

ECONOMIC IMPORTANCE OF LOUISIANA SUGARCANE PRODUCTION IN 2008

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Overview

Louisiana is a major sugar producing state, accounting for approximately 42% of total cane sugar production and 19% of total sugar production in the United States. In 2008, sugarcane was grown in 22 parishes in Louisiana on 401,435 acres by 526 producers, with an estimated 375,342 acres harvested for sugar. The 13 factories (12 raw sugar factories and 1 syrup factory) processed 12.3 million tons of cane. In total, the 12 raw sugar factories produced 1.4 million short tons of sugar (96 pol), with an average yield of cane produced per total acre of 30.5 tons. The average yield of cane produced from each harvested acre was estimated at 32.7 tons. The average sugar recovery at the 12 factories was 11.2% or 224 pounds of sugar (96 pol) per ton of cane. The yield of commercially recoverable sugar produced per total acre averaged 6,832 pounds. Sugar produced per harvested acre was approximately 7,325 pounds.

The gross farm value of the 2008 sugarcane crop was \$357.6 million for sugar and molasses. The gross farm value reported above represents 60% of the value of the sugar and molasses produced, with the remaining percentage going to processing and marketing (\$244.1 million). The total value of the 2008 sugarcane crop to Louisiana producers, processors and landlords at the first processing level was actually \$601.7 million. The value ranks sugarcane as the leading agricultural row crop produced in Louisiana in terms of total crop market value. Using an economic multiplier in the range of 2.5-3.0, the sugarcane industry in 2008 has an estimated total impact on the state's economy of \$1.504 to \$1.805 billion.

Louisiana's Rank is Total U.S. Sugar Production

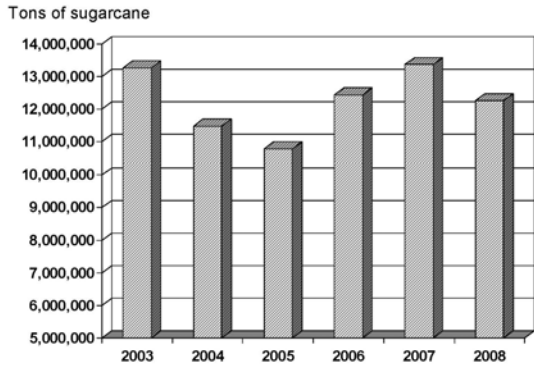
Refined white sugar in the United States is produced from two sources. Sugarbeets are processed directly into refined sugar, while sugarcane is first processed into raw sugar before being refined into white sugar. In 2008, 55.8 percent of total U.S. sugar production came from sugarbeets and 44.2 percent came from sugarcane. For the 2008/09 fiscal year, Louisiana accounted for 42.3 percent of total U.S. cane sugar production and 18.7 percent of total U.S. sugar production.

U.S. Sugar Production, 2007/08 and 2008/09

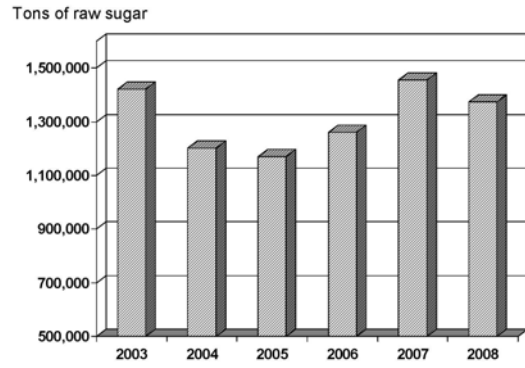
	2007/08 (1,000 short tons, raw value)	2008/09 (1,000 short tons, raw value)
Total production	8,152	7,629
Beet sugar	4,721	4,260
Cane sugar	3,431	3,369
Florida	1,645	1,565
Hawaii	182	225
Louisiana	1,446	1,425
Texas	158	154

Source: World Agricultural Outlook Board, U.S. Department of Agriculture, WASDE-469, April 2009.

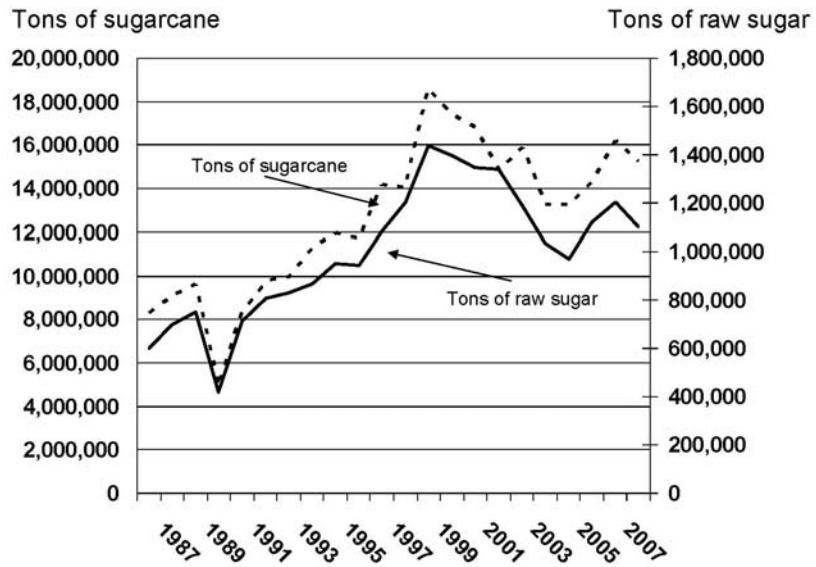
Louisiana Sugarcane Production, 2003-2008



