

## **After the Storms: South Louisiana Sustainable Food System Assessment in light of Environmental Natural Disasters Hurricanes Katrina & Rita**

**Toni Y. Sims-Muhammad**

Assistant Professor

Sociology, Anthropology and Child & Family Studies Department

University of Louisiana, Lafayette

Lafayette, Louisiana 70504

Unites States of America

### **Abstract**

*The purpose of this project was to examine the impact of Hurricanes Katrina and Rita on existing food systems in Lafayette, Acadia, Evangeline, St Martin and St Landry parishes with particular regards to home and community gardens. The researcher interviewed home/community gardeners and farmers in the participation areas to determine the nature and role of home and community gardeners in creating and maintaining a sustainable food system based on four key areas 1) food sustainability support, 2) food production, 3) food traverse paths, and 4) disaster impact on food production – Katrina/Rita. Fifty-seven interviews were conducted, along with a survey about pre and post Katrina and Rita food sustainability problems, challenges and critical perspectives about future food systems in light of natural and environmental disasters.*

**Key Words:** sustainable food system, community, environmental disasters, natural disasters, Hurricane Katrina, Hurricane Rita, food security, gulf coast

### **Introduction**

Crawfish, Gumbo, Red Beans and Rice. Shrimp, Frog and Étouffée. A few of the many food festivals in south Louisiana that make the average persons mouth water with anticipation.

People in south Louisiana love food -- but what I also discovered traveling throughout the five parishes for this research project is that they also love to grow their own food. According to the United States Department of Agriculture Economic Research Service, Louisianan's may grow more food for themselves (intra-state) than for anyone else. Approximately 70%, in 2007, participated in small farming processes,<sup>1</sup> perhaps with little or no intent of selling these food products at market. Some might wonder what they do with all that food. They eat it. However, they also share it with family, friends, and even strangers. Some of these producers are home and community gardeners. Home and community gardeners make up an important group of persons that may contribute to south Louisiana's sustainable food system.

This paper discusses a research project to assess and explore the aforementioned perspectives and reports preliminary qualitative results that provide a basis for discussion and further investigation. People in south Louisiana are no strangers to the necessity of food and definitely realize its function that serve and direct their immediate socio-cultural as well as nourishment needs and interests. In addition, south Louisiana has a significant history of environmental and natural disasters, particularly with regard to hurricanes (Blake, Landsea, and Gibney, 2011). Thus, it is no wonder that when hurricanes strike south Louisiana, food remains a consistent and essential staple – perhaps a buffer for dealing with the mishaps and misfortunes of disaster, so as some in south Louisiana would say, *laissez les bons temps rouler* (let the good times roll).

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Moreover, food in south Louisiana is a cultural necessity perhaps due to the carefree approach to work and life (Gramling, Forsyth and Mooney, 1986). After all, food is a primary basis for many of south Louisiana's major and minor social, economic and political processes and functions such as year-round festivals, and celebrations as indicated in *Table 1*.

Lafayette	Blackpot, Zydeco, Festival International, Festivals Acadiens et Créoles, Boudain
Acadia	Crawfish Etouffee, International Rice, Frog
Evangeline	Swine, Smoked Meat
St Martin	Shrimp Festival, Crawfish, Louisiana Pepper
St Landry	Yambilee, Cracklin, Catfish, Etouffee, Spice/Herb
ALL	Parishes participate and host distinct Mardi Gras celebrations.

SOURCE: Retrieved and complied December 25, 2011 from [http://www.laffnet.org/fairs\\_and\\_festivals.htm](http://www.laffnet.org/fairs_and_festivals.htm)

In addition, prior to this research project, I was surprised (primarily because I am not a native of south Louisiana) that Hurricane Katrina and Rita news reports and headlines hardly characterized or mentioned food -- except for occasional concerns about looting and vandalism due to fears about limited food and water supply (Shah, 2005) (Moore, 2010). Instead many news reports and headlines, as well as Katrina and Rita research, seem to focus heavily on issues such as environmental pollution, damage to major oil production facilities, and damage to a beleaguered Gulf Coast. Others emerged as points of cynicism and criticism regarding the Bush administration lack of preparedness and response (Freudenburg, Gramling, Laska and Erikson, 2009), (Colten 2009), (Dobie, 2008). Even as Hurricane Rita approached, the headlines were -- "Recovering areas brace for hit," "buses set to transport evacuees if need arises," "engineers raced to patch New Orleans fractured levees." Just four weeks earlier on August 29, 2005, Hurricane Katrina a category four hurricane made a devastating impact on the Gulf Coast but still no major concerns in the headlines about food.

