

REPORT OF THE ETHNOGRAPHIC FIELD SCHOOL IN BELIZE (JUNE 2014 SEASON)



CENTER FOR APPLIED ANTHROPOLOGY, NORTHERN KENTUCKY UNIVERSITY

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Written by Douglas William Hume, Colin Bindas, Stephanie Feltner, Gabriella Locke, Ian Takaoka, Nicholas Thaxton, Jade Michel Underland, and Gina Yoon

Primary Investigator Contact Information

Douglas Hume Ph.D., Director
Center for Applied Anthropology
Northern Kentucky University
1 Nunn Drive, Landrum 228
Highland Heights, Kentucky 41099, USA
humed1@nku.edu 001-859-572-5702
<http://cfaa.nku.edu/>

We acknowledge the partnerships with the following agencies and individuals that made this field school and research possible:

Nigel Encalada, Director
Institute for Social and Cultural Research
National Institute of Culture and History
Corner Constitution Drive
Belmopan City, Belize, Central America
iscr@nichbelize.org 011-0822-3307

François Le Roy Ph.D., Director
Office of Education Abroad
Northern Kentucky University
1 Nunn Drive, University Center 330
Highland Heights, KY 41099, USA
studyabroad@nku.edu 001-859-572-6908

Maggie Monteverde Ph.D., Executive Director
Cooperative Center for Study Abroad
Belmont University
1900 Belmont Boulevard
Nashville, Tennessee 37212, USA
ccsa@ccsa.cc 001-615-460-6575

Marcos Osorio, Director
Sugar Industry Research and Development
Institute
1 Fonseca Street
Orange Walk Town, Belize, Central America
siridi.belize@gmail.com 011-501-322-3141

Jaime McCauley, Ph.D. (On-site
Administrator)
Sociology, Anthropology and Philosophy
Northern Kentucky University
1 Nunn Drive, Landrum 217C
Highland Heights, KY 41099, USA
mccauleyj1@nku.edu 001-859-572-5529

Antonio Novelo
Jungle River Tours
20 Lover's Lane
Orange Walk Town Belize, Central America
lamanaimayatour@btl.net 011-501-670-3035

Mark Neikirk, Executive Director
Scripps Howard Center for Civic Engagement
Northern Kentucky University
1 Nunn Drive, Founders Hall 536
Highland Heights, KY 41099, USA
engage@nku.edu 001-859-572-1448

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Introduction

This report documents the findings of the ethnographic field school organized by the Center for Applied Anthropology (CfAA) at Northern Kentucky University (NKU) in Orange Walk District, Belize, during June 2014. The Sugar Industry Research and Development Institute (SIRDI) facilitated ethnographic research in the communities of San Antonio, San Estevan, San Lazaro, and Yo Creek. The aim of the ethnographic field school was to train students in basic ethnographic methods as well as collect data for SIRDI to use in their agricultural and economic development programs. This field season's research focused on the following broad topics: narratives about education, educational budgeting, large and small farms and groups, the impacts of outside farmers and the sugarcane froghopper, as well as culture models of sugarcane farming and household budgeting.

Background

While the educational aim of the ethnographic field school is to train students in basic ethnographic methods, the applied purpose of the field school is to collect and analyze data that can then be used by SIRDI and other agencies in the development of programs for betterment of the sugarcane farming communities in northern Belize. As posted on the field school's web site:

Students will learn about the local culture by doing participant-observation and conducting ethnographic interviews in a community-based research project. Students will learn research ethics, unobtrusive observation, participant observation, field note writing and coding, ethnographic and life history interviewing, ethnolinguistic data collection, community mapping, rapid assessment procedures, qualitative data analysis, and other ethnographic methods in addition to basic ethnographic writing. After successful completion of this course, students will have:

- developed a basic understanding of Belizean culture,
- formulated an understanding of ethical and validity issues in ethnographic research,
- practiced skills in research design and ethnographic methods of data collection,
- applied basic ethnographic research methods in a non-western culture,
- engaged in a community-based research project, and
- analyzed ethnographic data resulting in an ethnographic monograph. (Center for Applied Anthropology at Northern Kentucky University 2015)

In addition, as posted on the field school's web site:

The ethnographic field school, as part of the CfAA, is partnering with the Sugar Industry Research and Development Institute (SIRDI) in Orange Walk Town, Belize. Among other things, our partner is interested in our contribution in understanding the household economy and agricultural knowledge of sugarcane farmers in the Orange Walk District village communities. SIRDI will use our results and recommendations to develop and conduct workshops for farmers on agricultural techniques, economics, health, and other community development topics. (Center for Applied Anthropology at Northern Kentucky University 2015)

Since the literature review was written for last season's report (Hume et al. 2014), there have been three notable publications that are relevant to the research presented within this report. Two articles are based in southern Belize. One studied Chiquibul Maya ecological models (Briggs et al. 2013) and the studied Q'eqchi' Maya medicinal plant conservation (Audet et al. 2013).

Lastly, while not related topically with sugarcane farming, a student of the previous field school has published an article based upon her research with the field school director on mortuary ritual changes in northern Belize titled “Changing Mortuary Rites: An Ethnohistory of 19th Century and Contemporary Religion in Northern Belize” (Zach and Hume 2014).

Methods

Upon arrival in the villages of San Antonio, San Estevan, San Lazaro, and Yo Creek, Antonio Novelo (Jungle River Tours) introduced the field school members to village council representatives and explained our collaborative research project to gain local approval for our presence in the community. Each village council gave their permission and was supportive of our efforts to learn about their communities. We presented the councils of San Antonio, San Lazaro, and Yo Creek with printed copies of last year’s report (Hume et al. 2014).

Students of the field school conducted house-to-house interviews in a census sampling methodology. The Cooperative Center for Study Abroad hired Antonio Novelo (Jungle River Tours) as the field school’s land agent. He served as both as cultural liaison and research assistant during field research in the aforementioned communities. Mr. Novelo would explain our general purpose and introduce students to community members. Students would then present the informed consent statement in English and Spanish (Appendix A) and upon agreement to participate, have the informant sign a copy (on file) and were offered an unsigned copy for their records.

Interviews were generally conducted on the informant’s property (e.g., porch, house, etc.) with a pair of students, one serving as the primary interviewer and the other as observer. The standard method used for this research was the ethnographic interview (Spradley 1979), which is informant centered (Levy and Hollan 1998) rather than interviewer centered. Interviews were from five minutes to an hour in length, depending upon the informant’s time constraints and willingness to be interviewed by the students. Ideally the interview would flow naturally from topic to topic and would end when the interviewer or the informant perceived a natural stopping point or when the informant no longer seemed comfortable or interested in continuing the interview (Levy and Hollan 1998).

During the first week of interviews while at Yo Creek, the students asked open-ended questions to elicit information about household budgeting and sugarcane farming knowledge. Students took field notes both during and directly after each interview. The interviews were also digitally recorded. Each student focused on one subtopic: education, educational budgeting, large and small farms/groups, or the impact of outside farmers and the sugarcane froghopper. During the last week of interviews, the students created culture models of sugarcane farming and household budgeting.

Topical Narratives

The first aim of this field season was to investigate general folk knowledge of sugarcane farming and household budgeting. The second aim was to research perceived impacts of large farms upon small farms and sugarcane froghoppers on sugarcane farming. The topical narratives are presented in a three part format beginning with an overview, followed by propositional statements (D’Andrade, Basso, and Selby 1976) of knowledge which are

perceptions of the informants, followed by preliminary analysis. These findings are not intended to be an extensive and in-depth cultural analysis, rather they are designed to explore the topics important to the community and serve as the basis for further field study.

Educational Overview

Children in Orange Walk District have access to education from the primary to tertiary levels. The educational system is a variation of the British education system, and most schools operate on a charter school model. Though the children have access to education, the cost of education in Orange Walk District can be prohibitive for many citizens. School tuitions are paid either annually, biannually or monthly. Other expenditures born by the families are costs for uniforms, school supplies, and textbooks. Even though education is a high priority and seen as a way for improving the lives of the children, some sugarcane farmers do not have enough resources to cover the costs and tuition for their child's education. To defray costs to families, some schools conduct fundraisers. Successful fundraisers enable the school to decrease or eliminate tuition rates and replace the large annual or semi-annual rates with a smaller weekly maintenance fee. The national government also provides a small portion of the fees and tuition. The Ministry of Education has attempted to increase this program by establishing some programs to help ease the burden of tuition, and by providing financial aid to the country's top performing students. There is also an increasing amount of international aid from the United States, Europe, and the Commonwealth of Nations. However, there is a general lack of awareness of these financial aid programs at the various levels among sugarcane farmers.

