 ton cane per acre if other fac

ThisThis is aThis is a convenient rule of thumb, butThis is a convenient rule of thumb, but one that is perilous wh
rarely suffer yield-limiting droughts.

TheThe contradictory results of the 1998 and 2000 irrigation studies point to the uncertainty of
gettinggetting agetting a responsegetting a response to irrigation in high-rainfall environments. There remains a n
techniquestechniques acceptable totechniques acceptable to the grower and accurate enough totechniques accepta
investment.investment. Even then the occurrence of unexpected rainfallinvestment. Even then the occurrence of u
in humid regions.

ACKNOWLEDGMENTS

TheThe irrigationThe irrigation experiment was supported by the sugarcane growers and millersThe irriga
American Sugar Cane League of the U.S.A., Inc.