



OVERSEAS DEVELOPMENT
INSTITUTE



RMI SERVICES LTD.

Evaluation & Baseline Research with Small Producer Organizations producing Fairtrade Sugar

BELIZE COUNTRY REPORT



ACKNOWLEDGEMENTS

The authors of this report would like to thank all of those that were involved with funding, executing and participating in the study with particular thanks to the following:

- Fairtrade international staff for the guidance and management of the study
- CLAC staff in Belize for the introductions and arrangements for the different site visits undertaken and CLAC management for inputs into the study and reports
- SIRDl staff who were partially helpful with technical information pertaining to the Belize sugar industry
- Staff and board members from the Sugar Board and other industry structures in Belize
- BSI staff
- Staff from Tate and Lyle who gave us a good insight into Fairtrade in Belize
- The local enumerators who managed to execute the survey on time under trying conditions
- Management and staff of the different Farmers Associations in Belize for all the support and logistics provided for the study
- Belize sugarcane farmers and their families who gave of their time freely to participate in the study
- The people of Belize who welcomed us in your country

ABBREVIATIONS

ac, acre	Acre = 0.405 hectare. Smallholder Farmers in Belize measure land by acre
ACP	African, Caribbean, and Pacific
AGM	Annual General Meeting
ASR Group	American Sugar Refining Group
Bagasse	the dry pulpy residue left after the extraction of juice from sugar cane
Bz\$	Belize Dollar. Bz\$2=US\$1
BMP	Best Management Practice
BSC	Belize Sugar Corporation
BSI	Belize Sugar Industries
c.	circa, means approximately
CAP.	a legal abbreviation meaning Capitulo or Chapter
CARICOM	Caribbean Community
CEO	Chief Executive Officer
CPA	Cane Producers Association, see also SPO below
CLAC	Latin America and the Caribbean Network
DOP	Division of Proceeds
EU	European Union
FGD	Focus Group Discussion
FI	Fairtrade International
FLOCERT	FLOCERT is a global certification and verification body, with the main role of independently certifying Fairtrade products.
Froghopper	A pest of economic significance in sugarcane in Belize. A jumping plant-sucking bug, the larva of which produces a frothy mass on plants.
FT	Fairtrade
FTP	Fairtrade Premium
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
Ha	Hectare
ICS	Internal Control System
IPM	Integrated Pest Management
K	1,000
Kg	Kilogram
LF	Larger holder, more than 10 acres of sugar cane planted
LiDAR	Light Detection and Ranging
M	Million
MT	Metric Ton
Mw	Megawatt

ODI	Overseas Development Institute is a United Kingdom-based think tank on international development and humanitarian issues
PPE	Personal Protective Equipment
RMI	RMI is a private consultancy firm working with rural communities in Africa preparing them for commercial farming
SCPC	Sugar Cane Production Committee
SCQCA	Sugar Cane Quality Control Authority
SIMIS	Sugar Industry Management Information System
SIRDI	Sugar Industry Research and Development Institute
SICB	Sugar Industry Control Board
SF	Smallholder, less than 10 acres of sugar cane
SPO	Small Producer Organisation: in Belize, these are termed Cane Producer Associations (CPA), the nomenclature used in this report
ToC	Theory of Change
Tonne, T, t	Metric tonne = 1,000 kg
UNICEF	United Nations Children’s Emergency Fund
US\$	United States Dollar
USDA	United States Department of Agriculture
YICBMR	Youth Inclusive Community Based Monitoring and Remediation
YICBMR	Youth Inclusive Community Based Monitoring and Remediation

NOTE: For the purposes of keeping the study anonymous as per the design protocol, the three farmers associations that make up the farmer base in Belize are not mentioned in the report by name. They are rather given the names Belize Sugarcane Association 01, 02, and 03 (BSCA 01,02 and 03)

CURRENCY CONVERSION

The unit of currency used in Belize is the Belize Dollar Bz\$

The Belize Dollar is pegged to the United States Dollar (US\$) at a rate of 1US\$=2Bz\$

The Euro to Belize Dollar exchange rate on the 30th of June 2018 was 1 Euro=2.34Bz\$

SUMMARY

This report has been prepared at the request of Fairtrade International. It presents the results of an evaluation of the impact of Fairtrade certification and support to small-scale sugar farmers in Belize. The evaluation assessed the effectiveness of Fairtrade as an intervention to support improvements in the economic, social, and environmental sustainability of sugar production.

BACKGROUND TO SUGAR IN BELIZE

Sugar cane was introduced into the area which is now the Corozal District of Belize in 1848 by immigrants from the then-independent Republic of Yucatan, now the State of Yucatan in south eastern Mexico. Following the emancipation of Central America from Spanish rule, Great Britain claimed control over the territory of Belize and governed the territory as a British Crown Colony known as British Honduras from 1862, with an independent Belize being established in 1981.

One of the main strengths of the sugar industry in Belize today is its long history. Belize also has over 75000 acres of good quality arable land to produce the sugarcane required by the industry. Many people in Northern Belize see the growing of sugar as part of their history and culture and many producers are the descendants of families who have been growing sugar cane consistently for generations; this history has created a strong knowledge base around the growing and milling of sugar in the country.

The production of sugar and sugar-related activities contribute approximately 8-10% to the GDP of the country and is therefore an industry of strategic importance for the country.

While the purchase of Belize Sugar Industry (BSI) by American Sugar Refiners (ASR) Group has been interpreted differently by different actors across the sugar industry, from an economic perspective, there is no doubt that it has been a positive step for the industry; ASR has brought the much-needed capital investment necessary to upgrade the mills¹ and to begin the conversion process towards producing more direct consumption sugar.

The production of direct consumption sugar is seen as a strategy to replace some of the lost revenues formerly gained through Belizean access to sugar sales under the African, Caribbean, and Pacific (ACP) sugar protocol. The sugar protocol expired in September 2009; it had provided a group of ACP countries guaranteed access to the EU market for fixed quantities of sugar at preferential prices. Provisions were made to allow for a gradual adaptation to the new reality from October 2009 to October 2015. During this period, major changes were introduced: guaranteed prices decreased and were eventually eliminated while quotas increased (i.e. higher volume at lower prices). These changes took full effect from September 2017. The EU preferential prices provided a profitable market to ACP sugar producers, which have historically received revenue between 20%– 40% above global market rates.

APPROACH AND METHODS

The evaluation is based on the Fairtrade Theory of Change (ToC). This traces the causal chain that links Fairtrade support activities through to effects and impacts on farmers. The starting point for the evaluation is the full Fairtrade ToC designed by Fairtrade, for all SPOs, for each commodity that Fairtrade supports around the world. The causal paths were identified and critical activities,

¹ Reference to the mill in this study indicates the BSI Mill at Tower hill, Orange Walk, Belize: Reference to the miller is the legal entity that owns and manages the mill

outputs, and outcomes identified. A multi-strategy research design was employed using both quantitative and qualitative data collection methods. This research design provided the framework to assess the extent to which Fairtrade interventions have achieved the anticipated outputs, outcomes, and impacts in Belize, as theorised in the ToC.

The research design was planned in consultation with partners at RMI, ODI, and Fairtrade International. Data collection was carried out over the duration of two site visits: a preliminary visit by RMI consultants in January 2018, and a three-week visit in June 2018 incorporating the assistance of a team of Belizean enumerators. Data analysis was predominantly handled by the RMI team in the subsequent months.

For the quantitative survey, the population sample was every farmer that was a member of one of the three farmers associations at the time of survey. A sampling frame was compiled by attaining a complete list of member farmers from all three associations. 180 farmers in total were surveyed, 60 from Belize Sugarcane Association 01 (BSCA 01), 58 from Belize Sugarcane Association 2 (BSCA 02), and 62 from Belize Sugarcane Association 03 (BSCA 03).

Key informant interviews were conducted in English with stakeholders across the industry, including key personnel within all three Farmers Associations, Belize Sugar Industries (BSI), Sugar Research and Development Institute (SIRDI), and members from the Sugar Industries Control Board (SICB). Interviews were semi-structured and unstructured, allowing for flexibility in the flow of the conversation between RMI interviewees and informants to cover a range of topics providing context for understanding the Belize sugar industry.

A number of focus group discussions were also staged among members of key interest groups, including women, youth, and a group of male farmers. Such group interviews involving between 6-12 members were designed to generate discussion and debate around key issues that had arisen through survey and qualitative interview responses. Topics covered included the division of labour and decision-making power within family farming structures, the power dynamics of decision-making and participation within farmers associations, perspectives on trends within the industry, and the role of youth and importance of succession planning in securing the industry's future.

In evaluating the impact of Fairtrade interventions, the research strategy was restricted to a quasi-experimental design as there is no control group of non-Fairtrade farmers in Belize against which to measure farmers who had experienced Fairtrade interventions. Without a control group, some interview questions in both quantitative and qualitative sections of the research relied on the recall of respondents to reflect back to their experience of sugar farming before Fairtrade and compare it to their experience after Fairtrade. Recall can of course be imperfect; further, not all farmers interviewed were producing in Belize prior to the involvement of Fairtrade.

SUMMARY OF FINDINGS

OVERALL SATISFACTION WITH FAIRTRADE IN BELIZE

Overall, there was a high level of satisfaction among respondents with the inputs, outcomes, outputs, and impacts of Fairtrade in Belize. Fairtrade is well known by the farmer community, with premium support and social projects as the main impacts mentioned by farmers. Fairtrade support is appreciated and respected, and the support provided by CLAC² seems well integrated with support provided by the mill (BSI), SIRDI, and other support institutions. CLAC support seems well aligned with the Fairtrade Theory of Change that is used as a template for support. This report focusses very narrowly on the impact that Fairtrade has had on the farmers and community in Belize as is its aim; however, it should be noted and acknowledged that many of the changes seen have been a result of the collaboration of many stakeholders.

The introduction of Fairtrade in Belize has helped alter the mindset of farmers in Belize. The growing of sugar is considered by most respondents to be a part of Belizean culture that has intergenerational participation and has remained the primary livelihood of thousands of families for several generations. As such, there is strong resistance to change where people are reluctant to alter practices that they perceive as intrinsically linked to culture and that have been practiced and accepted over generations. Fairtrade, bringing a defined set of performance criteria and new ways of doing things coupled with the premium as a positive inducement, has overcome some of the resistance to change and shown some of the positive benefits of change. In an interview with a representative at SIRDI, a respondent asserted

“The introduction of new technologies in the Belizean sugar industry is generally met with resistance in two ways: in the head (psychological resistance to change), and the pocket (monetary risk aversion). Working with Fairtrade has alleviated the monetary risk aversion as the premium has been used to cushion this. This has broken down the psychological resistance to change. Without this partnership with Fairtrade many new technologies would not have been introduced and mainstreamed in Belize” –Key stakeholder

Fairtrade has become synonymous with the Sugar Industry in Belize and many believe that the Sugar Industry would not be where it is today without the interventions of Fairtrade.

While many things have gone right regarding the impact that Fairtrade has had in Belize, there are still a few areas of concern.

The first area of concern relates to the low productivity and high cost of production of the farmers in Belize. Yields obtained by farmers are among the lowest in the region and the cost to produce sugar is amongst the highest in the region. This must become a central area of focus in the coming years if the industry as a whole is going to grow and prosper.

The second area of concern centres around industry structure: The current structure of the industry means that there can be very little benefit from production-enhancing initiatives such as mechanical harvesting. Learning from other industries around the world that have successfully been restructured could help the industry and all of its stakeholders.

² CLAC is one of the Fairtrade Producer Networks. Producer networks are regional associations that Fairtrade certified producer organizations may join if they wish. They represent small-scale producers, workers, and other producer stakeholders. Sourced from: <https://www.fairtrade.net/about/producer-networks>.

The following table shows a summary of the key findings from the study. These findings are fully substantiated in the main body of the report:

Table A Fairtrade support in Belize and its immediate results

Farmer organization		
Before Fairtrade	Fairtrade activities	Immediate Results
One Farmers Association established in 1959 focusing on statutory sugar-related issues	Training and one-on-one producer support and institutional strengthening, assistance with organizing governance and administrative systems.	Three Farmers Associations each working in a transparent manner with the support of their members. Forward-looking and making plans beyond Fairtrade
Weak structures and reporting. No audits and accountability to members	CPAs trained in: <ul style="list-style-type: none"> • democratic procedures • management systems 	Improved democracy and accountability in Farmers Associations Regular communication and contact with members.
Farmers Associations providing very little training to members	Support in Social, Environmental, and Production training	Farmers Associations providing on-going training in all aspects relating to the Fairtrade standard and productive aspects of sugarcane production Farmers' knowledge base improved Farmers more willing to change and adapt to the changing context of the sugar industry in Belize
No Farmers Association support staff in the field	Fairtrade premium	All Farmers Associations are able to employ a full complement of administrative and support staff
Farmers Association not involved with any development projects for members or the community	Resources and information to implement and manage projects Project management systems	A number of projects implemented leading to a changing social and environmental landscape Change in operating procedures, fertilization, herbicide use, froghopper control
Labour working conditions poor and not monitored	Farmers trained in Fairtrade principles; Farmers Association and farmers trained in decent work practices.	Safer working conditions, protective clothing being used, water available for workers
Child labour a common problem	Farmers Associations trained in issues around child labour	Increased awareness of child labour issues Reduction in overt child labour practices ³

³ No youth < 18 years of age was interviewed. We cannot therefore make any absolutely conclusive statement that child labour has been eradicated, as this was beyond the scope of this research. This study was not an audit with formal field inspections. The conclusions given are the views of the respondents and researchers' interpretations, which are not incontrovertible facts.

	Farmers association guided to implement a world class support framework	
Paraquat still being used	Paraquat banned as part of the Fairtrade standard	Paraquat use significantly reduced
Unsafe practices around chemicals common Skin & health problems	Farmers trained in safe handling, use, and disposal of chemicals. Farmers given protective clothing, first aid kits. Trainings regarding skin and health problems	Unsafe practices very rare. Safe practices much more common. Farmers knowledgeable about health and environmental hazards.
Improper and insufficient use of fertilizers and weedicides Fertilizers applied with no soil testing	Soil survey undertaken Premium used to supply correct quantities and types of fertilizers and herbicides	Fertilizer use according to soil survey results Correct herbicides used Better yields obtained Less environmental leaching
Froghopper a significant threat to the industry Only chemical use in froghopper control	Training in IPM of froghopper control Supply of correct chemicals Supply of correct equipment	Reduced incidence of froghopper attack
No Premium	Sugar sold as Fairtrade	Premium earned on Fairtrade sugar sales. More than Bz\$60 million earned in Fairtrade premium since 2008.
No Standards	Fairtrade standards & FLOCERT audits (and other fees ?)	Audits carried out every year. Certification maintained Farmers Associations talking to other certification bodies about expanding their certification
No Farmers Association support of local communities	Organized Farmers Association decide about FT Premium use	Community projects implemented 8% of Fairtrade Premium on community projects

1. INTRODUCTION AND CONTEXT

1.1 AIMS OF THE STUDY AND STRUCTURE OF THE REPORT

This report has been prepared at the request of Fairtrade International. It presents the results of an evaluation of the impact of Fairtrade certification and support to sugarcane farmers in Belize. The aim of the evaluation was to assess the effectiveness of Fairtrade as an intervention to support improvements in the economic, social, and environmental sustainability of sugarcane production in Belize.

Field studies for the evaluation took place in January and June of 2018. The January visit was to get to understand the broad context of Fairtrade in Belize, to meet farmers and other stakeholders, and to ensure that the quantitative and qualitative questionnaires were aligned to the situation and operations on the ground. The June visit was undertaken to execute the research. A complete description of the research methodology used to undertake this study is explicated in Chapter 3.

The remainder of Chapter 1 looks at the Belize sugar industry in more detail, providing context for the interventions of Fairtrade from an industry perspective.

Chapter 2 gives background information on Fairtrade and the interventions that Fairtrade has undertaken in Belize. This chapter also looks at how these interventions link to the Fairtrade Theory of Change (ToC). This chapter then discusses the work of the other two main industry stakeholders, the Sugar Industry Research and Development Institute (SIRDI) and the Belize Sugar Industries (BSI) mill. It is important to recognize that while the focus of this report is on Fairtrade interventions, other stakeholders such as SIRDI and the mill are also involved with additional activities aimed at promoting change in the industry.

Chapter 3 describes the methodology used to undertake the research.

Chapter 4 presents the findings. It begins by summarising the changes resulting from Fairtrade support. It then assesses the effects of this support under the headings of organisational and social, agricultural and environmental, and economic effects.

In this chapter, not all findings reported are necessarily significant: the immediate results of activities that have resulted from Fairtrade support are reported even when, as in some cases, the effects have been minor. Nor is it possible to explain why some activities have had the effects described: the household survey was not brief but not long enough to pose all the questions that might have been asked.

Chapter 4 concludes, summarising the key findings and discussing some of their implications.

1.2 THE SUGAR INDUSTRY IN BELIZE

1.2.1 Brief History of the sugar industry in Belize⁴

Sugar cane was introduced into the area which is now the Corozal District of Belize in 1848 by immigrants from the then independent Republic of Yucatan, now the State of Yucatan in south eastern Mexico. Following the emancipation of Central America from Spanish rule, Great Britain

⁴ Adapted from: A History of the sugar industry in Belize: BSCA 01- Mr. Ramon Aban, Chairman San Joaquin Branch, Corozal District.

claimed control over the territory of Belize and governed the territory as a British Crown Colony known as British Honduras from 1862, with an independent Belize being established in 1981.

The economic interests of the British were initially concentrated around logging rather than agricultural cultivation; however, with an influx of immigrant settlers to Belize, sugarcane soon became the crop of choice. The sugar industry saw significant expansion and formalisation with the arrival of American expatriates during the late 1860s and 1870s. And by the late 1890s and early 1900s, immigrants from East India, brought in initially as indentured labourers, achieved success through utilising local and migrant labour populations. By the 1900s, the Corozal and Toledo districts had over forty sugar mills.

As sugar beet production began to flourish in Europe in the late 19th century, sugar profitability declined because of lower prices and less export. This led to a return migration to the United States of many American expatriates as a result of poor economic conditions. From then on, the settlements were dominated by East Indians, who are still prominent in contemporary Belize. Eventually, the East Indians were able to make their own contracts for their labour or to acquire their own land for growing crops. This was mainly because the previous landlords were now-repatriated Americans with no planned return to Belize. The Rural Land Utilization Tax was introduced by the government of Belize in 1966 to reduce absentee land ownership, giving the current residents a chance to use and own land that was currently undeveloped. In the course of the 20th-century, the East Indians dominated the sugar industry while also producing rum. Due to a decline in the production of sugar cane related products, most of the East Indians shifted to rice cultivation.⁵

Nevertheless, the sugar industry survived due mainly to the efforts of Belize Sugar Industries Ltd. (BSI). The company bought the Tower Hill Sugar Factory in Orange Walk in 1963 and has since been promoting sugar cane in Belize.⁶ Since 2012, the Florida-based American Sugar Refining (ASR) Group holds a majority interest in BSI.⁷

1.2.2 Legal framework: sugar related acts

The sugar industry in Belize currently operates under the Sugar Industry Act no. 27 of 2001. This act was passed to enable the following:⁸

- To make new and better provision for the administration and control of the sugar industry in Belize;
- To provide for the organisational structure of the sugar industry through the establishment of the Sugar Industry Control Board, the Sugar Cane Production Committee, the Sugar Industry Research and Development Institute, the Sugar Cane Quality Control Authority, and the Belize Sugar Cane Farmers Association;
- To provide for the establishment of the Sugar (Industry Development) Fund and the Sugar (Labour Welfare) Fund;
- To further consolidate the laws regulating the control of the sugar industry and to repeal the Sugar Cane Industry (Control) Act, Chapter 283 of the Substantive Laws of Belize, revised edition 2000, and the Sugar (Special Funds) Act, Chapter 219 of the Substantive Laws of Belize, revised edition 2000

⁵ Campbell, Rachel, Stine, Roy, Debbage, Keith, Nelson, Elisabeth, and Stine, Linda, *Transformations in the Belize Sugar Industry: From Colonial Plantations to a Vital Tourist Industry*, 2013.

⁶ ASR Group. "Belize Sugar Industries." <https://www.asr-group.com/article/belize-sugar-industries>

⁷ Sugar Cane Growers Cooperative of Florida, "ASR Invests in Belize," <http://www.scgc.org/asr-invests-in-belize/>

⁸ Pers comms:SIRDI

The act was amended in 2015 (No 1 of 2015). This amendment allowed for the following:

- Replacing the definitions of "association" and "cane farmer";
- Providing differently for the association and representation of cane farmers;
- Providing anew for the registration of cane farmers and associations;
- To provide anew with respect to the Belize Sugar Cane Farmers Associations and the registration of cane farmers. Each association registered under this Act shall maintain a register of its members and each cane farmer shall register.

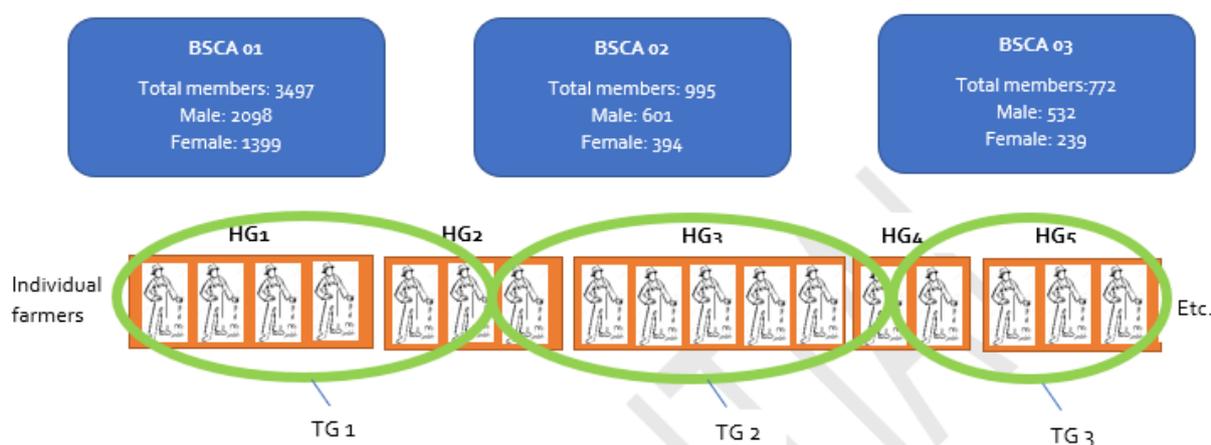
1.3 ORGANIZATION OF THE SUGAR INDUSTRY IN BELIZE TODAY

The industry in Belize is made up of three main industry stakeholders: The first stakeholder is the farmer community. The farmers are grouped into harvest groups (HG), test groups (TG), and Farmers Associations. Currently there are 274 harvest groups, 19 test groups and 3 Farmers Associations. The primary purpose of the harvest groups is to provide logistical support to farmers through a harvest group leader system. This support is focussed on harvesting and haulage but may also include other areas of sugarcane production. Some harvest groups supply their members with inputs on credit while others provide crop husbandry services.

The test groups have been created to align deliveries with quality and to make payments according to the quality received from each group.

The Farmers Associations are the apex farmer bodies and are responsible for the support, lobbying and overall welfare and sustainability of the farmers. The Farmers Associations are the institutions through which Fairtrade operates and are the institutions that have the biggest influence with regards to the impact of Fairtrade in Belize.

Figure 1.1 Farmer Organizational Setup



The sugar mills are a second group of main industry stakeholders. "Belize has two sugar mills, one situated at Orange Walk, owned and operated by ASR Group; and the second in the Cayo District in the west of Belize, owned and operated by the Santander Group. For the purposes of this study, only the ASR Group operated mill is considered significant as they are the only Fairtrade registered mill and all of the Fairtrade farmers deliver to this mill.

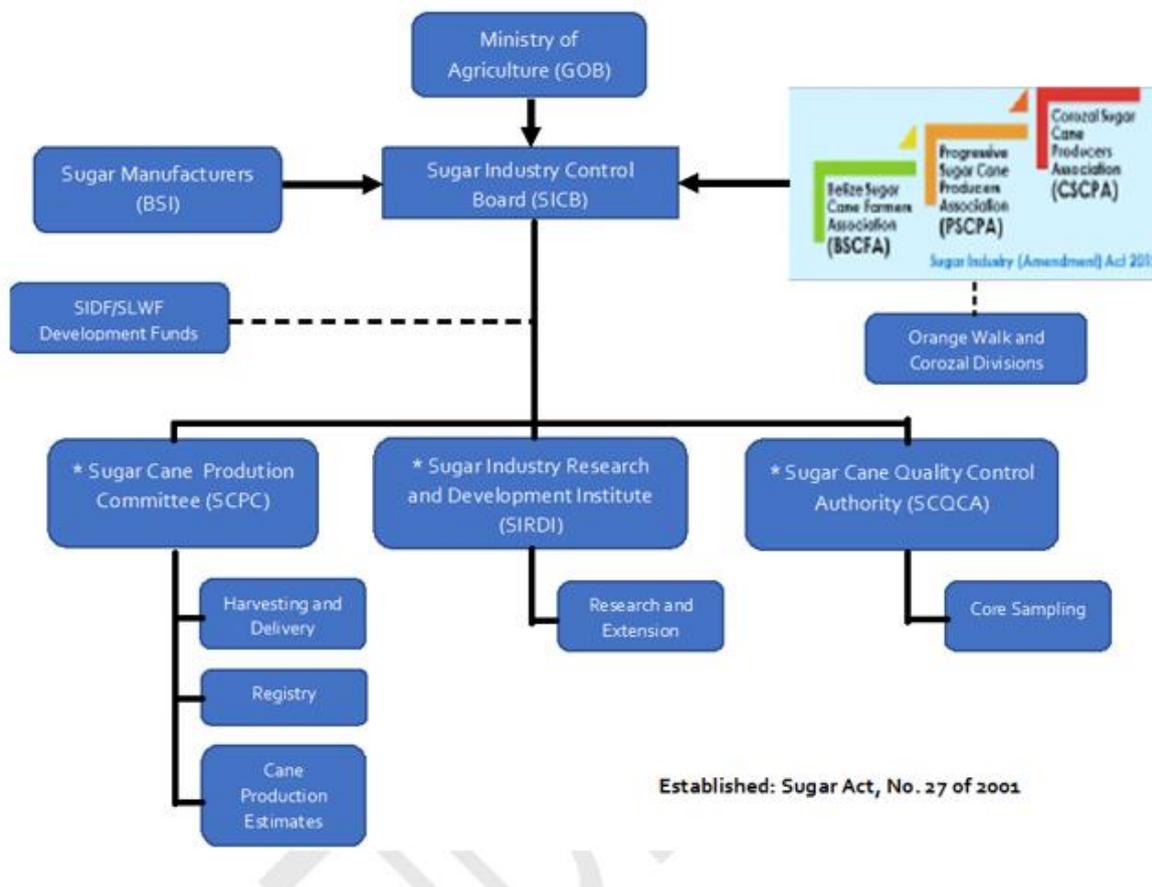
The sugar mill at Orange Walk was purchased by the ASR Group in 2012 when they purchased the shares of BSI, which was until then owned by the government of Belize. The sugar mill crushes an average of 1.4 million tonnes⁹ of sugar cane annually producing around 140,000 tonnes of sugar. The mill also produces up to 30Mw of electricity. Recently, ASR has invested in significant upgrades to the mill to increase the production of direct consumption sugars.