Primary School Education

- The tuition rate for primary school attendance is monthly in some areas, while in others it is yearly. In San Estevan, there is a yearly \$60 fee (all prices are in Belizean Dollars).
- The Ministry of Education officially subsidizes the entire cost of primary school textbooks: These are free.
- While primary school families do not have to pay for textbooks, they are expected to pay for all other expenses, including uniforms, workbooks, writing utensils and lunches.

Secondary School Education

- In the vicinity of Orange Walk Town, there are 6 secondary schools.
- Some students must ride public buses to get to school in the morning. If there are disruptions in the bus service, the students are expected to walk which could make it impossible for some to be able to get to school.
- Secondary School in the Orange Walk Town area costs between \$625 and \$750 a year.
- Unlike primary schools, families of secondary school students are required to pay for books, which cost between \$400 and \$500, depending on the course material. At the end of the year, some students sell their books to the following year's students, if the book hasn't changed.

Sixth Form and Post-Secondary Education

- Muffles College, on the outskirts of Orange Walk Town, is the only post-secondary institution in the entire district. Its function is to service 6th Form students.
- As per the British system, college comes before university, and both are considered entirely separate institutions.
- The cost of 6th Form is significantly higher than both primary and secondary schools. Muffles' tuition is \$2000 per year, through 3 term payments.
- Additional expenses include textbooks and/or a laptop.
- Students that attend 6th Form are often expected by their families to work; as there are no official 6th Form financial aid programs except for limited scholarships from private institutions.

General Fees, Fundraising, and No Free Lunches

- School fees for the term include fees for instruction, as well as building maintenance.
- If a computer lab is needed, there is a \$10 fee.
- It is possible to rent a laptop computer for \$45.
- In some schools, parents are asked to pay a weekly maintenance fee.
- In San Lazaro, one mother reported that she is required to supply dry cleaning supplies to the school (in the form of garbage bags, Clorox, etc.) and must pay \$2 per month for bathroom cleaning.
- Teachers are paid by the government rather than by the school; therefore, their income is not dependent on the school's income.
- Extracurricular activities can affect the price of tuition, since there are club fees. In San Lazaro, tuition actually increased because of clubs that were added.
- Normally, students must be sent to school with lunch or money to buy food while in town.
- San Lazaro residents reported lunch to cost \$25 per week.
- During the year, there are 3 to 4 raffle events held, where students must buy a certain amount of tickets to sell to the community. If they do not sell all of their raffles, they are required to buy the remainder in order for the school to get money.
- During the post-harvest season, there are no fundraising activities at all.

School in the Household Budget

- Families often find ways in order to save money. If badges are a required part of the uniform, some students use velcro to allow so that the badges may be moved amongst the uniforms.
- During holidays and weekends, some families expect their children to either work or help with family businesses, including cane farming.
- Some cane farming families sell their quotas and/or goods to the Mennonites in order to pay for tuition, particularly at the post-secondary level.

Government Assistance Programs

- The book subsidies are the only financial assistance programs for primary school. However, there are several programs designed for secondary students.
- At the end of Year 8 (the final year of primary), students take the Primary School Exam, which is Belize's standardized testing program, used to gauge progress in each District, as well as to highlight strengths or weaknesses in

curriculum. Those that score in the highest 10 percent of the nation's students are eligible for a \$300 subsidy for the first two years of secondary school: This is effectively a 50% scholarship for 1st and 2nd Form.

- In Orange Walk District, the process of acquiring the subsidy is not automatic, but is opt-in only.
- The Ministry of Education performs fieldwork and conducts surveys to determine risk factors and groups that would benefit most from the \$300 subsidy.
- Belize Telecom (BTL), banks, and credit unions in Orange Walk Town offer private scholarships and financial aid options for students in secondary school, 6th Form and university. These are also very competitive.
- BOOST is an application-based program targeted towards rural families transitioning from primary to secondary education. One informant received \$34 per month to assist with school expenses, while another received \$59 every 15 days.
- BOOST depends mainly on school attendance, and is seen as a way of discouraging truancy. Truancy officers can disqualify chronically absent students from the program.
- Boys appear to get slightly more than girls from BOOST funds.
- A lunch program has been initiated at some schools in Belize. In Orange Walk Town, the program is located at the government secondary school. Parents pay roughly \$2 per week to pay for the cost of lunches.

International and External School Assistance

- SIRD I provides financial aid to the schools. In San Lazaro, SIRD I provided 86 students with scholarships of \$265 annually, in addition to the \$30,000 provided to the community as a whole.
- As part of an Agro-Processing Agreement with Belize, the Republic of China/Taiwan has heavily funded equipment and supplies for Yo Creek's school.

Preparing Students for the Working World

- Many informants stressed that budgeting and health should be included in school.
- Many cane farmers haven't completed secondary school.

A family's ability to afford to send their children to school depends on a variety of factors, but the most significant factors are the levels of education achieved by parents and the average level achieved in the parents' trade. Informants that had access to schooling when they were children tended to be more adamant about ensuring their children were educated. Secondary and college/university education require an investment of large amount of capital, which is difficult for sugarcane farmers to accumulate. Access to higher education seems to be limited to those families who have built significant capital and influence relative to others. Cane farmers that had previously worked in other industries, such as transportation, also tend to have children able to reach higher educational levels than others.

Awareness of the importance of education is prevalent throughout the community. A significant number of informants stressed that children needed an education in order to find work beyond cane farming. Some elderly informants suggested that

with other distractions, it would keep children from indulging in illegal behaviors. Additionally, several informants recommended teaching students very early about basic finances and agriculture, so that graduating students can sustain themselves.

Only a few families appeared to be aware of or able to take advantage of existing government aid programs such as BOOST, the PSE Award or the post-primary subsidy.

Although many parents wish to take advantage of financial support opportunities, there is little awareness among the population of Orange Walk concerning these programs. An education official stated that some parents were not aware of the programs being promoting until just before the deadline passed. This leads to the application deadlines needing to be adjusted to accommodate parents needing extra time to apply. As Belize experiments with various forms of student aid and other countries and organizations provide economic support, more students may be able to go to school. Even with this added support, families must fund the education of the children. Most families with children indicated that school fees in any form were among the highest priorities for household budgeting, usually second only to food. High educational costs cause some cane farmers to sell their quotas of sugarcane to be able to afford educational costs, fees and tuition.

Educational Budgeting

In Belize the law requires children from the ages of 6 to 14 to attend school. Families have individual educational expenses for their children and budget for them in various ways. The economic class of the family will influence how they budget their children's education and how those needs are met.

Uniforms

- 2-6 uniforms purchased per child.
- School shoes purchases.
- Gym uniform purchased for child.
- Badge purchased to attach to uniform.

Supplies

- Depending on school, books supplied by family or school.
- Specific paper required covering books to protect books so that schools accept books back at the end of the year.
- Must buy all school supplies.
- Lunch: brought, bought or eaten at home.
- Transportation to and from school.

Donations/Fees

- Fees are paid at once or in payment plans.
- Require donations of goods.
- Weekly monetary donation for lunch program.
- Fundraising only held during cane season.
- Donation required or else family is billed or report card is held.
- Mandatory raffle.
- Fee to use restrooms.

- Fee to use computer.
- Barbeque fundraiser.

Economic class of the student is indicated by the student's wardrobe. Families in with less disposable income can afford fewer uniforms and pairs of school shoes. In one case, a child had to walk home barefoot and carry their school shoes so that the shoes were not ruined by the harsh road conditions. Schools also require students to wear small accessories on their uniforms. Not all families can afford to buy multiple copies of these accessories. It is reported that some families will purchase one accessory per child. For example: children are supposed to have badges on their uniforms, one mother used Velcro to be able to transfer one badge from one uniform to another rather than buying one badge for each uniform.