Hurricane Katrina became one of the worst natural disasters in the 20<sup>th</sup> Century - a period recorded for great shifts in how people lived due to scientific discoveries and technological advances. Then, hurricane Rita dealt a double dose of despair to an already beleaguered gulf coast.

Immediately, displaced citizens inundated surrounding parishes. Many of those evacuating New Orleans and outlying areas sought immediate shelter in nearby parishes, cities and towns such as Lafayette, Acadia, Evangeline, St. Martin and St. Landry.

### **Pre & Post Katrina Population Changes in the five parishes**

- Lafayette Parish led the way with an estimated increase of 7.6 percent — going from 190,323 to 204,843 residents.
- Acadiana, St. Martin and St. Landry Parishes were next in line with a 6.3 percent increase and a 4.2 percent increase, respectively. (Blanchard, 2008)

Moreover, concerns were noted about evacuation and shelter contingency plans. News stories also headlined about the mental health of those most affected by these disasters (Coates, Sam, Roig-Franzia, Manuel, 2005). Yet, food sustainability, food storage, food preparation or food assistance seemed insignificant before, during and after Hurricanes Katrina and Rita.

### **Katrina and Rita Impacts**

Many grocery stores food supplies were scarce, and people could only access foods in certain areas. Katrina and Rita, as well as Hurricanes Ike and Gustav (2008 hurricane season), affected the entire gulf coast – Texas, Louisiana, Mississippi, Alabama and Florida. Throughout the entire gulf coast and inland, the consistency and duplicitous nature of the Louisiana Hurricane season (additional hurricanes, uncalculated tornadoes, flooding, high temperatures) brought unique preparation and recovery challenges before, and after storms (SHGNOA, 2009). During and after Katrina and Rita (as Ike and Gustav) food banks recorded record numbers of people requiring food assistance.

Even in light of the Federal Emergency Management Agency Natural Response Plan, which describes the roles and responsibilities of the Federal government after a natural disaster, many people were unable to receive food assistance (SHGNOA, 2009).

For example, additional problems encountered with Hurricanes Ike and Gustav involved closed fuel lines across the South thereby creating a fuel crisis. The fuel crisis had a major effect on food production and delivery in south Louisiana and the United States. For every nickel the price of gas increases, the American trucker incurs an additional \$1000 in operating cost per month (Isidore, 2005) (Waple, 2010). Fuel not only affects the transport of goods, but fuel is also an essential aspect in many consumer products. Natural gas powers and heats many homes across the nation. Petroleum is used to produce plastics, tires, and many manufactured goods that consumers use on a daily basis. In the days following Hurricanes Katrina and Rita (as with Ike and Gustav) many major grocery store shelves were bare (SHGNOA, 2009).

### **Enter Home and Community Gardeners - Louisiana Agriculture Data**

According to the Louisiana State University Agriculture Center's Louisiana Summary of Agriculture and Natural Resources (2007) there was an average of 342,520 home vegetable gardens statewide between the years of 2003 and 2007. In 2003 there were 394,877 home vegetable gardens calculated statewide. 344,919 home vegetable gardens were calculated statewide in the year of 2004. This number decreased again in 2005, when Hurricanes Katrina and Rita passed, with there being 337,106 home vegetable gardens statewide. There was another decrease in 2006 with there being 302,720 home vegetable gardens. Finally, in 2007 there was a substantial increase in home vegetable gardens with there being 332,978 statewide. Table 2 provides additional data about the number of home gardens in the five parishes.