The third group of stakeholders include institutions created through the Sugar Act to regulate and promote the sugar industry in Belize. These institutions include the following:

1. The Sugar Industry Control Board (SICB). This is the institution tasked in the act with the overall control of the sugar industry in Belize. The SICB has a number of institutions reporting through it, including:
 - a. The Sugar Cane Production Committee (SCPC). This committee is responsible for the allocation and monitoring of all production aspects in Belize;
 - b. The Sugar Industry Research and Development Institute (SIRDI). This institute is responsible for all research and development aspects of the sugar industry. SIRDI also manages a number of extension and developmental projects and delivers a significant amount of training to farmers in Belize; and
 - c. The Sugar Cane Quality Control Authority (SCQCA). This authority is tasked with the testing and sampling of sugarcane at the mill.

⁹ 1 tonne=1000kg Metric tonne used in Belize

Figure 1.2 Belize Sugar Industry Structure



1.3.1 Performance of the Belize Sugar Industry

Industry production

Sugar production in Belize has fluctuated over time, as can be seen in Figure 2.2 below. These fluctuations are driven by many factors including climate, milling capacity and efficiency, farmer viability, and farmer organization. Since Fairtrade was introduced to the industry in 2008, production has trended higher with an all-time record crush for the country of just over 1.31 million tonnes of cane achieved in the 2016 season.

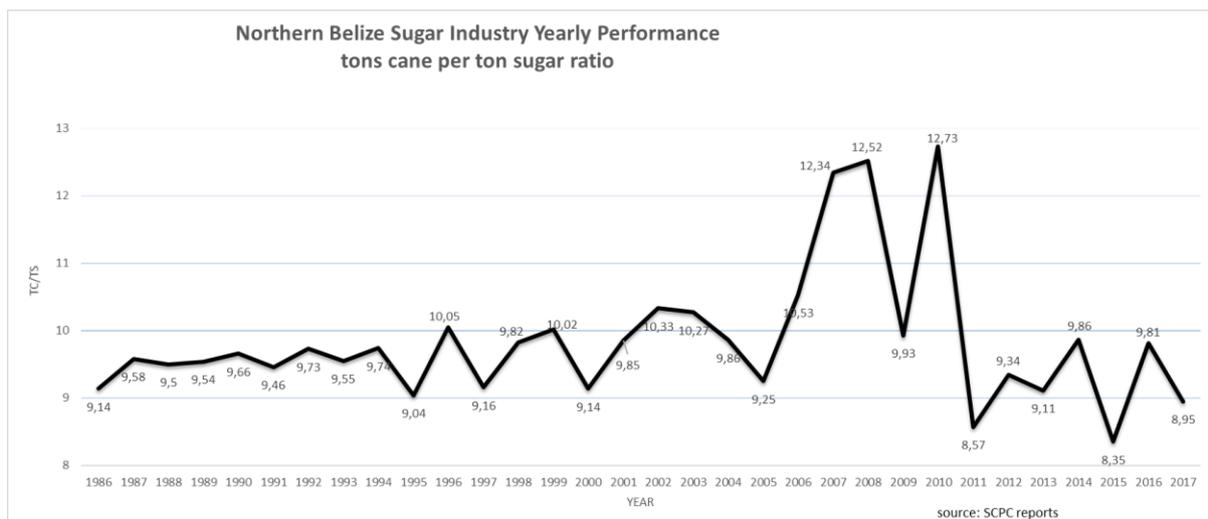
Figure 1.3 Northern Belize Sugar Industry Yearly Performance



Cane Quality

Sugar cane quality is measured by the tonnes of cane that are required to produce a tonne of sugar; this ratio was below 10 through the late 1990s until 2005 when quality started to decline. It rose to a high of 12.7 in 2010. This rise in the ratio of cane to sugar is an indication of a low sucrose level in the sugarcane produced. Since 2011, the cane-to-sugar ratio has improved significantly. There could be many reasons for this, but cane quality improvements generally occur when better husbandry is practiced in an environment of improved cane logistics and overall industry performance.

Figure 1.4 Northern Belize Sugar Industry Yearly Performance tonnes cane per ton sugar ratio



1.3.2 Cost of production

Producers in Belize produce sugarcane under different production systems and using different contracting methods. A number of production systems were observed, ranging from low-input/low-output subsistence systems to input farmer systems (where farmers operating on small pieces of land apply inputs based on a number of economic and environmental factors pertinent to a particular season) through to large scale commercial operations.

Each system has a different cost of production profile. It was not the purpose of this research to analyse in any great detail the cost of production but rather to get a broad understanding of the costs in order to access the relative impact that the Fairtrade premium has on the economics of cane production in Belize.

The following tables indicate the cost of planting, maintaining and harvesting sugarcane in Belize. These figures have been obtained from SIRDI and are used as part of the training material developed by SIRDI to train farmers on financial matters.

Table 1.1 Ratoon Maintenance Cost Per Acre of Sugar Cane

Ratoon Maintenance-28-30 TCA

All amounts:(Bz\$)

Activities:	Type	\$/Acre	\$/ton	Comments
Fertilisation				
Fertilizer	Material	\$172.00	\$6.88	4 sacks/acre
Application (with cultivator or Phytosanitary harrow)	Mechanical	\$35.00	\$1.40	
		\$207.00	\$8.28	
INTERGRATED WEED CONTROL				
Pre-Post-emergent: Prowl/Merlin/Alion/Plateau Diuron +2.4-D	Material	\$60.00	\$2.40	A cocktail for weeds present
Application	Mechanical	\$20.00	\$0.80	Boom sprayer
Hard water and pH Corrector	Material	\$1.00	\$0.04	60 cc/acre
Cultivation*	Mechanical	\$35.00	\$1.40	
		\$116.00	\$4.64	
INTERGRATED PEST CONTROL				
Phytosanitary harrow*	Mechanical	\$20.00	\$0.80	Egg population control
Frog hopper control (metarhizium)*	Material	\$10.00	\$0.40	1 dose per hectare
Application	Mechanical	\$10.00	\$0.40	Cannon sprayer
Residue Management (Trash lining)	Mechanical	\$16.00	\$0.64	No re-burning
Residue Management (Rotary tilling)*	Mechanical	\$20.00	\$0.80	No re-burning
Maintenance of fire path rows	Mechanical	\$10.00	\$0.40	Bush hogging
		\$86.00	\$3.44	

TOTAL COST FOR MAINTENANCE		\$409.00	\$16.36
-----------------------------------	--	----------	---------

*=Executed if deemed necessary after field inspection.

Table 1.2 Cost to Replant 1 Acre of Sugar Cane (Industry Service Providers)

Activities:	Type	\$/Acre	\$/ton	Comments
LAND PREPARATION				
Subsoil (2 pass)	Mechanical	\$180.00	\$6.88	Primary land preparation
Plough (1 pass)	Mechanical	\$125.00	\$3.13	Primary land preparation. tractor (high power 120hp min) + plow (disc 32"-36")
Plough (2nd pass)*	Mechanical		\$0.00	Primary land preparation
Harrow (1st pass)	Mechanical	\$55.00	\$1.38	Disc diameter 28"
Harrow (2nd pass)	Mechanical	\$45.00	\$1.13	Disc diameter 28"
Furrow	Mechanical	\$40.00	\$1.00	3 row furrow opener will reduce cost
		\$445.00	\$11.13	
PLANTING				
Seed cane (8-10 months)	Material	\$300.00	\$7.50	Clean and quality seed (1 task seed/acre planted)
Cutting of seed cane/planting	Labour	\$350.00	\$8.750	Cutting. loading. transportation. spread. chipping. application of fertilizer
Fertilizer	Material	\$60.00	\$1.50	Depend on the soil sample result
Covering of see	Mechanical	\$40.00	\$1.00	2-3 inches of soil covering
		\$750.00	\$18.75	
FERTILIZATION				
Second application	Material	\$120.00	\$3.00	35-45 days after planting (2 sacks)
Second application	Mechanical	\$35.00	\$0.88	Incorporated within the soil (side dressing); and cultivation (weed control if necessary)
		\$155.00	\$3.88	
WEED CONTROL				
Pre-post-emergent: Diuron + 2.4-D	Herbicide	\$50.00	\$1.25	Cocktail should have 80-90 days control applied immediately after planting
Application of herbicide	Mechanical	\$40.00	\$1.00	Boom sprayer
Cultivation	Mechanical	\$35.00	\$0.88	If necessary 60-90 days
Maintenance of guard rows	Mechanical	\$25.00	\$0.63	Bush hogging

	\$15000	\$3.75
TOTAL COST FOR ESTABLISHING 1 ACRE OF SUGARCANE	\$1.500	\$37.50

*=Executed if deemed necessary after field inspection

Table 1.3 Cost to Replant 1 Acre of Sugar Cane (SIRDI Services)

Activities:	Type	\$/Acre	\$/ton	Comments
<u>LAND PREPARATION</u>				
Subsoil (1 pass)	Mechanical	\$100.00	\$2.50	Primary land preparation. tractor (high power 120hp min) +plow (disc 32"-36")
Subsoil or 2 nd cut plough	Mechanical	\$100.00	\$2.50	Primary land preparation
Harrow (2 pass)	Mechanical	\$75.00	\$1.188	Disc diameter 28"
Furrow	Mechanical	\$35.00	\$0.88	3 row furrow opener
		\$310.00	\$7.75	
<u>PLANTING</u>				
Seed cane (8-10 months)	Material	\$300.00	\$7.50	Clean and quality seed (1 task seed/acre planted)
Cutting of seed cane/planting	Labour	\$250.00	\$6.25	Cutting, loading, transportation, spread, chipping, application of rooting hormone and application of fertilizer
Rooting hormone	Material	\$20.00	\$0.05	
Fertilizer	Material	\$60.00	\$1.50	Depend on the soil sample result
Covering of seed	Mechanical	\$40.00	\$1.00	2-3 inches of soil covering
		\$575.00	\$14.38	
<u>FERTILIZATION</u>				
Second application	Material	\$130.00	\$3.25	35-45 days after planting (2 sacks)
Second application	Mechanical	\$35.00	\$0.88	Incorporated within the soil (side dressing); and cultivation (weed control if necessary)
		\$165.00	\$4.13	
<u>WEED CONTROL</u>				
Pre-emergent: Alion. Prowl H2O	Material	\$80.00	\$2.00	Cocktail should have 80-90 days control applied immediately after planting
Application of herbicide	Mechanical	\$25.00	\$0.63	Boom sprayer
Cultivation	Mechanical	\$35.00	\$0.88	If necessary 60-90 days

Maintenance of guard rows	Mechanical	\$10.00	\$0.25	Bush hogging
		\$150.00	\$3.75	
TOTAL COST FOR ESTABLISHING 1 ACRE OF SUGARCANE		\$1,200.00	\$30.00	

Harvesting, loading and haulage costs are estimated to be in the region of Bz\$35/ton of cane. Based on the above, the direct cost to produce and deliver a ton of cane to the mill is approximately BZ\$51/ton of sugarcane. Taking into account the replanting costs paid off over the life of the crop (6-8 years), an indicative breakeven price would need to be around BZ\$55/ton of cane, made up of the maintenance costs of BZ\$16/ton plus the harvesting and haulage costs of BZ\$35/ton and repayment of the planting cost at BZ\$4/ton/annum.¹⁰

Any price received that is less than this would lead to farmers not being financially able to carry out all of the agricultural practices needed for the performance necessary to remain in cane production.

1.3.3 The 2015 Commercial Agreement

Negotiations around the eventual settlement of the current commercial agreement were initiated by the farmers, who submitted a petition for review after ASR became a majority shareholder of BSI. The issues submitted in the petition were ownership of the sugar after the weighbridge, the payment of a Bz\$10/ton of bagasse by the mill to the farmers, and the handling, delivery, and quality testing of the cane. While all of the issues raised received attention during the negotiations, the issue of payment for bagasse received the most attention.

ASR and the only farmers association that existed at the time each nominated a negotiating team which led the negotiations.

The outcomes of the negotiations, which took two years to complete, is the current commercial arrangement with the following main features:

1. A DOP of 65%:35% in favour of the farmers (unchanged);
2. A payment for bagasse of Bz\$0.49/ton of sugarcane delivered; and
3. A revised delivery schedule with an increase in the number of test groups.

The negotiations were disruptive in that they negatively impacted the cane deliveries in the 2013/14 and 2014/15 seasons, resulting in carryover¹¹ cane being experienced by the farmers. Negotiations around the new commercial agreements and the disruptions caused to the sugar industry were a direct catalyst in the formation of the two new farmers associations in 2015.

Negotiations between the mill and farmers are still on-going. The mill has produced a strategy paper outlining a number of initiatives to ensure the long-term sustainability of the sugar industry in Belize with the following main features:

¹⁰ All costs indicative based on an average growing scenario and average distance to the mill. All figures provided by SIRD.

¹¹ Carryover cane is cane that is ready to be delivered to the mill for grinding in a particular season but, due to mill capacity, the late start of the season, or some other event, cannot be ground that season and is thus "carried over" to the next season.

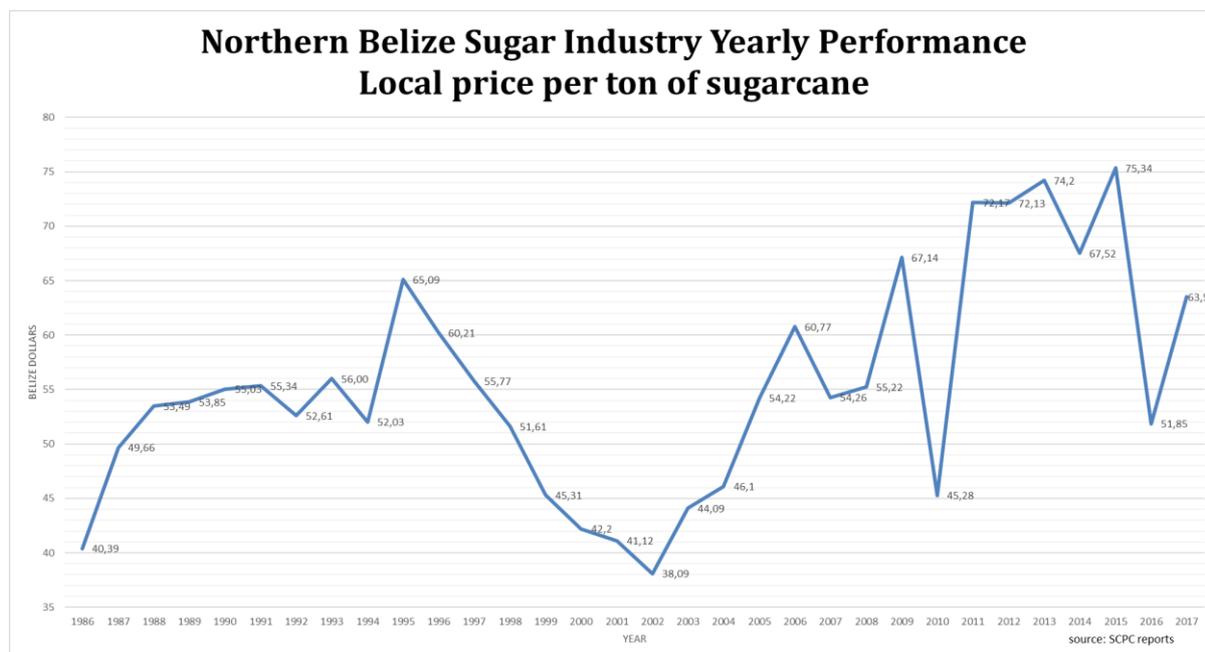
1. A New Commercial Agreement: a long-term, comprehensive purchase agreement between cane farmers and the mill which provides certainty for both parties to underpin future investment decisions.
2. Improved Crop Productivity: restructuring the cane industry to improve efficiency and cane yields by establishing better co-ordinated planting, husbandry, harvesting, and delivery processes; introduction of new cane varieties and systems that permit delivery of mature, clean, and fresh cane to the mill; development of an effective cane quality testing program that provides farmer-specific results allowing individuals to evaluate performance based on field-specific “best management practice”; and increased use of mechanical harvesting. These improvements would be complemented by the effective utilisation of the Sugar Industry Management Information System (SIMIS).
3. Cane Farmer Credit Facility: timely, affordable credit for cane farmers, sufficient in scale to permit farmers to make the necessary inputs to improve their productivity under lending terms that support sustainable and competitive farming.
4. Cane Farmer Extension Services: provision through relevant industry stakeholders of dedicated extension services and technical support to ensure proper advice, help, and information gathering is available to improve farm practices and industry decision making.

1.3.4 Cane Price

Farmers are paid against a division of proceeds in Belize. A simple explanation of this division of proceeds is that the total revenue from the sale of sugar is pooled. From this pool, marketing and logistics costs are deducted and the remaining revenue is shared at a ratio of 65% for the farmers and 35% for the mill. This is a fairly standard way of determining cane revenue to farmers in the sugar industry worldwide. The current ratio of 65%:35% was negotiated as part of the 2015 commercial agreement; Fairtrade supported the farmers associations in these negotiations.

The diagram below shows the cane price paid to farmers over time. The price has fluctuated from a low of BZ\$38 per ton of cane to a high of BZ\$75 per ton of cane. This price uncertainty has created a lack of confidence among the farmers to invest in their crop.

Figure 1.5 Northern Belize Sugar Industry Yearly Performance: Local price per ton of sugarcane



Since the negotiation of the 2015 commercial agreement, farmers have been paid for their bagasse. This payment is linked to the sugar price and currently contributes around BZ\$0.49 per ton of sugarcane. While the payment for bagasse was viewed as an important achievement for the farmers associations after a period of negotiations with the mill, revenue received from bagasse has only formed a relatively small percentage of farmer income.

1.3.5 Regional (CARICOM) competitiveness of the Belize Sugar Industry

The analysis given below is based on our own research and all of the engagements, interviews, and group discussions held in Belize. The purpose of this chapter is to understand the macro issues that are currently occurring in the industry and how these could enhance or hinder the impact that Fairtrade has on the industry.

One of the main strengths of the sugar industry in Belize is its long history. Belize also has over 75000 acres¹² of good quality arable land to produce the sugarcane required by the industry. Many people in Northern Belize see the growing of sugar as part of their history and culture and many producers are the descendants of families who have been growing sugar cane consistently for generations; this history has created a strong knowledge base around the growing and milling of sugar in the country.

The production of sugar and sugar-related activities contribute approximately 8-10% to the GDP¹³ of the country and is therefore an industry watched very closely by government.

While the purchase of BSI by ASR Group has been interpreted differently by different actors across the sugar industry, from an economic perspective, there is no doubt that it has been a positive step for the industry, as ASR has brought the much-needed capital investment necessary to upgrade the mill and to begin the conversion process to producing more direct consumption sugar. The

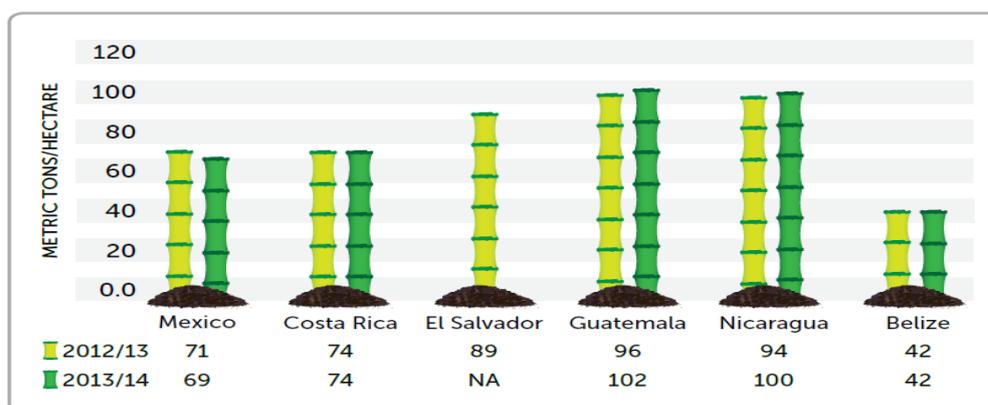
¹² SIRDI SIMIS survey results

¹³ ASR Strategy document: Transforming Sugar Production in Belize into a Modern, Sustainable Green model, Contributing to Jobs, Growth and Energy Security

production of direct consumption sugar is seen as a strategy to replace some of the lost revenues formerly gained through Belizean access to sugar sales under the African, Caribbean, and Pacific (ACP) sugar protocol. The sugar protocol expired in September 2009; it had provided a group of ACP countries guaranteed access to the EU market for fixed quantities of sugar at preferential prices. Provisions were made to allow for a gradual adaptation to the new reality from October 2009 to October 2015. During this period, major changes were introduced: guaranteed prices decreased and were eventually eliminated, while quotas increased (i.e. higher volume at lower prices). These changes took full effect from September 2017. The EU preferential prices provided a profitable market to ACP sugar producers, which have historically received revenue between 20%– 40% above global market rates.

However, following these reforms to the market, the sugar cane industry faces many new challenges. The principal one is how to improve production efficiency of sugar by over 30% above current levels in order to make Belize sugar production costs competitive against prevailing global market prices. Yields in Belize are the lowest in the CARICOM¹⁴ region on a per acre basis.

Figure 1.6 Sugar Cane Yields in the Region of Belize



Source: USDA Global Agricultural Information Network

Further, Belize sugar cane productivity is among the lowest in the world. Yields in Belize are around 17 tonnes per acre¹⁵, while other regional industries produce up to 45 tonnes per acre. This is due to a number of factors of varying significance including:

- The failure of the industry to follow best farming practices to ensure high sugar cane yields and quality cane, due to the use of old and traditional practices;
- Insufficient affordable credit for farmers to provide necessary inputs and insufficient technical advice and assistance to help them improve productivity;
- A historical mistrust between cane farmers and mill, which prevents effective collaboration for industry development;
- Structural problems in the industry that prevent it from benefiting from efficiencies of scale or mechanised farming methods. These problems include geographically dispersed farmers belonging to different Farmers Associations and expensive

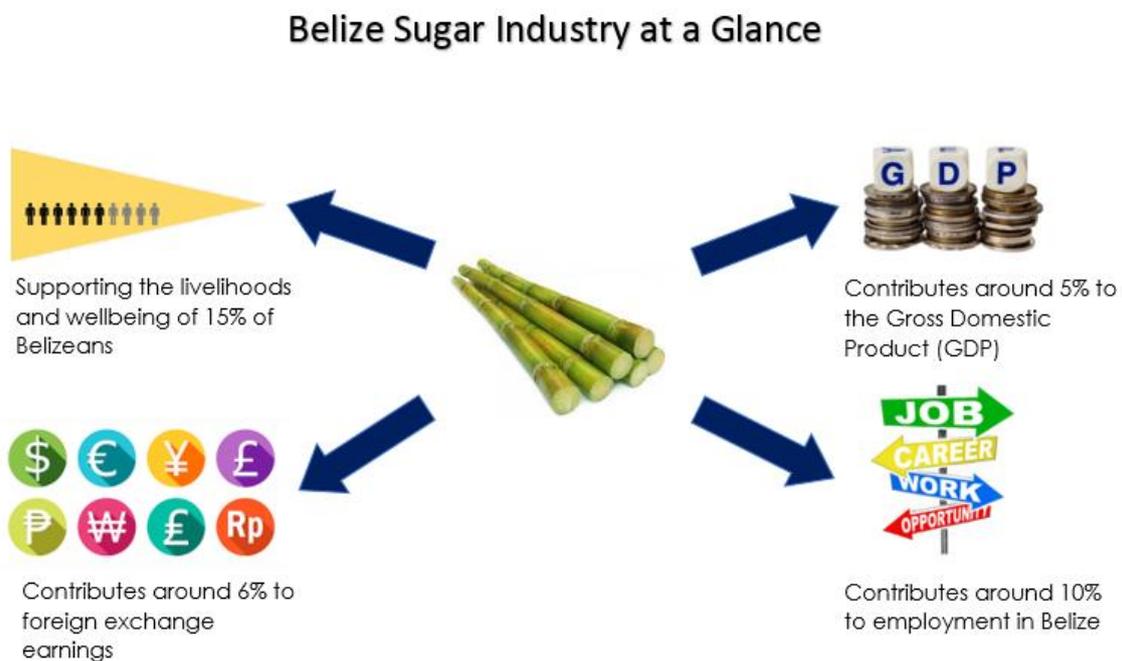
¹⁴ CARRICOM-Caribbean Community: CARICOM comprises states that are considered developing countries, in the Caribbean, and except for Belize, in Central America and Guyana and Suriname in South America, all Members and Associate Members are island states.

¹⁵ ASR crop statistics

route to market requiring the transport of the raw sugar on barges downriver to be loaded on ships moored at sea.

While Belize sugar production costs are considerably lower than some other Caribbean producers on a per acre basis, the industry needs to improve its productivity and further lower its costs substantially to be able to compete effectively at global market prices, which are currently between 14 – 16 US\$ cents per pound. Production costs in Belize are presently around 20 – 22 US\$ cents per pound¹⁶. A combined strategy of increasing production and decreasing costs must be implemented for Belize to get on a competitive footing with other producers in the region.

Figure 1.7 Belize Sugar Industry at a Glance



Source: ASR + BSI Strategy Paper (2014)

¹⁶ ASR strategy document 2017

2. FAIRTRADE ACTIVITIES IN SUPPORT OF THE THEORY OF CHANGE

Fairtrade has a comprehensive support strategy assisting farmers in Belize. This support is delivered to the country's three Farmers Associations through the Fairtrade regional producer network, CLAC. Fairtrade has identified six main thematic areas of focus for its support to Farmer associations. These thematic areas are aligned with the Fairtrade ToC. The support occurs through regular visits to Belize from CLAC representatives and is programmed to ensure that all six thematic areas receive attention within the year.