Parents are also required to purchase their children's school supplies, which vary, by grade. The school provides the textbooks. For all other school levels, the family must purchase all supplies. Schools have specific guidelines regarding school supplies such as how and with what material books should be covered in order for the books to qualify to be resold to the school if the same books are being reused the following year. Parents often must also cover transportation costs such as bus fare. Lunch is another expense for which parents must budget. School children often pack, buy, or come home for lunch depending on the location of the school relative to the home and the family's economic resources.

The schools charge the families fees for their children to attend school. These fees can be paid for all at once or throughout the year in installments. Some schools have computer and bathroom fees. These fees make it harder for children that belong to families of a lower economic class to complete school. Often, there are also donations required by the school. These donations can take the form of money, supplies, food, or time. In several schools there is a required raffle in which each student must sell a certain number of tickets. If the minimum requirements are not sold, the parents must purchase the remaining tickets. Another form of fundraising is barbeques. These events always occur during the sugarcane season because that is when people are most likely to have extra disposable income. If a family is not able to pay the fees or participate in fundraising, there are consequences such as the child's report card will be kept until payments are received by the school.

External Influences

Within the areas of study, the local farmers consist mainly of two ethnic groups, the Maya and the Mestizo. Both of these groups grow sugarcane as their primary cash crop. The farms provide jobs, money and stability to the surrounding area. Near the towns, Mennonite farmers and Belize Sugar Industries (BSI, the factory that processes the sugarcane) control a significant amount of the available agricultural land. BSI harvests their sugarcane with a harvesting machine, which reduces the number of laborers needed in their fields. Another outside influence that affects the farmers are the Fair Trade Agreements that manage the way that the cane is grown, which both limits and assists the farmers. These outside groups influence the cane farmers, sugarcane plant, and future of sugarcane agriculture within Belize.

Impact of Mennonites on Sugarcane and the Local Communities

- Sugarcane farmers conduct business transactions with the Mennonites.

- Sugarcane farmers who raise pigs sell 6 week old piglets to the Mennonites when they need cash; otherwise the pigs are kept until full grown.
- There has been an influx of new sugarcane farmers recently.
- Mennonites are purchasing sugarcane farms and also converting forested areas into sugarcane farms, increasing their presence in sugarcane agriculture.
- The informant is disappointed to see locals selling to Mennonites, but understands that there is a need for people to have money to send their children to school.
- The Mennonites hire the Maya and Mestizo as laborers in their fields. The laborers are paid the same day as they complete the job and are paid in cash, but this is at a lower rate than the Maya and Mestizo employers that are able to pay on a weekly basis. Many workers take a decrease in pay for more frequent payment.
- Around May-June, the Mennonites hire laborers for work in agricultural fields, including bean and cane fields.
- In the informants' fields, cutters get paid about \$8BZD per grab (pile of cut cane arranged in rows). It typically takes 30 grabs to fill a truck, which is around 18 tons for approximately \$144 BZD. Therefore, if there are 2 cutters that did even amounts of grabs, they each will receive \$72BZD each for the day. They will receive payment on the following Friday. In contrast, Mennonites typically pay \$50 BZD per day, regardless of amount of work. Hypothetically the worker could do 1 grab all day, and make \$50BZD.
- The Mennonites hire the cane cutters during the off-season.
- Mennonites began cane farming about 2 years ago.
- Mennonites have heavy machines with which to plow fields. The Mennonites are willing to rent out their plows or can be hired to plow fields. They charge by the acre.
- Mennonites farm mostly corn and other things.
- Mennonites work practice cooperative farming. The Mestizos do not.

BSI's Impact on Sugarcane and the Local Communities

- BSI is considered a big farm.
- This year's season started late due, in part, to a protest the farmers organized over the energy issue. The farmers feel they deserve to be paid more.
- The payment for the sugarcane comes from BSI in three installments. The first installment is paid on delivery and is then distributed to the laborers. The second payment is 5 weeks after the season ends and is the farmers' bonus. The third payment occurs near December about one month before the next season starts.
- BSI is encouraging the farmers to grow a hardier variety of sugarcane, which can withstand froghoppers better.
- BSI gave an informant some new land near their plant.
- To improve efficiency in cane delivery, BSI recently set-up a new schedule for the farmers to bring their cane to the factory. This change has helped all the farmers in the area by allowing better time management.

- There has been contention between BSI and the sugarcane farmers over profit sharing of the bagasse. This issue caused a strike earlier in the year. The parties settled for the time being on paying the farmers \$0.55BZD per ton. However, it is likely to cause another strike next season as the cane farmers are already talking of another strike.
- BSI's equipment has had too many breakdowns in recent years, which makes it difficult to process as much cane as the farmers would like.
- The sugarcane farmers have a Memorandum of Agreement with BSI that states that sugarcane farmers entitled to a share of the profits of any saleable products of the sugarcane. However, the farmers have a difficult time getting profit numbers for bagasse from BSI.
- BSI does not hire local cane cutters as it has giant harvesters, which cut all of BSI's cane.
- Though BSI buys small farms, it is considered more economically advantageous to keep the land as one gets more money over time from the farm.
- BSI works for its own interest and not the interest of the people.
- The government had to intervene to keep the factory open a few years ago.
- The factory has been running more efficiently since American Sugar purchased BSI.

Impact of Fair Trade Agreement on Sugarcane and the Local Communities

- Presently, the cane farmers in the community are happy with their work and receive help, which is provided through SIRD and the Fair Trade agreement. These groups provide new fertilizers and varieties of cane along with increased financial aid from banks and credit unions.
- The money from fair trade agreements is used to provide classes to teach efficient agricultural techniques to farmers.
- Money from fair trade agreements enables pesticides to be purchased.
- Fair trade does not help.
- Fair trade agreements are a positive thing for the community. They provide certain benefits including scholarships for school and also professional development for farmers' to learn/require eco-friendly farming methods. The profit on sugar is higher if it is stamped/certified Fair Trade.
- Fair trade regulations make it difficult for many farmers to make a profit due to the restrictions that are placed in the agreement.

The European Union's Impact on Sugarcane and the Local Communities

- The biggest problem in the area of San Lazaro is the poor quality of the roads. The only paved road, which leads to the sugarcane factory, in the area was paved by the European Union not by the Belizean government. In the informant's opinion, Belize should make long term investments in transportation infrastructure and fix the roads and not do temporary fixes of filling in potholes year-after-year covering with a mix of rocks and dirt that simply wash away.
- Local government said they would build a new road but they didn't and the European Union built one.

- It is believed that the European Union's assistance in economic and agricultural development was essential to sugarcane prices rising to a favorable level in the past few years.
- It is believed that the assistance from the European Union is essential to the survival of the cane farmers, however that help is abused by local farmers and exploited by the government, the outcome being there is not enough support to reach where it is needed most.
- Belizean government should invest more money back into Belize instead of investing their money into other countries. The government did not pay for the road in Yo Creek but instead the European Union built it.

While reviewing the impact that Mennonites have on the communities of Northern Belize it was clear that feelings are mixed among the farmers. Some informants had negative opinions while others commended them for providing not only jobs but also food/goods at fair prices. Nearly everyone who is not Maya/Mestizo can be considered an outsider. The Mennonites have been in Belize for nearly 60 years and some still consider them outsiders. Some locals feel that the Mennonites are simply using the locals for their labor, land, and money. The Mennonites do serve an essential purpose within the cane farming communities by providing a significant amount of machinery to the farmers. Some informants talked about how the Mennonites were not concerned about their environmental impact. It is likely that if the Mennonites were to increase their cane farming production, they would be competitors for the local Mestizo/Maya. There is a growing concern about possible competition from the Mennonites, however some informants reported that when the Mennonites came to Belize they signed an agreement that banned them from farming sugarcane.