Louisiana Sugar Production, 2003-2008



Louisiana Sugarcane/Sugar Production, 1987-2008



2008 Louisiana Agricultural Summary Data for Sugarcane

Parish	Sugarcane Products	Total Producers	Units of Production (Yield per acre)	Total Production	Total Acres	Gross Farm Value
Acadia	Raw sugar (lbs)	7	5,200	8,273,200	1,591	\$1,002,712
	Molasses (gal)		156	248,196		\$83,766
Ascension	Raw sugar (lbs)	16	7,000	101,535,000	14,505	\$12,306,042
	Molasses (gal)		210	3,046,050		\$1,028,042
Assumption	Raw sugar (lbs)	51	6,973	278,068,596	39,878	\$33,701,914
	Molasses (gal)		209	8,334,481		\$2,812,887
Avoyelles	Raw sugar (lbs)	12	6,200	54,541,400	8,797	\$6,610,418
	Molasses (gal)		186	1,636,242		\$522,232
Calcasieu	Raw sugar (lbs)	*	4,550	10,369,450	2,279	\$1,256,777
	Molasses (gal)		137	312,223		\$105,375
Evangeline	Raw sugar (lbs)	*	5,400	642,600	119	\$77,883
	Molasses (gal)		162	19,278		\$6,506
Iberia	Raw sugar (lbs)	81	6,500	365,079,000	56,166	\$44,247,575
	Molasses (gal)		195	10,952,370		\$3,696,425
Iberville	Raw sugar (lbs)	31	8,300	259,624,000	31,280	\$31,466,429
	Molasses (gal)		249	7,788,720		\$2,628,693
Jefferson Davis	Raw sugar (lbs)	*	4,400	18,194,000	4,135	\$2,205,113
	Molasses (gal)		132	545,820		\$184,214
Lafayette	Raw sugar (lbs)	25	6,975	84,251,025	12,079	\$10,211,224
	Molasses (gal)		209	2,524,511		\$ 852,022
Lafourche	Raw sugar (lbs)	35	6,389	172,637,169	27,021	\$20,923,625
	Molasses (gal)		192	5,188,032		\$1,750,961
Pointe Coupee	Raw sugar (lbs)	30	7,800	240,162,000	30,790	\$29,107,634
	Molasses (gal)		234	7,204,860		\$2,431,640
Rapides	Raw sugar (lbs)	20	7,350	78,769,950	10,717	\$9,546,918
	Molasses (gal)		221	2,368,457		\$799,354
St. Charles	Raw sugar (lbs)	*	7,150	11,046,750	1,545	\$1,338,866
	Molasses (gal)		215	332,175		\$112,109
St. James	Raw sugar (lbs)	32	6,656	160,622,592	24,132	\$19,467,458
	Molasses (gal)		200	4,826,400		\$1,628,910
St. John	Raw sugar (lbs)	13	7,300	49,282,300	6,751	\$5,973,015
	Molasses (gal)		219	1,478,469		\$498,983
St. Landry	Raw sugar (lbs)	*	6,300	34,448,400	5,468	\$4,175,146
	Molasses (gal)		189	1,033,452		\$348,790
St. Martin	Raw sugar (lbs)	58	6,863	193,165,998	28,146	\$23,411,719
	Molasses (gal)		206	5,798,076		\$1,956,851
St. Mary	Raw sugar (lbs)	50	6,000	264,072,000	44,012	\$32,005,526
	Molasses (gal)		180	7,922,160		\$2,673,729
Terrebonne	Raw sugar (lbs)	15	6,494	67,810,348	10,442	\$8,218,614
	Molasses (gal)		195	2,036,190		\$687,214
Vermilion	Raw sugar (lbs)	27	5,812	171,500,496	29,508	\$20,785,860
	Molasses (gal)		174	5,134,392		\$1,732,857
West Baton Rouge	Raw sugar (lbs)	9	8,200	99,006,800	12,074	\$11,999,624
	Molasses (gal)		246	2,970,204		\$1,002,444
Total Gross Farm Value						\$357,614,098

Source: 2008 Louisiana Summary of Agriculture and Natural Resources, LSU Agricultural Center.

SUGARCANE SUMMARY FOR CROP YEAR 2008

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In 2008, sugarcane was grown on 401,435 acres (a decrease of 17,498 acres or 4.2% when compared to the 2007 crop) by 526 producers (a decrease of 83 producers or 13.6%; this is the largest decrease in the number of producers in recent years.) in 22 Louisiana parishes (counties). An estimated 375,342 acres (a decrease of 16,360 acres or 4.2%) were available for harvest for sugar, assuming 6.5% of the total acres were used for seed cane purposes. The actual acreage for harvest may be slightly lower because, undoubtedly, more cane was needed for seed due to the lodged condition of the crop at planting as a result of two hurricanes (Gustav and Ike) that affected the industry in 2008. Further, many producers had to plant “billets” as they were unable to plant the crooked, whole stalks. The use of billets means a decrease in the planting ratio resulting in the need for more seed cane per acre.