The six main thematic areas as contained in the ToC. The CLAC representative programs his visits to producers in such a way that each of these six thematic areas is covered annually.¹⁷ The thematic areas covered are as follows:

Strengthening and organizational development

- Ensuring Farmers Associations are institutionally strong
- Ensuring Farmers Associations have good policies and procedures in place
- Ensuring Farmers Associations practice good governance and have good reporting and auditing processes in place
- Ensuring good communication between Farmer Associations and its members

1. Fairtrade Standard Management

- On-going training on the Fairtrade standard and any new standard requirements
- Pre-audit training and gap identification
- Training on benchmarking and continuous improvement

2. Financial and administrative strengthening

- Training and support on system administration and processes needed to run and manage the association and account for the Fairtrade Premium
- Communication/Information program and data management for decision making regarding need and use of premium by members
- Development of premium plan
- Development and auditing of financial statements as required by law

3. Production support

- Environmental program and alignment of activities with environmental law
- Training on Best Management Practices and sugarcane technical support
- Sugar specific indicators training and reporting to satisfy the requirements of the sugar specific Fairtrade indicators
- Combined projects with the sugar mill and other support institutions such as SIRDI

4. Securing and payment of Fairtrade premium for the sale of Fairtrade sugar

- Maintain or increase sales of Fairtrade sugar through lobbying and networking
- Promote impact of Fairtrade model
- Premium use for impact and proving impact

5. Cross cutting issues

¹⁷ Source: CLAC work plan 2017 season

Strategic Guideline	Objectives	PLAN					Responsible	
		Activities	Time					
			IQ	IIQ	IIIQ	IVQ		
Strengthening and Organizational Development	Management model	SPOs Integration						Sugar Coordinator
		Strategic Plan (for each association)	●			●		
		AgroIndustrial integration (BSI/SPOs)		●		●		
		Costs tool (with FI)			●			
	Human Talent (Capacity Development)	Strategic management and decision making Training		●		●		Sugar Coordinator
		Leadership Training		●		●		
	Communication	Communication SPOs and Industry Model						Sugar Coordinator
		Maximize CLAC/FI platforms						
Fairtrade criteria management	Criteria Compliance	SPOs status and follow-up Audits						Sugar Coordinator
		FT standards Training						
		SPO STd Consultation		●				
		Cane Producers List				●		
		FT Norms team and pre-audits				●		
Promotion and Advocacy	Promotion	SPO and business Profile		●			Sugar Coordinator	
	Incidence	Local Government				●		
Production	Productivity	Best Production Practices and exchange experiences with Cuba and Costa Rica						Sugar Coordinator
		Sugar Industry Strategic Development Plan Log Frame		●		●		
		Indicators of sugar production (SIMIS/ Quality)				●	●	

		control -core sampler-) and Data Base					
	Diversification	Projects (new alternatives) with local or external organizations					
		FT premium Projects					
Market	Product positioning	Product profile					
		Impact stories and audiovisuals					
	Service	PPRC Meeting					
		Production database updated					
Bussiness	Cane / sugar Contracts						
Crosscutting	Climate change	Individual action Plan					
	Gender						
	Child labor						
	Generational Change						

CLAC support is well planned and clearly aligns with the ToC. It is also appreciated by farmers and Association leadership.

“The support that we get from CLAC is much appreciated and helps us keep focus on our sugar business and our association”-Farmer leader

The securing and payment of the Fairtrade Premium is an important element of the Fairtrade support given to farmers and Farmers Associations, as confirmed in the findings chapter of this report. This Fairtrade Premium provides the resources to the Farmers Association for any operations over and above those required of them by the law. Before Fairtrade, their only source of revenue was levies paid by producers, which allowed them to carry out very basic statutory activities.

While the premium paid has been fixed at US\$60/ton of Fairtrade sugar sold, there are a number of externalities that often result in fluctuations in the amount of Fairtrade sugar sold and, hence, premium paid to farmers. These fluctuations make planning and programming of the use of the premium difficult.

Fairtrade sugar sales have fluctuated since first being sold in 2009 from a low of 9994 tonnes sold in 2015 to a high of 57874 tonnes sold in 2012. There are many reasons for these fluctuations, including competition for Fairtrade sales from other origins, buyers’ preferences, and international sugar prices.

The following graph shows the annual sales of Fairtrade sugar from Belize since 2011:

Figure 2.2 Fairtrade Sugar Sales



Source: SPOs Belize

Income received from the premium has fluctuated over the years. In addition to fluctuations in the amount of the Premium due to the factors mentioned above, the establishment of two new farmers associations has also reduced the amount of money each association has to work with to support its development activities. The Fairtrade Premium is shared pro-rata (based on tonnes of cane produced by each farmers association) between the three farmers' associations in Belize, meaning that the Premium has to stretch further since the establishment of these new farmers associations, due to the fixed cost of running each association.

The following table indicates the total amount of premium paid since 2011 since the division and certification of 3 SPOs rather than 1. This has fluctuated from a low of US\$ 599,640 paid in 2015 to a high of US\$3,472,432 paid in 2012.

Table 2.2 Fairtrade Sales and Distribution

Fairtrade: Sales – Premium								
Year	2011	2012	2013	2014	2015	2016	2017	2018
FT Sugar Sales (MT)	55,095	57,874	50,000	54,090	9,994	11,555	47,018	59,070
FTP (US\$)	3,305,700	3,472,432	2,999,999	3,245,376	599,640	693,276	2,821,080	3,544,178
FTP (BZ\$)	6,611,400	6,944,864	5,999,998	6,490,752	1,199,280	1,386,552	5,642,160	7,088,356
Distribution								
BSCA 01	100%	100%	100%	100%	73%	65.47%	65.38%	61.97%
BSCA 03	0%	0%	0%	0%	20%	25.58%	22.6%	25.83%
BSCA 02	0%	0%	0%	0%	7%	8.95%	12.02%	12.2%

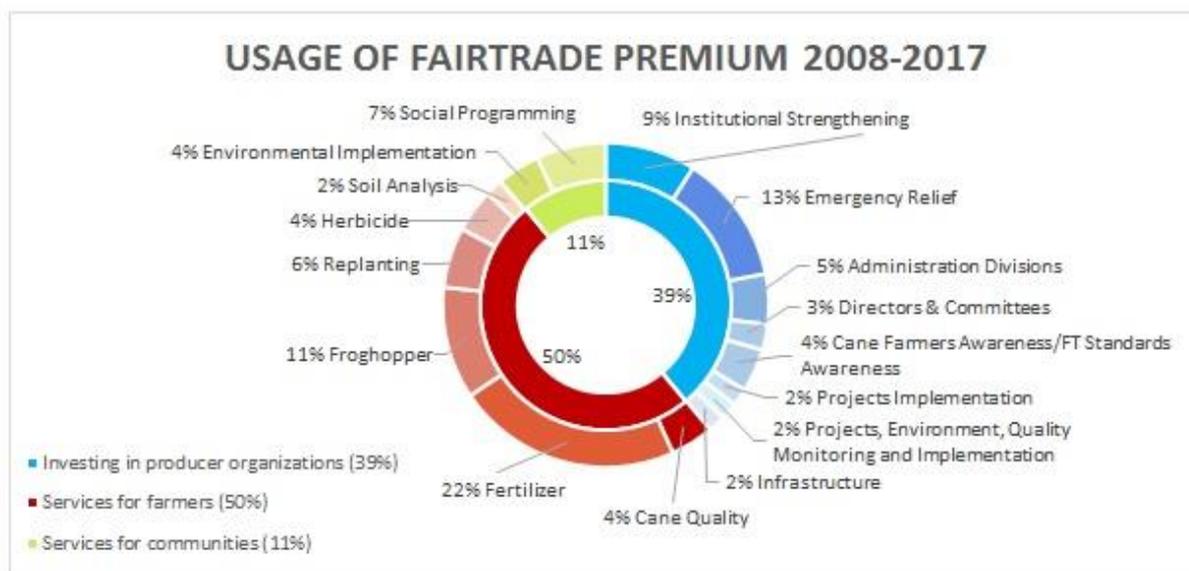
Source: SPOs Belize

The total Fairtrade premium paid out between the years 2011 and 2018 was BZ\$41 363 362.

The premium received is spent according to the premium expenditure plan developed by each Farmers Association.

A breakdown of how the premium has been spent is presented in the figures below:

Figure 2.3 Premium Use for all three associations



Measuring the impact of this expenditure is one of the key outcomes of this investigation. The following table outlines a more detailed description of each intervention and the expected outputs and outcomes as interim steps to evaluating impact:

Table 2.3 Interventions, outputs, and outcomes

Intervention (spend)	Planned Outputs	Intended Outcomes	Estimated spend % over the years
Institutional support/Administration	Systems in place to manage the farmers organizations, Policies in place to manage farmers organizations, Staff appointed	Strong and accountable organizations and leadership, Organizations able to manage premium, organizations able to implement projects and disbursements, organizations able to account for premium	10%
Cane farmer awareness of Fairtrade	Materials and forums in place to ensure farmers are aware of what is happening with the Fairtrade standard and premium. FLOCERT audits organized	Farmers in a better position to vote on premium spend, Audits completed and certification ensured, Gaps identified and remedial action undertaken	10%
Projects implementation system	Systems of implementation and monitoring expenditure along with mechanisms of support put in place to facilitate and support project implementation	Projects implemented as planned and within budget, Expenditure accounted for, reports compiled and audited	8%
Bagasse negotiations	Information gathered to ensure strong negotiation position	Farmers negotiated a BZ\$50c/ton cane payment for bagasse delivered from the 2016/17 season	1%
Cash payments for cane	Systems of payment and payment amounts agreed	More direct cash in hands of farmers	6%
Projects (operational)			40% (Across all projects)
Soil survey undertaken	Soil survey undertaken of all relevant farms in Belize (pedology and chemical)	Farmers understand their soil characteristics and are able to make better replant and fertilization decisions	
Fertilizer Program (subsidy of a portion of fertilizer requirements)	Fertilizer needs, program and methods of distribution, ordering and payments devised	Correct levels of fertilizer applied, increased yields, less leaching	
Herbicide program (subsidy of the correct registered herbicides)	Training material developed and herbicides procured	More effective weed control. Less use of unregistered herbicides, improved environment	

Re-Plant program (Partial replant program)	Systems, procedures and technical specifications put in place for re-planting of identified fields	Invigorated fields producing higher yields	
Froghopper program (treatment chemical and IPM of identified froghopper outbreaks)	Monitoring systems developed and followed, IPM agents developed, chemicals purchased and distributed, management practices taught	Decrease in the incidence of froghopper damage	
Projects (Social and Compliance, Health & Safety)			
Compliance-Various projects were implemented especially in the early years. These included PPE, provision of water to workers, and safe handling and storage of chemicals.	Training material developed, training delivered, systems of procurement put in place, distribution methodologies agreed	Safer and healthier working environment	5%
Social-Wide ranging social projects, old age, playgrounds, school support community, disabled			10%
Child labour reduction- This has been a flagship project, and has involved training and subsequent monitoring along with remedial action	Policies developed, training and awareness programs developed, youth monitors identified and trained	Greater awareness of child labour issues, Less incidence of child labour	10%

2.1 Involvement from other industry stakeholders in the development of Farmers

Support to farmers in Belize comes from three main stakeholders: Fairtrade through the Farmers Associations, SIRDI as mandated through the Belize Sugar Act, and the mill (ASR) is support of its farmers and to ensure its cane supply. Each of these contributions is important and, through various committees and collaboration mechanisms, there has been a significant effort made to ensure that contributions complement each other.

This report focusses very narrowly on the impact that Fairtrade has had on the farmers and community in Belize as is its aim; however, it should be noted and acknowledged that many of the changes seen have been a result of the collaboration of stakeholders.

SIRDI has been involved with the following main activities in support of the farmers in Belize:

1. Developing technical guidelines and training material describing GAP
2. Running Farmer Field Schools to disseminate this information
3. Enhancing productivity of cane farmers and harvesting groups

4. Developing an industry-Level Management Information System
5. Capacity-building for farmers and farmer organizations
6. Knowledge management and communications strategy
7. Setting up a rudimentary soil testing laboratory
8. Developing equipment for froghopper control
9. Implementing the Sugar Accompanying Measures Program including road building, drainage master plan, and a replant program
10. Setting up a revolving fund for farmers
11. Setting up of Farmer Service Centres

The mill has been involved with a number of projects in support of the farmers:

1. Cane testing and quality services
2. Mechanical harvesting trials and organization of farmers into harvesting groups
3. Sugarcane ratoon maintenance services including supply of inputs and management

All of these initiatives combined with the inputs from Fairtrade lead to any changes seen in the industry.

3. RESEARCH METHODOLOGY

3.1 STRATEGY

The evaluation is based on a theory of change (ToC). This traces the causal chain that links Fairtrade support activities through to effects and impacts on farmers. It then compares what was found in the field in relation to that.

Given that all sugarcane farmers in Belize have been certified by Fairtrade, it was not possible to (i) identify a control group of farmers unaffected by Fairtrade support, (ii) to make a comparison of treated to control households, and (iii) to follow the alternative of counter-factual evaluation.¹⁸

The starting point for the evaluation is the full Fairtrade ToC presented in Annex B. This is a generic Theory used for all SPOs that Fairtrade supports around the world. The likely causal paths were identified during the research preparation phase of the project by RMI and agreed to by Fairtrade, and critical activities, the outputs, and outcomes identified. From this, the outline given below was developed.

Table 0.1 Outline derived from the full Fairtrade Theory of Change

Support Activities from Fairtrade:
Fairtrade assists farmers to organize in producer organizations, known in Belize as Farmers Associations, adopting Fairtrade principles of governance. Fairtrade provides training and technical assistance in measures needed to meet standards for certification. FLOCERT certifies the CPA. Fairtrade arranges market and ensures payment of the Premium.
Resulting Activities of Farmers Association
The Farmers Association earn Premium for sugar sold under Fairtrade. The Farmers Association govern themselves democratically and transparently, train their members, and implement the Standards. The Farmers Association transparently arranges the design and implementation of the Premium Plan. The Farmers Association carries out Inspections and participates in Audits.
Outputs. Short Term Changes that are mainly in terms of Capacity
Farmers capabilities are enhanced: they work together, learn and apply new practices, protect the environment, and abide by standards. Community projects are implemented.
Outcomes. Medium Term Changes that are mainly in terms of Behavior and Attitude
Farmers' attitudes and behaviours are changed: they apply democratic principles, they promote gender equality and youth participation, they follow disciplined systems, and they invest in where they get their money from. They are more self-confident. Communities have better facilities. They provide better work conditions for labour.
Impacts. Long term changes that bring benefit, equality, and empowerment

¹⁸ This theory of change separates changes in capacity, and specifically in beneficiary capabilities, from changes in behaviour, in line with the recommendations made by John Mayne (2016).

Farmers achieve higher incomes, engage more women and youth, have better health, protect the environment, have a stronger voice in the industry, enjoy better trading conditions, have more resilient livelihoods, and build climate resilience and food security

Analysis of this Fairtrade ToC guided the survey question and indicators used in the study with the purpose of measuring the extent to which Fairtrade's ToC have been actualized in practice in Belize. The evaluation consisted of deepening understanding of the actual processes and impacts through observation and measurement.

The themes and indicators chosen for observation and measurement are listed here:

Social Themes

- Organizational development and strengthening of certified organizations' investment and development of the business.
- Empowerment of farmers.
- Health and safety: Impact of production practices on farmer and wider community health.
- Gender equality:
 - role of women in the sugar producer organizations and membership.
 - extent to which benefits of Fairtrade are inclusive of women.
- Extent to which Fairtrade contributes to better conditions for workers.

Agronomic and environmental themes

- Productivity and quality
- Pesticide and fertilizer usage
- Access to inputs and technical support
- Farmer access to training, adoption of GAPs

Economic themes

- Fairtrade production
- Fairtrade sales
- The impact of the Fairtrade Premium.
- Prices paid to organizations and to farmers
- Farmer cost of production, net incomes, assets, and poverty levels

The findings are given in Chapter 4.

3.2 RESEARCH DESIGN

To evaluate the impact of Fairtrade on smallholder sugar farmers in Belize, we employed a multi-strategy research design using both quantitative and qualitative data collection methods. This research design provided the framework to assess the extent to which Fairtrade interventions have achieved the anticipated outputs, outcomes, and impacts in Belize as theorised in the ToC.

Quantitative methods were applied to investigate the causal chains of such Fairtrade treatments and qualitative methods were employed to provide in-depth understanding of the wider context impacting those causal factors.

The research design was planned in consultation with partners at RMI, ODI, and Fairtrade International. Data collection was carried out over the duration of two site visits: a preliminary visit by RMI consultants in January 2018 and a three-week visit in June 2018 incorporating the assistance

of a team of Belizean enumerators. Data analysis was predominantly handled by the RMI team in the months to follow.

3.2.1 Limitations of a Quasi-Experimental Research Design

In evaluating the impact of Fairtrade treatments, our research strategy was restricted to a quasi-experimental design in that we did not have a control group of non-Fairtrade farmers in Belize against which to measure those farmers who had experienced Fairtrade treatments. Without a control group, some interview questions in both quantitative and qualitative sections of the research relied on the recall of respondents to reflect back to their experience of sugar farming before Fairtrade and compare it to their experience after Fairtrade. Recall can be inconsistent; moreover, not all farmers were producing in Belize prior to the involvement of Fairtrade, either having only become farmers after 2008 or having produced other crops on their farms before then. We have considered these limitations in our research design and have thus taken great care in our survey design when identifying potential causal factors affecting Fairtrade treatments in our analysis.

3.2.2 Additional Limitations

It is important to note that this evaluation was not an audit. Our research strategy relied upon data collected through respondents and key informant perspectives. We did not attempt to cross-reference these accounts through the kinds of systems that Fairtrade uses to audit adherence to certain policies. This is important when discussing findings to do with child labour, for example, where we have sought critical perspectives on the issue; we nevertheless acknowledge that it has remained outside the remit of this evaluation to confirm or deny the continued presence of such practices.

Additionally, the quality of the data acquired in the household survey has been dependent not just upon the quality of the research design, the tools, and the enumerators but also the knowledge base and information recall of the respondent who had been randomly selected to participate. In household farming structures in Belize, the division of labour between household members meant that not all respondents may have had full knowledge or decision-making responsibilities regarding every element of the family business. (For example, some respondents may have counted themselves as farm decisionmakers and in fact held intimate knowledge about certain elements of production in the field, but may not have been the representative of the family who attends branch meetings on governance. A female partner might be involved in shared decision-making regarding the farm's finances, while knowing much less about the productive inputs utilised in the field.) To account for this, the survey did ask respondents to specify whether they were the primary decisionmaker or participated in shared decision-making on the farm; however, the option of replying "don't know / not sure" was also utilised in some cases.

3.3 QUANTITATIVE RESEARCH

The first part of our research strategy involved the quantifying of farmers' views and experiences using a cross-sectional research design employing a household survey conducted with 178 smallholder farmers by a team of five enumerators using structured interviews.

3.3.1 Survey Design

The survey was designed to capture attitudes towards Fairtrade at the level of the individual (since we could only collect opinions of the respondent being interviewed) and data about farm activities at household level (as the assumed unit of production). The survey was structured in this way on the assumption, which had been garnered through stakeholder consultation and a preliminary site visit in January 2018, that smallholder production in Belize is organised around household units;

thus, impact on and knowledge about production would be best designed with the household as the unit of analysis. Indicators relating to causal chains and evaluating outputs, outcomes, and impacts were designed around the anticipated effects of these elements as envisioned in the Fairtrade Theory of Change.

The survey design was structured in six parts:

The first part was designed to collect basic measures about the respondent and members within their household, such as age, gender, level of education, involvement and decision-making with regards to sugar farming, and farmer association membership.

The second part was designed to collect data about the farm, income, and livelihoods of respondents and their households. Basic measures captured data on income and farm size, followed by the investigation of attitudes relating to yields, cane quality, and youth and succession planning which were conducted using a Likert scale indicating the level of agreement with particular statements. Some questions relating to the smallholder's business, such as asking respondents to cite farm yields and income over several seasons, were designed not as a direct measure of income and yields, but as an indirect indicator of business competency and knowledge. Multi-indicator investigation of the impact of climate change also fell within this section.

The third, fourth, and fifth sections were designed to evaluate the impact of Fairtrade interventions on various elements of production, the accountability and management of farmers associations, and working and social conditions on smallholder farms. These sections formed the bulk of the survey, with multiple indicators intended to evaluate the causal chain of Fairtrade treatments by determining whether respondents participated in particular Fairtrade programmes and treatments, whether that treatment had led to behaviour change, and, if not, determining why not and if so, determining what effects this had had.

The final section was designed to collect data around respondents' attitudes to Fairtrade using a Likert scale to measure the intensity of feelings related to a series of statements about Fairtrade and a series of outcomes and impacts as a result of Fairtrade interventions and treatments.

The survey comprised a total of 152 questions, and average interview time was around an hour and a quarter.

3.3.2 Survey Validity

After the initial survey design, we submitted the survey to a series of rigours to interrogate the face validity of the questions. The survey was looked over in its design by partners at ODI, in its content by ca within Fairtrade, and checked over for its context-specific terminology, cultural interpretation, and relevance by a group of farmers who volunteered their time from Farmers Associations. We also ran test interviews and undertook a feedback session with our team of enumerators after a first day of test interviewing with farmers across all three associations. Changes on the basis of this feedback were incorporated in the final survey design in the days before interviewing began.

3.3.3. Sampling

We took as our population sample every smallholder farmer who was a current member of one of the three farmers associations, which amounted to 180 farmers in total: 60 from BSCA 01, 58 from BSCA 02, and from 62 BSCA 03. We compiled a sampling frame by attaining a complete list of member farmers from all three associations.

Through a process of randomisation, 60 respondents were identified from each of the three membership lists, amounting to a total 180 respondents across the three associations. For questions which pertained to the complete sampling frame of all registered smallholder farmers in Belize, the equal distribution of respondents across associations of unequal size meant heavier proportionate representation from the two smaller organisations. However, as many questions

pertained to the specific treatments that, in some cases, were administered differently through each association, while other questions pertained to the accountability and management of farmers associations where we might expect to see variance across each group, the equal representation between groups was essential.

When conducting interviews, we organised transport centrally for our team of enumerators to reach the selected farmers and created a research schedule over a period of two weeks where we grouped together the selected respondents according to village proximity. Due to harvesting schedules, availability of farmers, and the voluntary nature of participation, not all the farmers who were randomly selected were reached. To account for this, we had already randomly selected a contingency list of an additional 20 farmers per association, and enumerators moved to this secondary list in the event contact could not be made with the original respondent.

There were still instances in the field where it was not possible to stick entirely to the randomised list. In these scenarios, we employed snowballing sampling: Contact was established with the original respondent from the randomised list and we employed their assistance in identifying an additional participant from the local area who fit within the population sample (i.e., a farmer within the same association). To ensure the survey was as representational as possible and to preserve strong external validity, snowballing was kept to a minimum; however, given the logistical demands of the study, it was also an essential tool in allowing us to speak to the required number of respondents.

3.3.4 Enumerators

We employed a team of five enumerators to conduct the household survey via structured interview. We put out of a call of interest through one of the local technical colleges in Orange Walk and received applicants from young graduates in related subject areas, such as agricultural and business studies. Ten applicants were interviewed and five were selected: three women and two men, all between the ages of 19 and 22. Enumerators came from villages across Orange Walk and Corozal and had no direct affiliation with any of the three farmers associations. However, the prevalence of sugar farming in the area did mean that three of the enumerators did have family links to the industry (for example, a grandfather or an uncle involved in sugar farming); this did not negatively impact the willingness of respondents to speak with them, given that they were independent of the associations. The selection process was undertaken by the RMI team. Enumerators received intensive training from the RMI research team, including training in Fairtrade's Protection Policy for Children and Vulnerable Adults. Enumerators were supported throughout by a member of the RMI team.

3.3.5 Translation

The official language of Belize is English, but Spanish and Belize Kriol were also widely spoken amongst respondents. Anticipating that the majority of respondents would use English, the surveys were written using this national language. However, all five enumerators were trilingual, and there were occasions where enumerators needed to assist with explanation and translation in order to facilitate the structured interviews. To reduce variation between enumerators when translating from English to Spanish on the occasions where this was needed, RMI and enumerators had already collectively discussed terminology and translation interpretations question by question, in advance of beginning the interview process. Answers to the survey were recorded in English.

3.4 QUALITATIVE RESEARCH

Qualitative research was conducted through two primary data collection methods: semi- and unstructured interviews with key informants and semi-structured focus group discussions.

3.4.1 Key Informant Interviews

Key informant interviews were conducted in English with stakeholders across the industry, including key personnel within all three Farmers Associations, ASR Group, SIRDI and members from the SICB. Both semi-structured and unstructured interviews were conducted, allowing for flexibility in the flow of the conversation between RMI interviewees and informants to cover a range of topics providing context for understanding the Belize sugar industry.

Interviews took place in two stages: Firstly, interviews were conducted before the quantitative work during the initial site visit in January 2018. This was important to establish an understanding of the context prior to the survey design. Secondly, interviews were conducted during the second stage in June 2018, after data from the quantitative survey began to come in. This enabled discussion to be shaped around some of the findings in the quantitative work and to probe further some of the patterns which were beginning to emerge.

Informants were chosen through purposeful sampling, selected on the basis of strategic position within the industry. Interviews were conducted at places of work (including offices, the mill, and more informally, in cane fields) lasting on average between one and two hours, and were recorded and later partially transcribed.

3.4.2 Focus Group Discussions

A number of focus group discussions were also staged comprising members of key interest groups, including women, youth, and a group of male farmers. Such group interviews involving between 6-12 members were designed to generate discussion and debate around key issue which had arisen through survey and qualitative interview responses. Topics covered included the division of labour and decision-making power within family farming structures, the power dynamics of decision-making and participation within farmers associations, perspectives on trends within the industry, and the role of youth and the importance of succession planning in securing the industry's future.

All three farmers associations participated in the focus group discussions, with each assisting in hosting a discussion, and serving as gatekeeper in sourcing suitable participants. Through utilising farmers associations in this selection process we acknowledge the potential bias in selecting informants deemed 'positive' or particularly responsive to Fairtrade initiatives; however, we endeavoured to ensure that topics discussed were focused on wider issues not attributable to particular associations but rather to trends within the industry as a whole.