Since American Sugar bought BSI, it is now an international company so even though many Belizeans are employed by a company named Belize Sugar Industries; they are working for a foreign company. It is the only factory in the area that can process the farmers' cane. BSI pays the farmers for their cane in three installments: first upon delivery, the next payment comes shortly after the season is over, and the third comes right before the beginning of the next season. Due to this payment structure, cane farmers need to find additional support for themselves in the off seasons and many of them have to travel to find work elsewhere. The factory uses bagasse, the byproduct of the cane processing, as an alternative energy source. This accounts for 20% of the energy that the factory uses. Last season the farmers went on strike over compensation for the bagasse from BSI. One informant discussed the Memorandum Of Agreement, which is a contract between BSI and the cane farmers. It states that the cane farmers have a right to payment from any product made from the cane. This disagreement has frustrated many farmers. Cane farmers in the area also complained that the factory is unable to process all the cane that is harvested. BSI does not hire local laborers to harvest their cane but has mechanized the process and uses the large harvesters. This affects the cane cutters by decreasing the available work in the area. The factory has implemented an improved delivery system that schedules deliveries within specific time frames. This has helped the cane farmers with time management and allows them more time to spend with their families and enjoy leisure activities. In the old process, the farmers would wait in a long line. This new process saves time for both the factory and the farmers. Due to the foreign ownership of BSI, farmers question where the interests of the American Sugar lie.

Most farmers view the fair trade agreements in a favorable way. They provide help in the form of finance and training farming efficiency and safety. Once a product is certified as a fair trade item, the value of the item is increased. These agreements also provide scholarships for students who will eventually give back to the community. They also influence farmers' concerns about their environmental impact and encourage the farmers to use eco-friendly agricultural methods. Some consider the restrictions of the agreements to be a nuisance, hurting the farmers more than it helps. The fair trade agreements and the European Union have instilled the idea in many people of the community that the Belizean government should be doing more to preserve and support sugar cane farming. These foreign interests only build more distance between the government and the people of Belize.

Outside interests in Northern Belize are both beneficial and problematic. They create jobs, promote education, provide financial assistance, and even work with the local farmers to cut, grow, and harvest the cane. These same groups also realize that there is profit to be made and sometimes exploit the Mestizo/Maya in the process. These outside groups have a better financial foundation and more available capital than any of the local Belizean farmers. Some farmers are not impacted by this and are able to support both their farms and families. But others are negatively impacted and are occasionally forced to sell their farms or diversify their crops away from cane. For the most part the local farmers work well with outside groups.

Large and Small Farms/Groups

Within the villages of Northern Belize, the farms vary in size and capability. Farms are categorized by size: large and small farms. Each type of farm has its own particular advantages and disadvantages and each farmer needs to evaluate a myriad of variables for his or her own individual situation to determine which type of farm is more advantageous.

Group Membership

- The difference between small and large farmers is the quantity of sugarcane produced.
- On average, a farmer can grow 25 tons of cane per acre.
- A group is different because they share one large quota.
- A quota is set by a contract with BSI and limits the amount of cane that can be produced.
- Small groups only exist seasonally, but cooperatives (large groups) operate year round.
- Laborers prefer to be in a group because there is minimal expense with shared materials, and therefore more profit available.
- Farmers prefer to be in a group because they benefit from access to machines and shared materials.
- Advantages of being in a group include smaller payments to the group owner, versus renting because the equipment is shared.
- Many cutters harvest "the old way" by hand. Group members have access to the group's tractor and machinery.
- Some believe it is better for all cane workers and farmers to be members of a group.

- Disadvantages of being in a group include having less control over one's cane in regards to quota (which is determined by the Cane Farmer's Association), harvest, burning, and delivery.
- Some say the number of small farms is decreasing.
- BSI sometimes attempts to buy small farms.
- Some believe it is better to keep the land because one can earn more money over time with a personal farm.
- The owner(s) of the grabber, which pick up cut cane, schedules pick-ups for farmers belonging to the group.
- Some cane farmers who belong to a group only own the land and do not do the physical labor.

What Is A Big Farm?

- Big farms generally range from 100 to 1,000 acres or a quota of 2,000 - 3,000 tons per season. Though there is an individual who recently purchased 10,000 acres.
- Bigger farms are able to have a larger quota because they have more financial resources which allow multiple fields to be worked a day.
- There are around 5 large farms in the village of San Antonio, which can produce up to 5,000 tons of cane each.

Positive Aspects of "Big Farms"

- Big farms have priority over small farms in every way, and many leaders offer benefits, regarding priority harvesting time, and availability of resources.
- Laborers prefer larger farms because there is more work available and more cane delivered, for longer periods of time.
- Benefits of large groups include being among the first to use a group's loading equipment for harvest.
- A big farm or cooperative has more equipment and manpower than smaller groups, and can obtain discounts on materials such as fertilizer, pesticide, machetes, and other tools for laborers by purchasing these items in bulk.

Negative Aspects of "Big Farms"

- Due to miscommunications, farmers sometimes burn fields simultaneously and the cooperative groups with limited resources are unable to assist both farmers. The smaller farm is given lower priority and must wait and so risks the cane going sour before it can be delivered to the plant for processing.
- The equipment is expensive and difficult to acquire. It is typically purchased in the United States transported to Belize.
- Diesel fuel is expensive.
- Cane farmers must have authorization from the cooperatives prior to burning their cane.
- Owners of large farms are required to meet their allocated quotas to the factory. If they are unable to meet the quota with their own product, they often purchase cane from small farm.
- SIRD I provides a farmer with 3 bags of fertilizer and loans for 2 acres of sugarcane plots. Most farmers have plots much larger than this.

The informant must buy fertilizer and supplies for the remaining acres from their own pocket.

What Is A Small Farm?

- Small farms consist of less than 100 acres.
- A typical small farm quota may range from 150-5,000 tons per season.
- A farm needs to be at least 15 acres to be able to sustain a farmer.
- A typical small farm is 30 acres.
- An 80-200 ton quota is considered a small amount of cane, while 2,000 tons is comparatively large for a small farm.
- Expenses frequently exceed profits for small farm.

Positive Aspects of "Small Farms"

- Smaller groups are more familiar with the land and there is less miscommunication, and more attention is paid to the individual farmers harvesting needs.

Negative Aspects of "Small Farms"

- Small farmers must wait their turn for the harvesting truck to arrive and then be prepared to cut and load quickly when it is time to take the product to the factory if roads allow.
- Lack of money frequently restricts owners of small farms ability to expand production, because they cannot use the recommended amount of fertilizer.
- Access to heavy machinery allows big farms to out compete small farms.
- Entire crops can be lost due to no pick-up.
- Some believe that small cane farmers should consider other types of farming; 500 tons of cane is barely sustainable.
- Changes in sugar prices can cause financial ruin.
- Banks charge small farm owners a higher interest rate (8%) than big farm owners (4%).
- As the number of big farms increase, the delivery process for small farms is delayed.
- Small farms work on little profit.
- SIRD I and/or the "association" neglect or exploit small farms while aid is given to bigger, more profitable farms.

Workers' Wages and Farmers' Payment

- A typical payment for weeding all day is \$15-20BZD, while cutting is \$30-40 BZD.
- For spraying insecticides/herbicides, some farmers pay workers by buckets sprayed while others pay per day. Wages are very low.
- Wages for workers change drastically with the season.
- As soon as farmers are paid, they must make their first payment to anyone who has worked for them such as laborers or the cooperative group leader.
- Sometimes farmers are paid by the ton.

- Cutters are paid per grab (pile of cut cane arranged in rows). There is a range of rates from \$4 - 8 BZD per grab. Cutters can earn around \$40 -72 BZD for the day, which will be paid on a Friday after the week in which they are.
- Mennonites pay cutters per day, regardless of amount of work, \$50BZD per day. Hypothetically the worker could do 1 grab all day, and make \$50BZD.
- A typical daily wage for a worker from the village is \$20/day.

Failures and Penalties

- If a farmer fails to meet his or her quota, the quota for the following season may be cut.
- If all the cane is not harvested, it must be reported to the Sugar board.
- A quota can change due to the cane not being harvested.
- If there is excess cane, the farmer must negotiate with other farmers to sell the cane.
- During the harvest, firm ground is essential. There is a limited window of time from burning cane and getting it to the processing plant. If the field becomes too muddy and cannot support the machinery needed for transport, burnt or cut cane will be left in the field to mold

Selling the Farm

- Large farm owners and wealthy foreigners are purchasing the small farms and planting sugarcane.
- Some farmers sell their plots due to their inability acquire a necessary loan or other financial hardship.
- The Mennonites are purchasing much of the land and farms.
- A large number of farmers selling their cane fields are doing so because they believe that sugarcane is not a financially sound market.
- Some farmers sell their land because they unable to make enough profit to be able to maintain their fields.
- Sometimes land is sold due to personal or family reason, sickness or pay to bay school fees.
- The majority of farmers inherit land, but some farmers purchase land from each other.