<b>Parish</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Lafayette	64,350	27,380	27,300	27,381	18,343
Acadia	600	600	600	600	600
Evangeline	4,800	4,500	4,500	4,500	4,500
St. Martin	3,200	3,200	3,200	3,100	3,200
St. Landry	11,150	11,000	11,000	5,000	5,300

SOURCE: Retrieved and compiled December 25, 2011 from Louisiana State University Agriculture Center's Louisiana Summary of Agriculture and Natural Resources <http://www.lsuagcenter.com/agsummary/home>

### **Limitations of Louisiana Agriculture Data**

These parish home garden data reports are primarily compiled by Louisiana Cooperative Extension county agents and specialist. (LSUAC/LSANR 2003-2007) These estimates may present a couple of problems and challenges for determining the actual significance, depth and connections regarding home and community gardens to sustainable food systems. The problems and challenges are fourfold: 1) there are no home/community garden definitions; 2) there are no indicators of home/community garden sizes; 3) there are no data for home/community garden crops produced - which clarify how economic values are determined, noted in agriculture summaries data; and 4) there are no data for home/community garden food traverse patterns.

In addition, some home and community gardens may have been, marginally considered commercial – a distinction that might explain dramatic decreases in the number of home gardens shown in Table 2. Also not explained in the summaries are possible associated production, harvest and market networks that may inadvertently create overlapping processes. Whereas home gardeners producers may decline and fluctuate for a variety of reasons; declines and fluctuations are not sufficiently measured, documented, or explained in the Louisiana Agriculture Data.

### **Significance of the Study**

The purpose of this assessment is to begin to fill in some of the gaps about home and community gardeners in south Louisiana and examine their potential role in a sustainable food system in light of natural and environmental disasters. Specifically, this project was to uncover sustainable food system data by interviewing home and community gardeners in light of hurricanes Katrina and Rita.

Home and community gardeners were chosen due to their immediately proximity, exposure and impact on food stability aspects in general, their ability to recognize the first hand necessity of food systems to their community and their intrinsic value of food products as well as their impact on food traverse patterns.

Moreover, this research sought to determine the role of home and community gardeners in creating and maintaining a sustainable food system based on four key areas 1) food sustainability support, 2) food produced, 3) food traverse paths, and 4) disaster impact on food production – Katrina/Rita. *See Diagram 1.* Finally, the demographic background of participants provides supplemental perspectives.

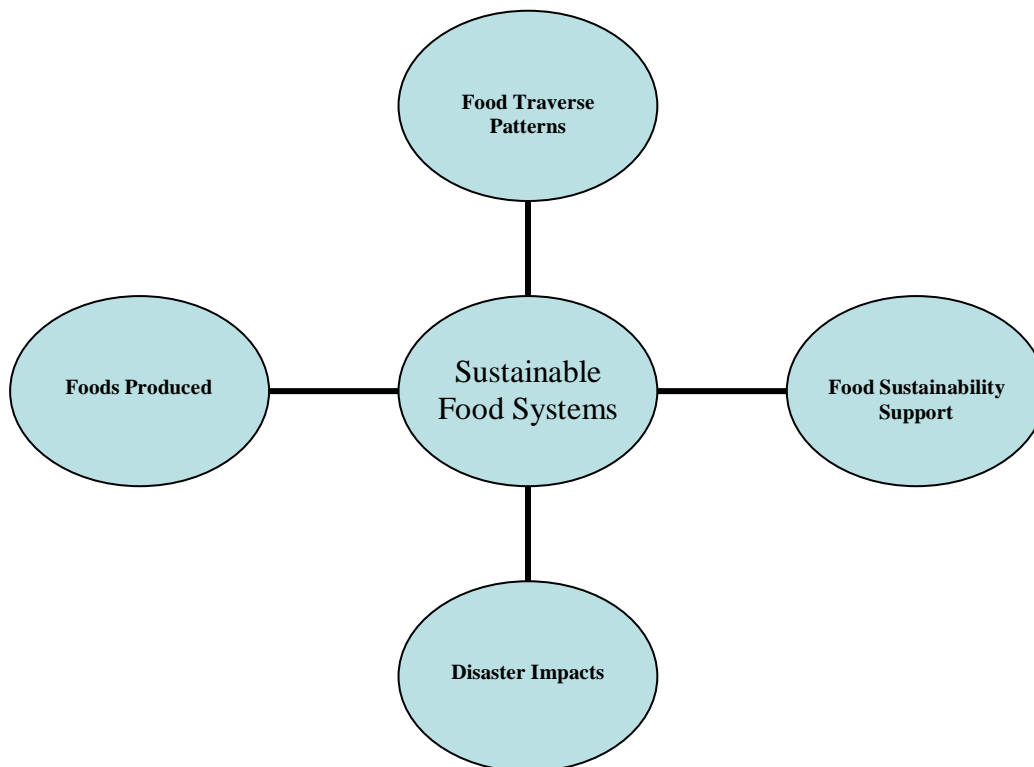
### Methodology

A purposeful sample was collected through snowball sampling with assistance from Louisiana State University/Southern University Agriculture Center Agents, food producers and distributors.