Table 3.2 Details regarding the focus group discussions held

Focus group topic	Total Attendance	Total Males	Total Females
Women and gender	9	0	9
Youth	7	4	3
Association Leadership	8	6	2
Workers (In Field)	9	7	2
Farmers	10	7	3

RMI consultants participated in discussions as moderator and facilitator, but participants also took key roles in the discussion, such as assisting with translation between English and Spanish where language issues necessitated further clarification. The method was carried out so that co-production could develop and while key questions were put forward, flexibility in the pace and structure of the discussion was designed to be responsive to the issues and concerns of greatest pertinence to participants.

The workers focus group discussion was an impromptu session held during a field trip where workers were engaged after a work shift and not planned and formally scheduled as the other FGDs were.

3.4.3 Additional qualitative elements

RMI consultants also engaged in participant observation during both visits to the field, conducting site visits to each farmers association, the mill, SIRDI, and various farmers' fields and homes. RMI observed harvesting groups and interacted informally with workers involved in harvesting and loading, as well as workers at the mill and community members in and around Orange Walk and sites of production. The limited timeframe of the study did not allow for full ethnographic research methods to be utilised as part of the research design, and it would be erroneous given the short length of stay in the country for RMI to confuse these time-limited engagements with extended ethnographic observation. However, this immersion in the productive elements of the industry during both short site visits did provide important background information, useful in aiding rapport with participants, shaping an understanding of context, and helping to formulate appropriate questions for the semi-structured and unstructured qualitative interviews.

Finally, RMI consultants and the team of enumerators participated in discussions once a day at the completion of each village visit, to reflect upon some of the qualitative discussions that developed as enumerators were working to capture data through the quantitative household survey. These daily discussions without the research team allowed us to reflect upon our methodology as it was happening and to note some of the emotions behind certain topics that the survey by structured interview was not able to capture. These have not formed a prominent part of our data analysis, but again contributed to our understanding of the wider context of trends happening within the industry and the general perception of Fairtrade and Fairtrade interventions.

3.5 DATA ANALYSIS

Data analysis was conducted after the completion of final visit to Belize. As there was no counterfactual, no statistical analysis was applied to the quantitative data; responses were aggregated or disaggregated according to the verification sought.

Interviews and focus group discussions were analysed based on the notes taken and the recordings made during the meetings in terms of each agreed thematic area. This was then accessed against the corresponding qualitative outcome and any quotes regarding that thematic area to draw correlations, discrepancies, and conclusions between the quantitative data and the qualitative assessments. These were then transcribed into the report.

Validation workshops were held with each of the Farmers Associations before the consultants left the country. The validation workshops were held to present the broad findings from the studies, to affirm that the research had been carried out according to the expectations of the farmers associations, and to answer any final questions that the association leadership may have had about the research.

The validation workshops were also used to show the association leadership other development initiatives in the sugar industry worldwide. Areas pertaining to cost of production were the key focus of these interactions and were well received by the farmers present.

3.6 RESEARCH ETHICS

For participation in the quantitative elements of the research, informed consent was established with each respondent prior to initiating the structured interview and the survey was designed to ensure confidentiality and anonymity; this was explained in full to respondents before asking for permission to proceed. Affirmative responses to the voluntary survey were collected electronically, as the first survey question enumerators asked respondents. Respondents were also informed that they had been selected on the basis of randomised sampling or snowballing sampling (in the latter case, they were given the name of the person who had recommended them), but were assured that if they chose to participate, their names would not be disclosed to their farmers associations. Indeed, while their names had been randomly selected from membership lists provided by farmers associations, the participants selected were never disclosed back to the associations.

For participation in the qualitative elements of the research, informed consent was established verbally with key informants and focus group participants, including consent to record interviews. In these cases, while confidentiality could be respected, it was in some cases more challenging to secure anonymity when informants were speaking on behalf of organisations that were clearly identifiable. We have been conscious of our commitment to anonymise data pertaining to specific associations (for example, we have not differentiated our findings on the basis of association for this reason) but in other cases, such as discussing power dynamics between key stakeholders (e.g., mill versus association) we were limited in our ability to anonymise completely.

When using quotations from respondents and informants, names have been anonymised and, where appropriate, names of organizations have been anonymised to ensure nothing in the findings can be attributed to any individual.

Data from this study as well as company materials from a number of key stakeholder groups have been used solely for analysis and managed and stored securely by RMI, and has not been shared in its raw form with other participants and partners.

Lastly, given that some of the questions around Fairtrade enquired about the practice of child labour, RMI consultants were trained in Fairtrade's Protection Policy for Children and Vulnerable Adults, and a training was then administered by RMI to its team of enumerators. This policy advocated the bringing of attention to Fairtrade of any accounts of abuse of children or young people participating in the study or within the wider activities of Fairtrade's work with sugar farmers in Belize. No such instances were identified during the study.

4. FINDINGS FROM THE RESEARCH

4.1 PROFILE OF SUGAR CANE FARMERS IN BELIZE

Understanding the demographic profile of the farmers is an important insight in terms of the research. This information has been ascertained from the quantitative survey and from information obtained from the farmers associations themselves.

Of the 180 respondents interviewed, 74% were male and 26% were female. Records from the Farmers Associations indicate a more even balance between male and female members with a ratio of 62 % male to 38 % female. More is discussed about gender and the role and empowerment of women in the findings chapter of this report.

Households were largely composed of adults in their working years: a median of 3 adults, with 2 of those working. Few children were recorded: on average, there was just one per household. On average, one member of the household was over 60 years old. Dependency ratios are low with an average of 1.5 working adult per dependant.

The age of respondents suggests an ageing farmer population. The general trend towards the ageing of the sugar growing population was also a development cited in the focus group discussions and was expressed as a potential worry in some of the key stakeholder interviews. The following graph shows the age profile of respondents:

Figure 4.1 Age of respondents

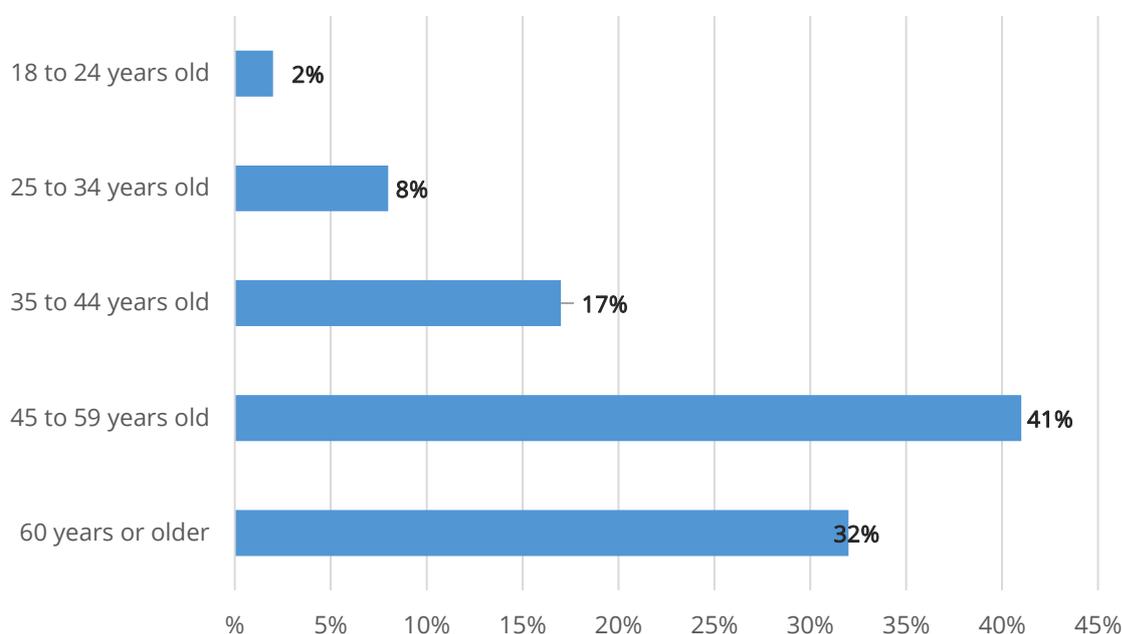
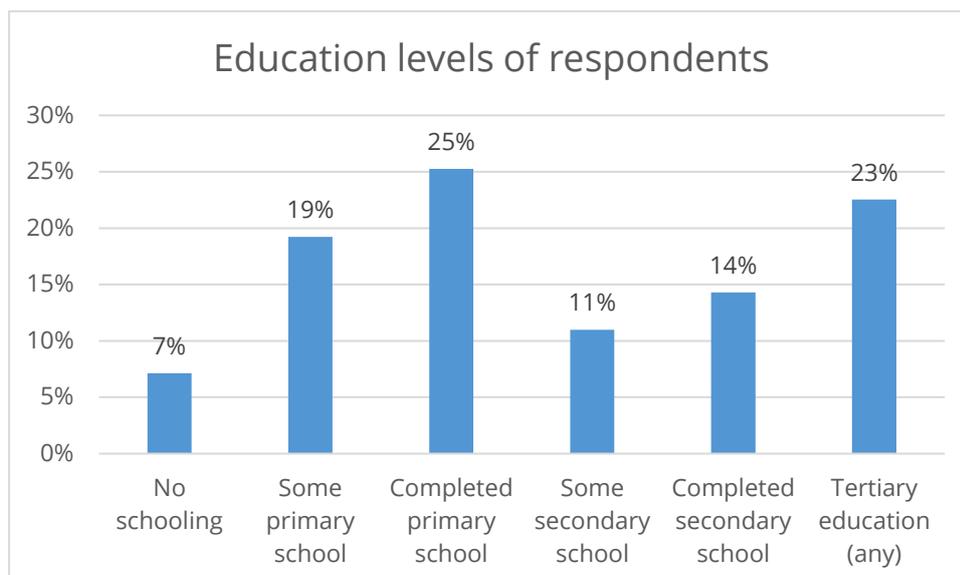


Figure 4.2 Education levels of the respondents



Most of the respondents, 78%, were married. While a large proportion, 60% (96 Male and 13 Female), of respondents reported that they were the decision makers on the farm, 38% (31 Female and 38 male) said that they shared decision making. Of those that share the decision making, 52% shared with their spouse, while 26% shared with a child and 15% shared with a parent.

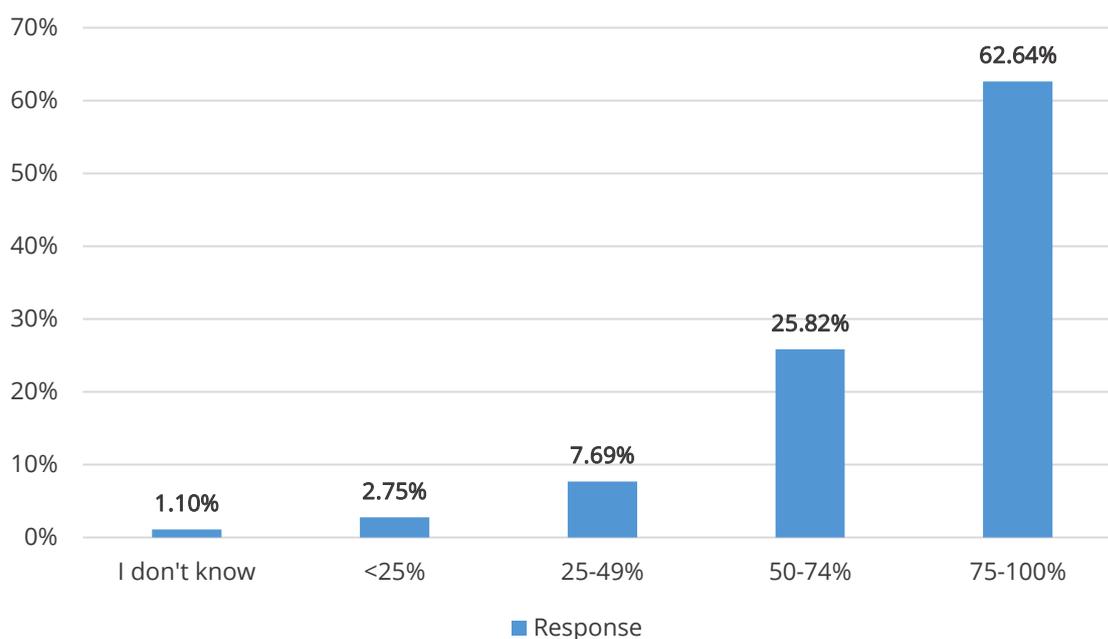
Aligned with the ageing farmer population comes years of experience as a sugarcane farmer. Of the respondents interviewed, 80% had more than 20 years' experience in growing sugarcane, while 87% had more than 10 years of sugarcane growing experience. It is thus not surprising that farmers feel sugarcane growing is part of their culture. It is also not surprising that, given the length of time that many farmers have been in the industry, there is a strong tendency to resist any changes at field (GAP) and industry level.

"We have been doing things our way for years and it has worked, what has changed? Why must we change now?" (reported by one of the farmers interviewed)

Respondents are very dependent on the income received from their sugarcane operations. 56% of respondents reported that they did not have any other source of income than sugarcane.

Sugarcane income makes a large percentage of total income in respondents' households. The following graph shows the contribution of sugarcane to household income:

Figure 4.3 "What percentage of your household income comes from sugar cane?"



A large percentage of farmers own the land on which they grow their sugarcane. 87.91% of respondents reported that they owned all of the land that they grew their sugarcane on, while 95.6% of respondents owned all or at least some of the land upon which they grew their sugarcane. Security of tenure is therefore not a factor that would negatively influence farmer decision making.

The land holding of farmers in Belize as determined by the quantitative survey was 49.91 acres on average, with a median of 30 and a standard deviation of 50.85. Of this land holding, it was reported that an average of 34.02 acres was planted to sugarcane, with a median of 23 and a standard deviation of 36.

These numbers correspond well to other information received from the industry including a study undertaken of the farmer population in 2016.¹⁹

4.1.1 Attitude of Farmers to the growing of Sugarcane

Respondents were asked a number of questions that show their attitude and satisfaction levels with growing sugarcane. Attitude and satisfaction are often indicators of a person's willingness to change²⁰ and therefore an important enabler or disabler of the organizational Theory of Change. Attitudes were measured using Likert scales.

As a starting point, respondents were asked to express the degree of agreement with the statement "I grow sugarcane because it is part of my culture:" 88% agreed or agreed strongly with this statement, while only 9% disagreed with this statement. This largely positive response shows the strong affinity farmers in Belize have with growing of sugarcane. This may also explain why getting farmers to change practices and operations regarding the cultivation of sugarcane may be very difficult to achieve in Belize. Changing of cultural activities is one of the most difficult changes that any society can make. This is confirmed by Christine A. Caldwell and Roland M. Eve, in the article *Persistence of Contrasting Traditions in Cultural Evolution (2014)*. In addition, Caldwell and Eve argue that cultural and economic change is less likely to happen when communities are reliant on social learning and have a lack of higher education. These communities will have less

¹⁹ Sugar Cane Farmers Survey 2016 BELIZE SUGAR INDUSTRIES LTD (BSI) GONZALO OMAR CASTILLO MSc

²⁰ Organizational Behaviour: Kreitner & Kinicki: Third edition (1995)

exploration and knowledge of potentially superior alternatives.²¹ The general level of education indicated in the household surveys, as well as the poor systems of intergenerational knowledge transfer in operation in Belize, fits this pattern well. This lack of willingness to change was also a central discussion point during stakeholder and focus group discussions. This perspective provides a good insight into some of the contextual issues which may inhibit impacts from being achieved as hypothesised in the ToC.

Farmers have a feeling that they are trapped in the growing of sugarcane, as no other livelihood options exist for them. When asked to express the degree of agreement with the statement that “I have to grow sugarcane, even when the price is low and costs are high, since no better alternatives exist”, 85% of respondents agreed or agreed strongly with this statement, while only 8.7% of respondents disagreed with the statement. This feeling of having no alternative may explain some of the tensions seen in the sugar industry in Belize. A person or a group of people that have or think that they have little or no alternatives show external locus of control behaviours, that things simply happen and they are powerless.

People showing an external locus of control often blame others for their misfortunes and, typically in the sugar industry, this is the mill. This feeling of having no alternative may explain some of the tensions seen in the sugar industry in Belize, such as the negotiations that took place around payment for bagasse and the signing of the new commercial agreement. Such issues were talking points which surfaced during key informant interviews and focus group discussions, as well as our observation of the political context of stakeholder relationships. These tensions may also reduce the impacts of the Fairtrade intervention as they weaken the industry as a whole as well as each of the component parts of the industry.

When asked, “I would plant more sugarcane if I had more land and or labour available to me”, 76% of respondents agreed or agreed strongly with the statement, while only 16% disagreed with the statement while 8% were neutral. This indicates that despite the many issues that farmers have with the planting of cane they see the value of sugarcane in their daily lives and have a good attitude towards the crop itself.

When asked the question, “Even when the price for sugarcane is high, I don’t grow more of it because there is no capacity for the mill to crush additional cane I could supply” 63.5% of respondents agree or strongly agree while 17 % disagree. This is an important insight in that milling capacity needs to be aligned with production in order for farmers to be able to crush all their cane on an annual basis. Where farmers have doubts about the ability of the mill to crush their cane, they tend to mitigate this by producing less area of cane or not farming the area of cane that they have as intensely as they could²².

Farmers have a negative attitude regarding the price that they receive for their cane. When asked the question “The price I get for my sugarcane does not cover all the costs involved with growing it”, 76% of farmers agreed or agreed strongly while 20% disagreed with this statement. Two factors could influence answers to this question: Firstly, the 2018 season has been a particularly difficult one with regards to the price. Farmers were feeling the impacts of the lower price as the survey was being carried out. Secondly, costs differ according to distance to the mill. Nevertheless, when asked about the statement “I grow sugarcane because it gets a better price than other crops”, 56.5% of respondents agreed or agreed strongly with this statement while 21.4% of respondents disagreed. This shows that despite the current low returns from the production of sugarcane,

²¹ Christine A Caldwell, and Roland M Eve, "Persistence of Contrasting Traditions in Cultural Evolution: Unpredictable Payoffs Generate Slower Rates of Cultural Change," *PLoS ONE* 9, no. 6 (2014): E99708.

²² Restructuring the Swazi Sugar Industry: The changing role and political significance of smallholders Alan Terry (University of the West of England, Bristol) Mike Ogg (RMI Consultants, Swaziland) Southern African Sugar Research Network in Johannesburg

farmers have a number of strategies to continue producing and still consider sugarcane more profitable than other crops.

Finally, respondents were asked about their satisfaction with yields and quality that they get from their sugarcane. When asked “How satisfied are you with your yields”, 48% of respondents were unsatisfied or highly unsatisfied, 37% somewhat satisfied, and 15% highly satisfied. Given the low yields seen among the Belize farmers, this is not surprising. The fact that farmers recognise this fact is a definite step to rectifying the situation.

Farmers’ perception around the quality of their cane was very different. When asked the question “How satisfied are you with the quality of your sugarcane”, 48% of respondents were very or highly satisfied, 38% of respondents were somewhat satisfied, and only 14% were unsatisfied with their cane quality. When asked “has the quality of your sugarcane changed much over time”, 55% of respondents said that it had improved over time, while 32% of respondents said that it had remained much the same over time. This positive change in quality was confirmed through stakeholder interviews and industry data.

4.1 CHANGES RESULTING FROM FAIRTRADE SUPPORT AND CERTIFICATION

The changes observed as a result of the Fairtrade intervention have been grouped into the three thematic areas as described in the ToC. These thematic areas are as follows:

1. Social themes including organizational development, empowerment of farmers, gender equity, youth inclusion, health and safety and worked welfare, and community development
2. Agronomic and environmental themes including productivity and quality parameters, use of and access to inputs, and the adoption of good agricultural practices
3. Economic themes including Fairtrade production, Fairtrade sales price paid to farmers, Fairtrade Premium, and the impact Fairtrade has had on farmer profitability

Some of the changes observed can be directly attributed to the Fairtrade interventions; however, a number of the changes are due to the impact of the inter-related support given by other organizations tasked with farmer support in Belize.

4.1.1 Farmer’s perception of Fairtrade and the perceived impact that Fairtrade has had on the sugar industry in Belize

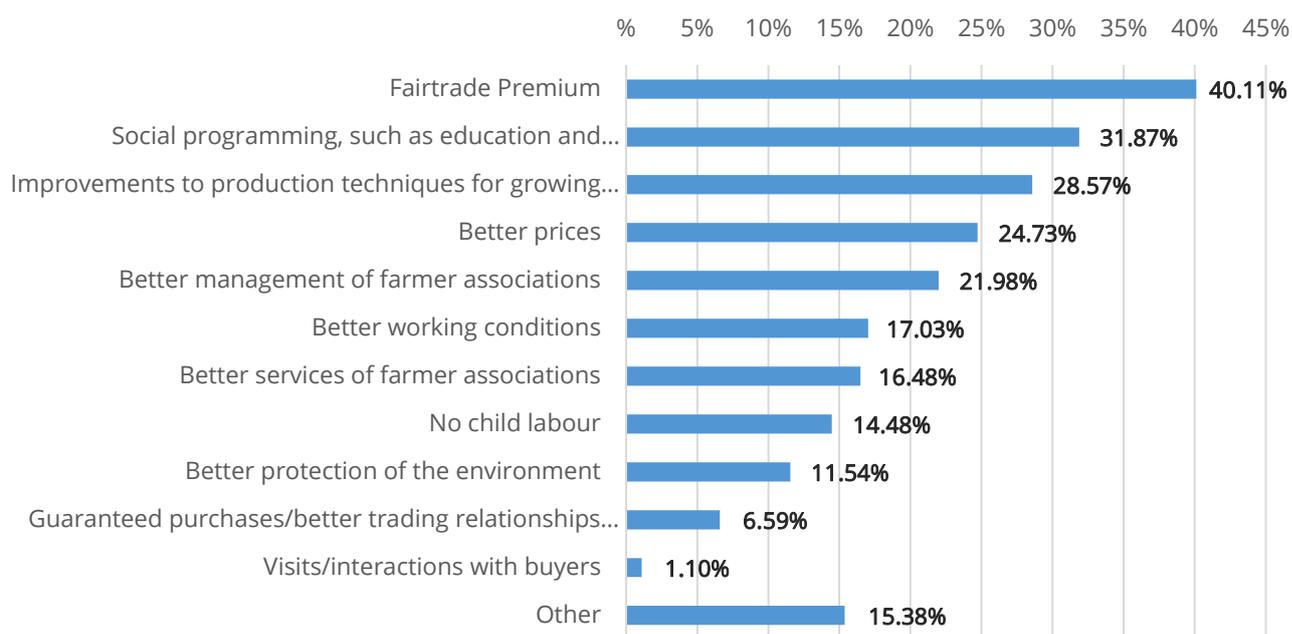
Knowledge and understanding about Fairtrade

Knowledge about Fairtrade among farmers in Belize is extremely high, with 95% of respondents saying that they have heard about Fairtrade. It is surprising that this figure was not higher given how Fairtrade and the sugar industry in Belize have become so interdependent.

“Fairtrade is everywhere in the industry, if it was not for Fairtrade the sugar industry in Belize would not exist”(Farmer)

When asked “what does Fairtrade mean to you”, the following response was given:

Figure 0.4 Understanding of Fairtrade



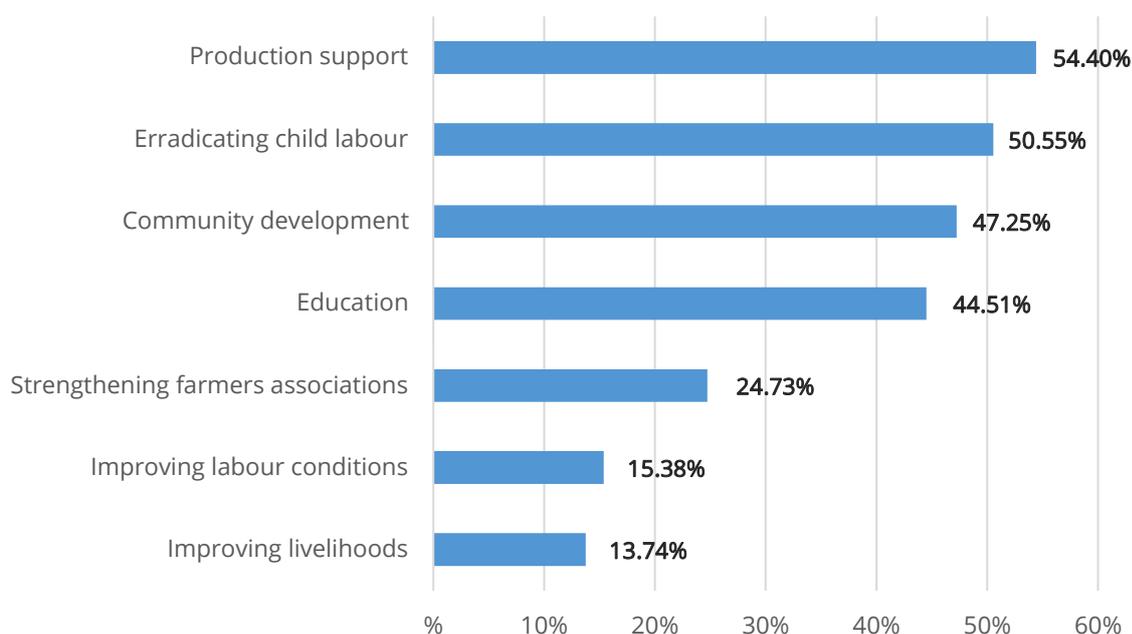
Receiving and maintaining the premium is therefore the strongest motivator for change among farmers. This is important to note as any reduction in the premium could therefore decrease the farmers’ motivation to maintain the practices that have resulted from Fairtrade intervention.

Fairtrade’s bringing a defined set of performance criteria and new ways of doing things, coupled with the premium as a positive inducement, has overcome some of the resistance to change (as mentioned above) and shown some of the positive benefits of change. In an interview with a representative at SIRDI, the following was said:

“The introduction of new technologies in the Belizean sugar industry is generally met with resistance in two ways: in the head (psychological resistance to change), and the pocket (monetary risk aversion). Working with Fairtrade has alleviated the monetary risk aversion as the premium has been used to cushion this. This has broken down the psychological resistance to change. Without this partnership with Fairtrade, many new technologies would not have been introduced and mainstreamed in Belize”

When asked what farmers felt were the top three Fairtrade activities that had the biggest impact on them, the following responses were received:

Figure 0.5 Top three biggest impact activities



This shows that the perceived impacts are fairly uniformly distributed over the three thematic areas and are creating the type of balance to the change process that is desirable and sustainable.