The 13 factories (12 raw sugar factories and 1 syrup factory) processed 12,259,838 tons of cane (a decrease of 1,112,733 tons or 8.3% when compared to 2007). There was an increase of one factory when compared to the 2007 crop due to the reopening of the St. James Factory by Louisiana Green Fuels. The sugar produced from the Lacassine syrup factory was crystallized at the Enterprise factory at Patoutville near Jeanerette, Louisiana. All total, the 12 raw sugar factories produced 1,373,039 short tons of sugar (96 pol)(a decrease of 83,316 short tons or 5.7%). Accordingly, the average yield of cane produced per total acre was 30.5 tons (a decrease of 1.4 tons or 4.4%). The average yield of cane produced from each harvested acre amounted to 32.7 tons (a decrease of 1.4 tons or 4.1%). The average sugar recovery at the 12 factories was 11.20% or 224 pounds of sugar (96 pol) per ton of cane; this was an increase of 6 pounds of sugar per ton of cane or an increase of 2.3% when compared to the 2007 crop. The yield of commercially recoverable sugar produced per total acre averaged 6,832 pounds (a decrease of 122 pounds or 1.8%). And sugar produced per harvested acre was approximately 7,325 pounds (a decrease of 109 pounds or 1.5%).

The gross farm value of the 2008 sugarcane crop was \$372,794,574 for sugar and molasses (a decrease of \$14,365,010 or 3.7% when compared to the 2007 crop). The gross farm value reported above represents 60% of the value of the sugar and molasses produced, with the remaining percentage going to processing and marketing (\$248,529,716). The total value of the sugarcane crop to Louisiana producers, processors and landlords at the first processing level was actually \$621,324,290. Sugarcane still ranks first in value amongst the State’s row crops. Although field yields were undoubtedly impacted as a result of the two hurricanes, the loss of cane tonnage was partially offset by an increase in the yield of recoverable sugar per ton of cane. Even with the reduction, the 32.7-ton yield was the seventh best in the State’s history and the yield of sugar per acre for the 2008 crop was the third highest. The total tons of cane produced were the ninth largest in the State’s history while the yield of recoverable sugar per ton of cane was second best. Even though the acreage in sugarcane has dropped by over 94,000 acres in Louisiana since 2000, the 2008 crop was still the sixth largest crop in its 213-year history. There has been a gradual trend each year towards fewer acres planted to sugarcane in Louisiana

since 2000 when there were approximately 496,000 acres. The fewer acres can be attributed to urban encroachment, a switch to other crops, especially grain in the Northern region of the sugarcane belt due to higher commodity prices for grain and the continued low prices received for sugar. Sugar prices have remained low and virtually unchanged for the past 25 years although molasses prices have continued high for the last several years.

The 2008 sugarcane variety census shows that Louisiana producers have switched to the newer varieties, especially HoCP 96-540 (44% of the planted area) and L 97-128 (17%) while dramatically decreasing the area planted to LCP 85-384 (91% in 2004 to 22% in 2008). Although field yields were somewhat disappointing for the 2008 crop, there were several reasons for the shortfall. For the most part, producers were very satisfied with the performance of the newer varieties as they realized that yields were compromised due to a significant drought during much of the summer in several areas of the belt, the impact of the two hurricanes on sugarcane growth and harvestability (with lodged cane there is a tendency for greater scrap losses in the field) and the dry weather conditions that reduced extraneous matter in harvested cane (lower extraneous material meant lower gross yields but better cane quality and a higher level of recoverable sugar per ton of cane). There was also approximately 30,000 acres of sugarcane that were flooded as a result of Hurricane Ike that caused lower yields of both tons of cane per acre and recoverable sugar per ton of cane.

Although rainfall was generally well distributed throughout the growing season, there were several areas of the state that experienced brief periods of drought during the summer that may have adversely affected cane and sugar yields in those areas. For the most part, there was below normal rainfall during the harvest season that helped to improve the quality of harvested cane. Following the hurricanes, cane growth slowed dramatically due to excessive lodging and physiological shock to the plant. Also, after the storms there was an extended period of dry weather with unlimited sunlight that helped to improve maturity of the crop. Previous research has shown that given a variety with early maturity and high sucrose content, incident sunlight is the most important criteria in sugarcane maturity in Louisiana. Because of the lodged conditions of the crop, the usage of the chemical ripener glyphosate was reduced although approximately 50% of the total acres harvested were treated to help to improve the yield of recoverable sugar per ton of cane. However, with the lodged condition of the crop, it is expected that the response to the ripener was lessened. Another possible reason for the improved yield of recoverable sugar per ton of cane was the delayed start to the grinding season as a direct result of the two hurricanes. Many producers had little or no cane planted prior to the storms and with the crooked stalks, most of the cane was planted in September and October as planting efficiency was reduced. Most producers are unable to both plant and harvest their crops at the same time as the same personnel and equipment are used in the two operations.

Although cane and sugar yields were generally good throughout much of the sugarcane belt, producers reported lower profits because of the low price of sugar and the high input prices paid for fuel and fertilizer. Because of the high cost of fertilizer in general, many producers used less nitrogen in 2008 than was used in past years although recommendations have stressed that maximum yields of sugar per ton of cane and per acre could be achieved with lower rates of nitrogen. Undoubtedly, the lower rates of nitrogen helped to improve the maturity of the crop and increased the yield of recoverable sugar per ton of cane. Producers also applied less

phosphorus and potassium in 2008 due to the high costs. Further, research data have showed that little or no response in yield of cane or sugar per acre could be expected when used even though soil tests indicated that there was an insufficient level of these nutrients in their soils. In an effort to reduce fuel costs, many producers operated their whole-stalk or “soldier” harvesters whenever possible and burned standing cane prior to harvest with the cane combine. .