Sugarcane farmers are most often members of a harvesting group or cooperative. There were conflicting reports from village citizens and farmers on the advantages and disadvantages to group membership. Despite differing opinions on how many acres of land or tons of cane it takes to be considered a big farm, there is unanimous agreement that bigger farms receive preferential treatment over small ones. Group membership offers owners of large farms priority when it comes to materials available, discounts, as well as multiple opportunities at harvesting. However in groups, farmers have less control of their season in regards to quota, methods, types of cane planted, field treatments, harvesting time, and costs involved including environmental costs. The majority of small farmers strive to have other jobs they work year round, as sugarcane farming alone is not enough to make a living from. The consensus is that there are more advantages to being in a group than not being in one. Lack of resources and

education, puts owners of small farms at a disadvantage and can contribute to the failure of small-scale operations. When farming is no longer a viable option, the owners may sell their land.

There are many types of labor involved with sugarcane farming including but not limited to planting, fertilizing, spraying, weeding cutting, clearing, transporting and processing. Workers are paid in a variety of ways including by the day, hour or job depending upon their contract and type of work. These jobs are low paying. Farmers are paid for the product they produce. During a bad season, many farmers lose portions of their crop to weather, pests, or miscommunication. If a farmer's quota is affected, they may be given a smaller quota the following year. This reduction in potential income perpetuates farmer's losses and increases the probability of the farmer going into debt.

Whether one is associated with a big or small farm, factors such as pay rate schedule, cane quality and preservation greatly impact all who farm sugarcane. Group membership is a large part of cane farming culture. Local people are often upset that this way of life is no longer viable for the common person, and lament that land is sold to 'non-locals' whom they don't consider to be treating the land with the same respect as locals do. The selling of land often cannot be avoided. The overall feeling is that sugarcane-farming lifestyle is quickly changing. Work, which was once done by hand, machines now do. One can only expect further changes.

Sugarcane Froghopper/*Mosca Pinta*

One of the major problems that cane farmer's contend with is the insect known as the Froghopper/*Mosca Pinta*. This section will be an overview of the Froghopper problem within the villages of San Lazaro, San Antonio, Yo Creek, and San Estevan.

The Froghopper

- The Froghopper is also known as *Mosca Pinta*.
- The term Froghopper/*Mosca Pinta* includes several species of insects. There are three varieties of Froghoppers that arrived at various times. The first to appear was black with red stripes. The second one was smaller and black with yellow stripes and more destructive. The last to arrive was a green variety that is referred to as *chopalin*.
- Froghoppers damage crops by sucking sugar out of the cane.
- Although there are other pests, the Froghopper is the biggest threat to Belizean sugarcane agriculture.
- The problems of the Froghoppers are well known in the communities by farmers and non-farmers alike.
- The insect population is increasing.
- The damage done by Froghoppers is considered to be the biggest threat to crops.
- Farmers use pesticides to control the population of insects. As farmers plant more cane, the use of pesticides is also increasing.
- Farmers continuously monitor their fields for the Froghopper.

- Froghoppers are believed to have originated from Mexico and became a pest about 5 years ago. However, some believe the pest has been a problem for farmers for much longer.
- The Froghoppers tend to like the variety of cane known as BBZ as well as the variety called Blanco. The B79 cane variety is preferred by farmers due to the high quality sugar it produces and it is also hardier when exposed to the Froghopper.
- A hardier variety of cane, which is more pest resistant, was introduced two years ago.

Knowledge of Froghopper Life Cycle

- The Froghoppers' eggs are white and foamy.
- The insect comes out of the ground and eats the cane.
- Froghoppers are more prevalent during the rainy season and will appear after the cane is burned. The farmer monitors the cane closely for signs of Froghoppers at this stage.
- January – May the Froghoppers are not a pest until the first May rain when they begin to appear. Froghoppers reproduce more in the rainy season.
- If the eggs are exposed to the sun they die.
- Farmers have tried introducing a strain of bees to kill the Froghoppers, but it caused more problems and affected the ecosystem.

Pace, Movement, and Effects

- An infestation of Froghoppers can destroy a crop in three days.
- By the time some farmers get help to eradicate the Froghopper problem, their crops are already ruined because of the aggressive manner of the froghopper and the length of time it can take to receive aid to purchase the pesticides. This delayed response also affects neighboring fields due to the rapid movement of the insect.
- 1 acre of cane can produce 30 tons of good cane, however, the Froghopper can reduce the yield to 10 tons or less.
- The cane is no longer good if the leaves turn dry and brown.

Fighting the Froghopper with Pesticides

- Farmers use pesticides to protect the sugarcane. It is best to use insecticides during the dry season.
- The product Metarhizium, a mold, is applied to a field and it will kill the Froghoppers, with which it comes into contact, through a slow but environmentally friendly process. After 3 years of application, the mold is self-sustaining.
- Within the last 3 years, Jade, Actara, and Muralla Delta 190d are fairly new pesticides for Froghoppers. Jade and Actara can be applied as a pre-treatment. They are in powder or liquid form. They kill the bug very fast and can prevent new bugs. Some pesticides are sprayed when the plants are small, and usually applied 3 more times during the growing period, which is about a year.
- Actara is effective for 30-40 days after application.
- During Froghoppers infestations, Jade, in granular form, is spread on the field and kills the Froghoppers quickly. It lasts for 90 days. If this

pesticide is used too frequently, the Froghopper becomes resistant. Jade is used to attack the larvae.

- Crop dusting is available for farmers, however, it is expensive and most farmers cannot afford to it.

Alternate Methods of Prevention

- Some think there may be no need for pesticide if farmers use the cane variety called B-79, which is highly resistant to the Froghopper. The strain is recommended, sold and distributed by the Belize Sugarcane Farmers Association (BSCFA).
- Due to the harmful effects of pesticides and the high cost of the products, some farmers use other methods to protect the cane from the Froghoppers.
- Types of monitoring for Froghoppers include, yellow bags filled with glue are used to attract the Froghopper mother. These bags are checked twice a day. Others use sticky mats to trap froghoppers. There is also a visual inspection of the base of the stalk for evidence of eggs having been laid. If evidence is found, farmers will stomp on the area or till the land to expose the eggs to the sun, which kill them.

Cost to Combat the Froghopper

- Due to the high cost, it is difficult for farmers to purchase pesticides. It can cost farmers thousands of dollars to use chemicals.
- For some farmers, a financial tradeoff occurs between purchasing chemicals and the paying for the children's education.
- The recommended pesticide costs \$200 BZD (per what?). Due to the price of pesticide it makes it difficult for farmers to make a profit.
- 1 bag of Actara is 500 grams, which will cover 7 acres. The cost for 1 bag of Actara is \$300 BZD. It is more expensive but is effective for a long period of time. It is safer for the farmer/laborer compared to others on the market.
- The price of Jade is 80-90 dollars a bag, which treats 1 acre of cane.
- Farmers can join groups to purchase fertilizer, pesticides and other farm related items in bulk to receive a discount.

Effects of Pesticide Use

- Froghoppers are difficult to manage; the farmer needs to protect him and the environment from the poisonous insecticides. Pesticides are harmful to the workers who apply them in the fields.
- Because pesticides can burn the hands and eyes, farmers wear special gear along with a facemask as a precaution against exposure to pesticides. After spraying the field the workers are required to change clothes and take a shower.
- Pesticides are sprayed either by a machine or hand pump.
- To receive benefits, there are many regulations with which farmers have to comply under the Free Trade Agreement including having a storage room for pesticides.
- Pesticides must be stored in a licensed building away from the house. Pesticide disposal occurs in a special place.

Medical Issues and Cane Farmers

- Some farmers do not use gloves or protective clothing when using pesticide. Young children should never come into contact with the contaminated clothing.
- Pesticide can burn the skin that lasts for days even when the worker wears a protective suit. Some farmers have discontinued using pesticides due to fear of negative health consequences up to and including death.
- Some informants have linked relatives' deaths due to cancer to chemicals used in the farming process.
- Medical concerns include skin conditions, pulmonary issues and diabetes. The effects of diabetes are exacerbated by the lack of access to information on nutrition and how to manage a diabetic condition.
- Some people reported a desire for improved health care in the village.