4.2 ORGANISATIONAL AND SOCIAL CHANGES

Fairtrade support in Belize has brought about significant organizational and social change. Before Fairtrade, BSCA 01 was the only farmer organization. Prior to 2008, this was a body that was moribund and only existed as it was a requirement of the act. A subject indicated the state that the organization was in prior to Fairtrade thus:

“We had not been audited as an organization for 10 years prior to the arrival of Fairtrade” (BSCA 01 board member)

Based on the principle of freedom of association, which is a right entrenched in the Belizean constitution²³, two new farmers associations were formed. While Fairtrade did not play an active role in the creation of these new farmers associations, the leaders of these associations definitely felt that the experiences that they had gained as a result of Fairtrade made the formation of the new associations easier.

“The fact that we knew Fairtrade was there gave us the confidence to act” (Board member new association)

Fairtrade also gave the Farmer Associations purpose beyond the requirements of the Belize Sugar Act. While the aims and objectives of each of the different farmers associations are each slightly different, they all include the following in the context of Fairtrade:²⁴

1. To acquire and maintain Fairtrade certification
2. To ensure democratic structures and transparent administration
3. To develop and agree on the Premium plan

²³ Article 12, Part 2 of the Constitution of Belize, September 1981

²⁴ Belize Sugar Cane Farmers Association (BSCA 01), www.BSCA011959.wixsite.com/BSCA01

4. To administer and manage the Premium plan
5. To empower members, workers, and the community through development of potential and capacity building
6. To promote the welfare of sugarcane producers
7. To increase cane and sugar production by promoting best practices in cane planting cultivation, harvesting, and delivery

The strategies to accomplish these objectives comprise:

1. To maintain Certification through training and inspection of good agricultural practices, environmental protection, labour conditions, and occupational health and safety;
2. To manage Fairtrade Premiums according to the Premium Plan developed and agreed through a democratically undertaken needs assessment, and managed transparently;
3. To plan for environmental management with training and support for conservation measures;
4. To improve production through training, services, and grants and subsidies for farm inputs and reinvestment on farms; and,
5. To implement community development projects, including water, electricity, culverts, roads, shelters, and support to schools.

Fairtrade has also given the Associations the means to achieve these objectives. Approximately 10% of the Fairtrade premium has been used for institutional strengthening. This has mainly been used for the employment of staff and on-going governance and accountability of the farmers association.

Each Farmers Association has a slightly different structure but generally a board of directors provides the strategic direction and sustainability of the Association. The executive is headed by a CEO, who has a number of staff working under him or her. There are also a number of executive committees that assist the board to undertake its functions. These structures have all been invigorated and repurposed as a result of the introduction of Fairtrade.

"Before Fairtrade there was very little engagement with farmers other than discussing deliveries, we had no staff in the field and the only money that we had kept the office open" (Board Member)

Staff numbers have fluctuated over time as the income from the premium has fluctuated (at one point, BSCA 01 had 16 officers in the field alone).

Currently the different Farmers associations have between 9 and 17 full time staff working for the different Farmers Associations. Some of these staff are employed in an administrative capacity, while the majority are field officers working with farmers on a daily basis providing a range of support services to farmers and ensuring Fairtrade compliance.

When asked if farmers had received training in three aspects of production, namely fertilizer usage, herbicide use, and froghopper control, on average 77% of respondents replied that they had received some training on these topics. When asked by whom they had received this training, 55% said from their Farmers Association, 39% from SIRD and 11% from Fairtrade itself. This indicates the level of contact that the association is having with its farmers.

4.2.1 Farmer Satisfaction with their Farmers Association

Understanding how farmers feel about their farmers association and the impact their relationship with it has on their operations and livelihoods is an important next step in understanding the organizational strengthening that has occurred as a result of Fairtrade activities.

A number of interviews and focus group discussions revealed the political nature of the sugar industry in Belize. With over 5000 farmers, different interest groups develop, resulting in conflict.

“The Belize sugar industry is a battle ground of politics; it is very difficult to get all farmers to agree all the time” (Industry stakeholder)

Prior to 2015, tensions were apparently rising as all farmers were required to belong to one association. Since the formation of the two new associations, tensions seem to have subsided, although the political nature of the industry is still quite apparent.

“We can now choose which association to join and can hold the leadership accountable” (Farmer)

Much of the unhappiness prior to 2015 seemed to stem from the use of the premium. While there was absolutely no evidence of any wrongdoing on the part of the Association during this period, some farmers believed that the premium should have been spent differently. The democratic nature of deciding how the premium should be spent meant that some farmers were not going to get their way all of the time.

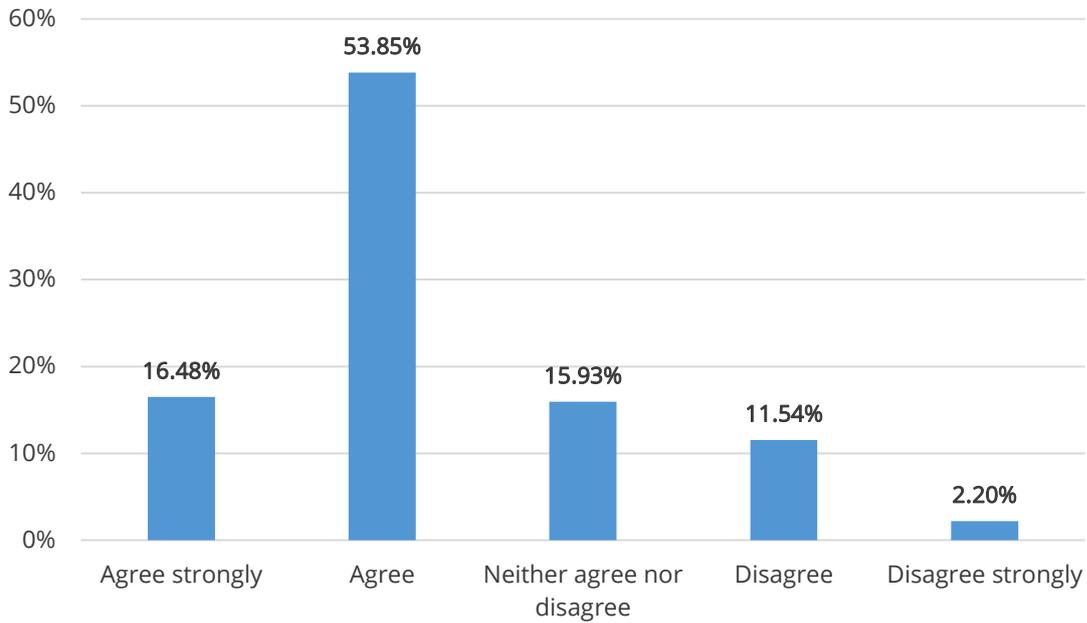
“Although we were asked how the premium should be spent, our views were often ignored” (Farmer)

This now seems to have changed. In the focus group discussions, there was a definite understanding and agreement among the farmers as to how the premium is spent. They feel part of the decision regarding premium spend and feel that their input is heard in this regard. This was the case across all Associations.

“There is no doubt that the premium is used for the benefit of the farmers and the community. We would not tolerate the premium being spent on things that do not benefit us or the community” (Farmer)

When asked about the statement “The Farmers Association consults members and takes their needs into account when deciding on how to spend the Fairtrade premium”, the following responses were recorded:

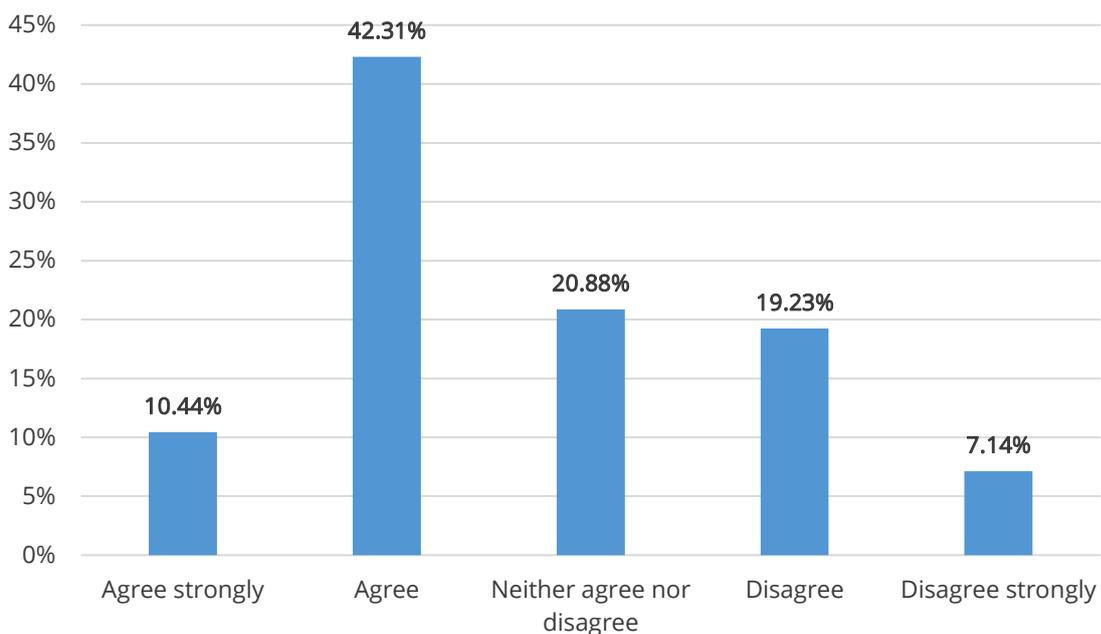
Figure 0.6 “The Farmers Association consults members and takes their needs into account when deciding on how to spend the Fairtrade premium”



70% of respondents agree strongly or agree with this statement, while only 18% disagree or strongly disagree with this statement. This shows clearly that the democratic process of deciding on premium use is working and that farmers feel consulted in the process.

Satisfaction levels were slightly less in response to the statement “I am generally satisfied how the Fairtrade premium has been spent:

Figure 0.7 “I am generally satisfied with how the Fairtrade Premium has been spent”



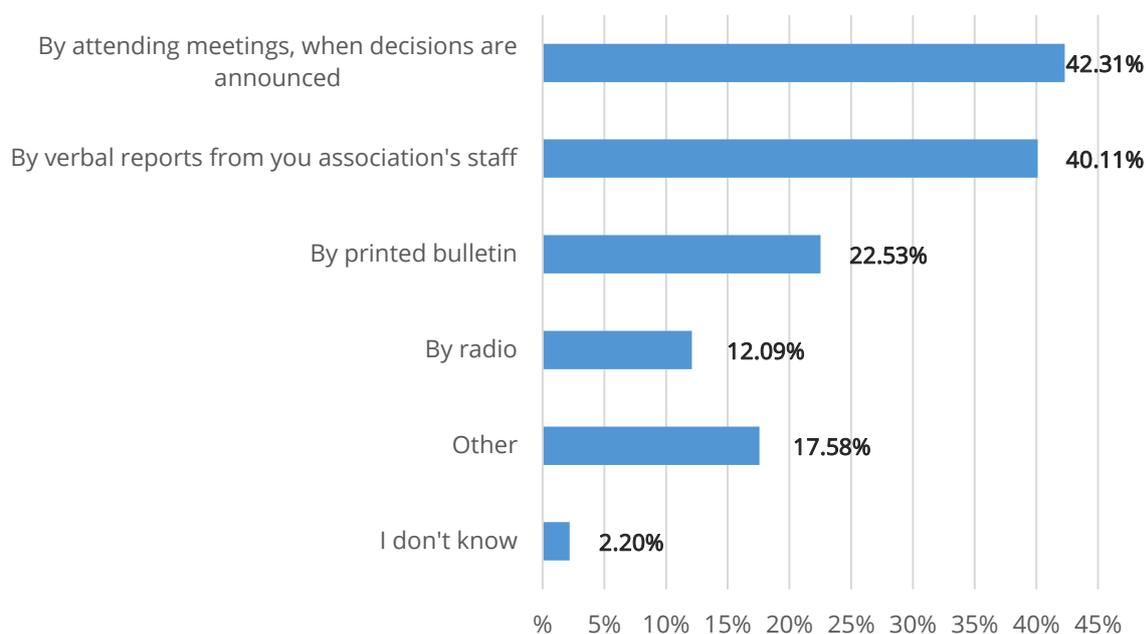
53% of respondents agree or agree strongly with this statement, while 26% of respondents disagree with this statement. This shows that while farmers feel consulted, they are less satisfied with the outcomes of the premium spend. This could be due to a number of reasons; it is, however, clear that the reducing premium received has led to farmers being less satisfied with the impacts of the premium spend.

“We used to rely heavily on the premium for our fertilizer, recently it has not been the same”
(Farmer)

The relationship with and the contact that individual farmers have with their Farmers Association is also an important indicator of the organizational strength of the Farmers Association. 77% of respondents had attended Association meetings in the last year and 81% of respondents had attended Branch meetings in the last year (in both cases, 7% answered that they did not know if a meeting had been held). On average, respondents had attended 3.12 Association meetings and 3.81 branch meetings in the year. This relatively high level of contact between farmers and their Farmers Association was confirmed through stakeholder interviews. Farmers Associations also were able to show annual planners with meetings scheduled at Association and at Branch level.

When asked about how they are informed about decisions made by the Associations, they gave the following responses:

Figure 0.8 Being kept informed by the associations



Respondents feel that their voice is generally heard with all Association matters. 78% of respondents feel it is easy to voice their opinions and concerns at Association meetings, while 59% of respondents trust the leaders of the association to make the right decisions in the interest of the members. 57% of respondents feel that the Association helps them farm better. The manner in which the Farmers association is run is fundamentally important to farmers. In responding to the statement “I don’t really care how the association is run as long as I get a good price for my product”, 64% of respondents did not agree, while only 11% of respondents would put price above a well-run and managed farmers association.

This high level of contact and involvement with the Farmers Association recorded in the quantitative survey corroborates what was discussed in the focus group discussions. Farmers showed a strong affinity with their farmers association and its structures. In the focus group discussions, the following main points were raised regarding the farmer relationship with their Associations:

1. Leaders were accountable to farmers and farmers felt they could determine their leaders
2. Meetings were well run and were run according to the constitution of the Association
3. Annual reports were satisfactory, although sometimes received late
4. Premium expenditure plans and spending was clear, Fairtrade support through CLAC was appreciated in this regard
5. Farmers felt that there were some communication gaps between Associations/Branches and farmers. They felt that this has gotten worse over the last few seasons, which may be a result of the decreased premium and fewer people in the field

In summing up the contribution that Fairtrade has had in organizational strengthening, 75% of respondents felt that their association was now better able to assist them due to the input of Fairtrade. When asked about the statement "Fairtrade has strengthened the capacity of my farmers' association", 71% of respondents agreed or agreed strongly with this statement, which shows the value that Fairtrade has brought to the organizational strengthening of the associations.

4.2.2 Sustainability of Farmers Associations

Fairtrade has provided significant organizational strengthening of the Farmers Associations as alluded to above. One of the risks identified by the associations is that, as the Fairtrade premium gets smaller, so too does the associations' ability to provide services to their farmers, to fulfil the association mandate, and to keep farmer satisfaction levels where they currently are.

The leaders do however recognise a future where there is no Fairtrade premium and are making plans for this eventuality. While they would never consider leaving Fairtrade, they do have a fear that the premium may be significantly reduced.

"We see a future with no Fairtrade premium, Fairtrade have given us a good start, it is now up to us to finish the race" (Board member)

Regardless of the truth of this prediction, it does indicate that the associations are preparing for a future without Fairtrade.

Organizational design literature shows that forward-looking organizations have reached the level of maturity and cohesion needed to ensure some level of long-term sustainability. Being forward looking and having a plan for the future is one of the ten "Bellagio Principles." These principles were set out by a group of international sustainability researchers in 1996 as a guideline for sustainable development assessment.²⁵

Moreover, having a strategy that is future driven is one of the eight criteria necessary to compete with similar businesses in the global arena, as is described by Andre J. Parker and Theo Veldsman in their research *The Validity of World Class Business Criteria across Developed and Developing Countries*. A future oriented organization is able to respond effectively to the prevailing business challenges in a manner that surpasses competitors and to compete effectively in the global economy.²⁶

²⁵ Peter Hardi and Terrence Zdan, "Assessing Sustainable Development: Principles in Practice," *International Institute for Sustainable Development* (1997): 1-175.

²⁶ Andre J. Parker, and Theo H. Veldsman. "The Validity of World Class Business Criteria across Developed and Developing Countries." *South African Journal of Human Resource Management* 8, no. 1 (2010): 1-17.

During the focus group discussions with the leadership of the associations, future plans were discussed at length. All of the associations have plans which cover the following aspects:

1. All associations had undertaken a strategic planning process to understand the risks and opportunities that they face in the next five years. These plans primarily look at how services to farmers can be enhanced and how these services can be financed.
2. One association has plans to move up the sugar value chain to ensure further value addition to its members.
3. All associations were looking at becoming directly involved in downstream aspects of the value chain, mainly through the provision of inputs. Some of them have already invested in input facilities and are making margins on the inputs and providing inputs to their members at reduced rates.
4. One association has plans to invest in a new venture outside the sugar value chain to diversify their income stream and exposure from the sugar industry

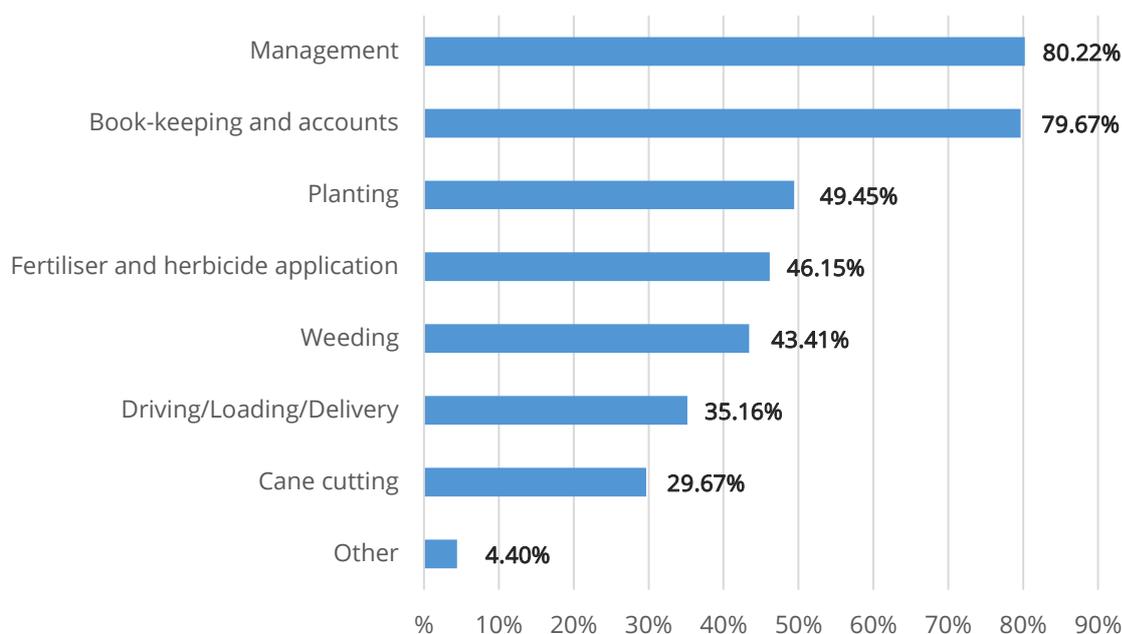
These future facing plans are a good indicator of the maturity of these farmers associations and show the strong likelihood of these organizations sustaining themselves even in the absence of Fairtrade.

4.2.3 Impact of Fairtrade on Gender equity

Gender equity was explored at two levels: at the household and production level and at the organizational level. This aspect was raised in the quantitative survey and special focus group discussions with women.

The household is generally involved with all production activities. The figure below indicates the frequencies of responses received to the question “In what areas of the business do members of your family participate in?”

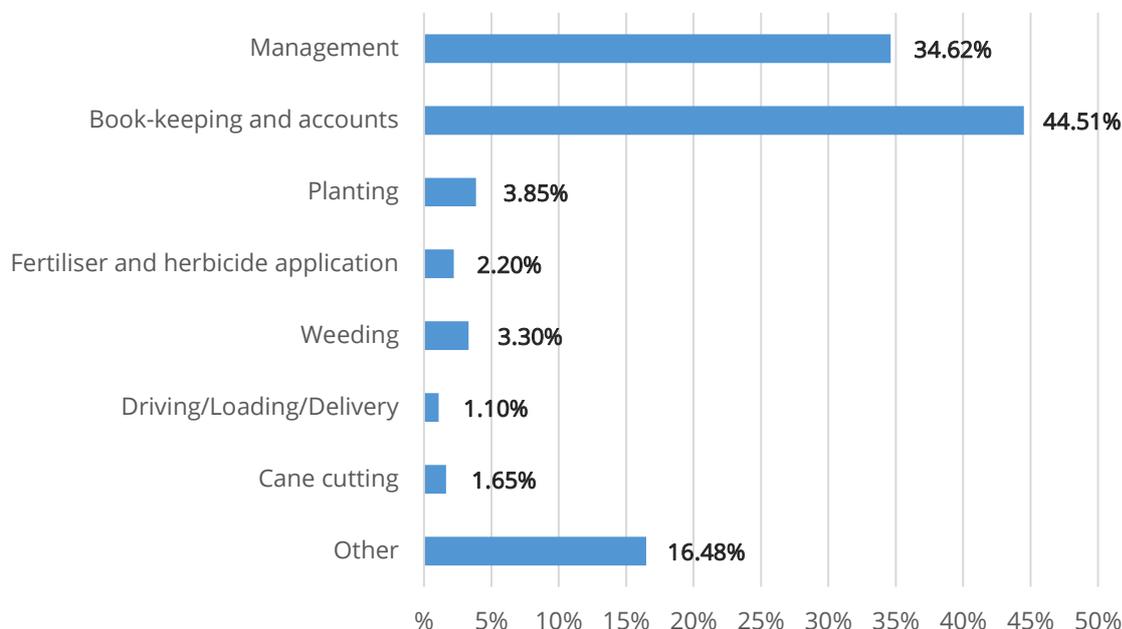
Figure 0.9 Areas of business based on families



This shows a wide range of activities being undertaken by household labour and a strong reliance of household labour in the farming system.

When asked of these activities what work was undertaken by women members of the household, the following responses were received:

Figure 0.10 Work by female members of the household



From this, it is clear to see the role that women play in the production of sugarcane at a household level. Women were mainly involved with administrative and management areas, although some women also worked in the field as and when required.

When asked to describe their role in the focus group discussions, a similar picture emerged: women provided an administrative and support role in the production system and felt very much that production was a family endeavour with everyone contributing as and how they can.

During the focus group discussion, women were asked about the division of income at a household level and replied that they felt that this was not an issue; every household had different systems sometimes managed by men and sometimes managed by women. There was no sense of marginalization of woman in this regard.

Women felt that they were generally included and appreciated at a household level. When asked if they felt things had changed since the introduction of Fairtrade, they felt quite strongly that nothing really needed to change as everyone understood his or her roles from a gender perspective and executed accordingly. They did, however, feel that Fairtrade had made a positive impact in allowing their voice to be heard at association meetings. They also felt that men and women had equal opportunity to attend training and other Fairtrade-organized events.

Women participating in the focus group discussions had a good understanding of the sugar industry in Belize, knew about Fairtrade and the impact that Fairtrade was having in the industry, and felt a strong affinity with their farmers association.

“For me I really appreciate what Fairtrade has done for us as women, we have many battles as sugar producers and Fairtrade has made it much smoother” (Women member of focus group discussion)

“I go to the field with my husband and we make decisions together, the land (22 acres) belongs to me but now we are married and it now belongs to us” (Women member of focus group)

At an association level, things were slightly different. There was a strong recognition by association management and leadership that gender equity at the association was a core principle that they ascribed to. They mentioned that they had undertaken a series of trainings on gender and had policies promoting gender equity. However, nearly all leadership positions in all three associations are held by men. Data provided by the Associations indicated that only 8% of the leadership positions were filled by women at association level and 17% at branch level. When challenged on this, the association leadership said women were not putting themselves forward for leadership positions. This is clearly an area which needs attention.

4.2.4 Youth involvement in the sugar industry

“The future of the sugar industry in Belize is predominantly in the hands of the youth. Therefore, it is important to look at the involvement of the youth in the industry” (Industry stakeholder)

The farmer population is an ageing one. Based on the quantitative survey undertaken, the average age of the primary decision makers is 52. At the same time, the general population of Belize is getting younger, with youth (18-35) making up 29% of the population in 2016, up from 27% in 1991.²⁷

The family nature of the growing of sugarcane means that the youth is involved with a range of farming and management operations from an early age. This has led to some conflicts, as work at a young age as part of the rite of passage in the family may also be considered child labour.

“My father took me to the field as a youngster and I could drive a tractor by the age of 12-this is the reason that I am the successful person that I am today”²⁸

While Fairtrade has been very clear regarding the regulations regarding child labour and what constitutes child labour, the campaign has caused changes in the family labour dynamic.

“If we cannot take our children to the field, how will they be interested in farming?” was often heard in the various interviews held with farmers.

Evidence from the quantitative survey shows that the youth is not really interested in working in the sugar industry. In response to the question “Have any children under the age of 18 in your household who are not working expressed an interest in working in the sugar industry once they come of age”, 67% of respondents answered no, while only 25% of respondents answered yes. When asked “Do you expect any children in your household to eventually take over the family sugar farming operations?”, 51% answered yes, while 49% answered no. This shows that adults expect the youth to be involved in the business while the youth do not necessarily have aspirations to get involved.

Attitudes of the youth towards their participation in the sugar industry were examined during the research. A focus group discussion was also held with a group of youth (six) whose age ranged from 18-24 years old, resulting in some interesting findings.

In the first instance, the youth felt that they had no alternative but to get involved with the sugar industry as there was very little other employment opportunity in the North of Belize. They also felt that they were often misunderstood in their intentions to be involved with the sugar industry.

²⁷ Extracted from the United Nations Statistics Division, “Population by age, sex and urban/rural residence”; <http://data.un.org/Data.aspx?d=POP&f=tableCode%3A22>.

²⁸ Respondent is currently a senior member of the organization (estimated age over 60 years old)_of one of the existing farmers associations

They feel that people often say that the youth are lazy, they do not want to do hard work, and that they would rather work on computers and in banks, but this is not the case. They would like to get involved, but they face significant barriers to entry.

“We hear it said that the youth are not interested in becoming farmers, it is too hard work and we want to do other things” (Youth focus group member)

They feel this sentiment is not true. They say that it is very difficult for them to become farmers.