Although the pricing period is not completed for the 2008 crop, sugar prices remain low (approximately \$20.20/cwt). On a brighter note, molasses prices have remained high and should average about \$115/short ton at 79.5 Brix or \$0.675/gallon for the 2008 crop.

PLANT COMMODITIES – 2008

Commodity	Gross Farm Income	Value Added	Total Value
Sugarcane ¹	\$372,794,574	\$248,529,716	\$621,324,290

¹Includes raw sugar and molasses

SUGAR RESEARCH STATION / ST. GABRIEL, LOUISIANA 2008 CLIMATE REVIEW

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Record low rainfall . . . a disaster named *Gustav* . . . and a December snow . . . topped the "Weather Headlines" for the Sugar Research Station and St. Gabriel community in 2008.

Annual climatic trends for the LSU-Sugar Research Station, the St. Gabriel area, and all of East Iberville have continued to be "warm and dry" over recent years as compared to long-term normals. Annual rainfall has been below-normal for each of the past four years, while annual temperatures (based on the records from nearby LSU-Ben Hur Farm) have averaged above the 30-year mean for each year since 1997!

2008 Overview:

For the Sugar Research Station/St. Gabriel, the annual average temperature for 2008 was 67.8°F, 0.7° above the 30-year mean. At first look, this departure may appear modest, but annual temperatures only occasionally display deviations exceeding $\pm 1.0^\circ\text{F}$. The recent prolonged run of warmer-than-normal years is noteworthy, but it is also worth noting that of the last 10 years (1999-2008), six proved warmer than 2008. The trend for "above average" annual temperatures in recent years may be a reflection of a "climate change / global warming" signal in the data, but growth in and around the greater Baton Rouge metro area must also be considered as a potential source for the recent "warming." Expansion of the Baton Rouge urban and suburban landscape towards (and even into) St. Gabriel likely has warmed the region, as development leads to an increase in the "urban heat island" effect. There remains considerable debate regarding the contributions of atmospheric influences (natural- and human-induced) on the local "warming" and the integrated impacts of landscape/land-use modifications (mainly a human component). Unfortunately, data to adequately and accurately assess the role of these two factors in the local "warming" are lacking.

Even a modest amount of warming -- regardless of the cause -- must be considered in the agricultural sector of Louisiana, and the sugarcane industry is no exception. Regional warming - - of as little as 1° to 2° annually -- will likely be accompanied by increases in evapotranspiration (ET), placing a higher demand on soil moisture supplies, especially during dry spells. In addition, modest warming would likely produce a slight extension in the freeze-free/frost-free season -- in effect, producing a delay in the onset of the average first fall freeze for sugarcane growers.

Temperature is clearly an important climatic factor, but annual and seasonal variability in rainfall is the primary "climatic driver" for Louisiana agriculture and environment. For St. Gabriel, 2008 was the fourth consecutive year -- and the fifth year of the last six -- with below-normal rainfall. More noteworthy is just *how* dry 2008 proved to be -- at just 40.06" for the year, 2008 becomes the "driest" year of record for the St. Gabriel site, based on records dating back to 1985. Rainfall for 2008 was nearly twenty inches below the area's estimated annual norm (67%

of normal for the year), and more than four inches less than the next "driest" year (2000) of the 24-year time series.

Rainfall was below normal for nine months of 2008, with monthly totals of less than one inch for April and October, and under two inches for March, June and November (Figure 1 and Table 2). March, April and June each ranked as the second "driest" for their respective months in the St. Gabriel time series, with October's 0.36" making it the "driest" October since records began. And the combined March-April rainfall of just 1.86" resulted in one of St. Gabriel's "driest" spring seasons since 1985, while the combined October-November total of just 1.74" resulted in one of the area's driest autumns of record.

Given the array of record and near-record low rainfall numbers posted during 2008 for St. Gabriel, it is surprising that the "drought intensity" was never deemed critical for the area. Based on the *U.S. Drought Monitor*, there was never a period in 2008 when the St. Gabriel area was defined as experiencing "severe" or "extreme" drought -- not even during the record-dry run of March-April. This may be a function, at least in part, of the regional scale and methodology employed by the *U.S. Drought Monitor*, which is assessed at too coarse of a spatial resolution to highlight localized variation in drought intensities.

The *Drought Monitor* does indicate the onset of "abnormally dry" ('D0') conditions -- approaching drought -- by the end of March, with "moderate drought" ('D1') in effect for the region from mid-April until mid-May; mid May rains effectively ended the spring "drought." The *Drought Monitor* again seemed slow to respond to a return of dry conditions during June and July, when rains were roughly one-third of normal for the two-month period; the *Monitor* only placed the region under a 'D0' rating, and that was not until the end of July. Fortunately, substantial rains returned to the region at the end of July and into August, again ending the drought threat.

St. Gabriel and the surrounding area closed 2008 categorized as "abnormally dry" ('D0'), largely as a result of the very dry autumn, a rating which continued into 2009.