It is commonly known in the community that the biggest threat to sugarcane agriculture is the frog hopper. The cane farmers expend many hours and resources to reduce the impact of frog hoppers on crops. The farmers have taken a multi prong approach of using improved pest management techniques, monitoring and understanding of the various stages of the frog hopper life cycle to increase their ability to protect their fields. As the cane farming industry increases in importance in Belize, pest management of this bug likewise increases. Most farmers use pesticides but they are a difficult, dangerous and expensive method of pest management. For some farmers, pesticide use is the farmer biggest cost.

The biggest concerns that farmers have are protecting the cane fields and protecting themselves, their workers, and the environment from the harmful affects of the poisons that they must use to protecting the cane fields by eradicating the Frog hopper. It is dangerous to work in the fields and sprayers suffer medical problems, due to improper use of the chemicals, exposure related injuries, and illnesses due inadequate protective gear. The chemicals also have environmental effects to the surrounding communities by being washed away off the fields by rains. The chemicals then can enter the waterways, seep into ground, and be transferred to the food and water supplies. The extent of the effects of the pesticides is unknown by the people interviewed but it is commonly believed that these chemicals are poisons, and that they are affecting the environment and the people in a negative way.

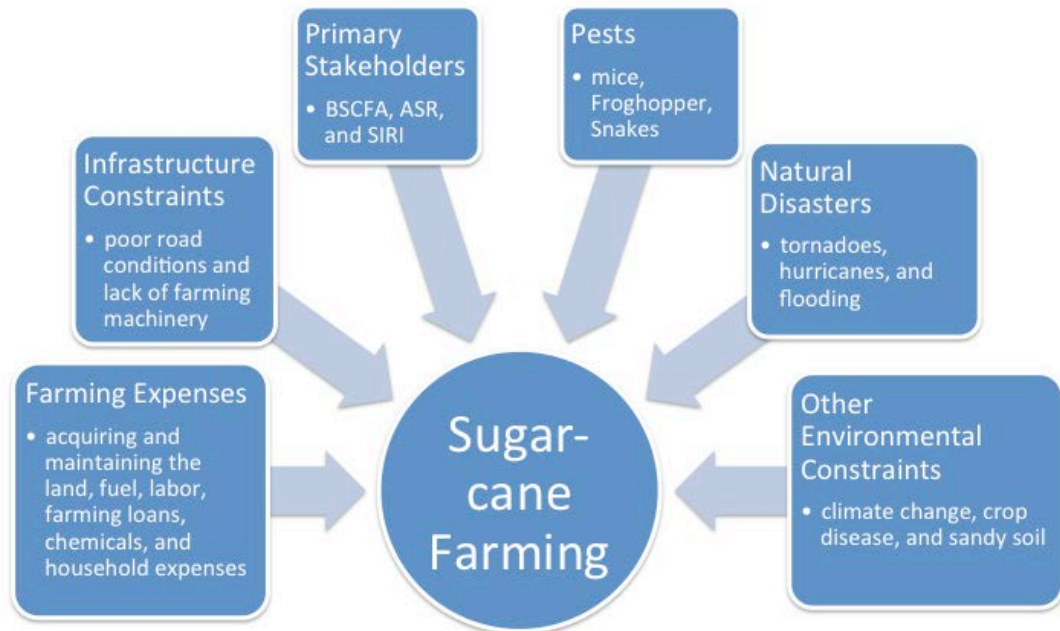
The importance of the sugarcane industry, for all parties involved is apparent. Therefore, anything, like the frog hopper, that negatively impacts the industry has a wide and strong effect that does not discriminate between village and people but acts upon the community as a whole. The measures that villagers take to fight the frog hopper are difficult, expensive and dangerous. Some people mentioned that the government needs to work with farmers to totally eradicate the frog hoppers because of the potential economic devastation it can have on the entire country. It is hoped that the medical issues suffered by sugar can workers are also taken into consideration by the leaders and that the leaders help the workers to obtain an effective treatment for handling this insect.

Cultural Models

The second aim of this field season was to begin developing the cultural models (see Chapter V: Cultural Models in Hume 2005) of sugarcane farming and household economics among communities in Northern Belize. These cultural models are preliminary and not complete, as the knowledge of sugarcane farming and household economics are complicated by being held by community members that have different roles within farming and their households. These models will be used as the basis for further research in the coming field seasons.

Sugarcane Farming

This section presents a general cultural model of sugarcane farming. The model is divided into two sections: socioeconomic and environmental aspects. Modeling can illuminate some of the constraints and opportunities of sugarcane farming.



It is very expensive to be a cane farmer. Labor costs per ton of cane are on average twenty-seven Belize Dollars. Labor is required at every step in the cane farming process. Labor requirements are most intensive during the harvest, when the farmer hires a group of laborers cut cane. The leader of the group receives payment, and then divides the money up to pay the laborers. The farmers' budget has two umbrella categories – farm and household. One constraint on household budgeting is the rising price of food and groceries in Belize. The profits from the farm must be enough to support the family, or the farmer will be forced to sell the farm or take out loans. Farming is inherently risky because it is reliant on a variable that is complex and out of the farmers' control. This reliance on an uncontrollable variable creates an economic uncertainty, which in turn makes taking out loans a risky proposition. The price of chemicals is currently very high, and many people cannot afford to adequately spray their fields. Fuel for tractors, trucks and other heavy machinery is

also very expensive and comprises much of the farming budget. In addition to budgeting for farming supplies, sugarcane farmers also need to budget for education expenses. Families may have to choose between investing in their children's education and investing in their farms. One informant sold his farm to pay tuition fees for his children. Some farmers in Northern Belize are leaving cane farming because they are not making enough profit, while others wish to move away from sugarcane farming, and towards careers requiring more education.

Two socioeconomic constraints of Northern Belize are poor road conditions and the lack of farming machinery. The grab is a machine that picks up the cane, and places it in the truck. The owner of the grab is in charge of the farming cooperative. If more farmers owned a grab, labor expenses would decrease, and the grab may pay for itself. The poor conditions of the roads can cause trucks to over turn resulting in injury or death to the occupants, and possible loss of income due to loss of product. These obstacles decrease the productivity of the industry.

In addition to sugarcane farmers, the primary stakeholders in sugarcane farming are ASR, SIRDI, and BSCFA. Opinions vary on which groups contribute to the problems of sugarcane farming as a whole. Some blame SIRDI, while others blame ASR. SIRDI doesn't appear to have a political agenda. ASR supports the factory, while the BSCFA supports the farmers and encourages collective action as exemplified when the BSCFA supported farmers going on strike in order to get money for bagasse. The strike resulted in having the farmers receive approximately fifty cents BZD per ton, however, for many farmers, the strike was detrimental because it caused a delay in the harvest resulting in some cane not being harvested this year. Normally, the harvest would start in late November, but because of the strike it started in mid-January. The delay created an extra expense for the harvest by requiring an extra tractor to push a truck through the field too muddy to support the truck.

The sugarcane industry has at least partial control over socioeconomic factors. However, it has little control over some environmental factors. Some environmental factors that farmers do have some control over and can attempt to manage include pests such as mice, snakes and froghoppers. Though snakes and mice do impact sugarcane, but they pose more of risk to the people working in the fields. Froghoppers can cause the entire crop to fail. Therefore, the farmers assiduously try to protect and monitor their fields for evidence of the froghopper. Once a field has become infested with the froghoppers, the only way to manage it is to use a chemical insecticide called "Jade."