“Land is expensive and scarce, and one needs to be politically connected to get access to land, if we had access to land we would be farmers tomorrow” (Youth focus group member)

The other barrier spoken about by the youth was the fact that, if they had to wait to take over the family farm, they needed to wait a long time and there were always going to be competing demands on the farm from siblings.

“My parents tell me that there is still a lot of life left in them, I know this but need to start thinking about my own life and my future” (Youth focus group member)

“The farming operation is not big enough for all my brothers and sisters, who is going to win and who is going to lose” (Youth focus group member)

These comments show the contextual issues that are the real barriers to intergenerational succession at a household farming level.

The Farmers Associations are very aware of the importance of engaging with the youth as part of the sustainability of the industry and succession planning in the farmers associations. One of the Farmers Associations has had an active drive to try and include the youth in the sugar value chain, but with limited success. From an employment perspective, one of the farmers associations has a policy to employ youth as part of their farmer support staff.

4.2.5 Child Labour in the Sugar Industry in Belize

The eradication of child labour has been one of the key programs of Fairtrade and the different Farmers Associations in Belize.

During an unannounced audit carried out by FLOCERT in June 2014, non-compliance to the child labour aspects of the Fairtrade standard was detected and the Farmers Association, BSCA 01, was suspended and given corrective actions with 6 months to rectify the situation.

The Farmers association put in place and funded an ambitious monitoring and remediation programme to identify and withdraw children engaged or at risk of being engaged in unacceptable work. This program was regarded as best practice as it was implemented.

The Farmers Association directors and staff received child rights and child protection training from UNICEF Belize in conjunction with Fairtrade, including the legal requirements on child labour in Belize and the negative impacts that child labour can have on both young people and their communities. Fairtrade International trained BSCA 01 staff and directors on its rights-based approach to child labour elimination and prevention and supported BSCA 01 in developing its child labour and child protection policies and procedures. BSCA 01 then rolled out its training to all 18 branches.

The Farmers Association has established a fully operational Internal Control System (ICS) to track, among other things, the ages and involvement of workers in sugar cane production. In addition to the ICS, the Farmers Association agreed to establish Fairtrade's model to proactively identify and respond to child labour, called Youth Inclusive Community Based Monitoring and Remediation (YICBMR) System on Child Labour.

In the communities where children at risk of child labour and exploitation were identified, actions were taken to remediate them. These remediation actions included scholarships for out of school children, alternative income generation activities for young people, and lobbying relevant government agencies, school authorities, and civil society groups for children to be in safe environments.

These activities have been rolled out as the other Farmers associations were established.

During focus group discussions and stakeholder interviews, it was mentioned that the efforts to eliminate child labour in Belize were world class and could become a benchmark for other industries.

This study has not attempted to pronounce on whether or to what extent child labour has been eradicated or reduced in Belize, as this is a specialist study in itself. This study did, however, look at how perceptions around child labour have changed since Fairtrade started in Belize.

In answering the question “before Fairtrade, were you aware of what child labour was”, 67.6% of respondents responded yes and 32.4% responded no. When asked “Before Fairtrade, did you ever have children working on your farm”, 47.8% of respondents replied “no, never”, 34% of respondents replied “yes, but only sometimes”, and 18.2% of respondents replied “yes, often”.

Discussions in the focus groups corroborated this. Farmers did not see any problems with children working on the farms.

“We did not really think about the long-term impact of using children on the farms, we needed to get the job done and that is all that mattered”. (Farmer)

When asked the question “Since Fairtrade, do you now understand the laws around child labour”, 89.6% of respondents replied “yes”, 7.2% replied “I am not sure”, and 3.2% replied “no”.

This question did raise quite a bit of discussion in the focus groups. The sense was that, while farmers understood the law, they did not necessarily agree with the law and felt that in some instances the law impinged on their rights as parents and on the culture of bringing up children. The fact that these conversations were held in the focus groups was seen as a positive, as it indicates that the issue is being addressed through open dialog. It was also pleasing to see that many of the concerns raised in the focus group were answered by other members of the group, often using pamphlets or posters produced by the Farmers association as part of the various awareness campaigns being run.

Overall, it can be concluded that Fairtrade has had an extremely positive impact on raising awareness around the issues and impacts of child labour and have been instrumental in assisting Farmers Associations to implement a world class monitoring and remediation system to curb the incidence of child labour in the sugar industry.

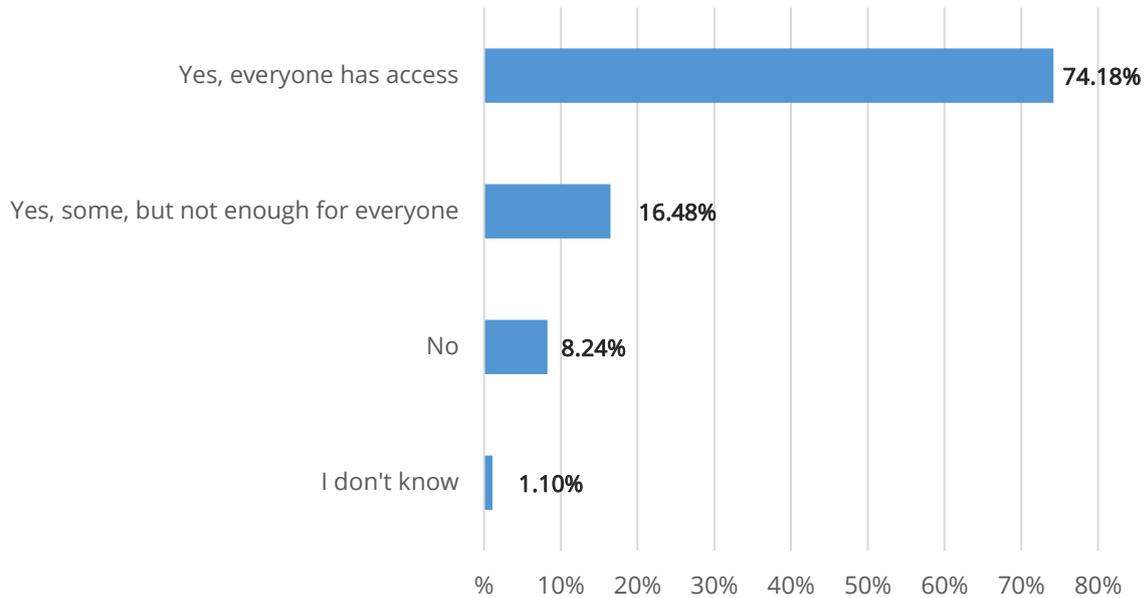
4.2.6 Working conditions on farm

This aspect of the Fairtrade intervention was not studied in any depth, with only two areas being examined:

1. Availability of water to workers
2. General working conditions

With regards to availability of water to workers, Fairtrade has done quite a bit to ensure adequate water supply to workers. 68% of respondents reported having received training regarding the provision of water to workers. 61% of respondents reported that their Farmers Association had provided them with water containers with which to provide water to workers. The following graph shows *the impact of this in terms of water supply to workers:*

Figure 0.11 “Do your workers in your fields currently have ready access to water working in the fields?”



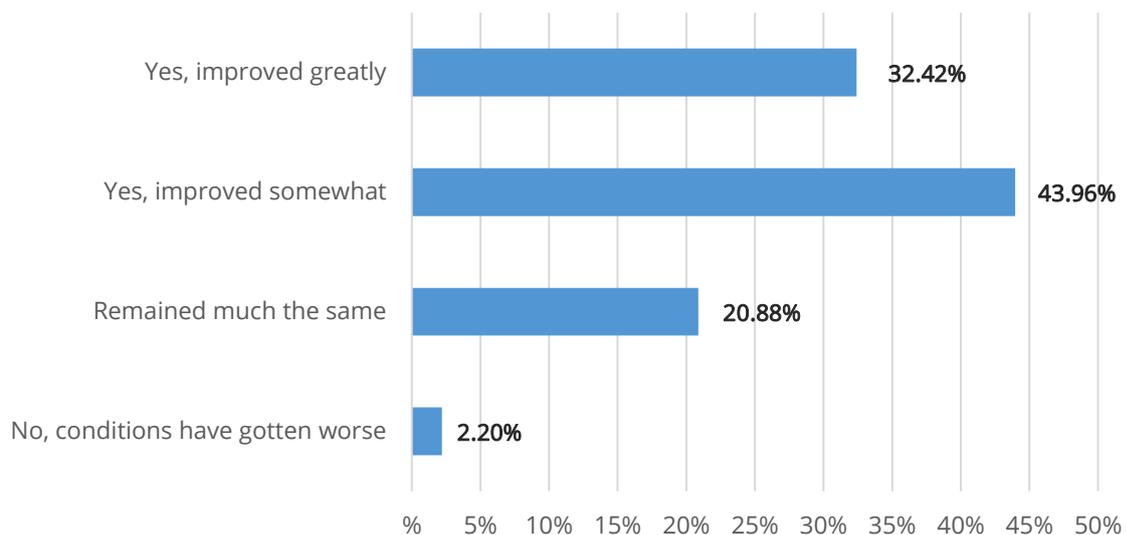
Focus groups of workers confirmed these findings with provision of water to workers not being seen as an issue.

“Providing water to workers is easy, anyway many workers bring their own and the village is not far away” -Farmer

Leaders also mentioned that many workers, especially cutters, also received cola on a daily basis.

When asked “Overall do you think that labour conditions for workers in your fields have improved, remained the same, or worsened since Fairtrade”, the following response was received:

Figure 0.12 “Overall do you think that labour conditions for workers in your fields have improved, remained the same or worsened since Fairtrade?”



While the above paints an overall positive picture of working conditions on farms and indicate a positive change, the results must be viewed with a degree of caution, as this is the farmers' perception of how things have changed. The research design did not allow detailed corroboration of these statements from the workers themselves. Some corroboration can be inferred by looking at the spend on items used by workers to improve working conditions such as PPE and water supply. Also, the FLOCERT audit confirms that certain conditions are being met, such as the use of contracts and the regulation of working hours.

4.2.7 Social changes in the community

Approximately 8% of Fairtrade premium spend is used for social upliftment projects in the community. These projects include social security projects, social upliftment projects, education, and welfare.

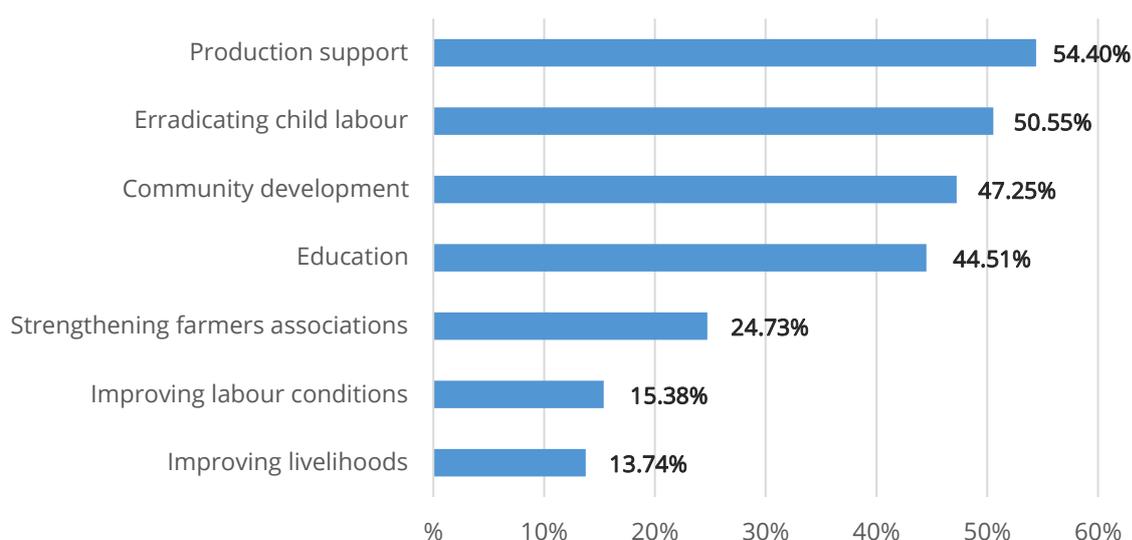
"The Fairtrade community projects show that Fairtrade and Farmers are not just interested in themselves" (Woman's focus group)

"Our community is extremely grateful for the effort that the Farmers Association puts into supporting us" (Association member)

When asked in the quantitative survey to respond to the statement "I am aware of Fairtrade projects in the areas of Education, social programs and community programs which have occurred in my village", 75% of respondents replied positively. When asked "what kind of impact do you think that the social and community programs run by Fairtrade have in your community", 99% of respondents replied very positive or somewhat positive, confirming the impact that these programs have in the village.

When asked in the quantitative survey "thinking about everything Fairtrade does, which area of Fairtrade activities do you think has had the greatest impact?", the following responses were received:

Figure 0.13 "Thinking about everything that Fairtrade does, which area of Fairtrade activities do you think has had the greatest impact?"



From this figure, it can be seen that community development and education are highly appreciated by farmers.

4.3 AGRICULTURAL AND ENVIRONMENTAL CHANGES

The Fairtrade intervention has allowed the Farmers Associations to better provide agronomic and environmental services to their farmers. When asked to respond to the statement “my Association has been better able to assist me due to Fairtrade”, 77% of respondents agreed or strongly agreed with this statement. Fairtrade has allowed the Farmers associations to provide assistance in the following ways:

1. Train farmers on better use of the right inputs at the right time, handling of chemicals, and protection of the environment and Good Agricultural Practice
2. Used some of the premium to provide grants and subsidies on inputs and practices

The introduction of Fairtrade coincided with the formation of SIRD. This was a significant occurrence as for the first time the Belize sugar industry had an industry-owned and -managed institute dedicated to improving the technical capacity of all stakeholders of the Belize sugar industry.

“We had been growing for ages, we knew everything there was about growing sugar-then we started working with SIRD and we realized we needed to change” -Farmer leader

The support that SIRD gives to the industry is in three main areas:²⁹

1. To enhance sugar industry competitiveness through the generation and transfer of appropriate technologies by:
 - Development and validation of technologies to increase productivity and competitiveness of sugar cane value chains (research)
 - Enhancement of results-oriented research-extension -farmer linkages to increase uptake of improved technologies (extension)
2. To develop, update, and maintain a Sugar Industry Management Information System (SIMIS) to facilitate decision making of stakeholders
3. Provision of technical and commercial services to stakeholders of the sugar industry that will contribute to the sustainability of the institution

The support that Fairtrade has provided to the farmers now has a strong technical basis and can be aligned to and compliment the best practice as developed by SIRD.

4.3.1 Training given to farmers

The Fairtrade theory of change with regards to improved farming practices hypothesises that “Providing support to small producers and their organizations” will have the output of “enhanced knowledge and capacity among small producers and their organizations and networks”, leading to the outcome of “improved farming performance, protection of environment, and adaptation to climate change.”

In order to test the change that has occurred, qualitative and quantitative questions were asked regarding access to, changes resulting from, and impact of the training received by farmers since the inception of Fairtrade.

²⁹ SIRD strategy presentation September 2016

Training regarding improved farming practice and protection of the environment has been given in the following broad areas:

1. The Fairtrade Standard
2. Improved and correct use of Fertilizers
3. Improved and correct use of herbicides
4. Froghopper control
5. The improved and correct use of safety gear and protective clothing
6. The safe storage of chemicals
7. Safe disposal of chemicals

Of the respondents interviewed, only 61% of respondents reported that they had received training on the Fairtrade standards. The training given on the Fairtrade standard is primarily aimed at the board and managers of the associations, which could explain the relatively low percentage of respondents reporting having received training. This aspect may need to be addressed in follow-up training, as the Fairtrade standards is the foundation upon which Fairtrade support is built.

For each of the other categories of training delivered, respondents were asked the two questions:

1. Have you or a member of your household received training and technical assistance?
2. If yes, by whom?

The graphs below indicate the answers to each of these questions:

Figure 0.14 Training and technical assistance

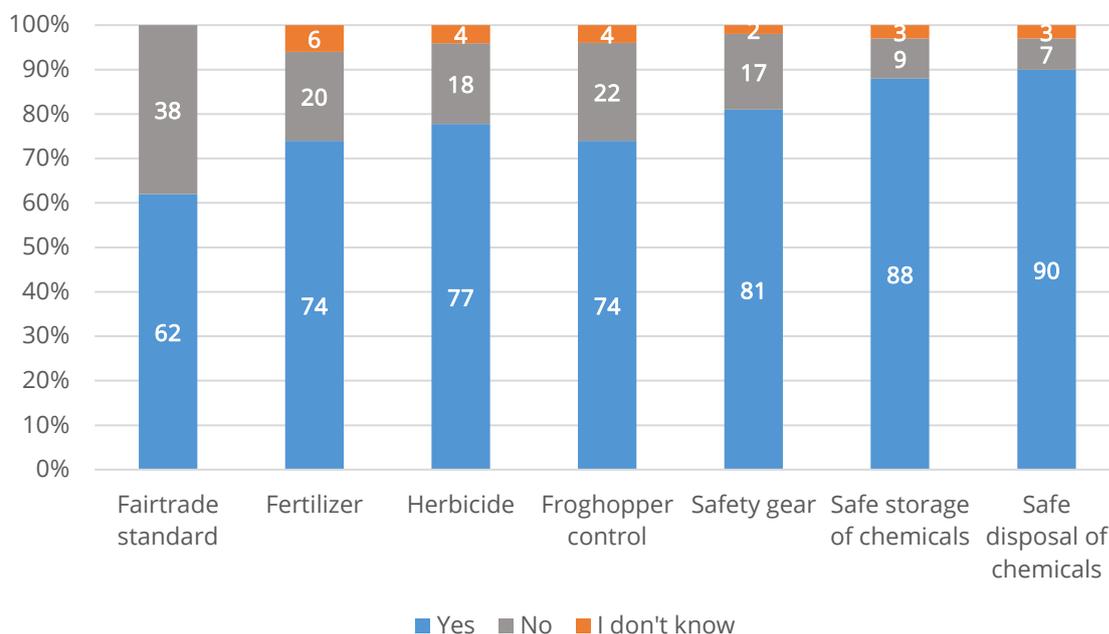
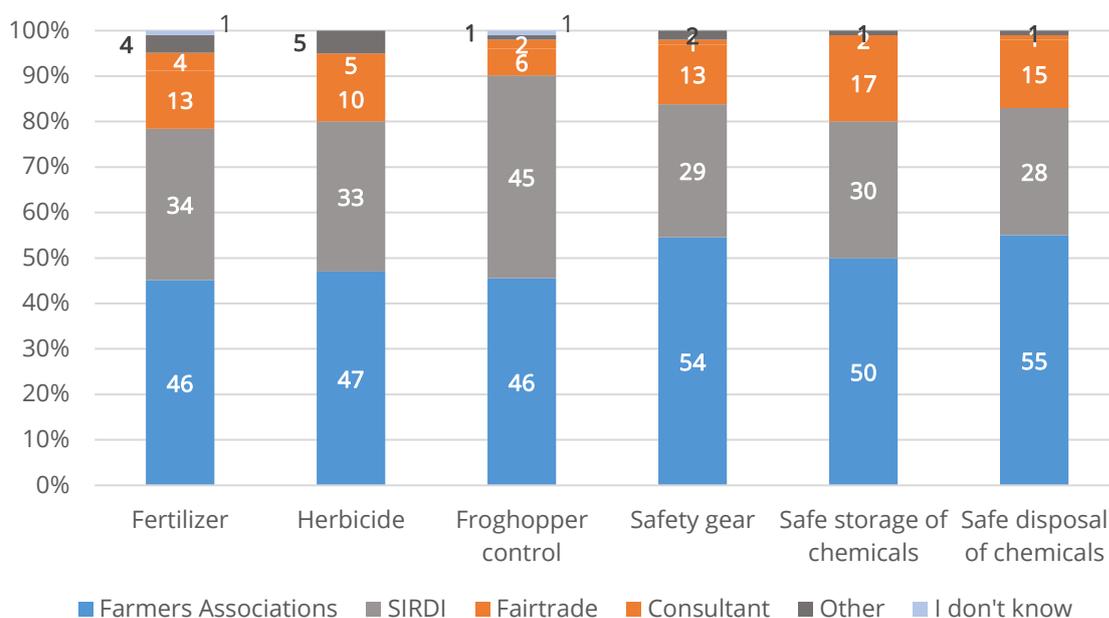


Figure 0.15 Providers of training and technical assistance



From this information it can be seen that a significant number of respondents received training in improved farming practice and environmental protection. This training was provided mainly by the different farmers association and SIRDI.

This high level of training was confirmed through the focus group discussions. It was often mentioned that, since the inception of Fairtrade, one of the key things that has changed in the sugar industry is the access to information.

“We appreciate very much that we now understand how better to grow sugarcane” (Woman farmer)

“Before Fairtrade we had our own recipe that we got from our fathers for growing sugarcane. Fairtrade has shown us a better way to bake our cake” (Farmer focus group)

4.3.2 Outputs, outcomes, and impacts of the training

When one considers the outputs, outcomes, and impacts of the training, one needs to consider the other support programs that have impacted on the observed changes. One also needs to be cognisant of the fact that without a control group, the use of recall is an important tool to use. Sometimes, however, recall over a ten-year period can be difficult. While questions were framed to try and access the impacts of Fairtrade, it is acknowledged that in fact many other initiatives from among others SIRDI and BSI were going on at the same time, so attribution of the change solely to Fairtrade is not possible.

That said, activities of all stakeholders are generally aligned with the Fairtrade standard and technical guidelines drawn up by SIRDI.

“We are grateful to have the Fairtrade standard as the guiding document for sustainability in the industry. We are easily able to align the advice and programs of support that we have with the standard without having to design a sustainability framework ourselves” (Industry stakeholder)

Another example of what is being expressed in the quotation above is the creation of the Fairtrade Premium Technical Committee,³⁰ which is a forum of stakeholders designed to ensure that, where the premium is being used for productive purposes, each stakeholder is able to give input to ensure technical alignment. Thus, each activity from each different stakeholder is seen as additive and contributes, if not always intentionally, to the impacts as seen in the Fairtrade Theory of Change.

For each of the areas of support provided through either training or the use of the premium to support improved farming practice and protection of the environment, a number of qualitative and quantitative questions were asked and the responses and findings regarding impact were as follows:

4.3.3 Fertilizer support program

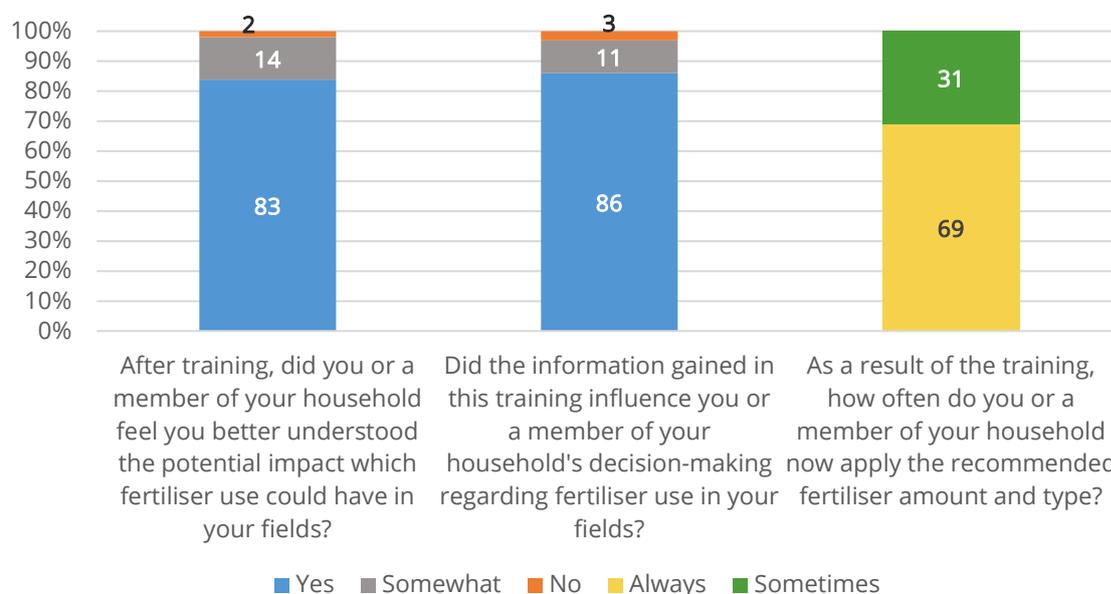
The fertilizer support program has evolved over time and has three basic elements to it:

1. Soil mapping to determine correct level of fertilizer
2. Training on the correct use of fertilizers
3. Fertilizer subsidy program

The soil mapping exercise was not that well known or appreciated by the farmers, with only 7% of farmers knowing about it or ranking it highly as one of the benefits provided by Fairtrade. However, the soil mapping exercise was seen by technical stakeholders as extremely useful and the basis for future fertilizer recommendations.