"Dryness" during the first four months of 2008 is likely a response to the *La Niña* episode which had become established during the end of 2007 and continued into 2008. The term *La Niña* is used to define the "cool" phase of the *El Niño*/Southern Oscillation (ENSO). ENSO is a large-scale process reflecting ocean-atmosphere interactions, and these interactions have global climatic impacts. *La Niña*, the "cool" phase of ENSO, reflects periods when sea-surface temperatures (SSTs) over the equatorial Pacific Ocean are cooler-than-normal. (*El Niño* is the term defining the "warm" phase for central Pacific SSTs). Past records indicate that below-normal winter-spring rainfall has occurred over south Louisiana in nearly 80% of past *La Niña* events, making the "cool" phase of ENSO a good long-range forecast tool for rainfall at this time of year. (For *El Niños*, roughly two-thirds of past "warm" ENSO phases have been associated with wetter-than-normal weather during the winter and spring.)

Persistent dryness through much of the remainder of 2008 is not explained readily. ENSO has little direct bearing on summer season rainfall, and ENSO was in a "neutral" phase (sometimes referred to as *La Nada*) during much of the latter half of 2008. Interestingly, *La*

Niña appeared to be making a "weak" comeback as 2008 closed, and this may have had some impact on the return of dry weather pattern during October and November.

2008 Weather Highlights:

2008 opened with relatively mild winter weather. January was a cool month by local standards, averaging about a degree below the norm, but February made up for the cool start to 2008, with February temperatures running more than 3° above the monthly mean. March temperatures averaged near-normal. There were eight days with freezes in January (about average for the month), but only one modest morning freeze each for February and March. The region was spared from any notable 'Arctic Outbreaks,' as the year's lowest temperature of 24° was recorded on the morning of January 3rd, and there were no 24-hour freeze events at any time in 2008.

Spring is traditionally the stormiest part of the year for south Louisiana, and active frontal passages during January and February did generate severe weather events across south-central and southeastern Louisiana. But St. Gabriel appeared to be spared from spring events for the most part, as there were no National Weather Service (NWS) reports of winter or spring weather-related damages or noteworthy storm events. Indeed, spring storminess was all but absent for St. Gabriel, as destructive storms from frontal passages apparently missed the area during March and April -- good news from a 'severe weather' perspective, but also leaving the area short on spring rains as well.

After a dry start to the spring season, beneficial rains finally developed for St. Gabriel during May, the first month of 2008 with above-normal rainfall. But May temperatures were above-normal as well, suggesting that ET rates during the month essentially used most of May's rains, leaving little for deeper soil-moisture recharge. May closed with a string of 90°-days, setting the tone for what would be a warmer-than-normal summer.

Monthly temperatures were above-normal for both June and July. While the area was spared from a prolonged run of mid- to upper-90°s during the 2008 summer, daytime highs reached the 90°s on 25 June days and 27 days in July -- both above normal. Nighttime temperatures averaged above the norm for both months as well, especially for June, suggesting slightly higher-than-normal overnight and early morning humidity. The persistent daytime heat, elevated nighttime temperatures and humidity, and the unusually-dry conditions during June and July likely increased stress on livestock and vegetation. Heat-and-humidity likely also produced measurable increases in energy use, mainly for air-conditioning and 'cooling demand.'

August provided some modest relief from the summer heat and stress. With nearly double-the-normal rainfall -- only the second month of 2008 with above-average rains -- the month's wet weather eased the developing drought, helped recharge moisture in the deeper soils, and actually produced some brief standing-water issues. With the rains come the clouds, and that meant some minor relief from the persistent 90°s of the prior two months.

August's wet weather was the product of a weak trough at the start of the month, two tropical systems and an unusually-active mid-month spell of frontal weather. A weak low-pressure trough slipped through the state and eased into the northern Gulf waters, producing

more than 1" of rain at St. Gabriel to open the month. This same trough served as the basis of development for T.S. *Edouard*, which tracked to the west just south of the Louisiana coast between August 3-5. *Edouard* made landfall along the upper Texas coast on the morning of the 5th as a "strong" tropical storm (peak winds at landfall near 65 mph). Rainbands from the storm produced a modest amount of additional rain during the first days of August, and sustained winds at St. Gabriel occasionally climbed into the 20-25 mph range.

A cool front moved southward and over the Gulf Coast states on August 9th, then essentially remained over the region as a meandering front for a run of days during mid-August. Repeatedly re-energized by passing surface and mid-level disturbances, the quasi-stationary boundary kept the atmosphere unsettled. Fueled by moist-and-unstable Gulf air, the mid-month weather pattern generated nearly 5" of rain for St. Gabriel between August 11-20. Just a few days later, an 'inland' Tropical Depression *Fay* approached south Louisiana from the east, delivering more than 2" of rain between August 23-25. Steady rains on August 24th produced a good soaking for area soils, while clouds kept temperatures in the 70's throughout the day -- a brief but welcomed break from the normal August heat.

Although August's weather was impacted by the tropics, 2008 undoubtedly will be remembered for September's tropical weather by most south Louisiana residents. A powerful 'Category 2' *Gustav* made landfall along the Louisiana coast near Cocodrie on the morning of September 1st, and tracked inland along a northwesterly course through the day. *Gustav* prompted the largest single Louisiana evacuation ever, with the storm maintaining hurricane-intensity as far inland as central Louisiana. Virtually the entire state was impacted in some fashion by *Gustav*: half of the state's parishes were declared 'Disaster Areas,' the system spawned more than a dozen tornadoes statewide, and portions of central and northern Louisiana were flooded with rains of 10" or more. Given the storm's ferocity, the damage in the St. Gabriel community was arguably far lighter than it could have been, but the pattern of 'blue tarps' across the area served as an easy-to-see reminder that St. Gabriel certainly was not spared.