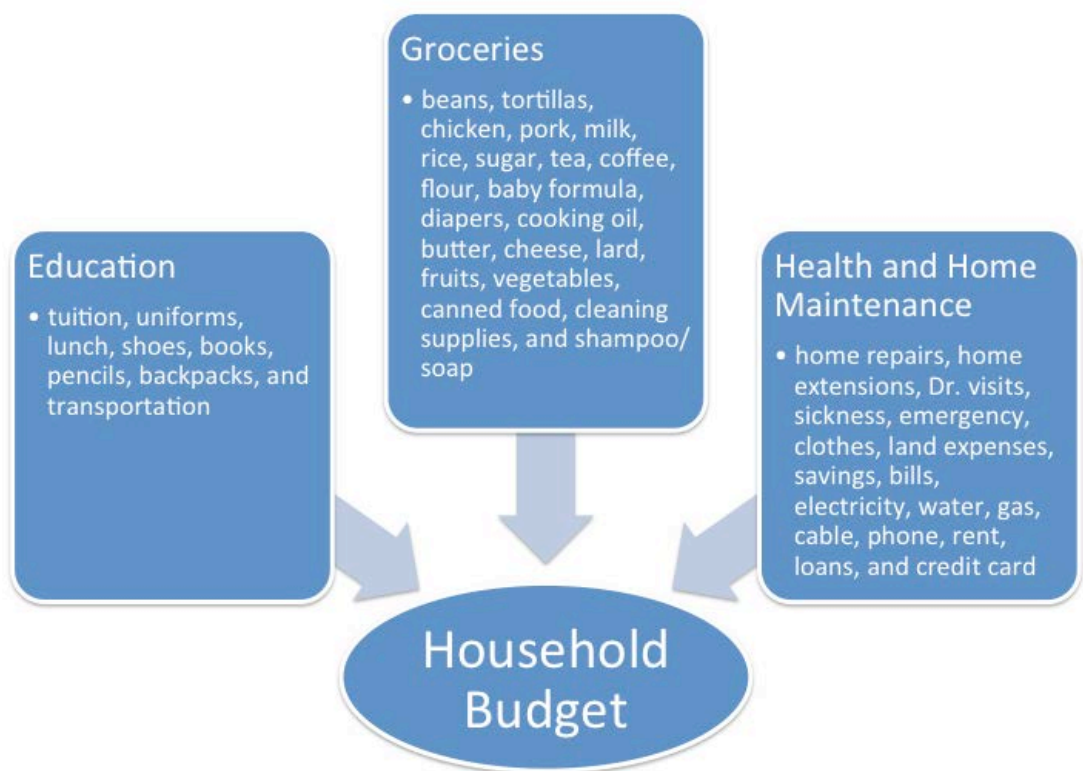
The weather in Northern Belize can be unpredictable. The farmers must be able to understand and forecast with precision the weather patterns for each portion of the farming cycle. If the required weather does not occur during specific time periods of the farming calendar, the productive of the fields can decrease or the entire crop can be lost. Therefore, any miscalculation or variation from the expected pattern can have catastrophic consequences for the profit of the farmer. Extreme weather in the form of natural disasters are the environmental factors in which the farmer has the least amount of control and which can produce devastating effects on sugarcane farming. The most common disaster is flooding, especially in the San Antonio area. The flooding can cause chemicals used in the farming process, insecticide, fertilizer, and herbicide to enter the watersheds of the area. Flooding typically occurs during the rainy season. Hurricanes can also impact sugarcane farming in Belize. The winds

and debris can destroy a field. Recently, there have been tornadoes, which can cause significantly more damage than the hurricanes.

Other environmental constraints are climate change, poor soil, and crop disease. Climate change negatively impacts the farmers by changing the local weather patterns. The rainy season is coming earlier than it has in previous years. This has increased the variability in the weather patterns, and made it more difficult for the farmers to predict the weather. This causes uncertainty in determining when certain activities should be done. Northern Belize's soil is sandy. This soil type increases the importance of additional fertilizer; without fertilizer, the cane wouldn't absorb as many nutrients, which are needed to grow. It was reported that the crop disease that causes the most harm is Smut, which turns the cane black.

Household Budgeting

Sugarcane farmers, non-sugarcane farmers, and local shops that are run out of homes make a household budget. Most people spend money on education, groceries, health, home maintenance, and bills. They rarely have extra money to spend on luxury items.



Education is very important and very costly; many families in the communities consider it a first priority. For K-12 students, uniforms are required and are usually bought at the end of summer. They can be ordered from the school or made by local women who make the uniforms for extra income. If the uniforms are locally made, the parents need to purchase the fabric from the school to ensure all uniforms match. Due to wear and tear, shoes are purchased every few years. To ensure that tuition is paid, schools will withhold the grades until payment is received. Raffles and school

events are held to generate money for the school and defray costs to the families. Families are required to sell tickets, however, if the family does not sell a certain quota of tickets the family must purchase the tickets themselves. Sometimes families are also asked to bring food.

Transportation is another factor impacting a student's ability to attend school. Most local elementary schools are within walking distance of all students, but the college is in Orange Walk town and requires the student to take the bus, drive, and in some cases walk. Bus fare is one Belize dollar and the bus is not always reliable. Some schools require parents to contribute two Belize dollars to the school each week to help with the cost of the lunch, which usually contains beans and rice. The parents are also required to purchase other materials such as backpacks, books and pencils. In some cases the government will supply the books but it shouldn't be expected or relied on.

Everyone buys groceries and there are many choices at which to buy them. There is a business in Orange Walk town called the People's Store. They carry most of the items that are not local or processed. They are the largest store for many miles and take credit cards. Many people run grocery shops out of or near their homes. Items and prices range from shop to shop and it is common to ask around to get the best price on an item, however many people stick to the routine they have. Most people shop at the People's Store for a majority of their staple items such as milk, flour, cheese, white sugar, rice, tea, coffee, butter, lard, canned food, cooking oil, baby formula, diapers, shampoo, cleaning supplies, and school supplies. Local shops have some of these items at different prices. Cooking oil is more expensive at the People's store and many people go out of their way to get it for less somewhere else.

Tortillas, beans, chicken, pork, fruits, and vegetables are sold in the market and in specialty shops. There is one butcher in Orange Walk town from which most people get their meat every few days. Tortilla shops are a common place to get tortillas on a weekly basis. There are three shops in Orange Walk. The market has local beans, fruits, and vegetables. Farmers bring in a variety of crops for sale. People travel miles to get their groceries for the week. Some villages have people who sell fruits and vegetables they have grown out of their home. Some people have their own gardens from which they might sell extra produce to neighbors.

In the villages, bills for electricity, water, gas, cable, phone, rent, loans, credit cards and insurance are dropped off by hand about every 2 weeks. These expenses are given high priority and they are usually paid first. Most informants viewed electricity and water as the two most important bills to pay. For those that use it for cooking, gas is also important. For those who did own their own home, the first priority was given to rent. Farmers and students mostly take out loans and use credit cards. Payment is made at the bank and is a high priority to those who have them. Insurance is only paid by homeowners and is not required, not many people had insurance. Cable and phone are luxury items and the informants who had them found them important budgetary items.

Informants found it important to save money for health or home maintenance emergencies of self or family member. Doctor visits are expensive and can take a whole day to occur. The hospital is in Orange Walk and not reliable for scheduling appointments. Home repairs are also costly. Strong winds periodically cause a roof

damage, which creates an unexpected need for immediate repairs. Home expansion is common especially when families expand or decide to add a grocery shop. Land expenses and taxes cost families about 30 Belize dollars a year. Though saving money for these expenses is important, when the sugarcane farm profit is not fully actualized putting money into savings is a lower priority than paying immediate expenses. Luxury items like clothes or beer are often foregone to save money for health or home emergencies.

Budgeting is very important to the people in the communities. They want to make sure that they have enough to pay for their needs, before paying for items considered luxury items like clothes and cable. The father of the home made most of the budgeting decisions, however everyone who lived in the house contributed to the financial obligations. Many college students are expected to pay for college mostly by themselves. People report that learning how to save money is very important, is not always easy, and sometimes it takes several tries. Practicing a household budget allows one to manage ones finances and have an amount of money to save for emergencies or luxury items.

Conclusion

The report documented the findings of the ethnographic field school organized by the CfAA at NKU in Orange Walk District, Belize during June 2014. This field season successfully met its goals, to focus on broad topics (narratives about education, educational budgeting, the impact of outside farmers, large and small farms/groups, and the sugarcane froghopper as well as culture models of sugarcane farming and household budgeting) forming a basis for further study of sugarcane farming in Northern Belize. In future field seasons, the focus of research will continue to assist SIRDI in constructing development programs among farmers in Northern Belize, specifically on sugarcane farming as indigenous knowledge (as Sillitoe and Dixon 2005) and documenting household economic behavior (as Wilk 1991).