According to Babbie, (1992) in snowball sampling each respondent in the sample are asked to recommend others for interviewing, and each of the subsequently interviewed participants are asked for recommendations as well. Participants were contacted and given information about the study and asked to participate. The researcher then modified the Second Harvest Greater New Orleans and Acadiana instrument (SHGNOA, 2009), and new data was categorized as it related to the primary areas of research below and shown in *Diagram 1*:

- Food Sustainability Support
- Food Produced
- Food Traverse Paths
- Disaster Impact on Food Production - Katrina/Rita
- Other Data (Demographic Background)

**Diagram 1. Home and Community Gardeners Dynamics in Sustainable Food Systems**



Once producers agreed to participate, data was collected by utilizing a modified SHGNOA. Participants were also invited to share their experiences and ideas about home and community gardening practices and benefits recordings that can be viewed at:

- <http://www.youtube.com/watch?v=fshO3NqUGks> and
- [http://www.youtube.com/watch?v=prl2-RiyGw&feature=mfu\\_in\\_order&list=UL](http://www.youtube.com/watch?v=prl2-RiyGw&feature=mfu_in_order&list=UL).

No subject identifiers were on the survey instrument and no identifiable data was reported in data.

**Findings & Analysis**

Fifty-seven interviews/surveys were collected. Demographic data gathered from this study indicate that:

- 95 percent of HG/CG/CSA were over the age of 50
- 45 percent of participants were female
- 65 percent were Black/African Americans

Assessment Results (See Table 3)

<b>Table 3. Backyard/Home and Community Gardeners Assessment Results</b>	
<ul style="list-style-type: none"> <li>• Food Sustainability Support <i>Land, Water, Seeds,</i></li> </ul>	Land = no concern reported Water = no concern reported Seeds = no concern reported Support = 95%
<ul style="list-style-type: none"> <li>• Food Produced <i>Vegetables, Fruit Trees, Meats</i></li> </ul>	Vegetables = 100% Fruit Trees = 85% Meats, Fish and Seafood = 35%
<ul style="list-style-type: none"> <li>• Food Traverse Paths <i>Self, Family, Neighbors, Community, Others</i></li> </ul>	Self = 15% Family = 20% Neighbors = 20% Community = 40% Other (Compost)= 5-8%
<ul style="list-style-type: none"> <li>○ Pre/Post Katrina/Rita Food Production Practice Changes</li> </ul>	Change = less than 5 % No Change = 95% Undetermined = none reported

*Food Sustainability Support:*

- 95 percent of H/C gardeners felt secure about their levels of support for production and that they receive direct/immediate support from their agriculture extension centers.
- 100 percent reported no challenges or concerns regarding land use, seeds for planting, or water access.

*Foods Produced:*

- Okra, Tomato, Cucumbers, Onions (shallots) peppers, peas, corn, potatoes, sweet potatoes, broccoli, cauliflower, cabbage, yellow squash, zucchini squash, watermelon, cantaloupe.
- Plum trees, lemon trees, pear trees, pecan trees, fig trees, grapefruit trees, orange trees.
- Chicken, fish, and duck.
- Home and Community gardeners stated that the subtropical climate allowed for a diverse and year round growing seasons, so that before and after natural disasters they could grow food.

*Food Traverse Paths:*

- Primary path for food dispersion is to farmers markets, roadside stands, and garden site visits.
- 98 percent of Home Gardeners stated that they do not sell their food items or have interest in selling their food items.
- 98 percent of Community Gardeners stated that they do not sell their food items or have interest in selling their food items.
- 98 percent of Home Gardeners do not report gardening income but stated that they did accept small monetary donations for supplies and upkeep.
- Community Gardeners do not report gardening income above \$9,999.
- Note: Community gardeners interviewees/respondents indicated that they were non-profits and did not disclose specific income. However, community gardens stated that they donate foods to other nonprofit agencies and sell to local grocers, farmers market. Proceeds are used to purchase food production/harvest materials.
- 98 percent of Home Gardeners report giving food items to family members and non-family members.
- Iford First Harvest is an Open Garden, non-profit, that gives food to needy persons throughout the community and accepts donations to support its outreach purposes.
- Earth Share is a Community Supported Agriculture Program that is a Closed Garden, non-profit that provides food for members only.