St. Gabriel rains from *Gustav* were relatively modest, with just over 3" total attributed to the storm. Although there was no evidence of tornadic activity in the community, Figure 2 confirms the prolonged run of tropical-storm force winds (≥ 39 mph) that the area endured. The first burst of TS-winds arrived before 9:00 AM on September 1st, with the last coming at 3:45 PM -- a period of nearly seven hours. Within that period, the highest winds included a near-continuous three-hour run of TS-winds (from near noon - 3:00 PM), including more than 60 minutes with sustained winds running above 50 mph.

While south Louisiana continued the clean-up from *Gustav*, all eyes returned to the Gulf less than two weeks later as *Ike* tracked from Cuba into the central Gulf. Louisiana residents breathed a sigh of relief as *Ike* took a dog-leg turn to the west-northwest, ultimately making landfall along the Texas coast. But *Ike* was a large storm, and 'he' reminded coastal Louisiana that it doesn't take a direct 'hit' to produce damage. With *Ike's* unusually-large windfield, storm surge along the coast was more extensive than had been seen in *Gustav* -- even greater in terms of its east-to-west reach than had been experienced during *Katrina* or *Rita*! *Ike's* rainbands did deliver about a half-inch of rain to St. Gabriel, and the storm's broad windfield delivered

persistent, sustained winds in the 20-30 mph range -- with occasional runs in the 30-35 mph range -- from September 11-13.

Given the two tropical systems during September, it is a bit surprising that rainfall for the month was below-average. And that set the stage for a dry fall season, as a record-dry October was followed by a very dry November. Temperatures for each of the three fall months also averaged below the norm -- a "cool and dry" fall making for excellent fieldwork conditions. The first freeze of autumn for the St. Gabriel area was a very brief dip to 32°F on October 29th. While morning minimums approached the freeze mark on a couple of November days, and there were several "frost" days (temperatures at or below 35°F), the month officially remained freeze-free for the local area.

December closed a memorable weather year with near-normal rainfall and above-average temperatures. Without doubt, the most notable event of the month was the 'big snow' of December 11, the earliest winter snow on record for southeast Louisiana -- "unofficial" reports suggested upwards of 1" to 3" of snow in the St. Gabriel area. Although daily records show seven freeze dates during the month, most of the freezes were relatively light and of short-duration.

Data Sources and Acknowledgements:

LSU Southern Regional Climate Center (SRCC): www.srcc.lsu.edu

Louisiana Office of State Climatology (LOSC): www.losc.lsu.edu

Louisiana Agrilclimatic Information System (LAIS): www.lsuagcenter.com/weather

NOAA/National Climatic Data Center (NCDC): www.ncdc.noaa.gov

NOAA/National Weather Service Offices serving Louisiana: www.srh.noaa.gov

NOAA/National Hurricane Center (NHC): www.nhc.noaa.gov

Figure 1: 2008 monthly rainfall and comparison to normal for the Sugar Research Station (St. Gabriel, Louisiana): note the extremely low totals for March, April, June, July, October and November, as contrasted by the unusually high rainfall in August.

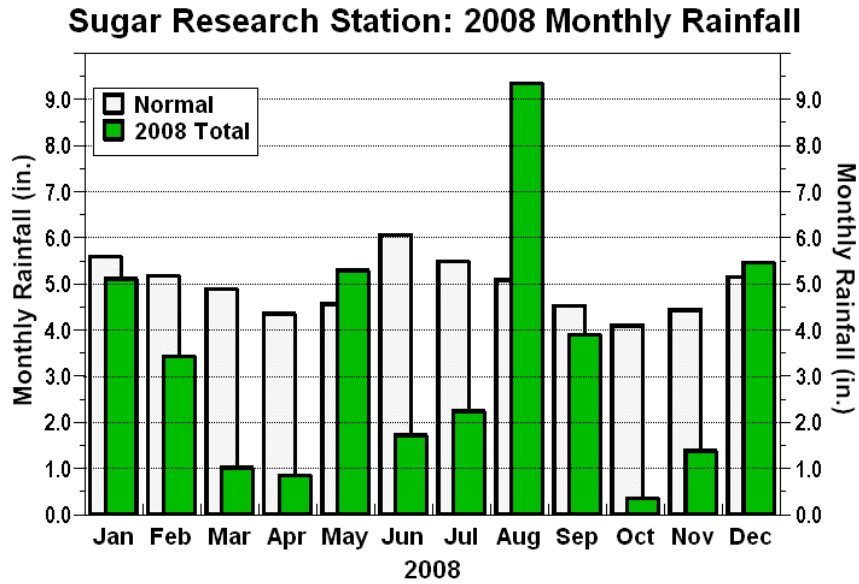
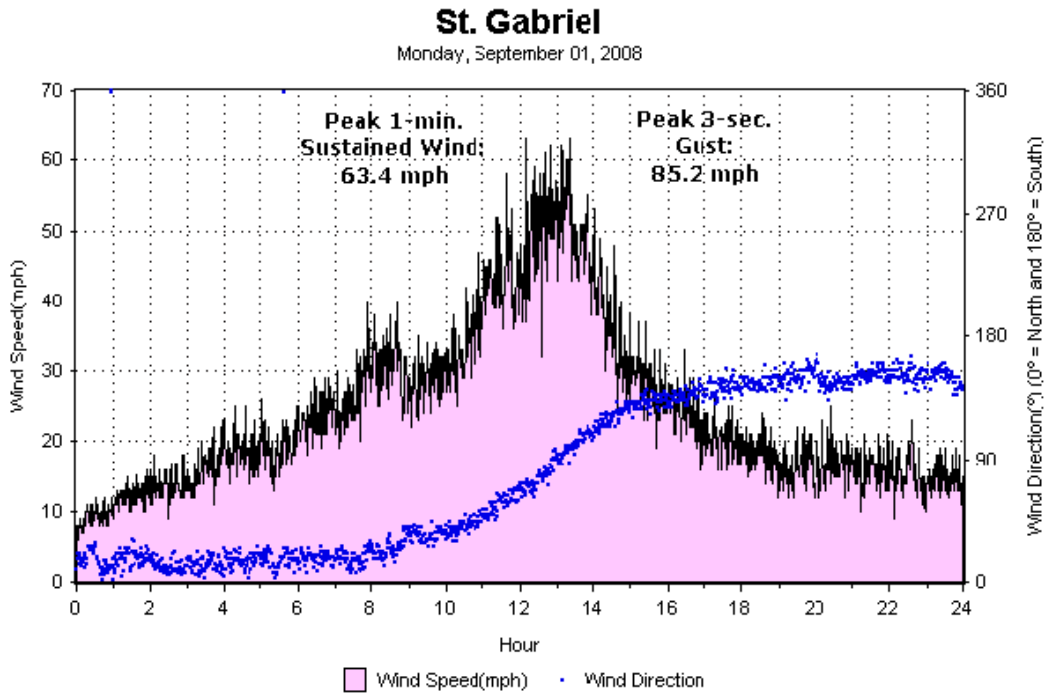