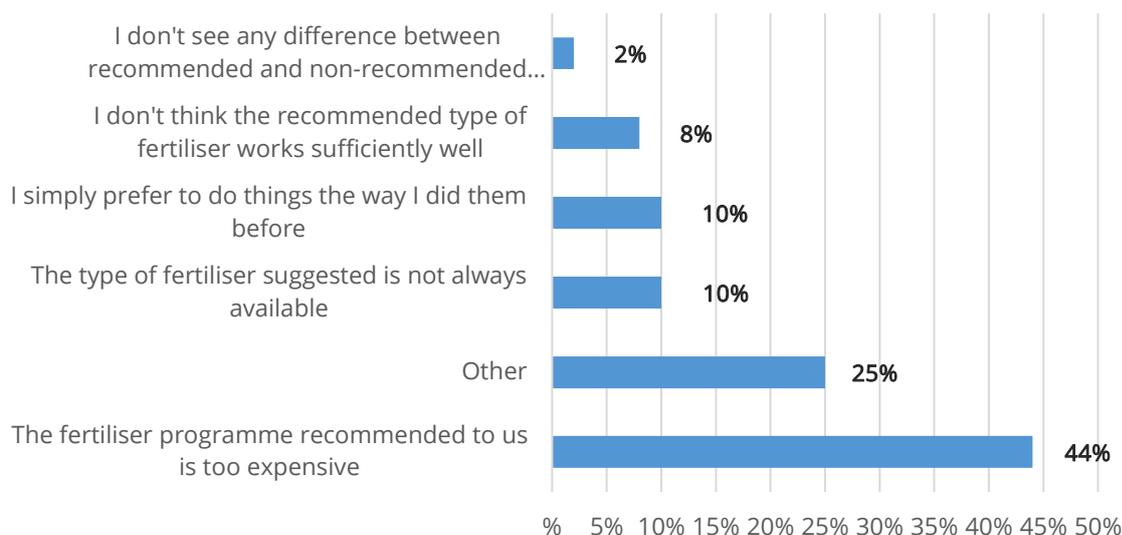
Patterns of fertilizer use have changed due to the activities of Fairtrade. When asked a series of questions regarding patterns of fertilizer use after the training and as a result of the fertilizer program, the following answers were received:

Figure 0.16 Results after fertilizer trainings



³⁰ This is a committee separate from the Fairtrade Premium Committee, which is the committee that ensures that the use of the premium is done according to the democratic wishes of the members. The Fairtrade Premium Technical Committee is an advisory committee which advisors on the best technical solutions to the democratically decided premium spend

Figure 0.17 Reasons for not following the fertilizer recommendations



Some of the reasons given as to why the fertilizer recommendations are not followed after the training include the following:

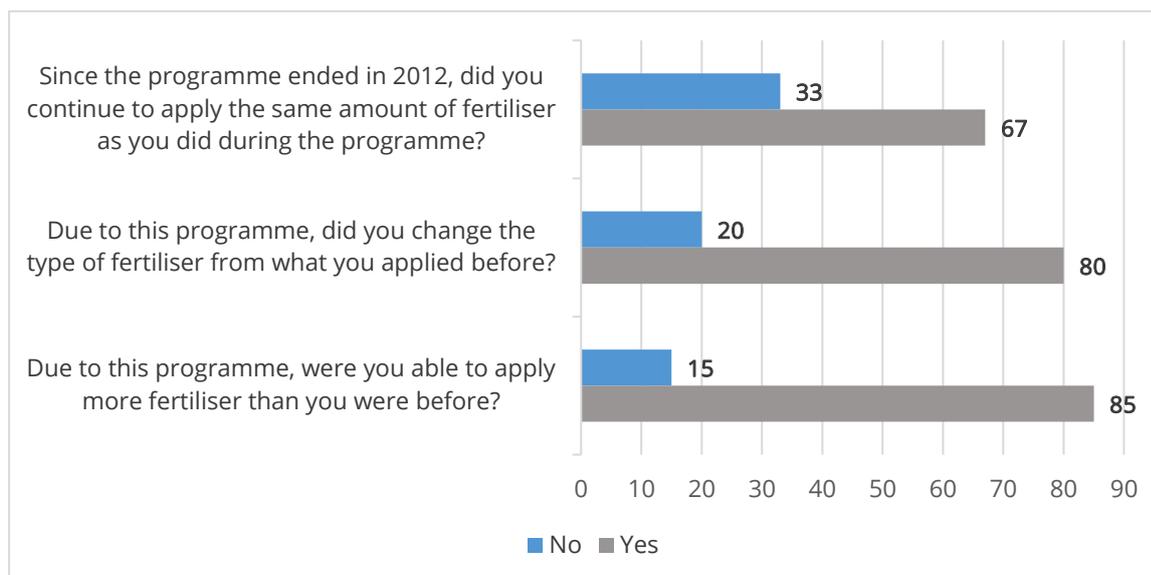
- The recommended fertilizer is too expensive
- I simply prefer to do things the way I did them before
- I do not think that the recommended fertilizer works sufficiently well
- I do not see any difference between the recommended and non-recommended

The availability and cost of the fertilizer were also raised during the stakeholder interviews. It was felt that the supply of the right quantities of the right types of fertilizers had taken quite a long time to get into the sugar supply chain in Belize. It was also felt that there were some suppliers that had vested interests in keeping the old fertilizer on the market, thus making the change process more difficult.

The fertilizer support program was well received by farmers. Although information from farmer leaders seemed to indicate that everyone was eligible for the fertilizer subsidy scheme, it would appear from the quantitative survey that only 53% of farmers surveyed had benefitted from the subsidy. This could have been a result of different branches having different priorities when it came to premium use. There were also 10% of respondents who were not sure if they had benefitted from the fertilizer subsidy. These respondents may not currently be the decision maker on the farm or may not have been the decision maker on the farm during the roll out of the fertilizer subsidy scheme.

Of those that benefitted from the scheme, significant changes in the quantities and type of fertilizer applied was seen.

Figure 0.18 Changes with the farmers that benefitted from the fertilizer support program



This shows the large impact that the subsidy program had on those that were able to access it. It also shows that a significant number of farmers that had accessed the fertilizer program continued to apply the correct amount of fertilizer even after the program of support had ended.

4.3.4 Herbicide Support program

The Herbicide support program has two main elements to it:

1. The training in the correct type and use of herbicide
2. A herbicide subsidy provided by the Farmers Association

As part of this program, the halting of all use of Paraquat as a herbicide in the control of weeds in the sugarcane was required to ensure compliance with the Fairtrade standard.

Understanding the weed spectrum and how to control it is an important part of cane husbandry activities. During a field trip undertaken to a farmers' field, the farmer showed a clean field and commented:

"This field is a result of Fairtrade-we now know how to apply the right herbicide at the right time" - Farmer

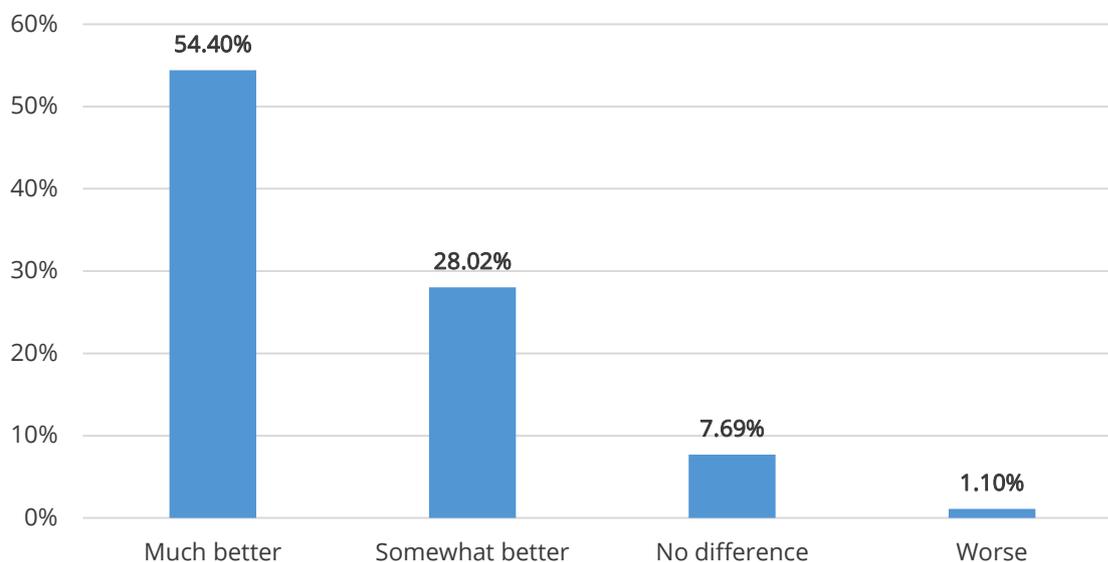
This was corroborated with the SIRD director who commented "There has been a significant improvement in the control of weeds in the field since Fairtrade"

Results from the quantitative survey support these observations.

77% (141 farmers) replied that they had received training and technical assistance regarding herbicide use. Of these 141 farmers, 97% reported that, after the training, they felt that they better understood the impact of which herbicide to use when and 99% of respondents felt that the information influenced them to change their decisions regarding herbicide use. When asked "as a result of the training, how often do you or a member of your household now apply the recommended type and amount of herbicides to your cane", 68% responded always, 29% responded sometimes and 3% never. The reasons given for not always applying the right amount and type of herbicide was mainly due to cost and availability of the recommended herbicide.

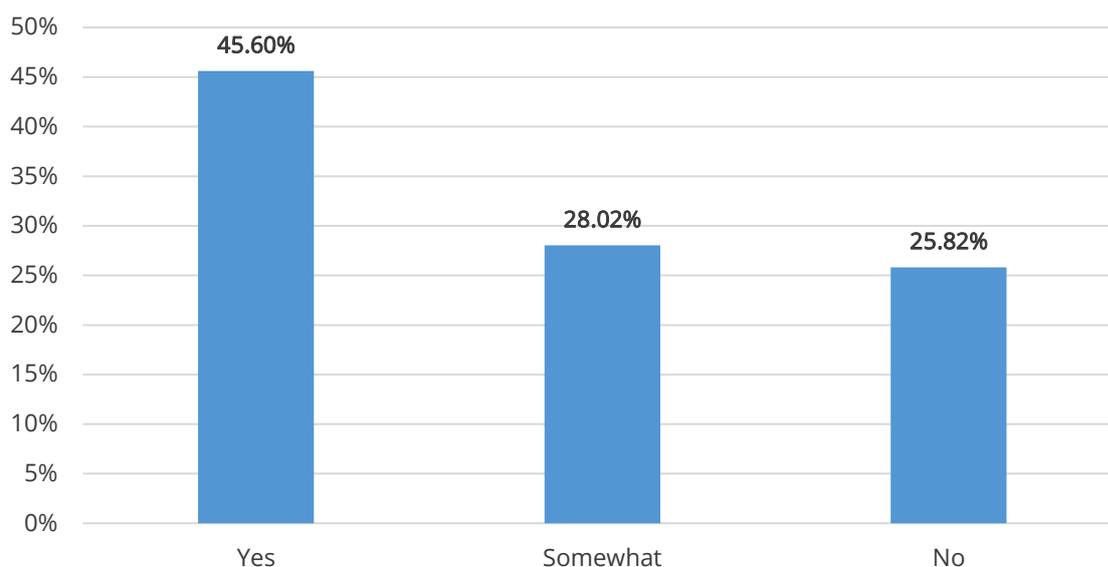
When asked what the impact of the herbicide program has been on weed control, the following responses were received:

Figure 0.19 "If you have changed your herbicide use as a result of training and technical assistance, did you experience better control of weeds in your fields?"



When asked "have you been able to reduce spending on labour for weeding as a result of the training", the following responses were received:

Figure 0.20 Ability to reduce spending on labour for weeding as a result of the training



The herbicide subsidy program implemented by the different Farmers Associations had two main outputs:

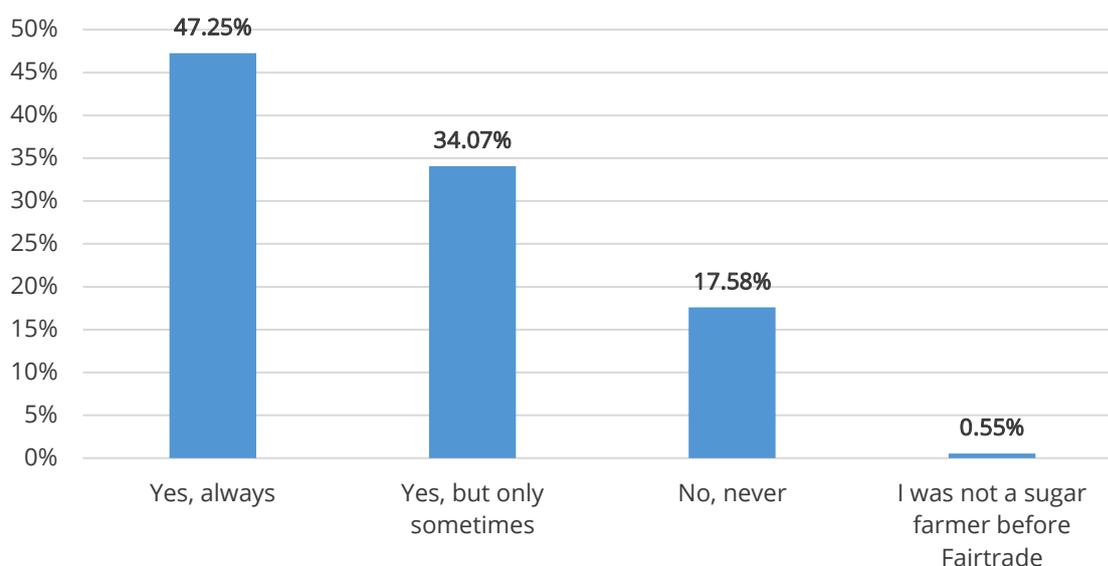
- Economic relief through input subsidy
- Change in the spectrum of herbicides used (and eradication of banned herbicides) through providing training and economic incentive to change

Of the respondents interviewed (120,) 66.5% had participated in the herbicide support program, while 28% (50) had not and 5.5% (10) were not sure.

Of those that participated, 87% said that as a result of their participation they were able to apply more herbicide than before and 93% responded that they had changed the type of herbicide applied. While applying more herbicide is not necessarily a good practice, applying more herbicide in this context indicates increased herbicide use as opposed to hand weeding, a less efficient method of weed control. Therefore, the ability to use more herbicide in controlling weeds indicates better and more efficient weed control.

Of all respondents, 93.4% responded that they knew the list of banned herbicides. When asked the question “before Fairtrade, did you use Paraquat on your sugarcane”, the following responses were received:

Figure 0.21 Usage of Paraquat before Fairtrade



When asked “do you currently use Paraquat”, 93.96% indicated “no, never”. While this change is significant, it is a bit concerning that some farmers still use Paraquat at all.

4.3.5 Froghopper Control Program

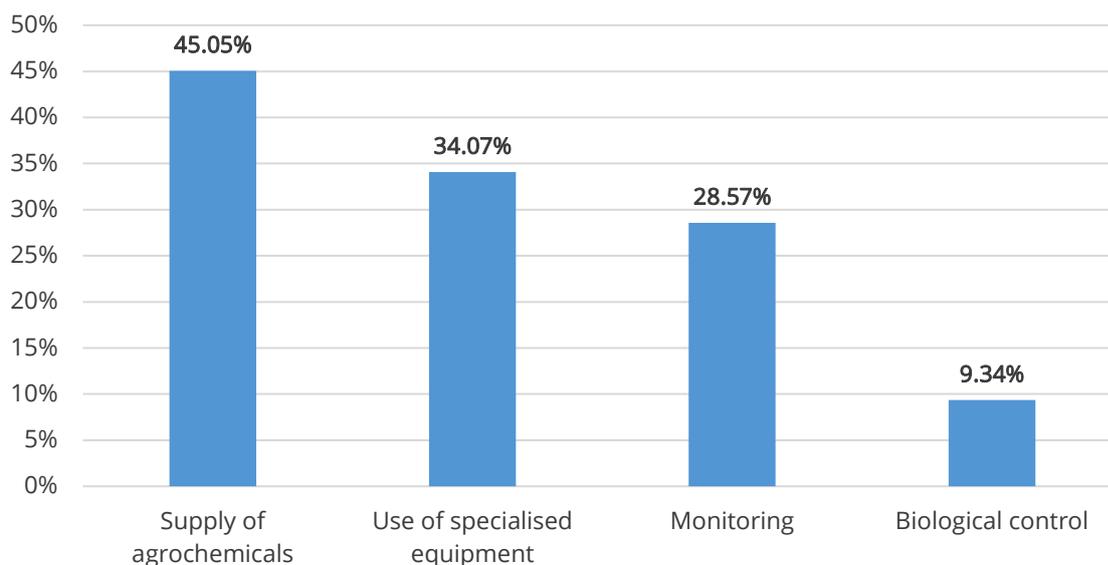
The froghopper is a pest of significance in the Belize sugar industry. Traditionally, it has been controlled through the use of hard chemicals as a stand-alone remedy. Research undertaken by SIRDI and experience from the region has shown that an Integrated Pest Management Approach (IPM) is needed for effective and sustainable control of this pest.

While this pest is not prevalent throughout the industry, 61.5% of respondents reported it as affecting them.

When asked “after the training, did you better understand the impact that IPM could have on frog hopper control”, 92% of respondents answered “yes or somewhat”. When asked if they were now practicing IPM for frog hopper control, 77% replied “yes”.

Support to practice Integrated Pest Management as recommended by SIRDI frog hopper control was provided by the Farmers association in conjunction with SIRDI. When asked “In which ways did you benefit from the frog hopper control program”, the following response was received:

Figure 0.22 Benefits from the frog hopper control program



When asked “Has the overall incidence of frog hopper attacks changed since the training and IPM program began”, 80% reported that they had, 12% reported that they were the same, and 8% reported an increase in attacks.

While this change seems like a positive step towards overall frog hopper control, this was not necessarily corroborated by talking to experts in the field.

“The use of hard chemicals to control frog hopper is still far too prevalent in the industry” (Industry expert)

One of the reasons for this is the high level of organization needed to ensure that the full suite of IPM elements is available to farmers at the right time.

4.3.6 Replant Support

From 2012-2014 some of the premium was used to allow farmers to replant a portion of their land. Only a small percentage, 35%, of respondents participated in the replant program. On average, those that did participate in the replant program replanted 5.04 acres.

Replanting is one of the sugarcane husbandry activities that can significantly improve yield in the most cost-effective manner. It is, however, expensive with costs ranging between BZ\$1200 and BZ\$1500 per acre depending on the service provider.

It is estimated that 2300 acres were planted with support from the Farmers Association during the three years that the program ran.

The impact was significant as it related to a yield increase of those replanted fields. When asked “How does the yield compare to the typical yields from older areas of cane”, 56% of respondents reported much better yields, while 34% reported somewhat better yields. A similar response was received when asked about quality of cane from replanted fields.

While the positive impact from the replant support program has been seen, the sustainability and greater roll out of the program has not been seen due mainly to the high cost of the action.

4.3.7 Use of protective clothing

Protective clothing and the use thereof has been one of the support programs provided by the Farmers association in support of the requirements of the Fairtrade standard. This support has been in two main areas.

1. Training in the need for and use of protective gear
2. Provision of protective gear to farmers as a one-off in 2012

A relatively high percentage of the respondents, 81% (148 respondents), reported attending the training, and of those that attended 98% said that the training influenced their practices around the use of protective clothing. However, despite 75% of respondents reporting that they received protective gear as part of the provision in 2012, the use of this gear has fallen since then.

When asked “currently, do you own protective clothing such as boots, hats, gloves, shin guards, and respiratory masks for use by people working on your farm”, only 52% of respondents answered yes, while a further 9% answered “yes but not enough”. 39% of respondents do not report having protective gear on their farm. This is partly corroborated with the answer to the question “overall, has the use of safety gear increased, decreased, or remained the same over the last 10 years”; 46% of respondents reported it had stayed the same, while 38% indicated it had increased and 16% indicated that it had decreased.

This topic was not explored in any depth in any of the focus group discussions or with industry stakeholders but, from the information received from the quantitative survey, it would appear that there has not been a dramatic change in the use of PPE as a result of Fairtrade. All agreed that, although there was no perfect compliance, things had definitely changed for the better as a result of the Fairtrade intervention.

4.3.8 Storage and disposal of chemicals

Farmers have been supported to practice better management through the storage and disposal of chemicals in the following way:

1. Training in the storage and disposal of chemicals
2. Provision of a central store for the storage of chemicals
3. Provision of a mobile trailer for the safe disposal of containers

A high proportion of respondents (87.4%) reported that they had received training in the safe storage and disposal of chemical containers.

This training, along with the other support provided by the Farmers Association, has resulted in a significant increase in the safe storage and disposal of chemicals. The following two graphs indicate where chemicals were stored before Fairtrade and now and how containers were disposed of before Fairtrade and now:

Figure 0.23 Storage of chemicals before and after Fairtrade

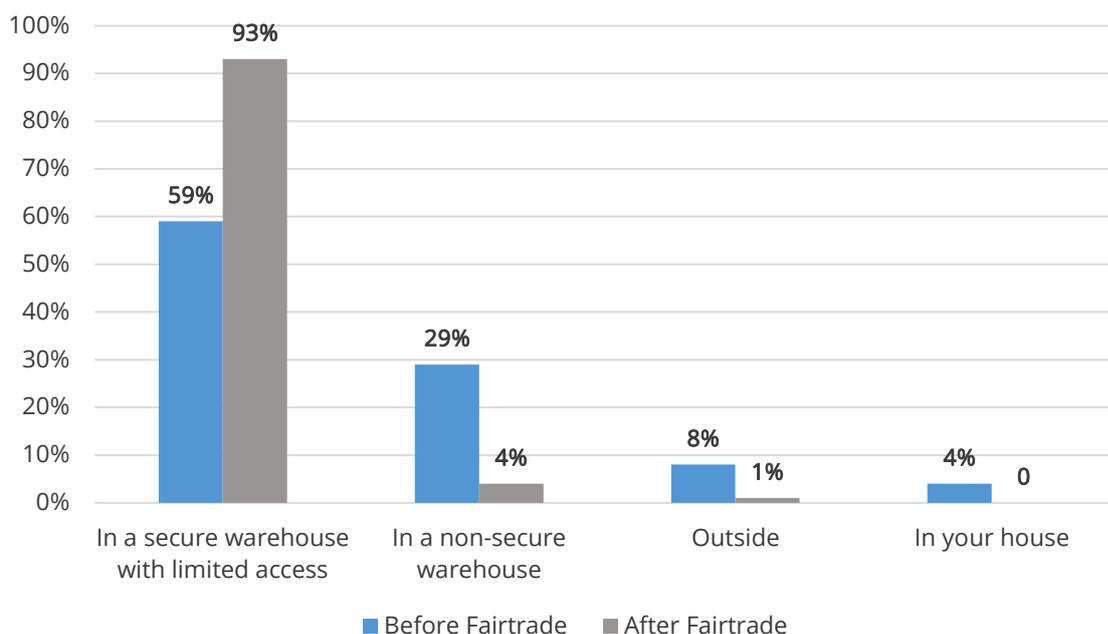
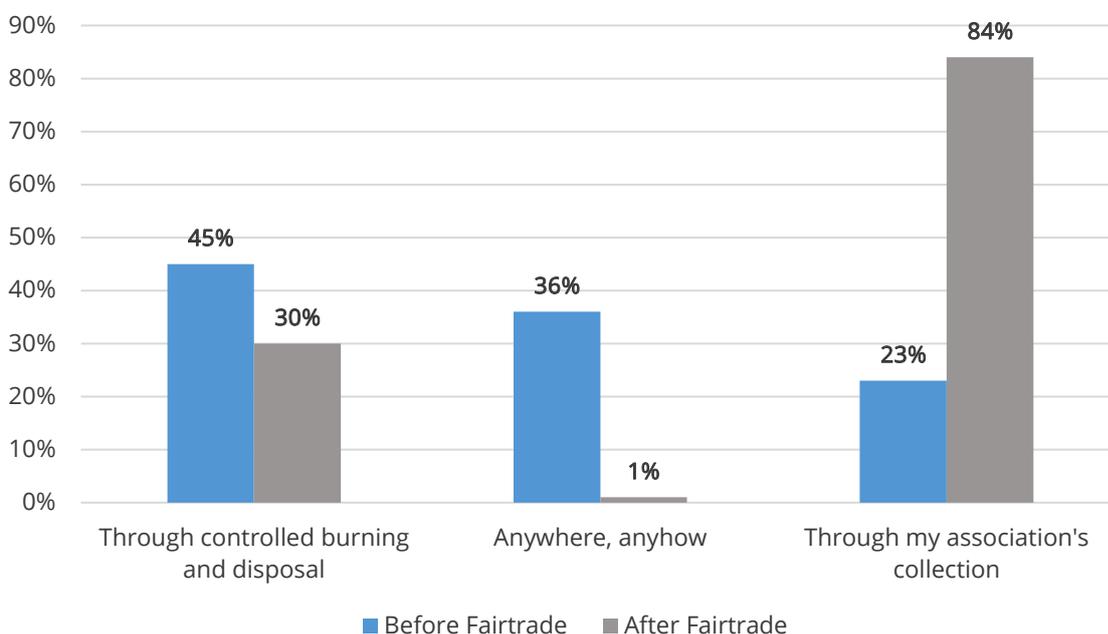


Figure 0.24 Disposal of chemicals before and after Fairtrade



These changes were corroborated through focus group discussions with producers:

“We know exactly how and where to store our chemicals and how to dispose of the containers-our Association ensures that happens” (Farmer)

“Fairtrade has had a significant impact with regards to the handling and safe storage of chemicals in the sugar industry in Belize” (Industry Expert)

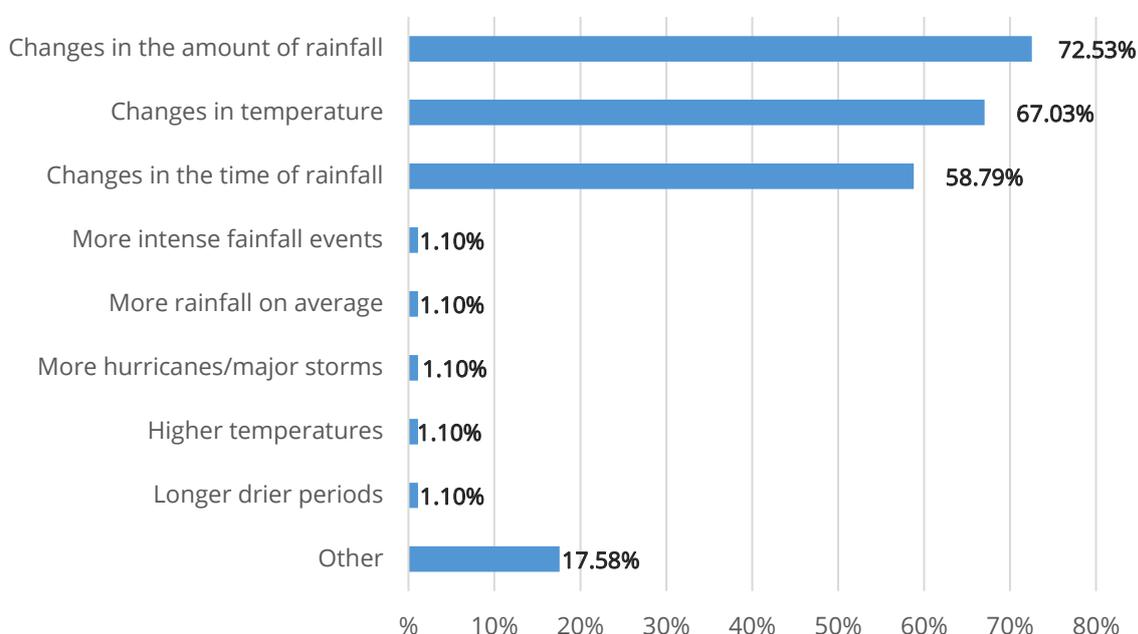
4.3.9 Climate change

One of the impacts that Fairtrade hopes to achieve is building farmer resilience to climate change, which is described in the TOC as “Increased environmental sustainability and resilience to climate change”. Building climate resilience is multi-dimensional and a full assessment of vulnerability was not possible within the scope of this study; however, the impact of climate change was discussed in stakeholder interviews, focus group discussions, and in the quantitative survey.