### *Pre/Post Katrina Food Production Changes*

- 95 percent of Home Gardeners reported that Katrina/Rita had no change in gardening production.
- The CG and the CSA both reported slight change in gardening production.

### **Discussion & Conclusion**

Natural disasters such as Hurricane Katrina and Rita, demonstrate a need to examine people capability to access and create their own food supply (Winne, 2008). This food crisis was and is compounded by the fact that some Americans face serious access challenges to stores that sell healthy and affordable foods, otherwise known as food deserts (Ploeg, Nulph and Williams, 2011).

According to Second Harvest of Greater New Orleans and Acadiana (SHGNOA) (2009), natural disasters devastate large areas of south Louisiana, resulting in the loss of the community's food functionality. SHGNOA notes that in south Louisiana, hurricanes remain one of the biggest contributors to food insecurity.

Moreover, these disasters reinforced the notion that many south Louisiana residents already know – community and individual action must be taken to address food sustainability and that citizens cannot always depend on the government to 'bail' them out in an environment and natural disaster crisis (SHGNOA, 2009).

Likewise, more and more people, nationwide are beginning to grow their own foods, hunt and fish for their food and seem less interested in the national grocery chains ability to put food in their pantries. While, they know the benefits to shopping at the grocery store, for example, canned foods obviously have a longer shelf life than fresh fruits and vegetables, more people are beginning to understand that in a time of need, --when the grocers are unable to fill their shelves, they need alternative ways to provide food for their families.

Many home and community gardeners expressed that much of the food they grow remains in their families and communities. Interestingly, this practice might alleviate many of the problems currently encountered with food sustainability and deserts in south Louisiana. As Harper (2012) indicates, urban home and community gardens produce a variety of foods that benefit individual families, communities, state and even national food markets.

Urban gardening is not a new idea. For instance, during World War II such "victory gardens" produce 40% to 50% of the fresh vegetables in the United States. Urban gardening is now a major source of food in the large cities of the LDCs [sic less developed countries] such as Shanghai and Calcutta, where food security is often a matter of survival [sic areas impacted by natural disasters]. In the United States, organizations have been formed in many cities to support urban gardeners, which meet regularly to sell and swap their produce (153).

Meanwhile, debate continues regarding "the federal government's expansive agriculture and food policy legislation, known as the Farm Bill" (Peebles, 2011). The Farm Bill addresses policy and administration of the Supplemental Nutrition Assistance Program (SNAP), which receives the majority of funds and according to some experts might explain critical health epidemics among low-income populations such as diabetes and obesity, another critical aspect of food sustainability that must be studied.

In conclusion, this project demonstrates a need for further studies about the impact and role of sustainable food resources on hunger and food security, particularly in light of environmental and natural disasters. The project reveals that a number of undocumented "alternative" food sources (urban gardens, community gardens, home gardens, farmer's markets, produce/food peddlers, food co-operatives, and community supported agriculture programs) can and do play cultural and economic roles in creating sustainable food systems that may minimize hunger and food insecurity before and after environmental and natural disasters in the participating parishes.

Furthermore, the project data reveals that additional data collection and clarifications are essential to determining factual representation of home and community gardens in this area and the state. Retrospectively and prospectively analysis of the impact of natural disasters Katrina and Rita reveal an important need for sufficient sustainable emergency food supplies and systems that can prepare residents of the Gulf to face future challenges for nutritious and affordable foods better than ever.



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## Notes

1. The percentage of persons reporting farm sales as less than \$9,999.00 – considered a non-commercial small farm by USDA standards. Retrieved December 5, 2011 from <http://www.ers.usda.gov/StateFacts/HTML2PDF/LA-Fact-Sheet.pdf>. In addition, food insecurity is noted as 14.6 nation average versus 12.6 in Louisiana and number of non-commercial small farms is 59.8% national average versus 69.3% in Louisiana.