Appendix: Informed Consent Statement



College of Arts and Sciences
Department of Sociology, Anthropology,
and Philosophy
Landrum Academic Center 217C
Nunn Drive
Highland Heights, Kentucky 41099
tel 859.572.5259 | fax 859.572.6086
www.nku.edu

INFORMED CONSENT TO PARTICIPANT IN A RESEARCH PROJECT

TITLE OF PROJECT: Ethnographic Field School

NAME OF PRINCIPAL INVESTIGATOR: Dr. Douglas Hume, Northern Kentucky University

CONTACT NAME AND PHONE NUMBER FOR QUESTIONS/PROBLEMS: Douglas Hume, Ph.D., Associate Professor of Anthropology, Northern Kentucky University, humedl@nku.edu or 859-572-5702.

PURPOSE OF RESEARCH: This research project records the way of life of sugar cane farmers in Northern Belize with the intent to share the results on the Internet, journals and conference proceedings as well as in a report to the Belize Sugar Cane Farmer's Association, Institute of Social and Cultural Research, and the Sugar Industry Research and Development Institute.

PROCEDURES/METHODS TO BE USED: The interview includes questions about your household economic behavior and sugar cane farming methods. The interview is estimated to last between five minutes to one-half hour. The audio recording of the interview will be securely stored and destroyed after it is transcribed. Data collected in this study will then be anonymous, as we are not collecting names or other identifying information. You will not be paid for being in this study.

RISKS INHERENT IN THE PROCEDURES: There are no known risks.

BENEFITS: It is hoped that the results of this research will influence how the Belize Sugar Cane Farmer's Association and the Sugar Industry Research and Development Institute develop educational programs about farming, health, and economics for sugar cane farming families in Northern Belize.

CONFIDENTIALITY: The only identifying information that we will keep on record is this signed document, which may be inspected by the Institute of Social and Cultural Research and other human protection bodies. This document will not be connected with you interview data.

LIABILITY: Neither the researchers, their agents, or you (the participant) are liable for any damages or penalties from participating in this research.

PARTICIPATION: Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document.

Participant name (printed) _____ Participant signature _____ Date _____

Witness to signature (project staff) _____ Date _____



College of Arts and Sciences
 Department of Sociology, Anthropology,
 and Philosophy
 Landrum Academic Center 217C
 Nunn Drive
 Highland Heights, Kentucky 41099
 tel 859.572.5259 | fax 859.572.6086
 www.nku.edu

FORMULARIO DE CONSENTIMIENTO INFORMADO PARA PARTICIPAR
 EN UN PROYECTO DE INVESTIGACIÓN

TITULO DEL PROYECTO: Ethnographic Field School

INVESTIGADOR PRINCIPAL: Dr. Douglas Hume, Northern Kentucky University

CONTACTO EN CASO DE PREGUNTAS/PROBLEMAS: Douglas Hume, Ph.D., Profesor Adjunto de Antropología,
 Northern Kentucky University, correo electrónico: humed1@nku.edu; teléfono: 859-572-5702.

OBJETIVO DE LA INVESTIGACIÓN: Este proyecto de investigación registra el modo de vida de los cañeros en el norte de Belice con el propósito de difundir los resultados por Internet, en revistas académicas y actas de congresos, así como en un reporte a la Asociación de Cañeros de Belice, el Instituto para la Investigación Social y Cultural, y el Instituto de Desarrollo e Investigación de la Industria Azucarera.

PROCEDIMIENTOS/MÉTODOS DEL ESTUDIO: La entrevista incluye preguntas sobre la economía doméstica y los métodos empleados en el cultivo de la caña de azúcar. La entrevista durará entre cinco minutos y media hora y será grabada. La grabación se almacenará en un lugar seguro y se destruirá luego de su transcripción. La información recopilada en esta investigación es anónima, ya que no registramos nombres ni otros datos personales. No se recibirá ningún tipo de compensación económica por participar en esta investigación.

RIESGOS INHERENTES EN LOS PROCEDIMIENTOS: No hay riesgos conocidos.

BENEFICIOS: Se espera que los resultados de esta investigación tengan un impacto en cómo la Asociación de Cañeros de Belice y el Instituto de Desarrollo e Investigación de la Industria Azucarera desarrollan sus programas educativos sobre agricultura, salud y economía para las familias cañeras en el norte de Belice.

CONFIDENCIALIDAD: En cuanto a información identificatoria, sólo guardamos esta hoja con su firma, la cual puede ser inspeccionada por el Instituto para la Investigación Social y Cultural y otros organismos de protección de derechos humanos y civiles. En ningún momento este documento podrá ser emparejado con la información que Ud. comparta en la entrevista.

RESPONSABILIDAD LEGAL: Ni los investigadores, ni sus agentes ni Ud. (el/a participante) serán responsables por daños o sanciones como resultado de su participación en esta investigación.

PARTICIPACIÓN: La participación en este proyecto es voluntaria. Si decide participar en esta investigación, tiene derecho a anular este formulario y dejar de participar en cualquier momento sin sanciones o pérdida de beneficios a los que tenga derecho.

Su firma confirma que Ud. ha leído la información contenida en el mismo y que firma este formulario de consentimiento por su propia voluntad. Su firma también confirma que Ud. ha recibido una copia de este documento en la fecha indicada.

 Nombre del/a participante

 Firma del/a participante

 Fecha

 Testigo (un miembro del equipo de investigación)

 Fecha

Sources Cited

- Audet, Patrick, Brendan Walshe-Roussel, Victor Cal, Francisco Caal, Marco Rojas, Pablo Vindas, Luis Poveda, Todd Pesek, and John Arnason. 2013. "Indigenous Ex Situ Conservation of Q'eqchi' Maya Medicinal Plant Resources at the Itzamma Garden-Indian Creek, Belize, Central America." *Human Ecology: An Interdisciplinary Journal* 41 (2): 313–24.
- Briggs, Venetia S., Frank J. Mazzotti, Rebecca G. Harvey, Tomma K. Barnes, Rafael Manzanero, Jan C. Meerman, Paul Walker, and Zoe Walker. 2013. "Conceptual Ecological Model of the Chiquibul/Maya Mountain Massif, Belize." *Human & Ecological Risk Assessment* 19 (2): 317–40.
- Center for Applied Anthropology at Northern Kentucky University. 2014. "Ethnographic Field School." February 27. <http://cfaa.nku.edu/ethnographic-field-school.html>.
- D'Andrade, Roy Goodwin, K. Basso, and H. Selby. 1976. "Propositional Analysis of U.S. American Beliefs about Illness." In *Meanings in Anthropology*, 155–80. Alberquerque: University of New Mexico Press.
- Hume, Douglas William. 2005. "Agriculture in Madagascar: Conservation and Cultural Meanings of Rice." University of Connecticut, Anthropology.
- Hume, Douglas William, Jessica Boggs, Adelle Bricking, Rosa Christophel, Jesse Hendricks, Sofia Javed, Gabrielle Locke, et al. 2014. "Report of the Ethnographic Field School in Belize (June 2013 Season)." Center for Applied Anthropology at Northern Kentucky University.
- Levy, Robert, and Douglas Hollan. 1998. "Person-Centered Interviewing and Observation." In *Handbook of Methods in Cultural Anthropology*, edited by H. Russell Bernard, 333–64. Walnut Creek: Altimira Press.
- Sillitoe, Paul, and Peter, Barr, Julian Dixon. 2005. *Indigenous Knowledge Inquiries: A Methodologies Manual for Development*. Rugby, U.K.: ITDG Publishing.
- Spradley, James P. 1979. *The Ethnographic Interview*. Wadsworth Publishing.
- Wilk, Richard R. 1991. *Household Ecology: Economic Change and Domestic Life Among the Kekchi Maya in Belize*. Tucson: University of Arizona Press.
- Zach, Stephanie, and Douglas William Hume. 2014. "Changing Mortuary Rites: An Ethnohistory of 19th Century and Contemporary Religion in Northern Belize." *Contemporary Journal of Anthropology and Sociology* 4 (2): 149–61.