Figure 2: Sustained 1-minute winds and direction as recorded by the LAIS automated weather platform at the Sugar Research Station during Hurricane/Tropical Storm *Gustav*: note the prolonged run of winds at or above tropical-storm force (≥ 39 mph).



Hours are posted in Central Standard Time (CST);
to convert to Daylight Saving Time (CDT), add '1' to each hour.

Table 1: 2008 Daily Temperatures (as recorded at nearby LSU-Ben Hur Farm, Baton Rouge¹). 24-hour maximum and minimum temperatures are recorded at approximately 0800 Local Time.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	68 35	73 35	72 47	82 68	81 59	89 69	88 66	91 74	89 71	88 56	77 40	
2	52 30	57 34	79 53	83 62	84 65	91 69	91 66	93 72	80 75	82 52	77 43	
3	42 24	69 41	77 59	83 67	84 64	92 74	93 70	92 72	86 76	84 56	77 43	
4	43 24	77 58	79 42	84 69	84 57	91 72	92 70	95 73	87 75	87 60	80 44	
5	61 39	79 64	52 35	84 60	81 57	91 75	89 71	88 76	90 69	86 57	80 48	
6	72 53	80 54	64 37	66 54	75 56	92 75	90 72	89 72	84 71	85 64	79 58	
7	77 58	60 33	71 45	78 52	83 64	93 75	93 71	92 75	79 70	87 71	82 61	
8	79 59	65 34	48 32	82 55	85 65	94 72	92 72	95 73	93 70	88 60	69 38	
9	79 55	68 47	57 38	84 64	86 70	94 72	93 71	82 69	90 73	77 57	76 39	
10	68 52	75 40	68 47	86 68	87 70	89 72	92 74	92 70	92 73	82 56	72 42	
11	75 43	74 40	73 48	88 72	88 73	90 70	91 73	93 69	93 75	85 58	68 46	
12	60 37	73 39	66 43	87 59	85 54	92 70	94 74	90 74	91 74	85 64	79 56	
13	64 39	74 37	72 43	72 45	82 59	89 71	94 75	88 75	88 77	83 67	67 57	
14	61 32	51 32	74 56	71 42	85 69	91 71	94 75	89 69	89 75	87 69	71 56	
15	60 32	65 38	80 64	59 35	83 69	89 74	93 73	93 70	90 72	86 70	80 51	
16	63 41	63 55	85 53	65 40	85 67	93 70	94 67	91 71	81 63	86 63	59 35	
17	49 45	72 57	77 54	72 50	75 56	93 72	97 71	86 73	81 60	88 65	57 33	
18	53 43	74 45	88 67	76 58	76 57	95 72	94 74	92 71	82 62	70 50	70 36	
19	57 38	61 35	83 63	76 44	82 65	93 73	95 71	91 71	85 64	79 50	70 33	
20	42 27	69 37	65 41	79 49	88 68	90 70	93 72	87 73	81 69	76 46	60 36	
21	48 27	67 53	70 40	83 48	90 70	92 70	97 73	87 71	86 66	78 50	76 40	
22	55 29	77 63	75 46	85 57	89 68	93 70	97 73	90 72	85 66	79 51	55 34	
23	72 51	71 46	77 50	89 66	86 68	91 69	91 74	95 74	87 69	74 57	64 35	
24	55 46	69 44	69 41	88 64	88 72	92 70	88 71	92 71	88 67	69 56	74 53	
25	46 37	78 50	64 33	86 62	90 73	93 72	89 73	76 70	85 61	75 42	76 37	
26	43 37	76 53	70 39	82 65	91 72	90 67	92 75	85 71	86 54	79 46	66 35	
27	50 42	59 37	75 51	85 65	91 73	90 69	92 77	90 70	87 55	83 49	70 35	
28	55 33	54 33	80 55	78 57	90 66	91 71	98 74	92 72	86 58	65 35	77 54	
29	63 34	66 47	83 57	72 48	90 67	89 71	97 77	93 74	89 63	64 32	81 66	
30	70 35	-- --	83 66	80 52	90 68	91 75	93 76	93 71	90 60	69 33	70 45	

31 54|35 --|-- 82|65 --|-- 89|69 --|-- 90|75 92|74 --|-- 74|40 --|--
 67|37

MONTHLY TEMPERATURES

Avg Max:

59.2	68.8	72.8	79.5	85.3	91.4	92.8	90.1	86.7	80.0	72.0	65.6
DFN: -1.2	+4.7	+1.5	+1.8	+0.6	+1.7	+1.4	-1.4	-1.3	-0.2	+1.2	+2.2

Avg Min:

39.1	44.2	48.7	56.6	65.5	71.4	72.5	72.0	67.8	54.3	44.3	43.9
DFN: -0.6	+1.7	-0.6	+1.3	+1.7	+1.9	+0.5	+0.7	+0.7	-1.3	-3.6	+2.1

Mean:

49.2	56.5	60.8	68.0	75.4	81.4	82.6	81.1	77.2	67.1	58.1	54.8
DFN: -0.9	+3.2	+0.5	+1.5	+1.1	+1.8	+0.9	-0.3	-0.4	-0.8	-1.3	+2.2

Annual Average Temp:

Annual Temp DFN:

Avg Max: average of all daily maximum temperatures for the month

Avg Min: average of all daily minimum temperatures for the month

Mean = [(Avg Max + Avg Min) / 2] for each month

DFN: Departure-from-Normal, where the Normal is the average value, by month, based on the 30-year period of 1971-2000

¹Data for January 2008 provided by the LSU AgCenter's Louisiana Agriculimatic Information System (LAIS); February through December based on NWS Cooperative Observation Data. All temperature data were recorded at LSU-Ben Hur Farm, located approximately 8.0 miles NNW of the Sugar Research Station, St. Gabriel.

**Table 2: 2008 Daily Rainfall (as recorded at Sugar Research Station, St. Gabriel¹).
24-hour rainfall totals are recorded at approximately 0800 Local Time each day.**

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.01	0.45	0.02	0.00	0.00	0.01	0.00	0.94	2.66	0.00	0.00	0.00
2	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.19	0.00	0.00	0.00
3	0.00	0.00	0.05	0.02	1.28	0.00	0.07	0.02	0.01	0.00	0.00	0.00
4	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.32	0.09	0.00	0.00	0.35
5	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00
6	0.00	0.07	0.20	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00
7	0.00	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.28	0.04	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00
9	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.23
10	0.23	0.00	0.02	0.00	0.00	0.22	0.06	0.00	0.00	0.00	0.00	1.28
11	0.31	0.00	0.31	0.00	0.00	0.24	0.00	0.02	0.08	0.00	0.00	0.73
12	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.17	0.37	0.00	0.64	0.00
13	0.01	2.06	0.00	0.00	0.00	0.02	0.00	1.00	0.00	0.00	0.01	0.00
14	0.01	0.00	0.00	0.00	0.82	0.00	0.10	0.00	0.10	0.00	0.05	0.00
15	0.00	0.00	0.00	0.00	2.49	0.00	0.00	0.18	0.16	0.00	0.00	0.01
16	0.31	0.07	0.00	0.00	0.20	0.00	0.00	0.85	0.00	0.00	0.00	0.01
17	1.08	0.44	0.00	0.00	0.00	0.00	1.16	0.01	0.00	0.02	0.00	0.00
18	0.00	0.02	0.00	0.10	0.01	0.01	0.00	0.15	0.00	0.01	0.00	0.00
19	1.51	0.00	0.26	0.01	0.00	0.00	0.00	2.59	0.04	0.00	0.00	0.00
20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.15	0.00	0.00	0.07
21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
22	0.00	0.24	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.01	0.00	0.00	0.00	0.03	0.00	0.31	0.01	0.00	0.04	0.00	0.00
24	0.23	0.00	0.00	0.00	0.00	0.00	0.16	2.11	0.00	0.00	0.10	0.53
25	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.01
26	0.89	0.06	0.00	0.09	0.00	0.06	0.00	0.00	0.00	0.00	0.01	0.00
27	0.01	0.01	0.00	0.07	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.09
28	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.13
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00
30	0.11	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
31	0.00	--	0.00	--	0.06	--	0.38	0.23	--	0.00	--	0.00

MONTHLY												
Total:	5.11	3.43	1.02	0.84	5.29	1.72	2.24	9.33	3.89	0.36	1.38	5.45
Normal:	5.58	5.17	4.89	4.35	4.56	6.06	5.49	5.08	4.52	4.09	4.43	5.14
DFN:	-0.47	-1.74	-2.63	-3.51	+0.73	-4.34	-3.25	+4.25	-0.63	-3.73	-3.05	+0.31

Annual Total:	40.06 (67% of normal)											
Annual DFN:	-19.30											

¹Data for January 2008 provided by the LSU AgCenter's Louisiana Agriclimatic Information System (LAIS); February 1 also supplemented with LAIS data. All remaining observations based on NWS Cooperative observations. All 2008 precipitation data (NWS & LAIS) recorded at Sugar Research Station, St. Gabriel.