Nearly all agreed that they had seen a level of climate change over the years. When asked in the quantitative survey “in the last five years, have you noticed any changes in the local climate, environment or growing conditions, which are different than conditions in the years past?”, 94.5% of respondents replied yes.

When asked what changes had been most dominant, the following responses were received:

Figure 0.25 The most dominant changes in the last five years



Most of the changes observed centres around changing rainfall patterns, which is a common observation and has the most significant impact of all changes observed in the short term. These changes relate to late and erratic rainfall and heavy rainfall events with flood and drainage issues as a result.

Despite these observed changes, only 52% of respondents that had observed changes in the climate had thought about strategies to build resilience. Among the strategies that had been considered were trashing with no second burn, installation of drainage, and installation of irrigation. When asked why these measures had not been implemented, most cited lack of resources.

In discussing the issue with other stakeholders, there are a number of plans to address the issues related to climate change. SIRD has undertaken a Light Detection and Ranging (LiDAR) survey to get a detailed contour map of the entire production area in order to develop a drainage master plan. BSI also have plans to pilot irrigation in certain areas.

It is clear that while the impact of climate change is being felt by farmers, there is very little being done to build adaptive capacity as a result of the Fairtrade interventions. This needs to be addressed in the coming years.

4.4 ECONOMIC IMPACT OF FAIRTRADE ON THE FARMERS

The extent of the economic impact of Fairtrade on the sugar industry in Belize can be measured by looking at the parameters that drive viability in the sugar industry. These parameters include the following:

1. The direct contribution that the Fairtrade premium has on the gross margins of the farming operations
2. The price received by the farmers for their cane from the sugar mill
3. The yield of tonnes cane achieved per acre
4. The quality of cane produced measured as the ratio of tonnes cane/tonnes sugar

4.4.1 Fairtrade premium contribution to the gross margin of the farming operations

One of the issues with the long-term sustainability of farmers in Belize is the price fluctuation experienced by farmers. Since the inception of Fairtrade, there have been two negative price swings of -47% and -48% and one positive price swing of +60%. This volatility is particularly difficult for a farmer with limited resources to be able to absorb. The Fairtrade premium has played a critical role in limiting the impact of this volatility by contributing to the farmers' direct survival through cash payments and through the supply of farm inputs, thereby reducing the overall cost of production. The total Fairtrade premium paid out between the years 2011 and 2018 was BZ\$41,363,362. Of this amount, 13% or BZ\$5.4 million was distributed to all farmers as part of the emergency relief package in 2015, when growers were in dispute with the mill. This allowed the farmers to continue with their farming operation even when they were not receiving any money for their cane. A further 41% of the premium or BZ\$17 million was used to support direct farm inputs such as replanting, fertilizer, and pest control. While this contribution is significant in itself, the multiplier effect of a replant, for example, is felt for the life span of the crop.

The real economic impact of the Fairtrade premium payments can clearly be seen in the 2017/18 season, where the price has fallen by 40% year-on-year to a level where the cost of production is almost exactly aligned with price.

Key financial data for the 2017/18 season are as follows:

Table 0.1 Financial data 2017/18³¹

Average yield (tonnes/acre)	17.6 tonnes/acre
Cost of production (BZ\$/Acre)	47.5/ton
Maintenance	11.5/ton
Cut	9/ton
Load	12/ton
Transport (ave)	15/ton

³¹ SIRD economic data

Price paid (BZ\$/ton)	47.9/ton
Average profit/acre (BZ/acre)	7.04/acre

From the above, it is clear that, on average, farmers will make very little profit in a year such as this. This is where the Fairtrade premium acts as a buffer and sustainability mechanism: Fairtrade premium income for the year was BZ\$ 7,088,356, which comes from a total cane production of 1.12 million tonnes of cane or BZ\$6.32 for every ton of cane produced. The fact that farmers have this reserve from the Fairtrade premium will definitely help with their survival and ensure that they are to a limited extent able to continue with their cane growing operations.

4.4.2 Price received by farmers

The price received by farmers is a function of the division of proceeds formula, which is a formula which is used in most sugar industries around the world. The basic premise of the Division of Proceeds (DOP) formula is that the ratio reflects the ratio of the cost to produce a ton of raw sugar equivalent to that of processing a ton of raw sugar equivalent, taking into account independent risks of the producer and the miller as well as the differential cost of capital. This is a complex formula to understand and is often the cause of friction between farmers and mills worldwide.

Revenues are calculated as the total receipts from sugar and molasses sales minus logistics and marketing costs. In Belize, the DOP ratio is 65% for the farmers and 35% for the mill, which compares favourably with an industry in a country such as Eswatini, which is of a similar age and size as that of Belize and where the DOP is 67.9%:32.1%³²

During discussions with both farmers and the mill, a number of issues were raised with regards to cane payments and the current division of proceeds:

1. The ratio assumes efficient milling and growing operations. While an assessment was not carried out regarding the efficiency of the milling operations, growing operations are very inefficient, making the cost to produce a ton of raw sugar equivalent high and thereby skewing the DOP.
2. High cost of logistics, especially transportation to ships for export, lowers the efficiency of the entire industry but impacts farmers to a greater extent.
3. The mill has a strategy to move production to produce more direct consumption sugars. This requires investment in the mill, which needs to be acknowledged in a new commercial agreement
4. The payment for bagasse use in the generation of power has been a point of conflict in the industry.

The issues around the price received by the farmers are complex and often difficult to understand. Fairtrade has not had any direct influence on the price paid to farmers as the nature of the industry does not allow for this. Fairtrade and Fairtrade activities have however very definitely influenced a number of issues which have allowed the farmers to at least better understand the price paid and how it is determined.

When discussing the price issue with Association leaders, "*Before we were isolated, now we are included*" was one of the sentiments raised. This inclusion is important, as it helps build trust between the miller and farmers. Other issues that were raised by leaders where they felt Fairtrade had benefitted them to better engage with the mill include:

³² Swaziland Sugar Association annual report 2017/2018

1. Fairtrade certification enables Farmers full access to market information and sales. Farmers felt this allowed for more transparency and enabled them to detect issues and raise them with the mill in a timely manner.
2. Fairtrade certification allows farmers access to contracts for aspects such as transport in the supply chain, which they feel increases accountability of all actors in the supply chain
3. Farmers felt that the negotiations regarding the signing of the new commercial agreement in 2015 would have been much more difficult, perhaps even one-sided, had the Farmers Associations not been as organized as they were with the resources available to them to negotiate from a position of greater strength
4. The agreement to pay the BZ\$0.49 per ton of cane for bagasse was deemed to be a direct result of the ability of the farmers to negotiate this concession with the mill.

One of the impacts from the TOC relating to the economic thematic area is a fairer and more sustainable trading system. Often this impact is difficult to measure in a regulated industry such as the sugar industry in Belize. What can be achieved through greater understanding of the economic parameters of the value chain, however, is a relationship between mill and farmers based on mutual trust and understanding, with strong values based on a partnership arrangement . This is achieved by balancing the power dynamics between miller and farmer mainly through helping to strengthen organizations and through the provision of information about the value chain, its components, and the relative risks for each actor. This has partially been achieved in Belize; however, there is still much work that needs to be done to achieve full trust and transparency between farmers and miller.

4.4.3 Impact on cane yield

One of the issues with analysing the impact of yield on the economic impact of farmers is the lack of granular data available for yield for farmers in Belize. While total production is easily obtainable on an annual basis, yield per acre is not readily available. The reason for this is that the exact harvest area is not known for each year of production. It is therefore difficult to ascribe increase in production to either horizontal or vertical growth. It is generally accepted that yield per acre in Belize is low, which is confirmed annually by the estimates committee, which estimates yield and bases delivery slots on this estimate. A study done in 2016 by BSI estimated yields to range from 16.6-24.9 tonnes cane per acre produced in 2015 and 17.1-28 tonnes cane per acre in 2016 (based on a sample of 322 farmers).³³

Since Fairtrade certification, the total production of sugarcane has increased steadily. This is positive and shows that the Fairtrade interventions, along with those of SIRD1 and the mill, are showing positive impacts. It is, however, not reasonable to attribute the entire change to Fairtrade.

Farmers did, however, report that there is a disincentive to produce at maximum levels based on the ability of the mill to receive and crush the cane produced. In the 2015/16 season, when a record crop was produced, the mill was unable to crush all of the cane, resulting in carryover cane. There were a number of reasons for this, including:

- Factory performance and a slow grinding rate
- The fact that the season started very late due to the negotiations taking place around the commercial agreement and the farmers' refusal to deliver their cane, thereby shortening the harvest season
- The move to produce more direct consumption sugar, which slows the sugar manufacturing cycle

³³ Sugarcane Farmers Survey 2016: Belize Sugar Industries Limited

The ability of the mill to crush all of the cane is a key conflict area between the miller and farmers and there is no simple solution to the problem. Matching the crop to grinding capacity is a challenge faced by many sugar industries around the world and generally requires the following to be in place to reduce the conflict:

1. A well-maintained mill
2. Farmers providing good cane estimates to allow a crush plan to be developed
3. Good information management systems to allow constant monitoring of crop progress throughout the season to allow adjustments to be made
4. Efficient delivery systems
5. Efficient and appropriate cane testing systems
6. The delivery of only good quality cane

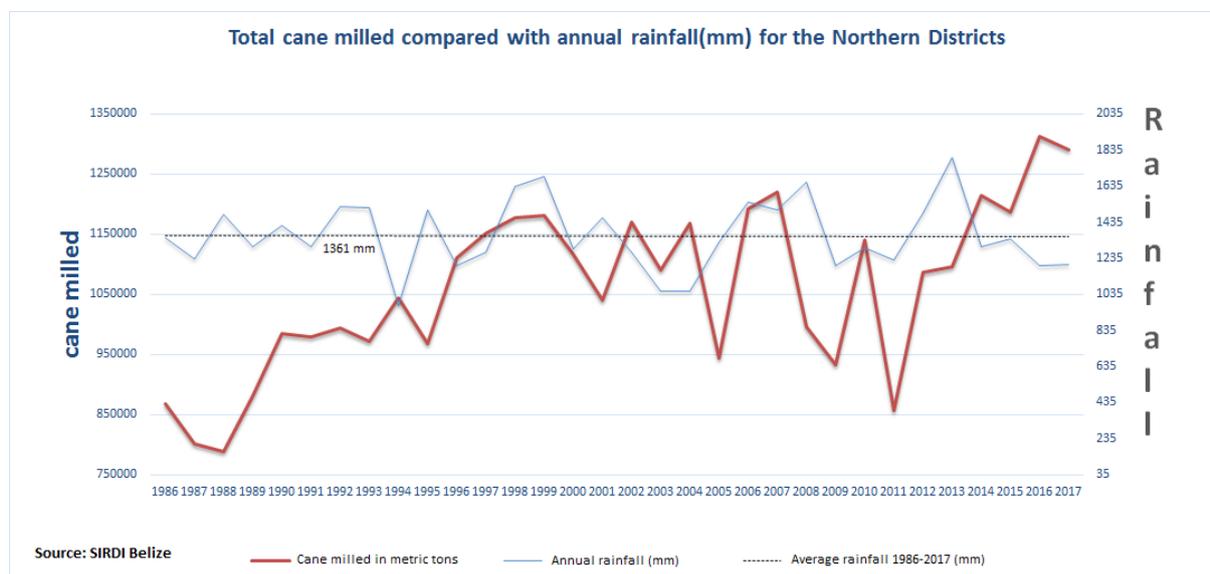
Unless all of these conditions are met, delays will occur that could result in the entire crop not being crushed and resulting in carryover cane and economic loss to the farmers.

Sugarcane yield is a function of a number of factors that all need to be taken into account when accessing the cause of change. The two biggest factors in determining yield are:

1. Climatic conditions, especially rainfall, in a rainfed industry such as the one in Belize
2. Good Agricultural practices and changes in agricultural practices

The following graph plots the cane production against rainfall:

Figure 0.26 Total cane milled compared with average annual rainfall(mm) for the Northern Districts



Yield very much follows the rainfall pattern with a one-year time lag. Thus, a good rain season one year equates to a better yield the next, and a bad rain season one year would lead to a worse yield the next year.

Encouragingly, however, this graph indicates that, despite lower rainfall from 2013-2017, yields still maintained an upward trajectory. This clearly indicates that the two other factors that influence yield, namely good agricultural practice and age of crop, are becoming more of a positive factor.

Many of the Fairtrade interventions are aimed at implementing good agricultural practices. As discussed in the previous chapter, these have been well-received and adopted by farmers and the impact of this adoption has been seen through increased yields. On average, cane produced has increased by 17.3% since the introduction of Fairtrade compared to the 9 years before Fairtrade was introduced.

4.4.4 The quality of Sugarcane produced

The farmers associations using the Fairtrade premium as well as the mill have implemented a series of initiatives to improve cane quality. These have included training and in-field cane testing to determine when it is best to send the cane to the mill.

These initiatives have had a significant impact on the quality of cane delivered to the mill. In the 10 years prior to Fairtrade, the average tons cane per tons sugar was 10.5 tons cane/ton sugar, which has dropped to 9.6 tons cane/ton of sugar since the inception of Fairtrade. This is a 9.3% improvement in quality and relates directly to revenue received, as farmers are paid on quality.

Based on the above, it is clear that Fairtrade has had a positive impact on the economic situation of farmers; however, there is still quite a bit of work to be done, especially to address the low yield per acre and high cost of production.

5. CONCLUSION

The Fairtrade theory of change hypothesizes that Fairtrade assists farmers to organize themselves into strong, robust institutions known in Belize as Farmers Associations, adopting Fairtrade principles of governance, adopting the Fairtrade standard in their production activities, and receiving a premium as a result of these changes. Fairtrade provides training and technical assistance in measures needed to meet standards for certification. FLOCERT certifies the farmers association. Fairtrade arranges market and ensures payment of the Premium.

Fairtrade support to sugar cane farmers in Belize has taken three main forms: One is support to the organisation of farmers through their Farmers Associations and the development of the capacity of those organisations. A second is bringing practices on farms and in the community up to the standards set by Fairtrade through the agency of the farmers association. A third comes through Certification, enabling sales of sugar as Fairtrade certified at a Premium that has provided the Farmers Associations with resources, mainly financial, to support their farmers and communities. The premium has been spent evenly spread over the three thematic areas of social, environmental, and production. This spending has been done in an open and transparent manner as per Fairtrade requirements.

This support leads to a number of expected outputs in each of the thematic areas. In the economic theme, these include access to markets, fair prices, and less price volatility, as well as increased access to working capital. In the social theme, outputs include stronger, well-managed organizations with good systems, robust and transparent governance systems, a well-designed and democratic manner in managing the Fairtrade premium, and strong learning networks. Another output in the social thematic area is the awareness of and commitment to human rights (labour, gender, child). In the environmental themes, expected outputs include increased management and technical capacity of associations and associations better equipped to improve productivity, to protect health and environment, and to adapt to climate change.

The main outcomes expected in the economic thematic area includes farmers associations better able to negotiate, better markets and increased profitability, and reduced risk through increased productivity, optimal use of inputs, and increased ownership of productive assets. Key outcomes in the social thematic area include strong and inclusive farmer associations with strong leadership, proactive child protection policies in place, gender and age inclusivity, and improved conditions for workers. Outcomes in the social thematic areas also includes enhanced benefits for farmers and their communities through improved services and support, improved services and infrastructure in communities, and specific support to vulnerable groups. The expected outcomes in the environmental thematic areas include the elimination of harmful production practices, the sustainable management of natural resources, the development of environmental services, and the implementation of adaptive measures against climate change.

The impacts expected include the following:

1. In the economic thematic area
 - a. Improved household income, assets, and standard of living
 - b. Less risk and vulnerability and increased food security
 - c. Enhanced influence and status of small producers
 - d. Fair and more sustainable trading systems
2. In the environmental thematic area
 - a. Improved access to basic services
 - b. Increased environmental sustainability and resilience to climate change

1. In the social thematic area

- a. Inter-generational sustainability of rural communities
- b. Increased cooperation and gender equality within communities
- c. Increased dignity, confidence, control, and choice

Design limitations of this research (no baseline or counterfactuals) meant that measuring the impact in a quantitative manner was not possible. Conclusions drawn are therefore mainly based on the outcomes observed during the research. Contextual issues play an important role in determining the validity of any theory of change. For the sugar industry in Belize, this is particularly important given the prominence of the industry in the socio-political landscape of the country.

Quality of Fairtrade support

The research showed that Fairtrade is providing excellent support to the farmers in Belize through CLAC. The programmed approach adopted using the roadmap to map out the different interventions and align them with the TOC has been very successful. All stakeholders interviewed appreciated the complementarity of the support given by Fairtrade to the farmers. The CLAC representative seemed able to transcend the socio-political differences prevalent among different stakeholders in the industry and provide a unifying voice. The setting up of the Fairtrade Premium Use Technical committee was seen as very beneficial to ensure that the premium spend in the farmer support segment was used according to the agreed-upon BMP for the Belize sugar industry farmers.

Key Findings from the research

Organizational development has been largely successful, with emphasis on the strengthening and repurposing of the Farmers Associations in Belize. Prior to the Fairtrade intervention, the Farmers association were largely moribund with its only real purpose and activities supporting the Belize sugar industry legislative framework. The Farmers Association had not been audited for ten years prior to the Fairtrade intervention, and was thus non-compliant as an industry player. All Farmers Associations are now fully compliant with all statutory obligations and have definite purpose and a strategy for the future. The formation of the two new Farmers Associations in Belize was assisted by the presence of Fairtrade. Both new associations stated that the presence of Fairtrade gave them confidence to act. The result is greater choice and freedom of association for Belize farmers.

The farmer survey shows how much farmers had been trained in Fairtrade principles, the standards to be reached, and improved agriculture, and with a high level of adoption. Adoption was particularly high for practices necessary to achieve Fairtrade Certification: in the use of agrochemicals, in the working conditions of workers, and in some simple environmental improvements.

Progress has been made toward ensuring democratic and accountable Farmers Associations. Most farmers felt that they now had a say in the running of the Farmers Association, that leaders and staff were held to account, and that they were consulted over use of the Premium. They felt that they now had a greater voice in the sugar industry as a whole.

Certification has been achieved. In the process, a number of positive social and environmental changes have taken place. The use of Paraquat has been significantly reduced, farmers are handling chemicals far more carefully, issues around child labour are better understood, and working conditions are generally better. Discussions and surveys indicated that farmers understood the principles of Fairtrade and had embraced the changes necessary to reach the set standards. The maintenance of certification has not been without its problems, as the Farmers association has been decertified on two occasions. They have, however, rectified the problems identified and, in the case of being decertified for issues relating to child labour, have developed a monitoring and remediation program.

About 40% of the premium has been spent on supporting farmers to reduce their cash costs of production and to encourage them to improve their cane fields and raise their productivity. This has been much appreciated by the farmers. Most have benefited from subsidies on inputs, such as fertilizers and herbicides, while fewer took advantage of the replanting facility. While this has undoubtedly contributed to the financial well-being of the farmers and has acted as a buffer to volatile and fluctuating prices, it has not necessarily lead to changes in farmer productivity and yield. While there have been some good improvements in cane quality, the yields achieved per acre are still some of the lowest in the region, making the cost to produce sugar some of the highest in the region. This is a big threat not only to the farmers but to the industry as a whole. Yield and productivity improvements need to occur in order for the industry as a whole to stay viable.

This raises the vexed question of attribution when it comes to agricultural improvement measures. Fairtrade has not been alone in working to support the farmers. Regular programmes from the mill and from SIRDI have definitely contributed to the changes seen in the operations of the farmers and their Associations. Given that some of the delivery of these other supports and services takes place in partnership with the Associations and their staff, it can be hard to disentangle the different elements. Farmers, for example, cannot be expected to quiz trainers and extension agents about who is funding them; nor to distinguish between grants for farm improvements that have their origins in the Premium from those out of the development budget of government or some donor.

Recommendations

One of the biggest threats to the sugar industry in Belize is the competitiveness and viability of the industry as a whole (mills and farmers). This has been exacerbated with the recent trade changes in the sugar trade worldwide in recent times and the persistently low price of sugar on the world market. A number of initiatives have begun to make the industry more competitive. Many of these initiatives are being initiated and driven by BSI, and include elements of marketing, logistics, changing to more direct consumption sugars, and increasing overall efficiencies in the supply chain. BSI is also looking at farmer support initiatives to assist farmers in becoming more efficient. These initiatives include mechanical harvesting, in field quality testing, and the development of financial packages to farmers.

It is important that Fairtrade work closely with BSI to ascertain how the support given by Fairtrade can complement these viability-enhancing initiatives whether through training, financial support, or the leveraging of other stakeholder support.

- Recommendation 1: Fairtrade understands the industry viability enhancement measures being put in place by BSI and provides support to farmers through the Fairtrade farmer support program to ensure that they benefit from these measures to the greatest degree possible.

Linked to the above is financial viability at farm level. While many positive things have changed on-farm due to the introduction of Fairtrade, on-farm viability has not changed much and, if anything, has deteriorated in the recent past. There are generally two ways to increase the viability of growing sugarcane: Increase the price received by the farmers or decrease the cost per unit of production.

Due to the price setting mechanism in Belize of the farmers receiving a fixed division of proceeds, there is not much room for farmers to negotiate higher prices from the mill, as the price received by farmers is directly linked to the price received by the mill for the sugar that it sells. The equitability of the DOP is therefore a key determinant in the price received by farmers. The DOP is often viewed with suspicion by all sides and is often an inhibitor to industry growth, as both sides are unwilling to commit to change if there is uncertainty about the current commercial arrangement. Undertaking a value chain assessment and understanding the equitability of the

current DOP will assist farmers and mills going forward not only to agree on the current payment mechanism but also to talk about future industry enhancing mechanisms .

- Recommendation 2: Fairtrade facilitates a value chain assessment in conjunction with the mill and farmers to ascertain the different cost elements contained in the DOP, to benchmark these against international best practice, and then to determine the equitability of the current DOP. This value chain assessment can also be used to benchmark cost of production and processing and mill and farmer can develop joint programs to reduce these costs

Decreasing the cost of production is the one element that farmers can control. Fairtrade support should not only look at how a farmer can produce more sugarcane but how a farmer can produce more with less input. There are a number of ways of doing this: One is ensuring adherence to BMP in sugarcane production. Simply applying the right management practices will not be sufficient to see the type of productivity step change that farmers need to ensure long term viability. Programs will need to be introduced to ensure transformational change to growing sugarcane in Belize. Among other things, these need to focus on new technologies such as irrigation and mechanical harvesting, new production systems such as consolidated block farms for economies of size, and new financing models. All of these initiatives have been spoken about but have not been programmed into a change management system with the aim of reducing the cost of production and increasing productivity on Farm.

Recommendation 3: Fairtrade should design a support program that looks at transformational change in the way sugar is grown in Belize. Cost of production should become a key measure of impact in the Fairtrade impact assessment and should be benchmarked with other similar farmers in other countries supported by Fairtrade. This program should be implemented in conjunction with other stakeholders in Belize.

REFERENCES AND LITERATURE CONSULTED

- ASR Group. "Belize Sugar Industries." <https://www.asr-group.com/article/belize-sugar-industries>
- Befani, Barbara, 2016, Choosing Appropriate Evaluation Methods. A Tool for Assessment & Selection, London: BOND
[http://www.betterevaluation.org/sites/default/files/caem_narrative_final_14oct16.pdf]
- Department of Agriculture, Belize, Agriculture Strategic Development Plan 2010-2012, 9 December 2009,
- Department of Agriculture, Belize, Belize National Agricultural Census 2009,
- European Commission, Action Fiche for the Annual Action Programme of Accompanying Measures for Sugar Protocol Countries in favour of the Republic of Belize, 2010, 2011, 2013, European Commission
- European Commission, Frequently Asked Questions^[1]"The abolition of EU sugar production quotas", October 2016, European Commission
- European Commission, "Study on Current and Forecast Market Developments for ACP Sugar Suppliers", LRM International, July 2016
- Fan, Shenggen & Connie Chan-Kang, 2005, Is small beautiful? Farm size, productivity, and poverty in Asian agriculture, *Agricultural Economics* 32, 135-146
- Belize Bureau of Statistics. Key Statistics: 2010, 2011, 2012, 2013, 2014, 2015, 2016
- Belize Sugar Cane Farmers Association (BSCA 01), www.BSCA011959.wixsite.com/BSCA01
- Belize Sugar Corporation Ltd Annual Reports: 2008 to 2015 and website www.fsc.com.fj
- Belize Meteorological Service, Information Note 15, August 2001
- Caldwell, Christine A., and Roland M. Eve. "Persistence of Contrasting Traditions in Cultural Evolution: Unpredictable Payoffs Generate Slower Rates of Cultural Change." *PLoS ONE* 9, no. 6 (2014): e99708.
- Government of Belize, Post-Disaster Needs Assessment, Tropical Cyclone Winston, May 2016
- Hardi, Peter and Terrence Zdan, "Assessing Sustainable Development: Principles in Practice," International Institute for Sustainable Development (1997): 1-175.
- Herforth A, Nicolo GF, Veillerette B, et al. (2016) Compendium of indicators for nutrition-sensitive agriculture. Available from: <http://www.fao.org/3/a-i6275e.pdf>.
- Larson, Donald F., Keijiro Otsuka, Tomoya Matsumoto & Talip Kilic, 2012, 'Should African Rural Development Strategies Depend on Smallholder Farms? An Exploration of the Inverse Productivity Hypothesis', *Policy Research Working Paper* 6190, Development Research Group, Agriculture and Rural Development Team, Washington DC: World Bank
- Mayne, John, 2016, The Capabilities, Opportunities and Motivation Behaviour-Based Theory of Change Model, Working Paper · June 2016.
https://www.researchgate.net/publication/301701597_The_Capabilities_Opportunities_and_Motivation_Behaviour-Based_Theory_of_Change_Model
- Mcgree, Yeo, Devi "Flooding In The Belize Islands Between 1840 And 2009" 2010

Naidu, Vijay, and Mahendra Reddy. "ALTA and expiring land leases: Belizean farmers' perceptions of their future." A Ford Foundation Funded Project Report. University of the South Pacific (USP) and Pacific Migration Research Network (PacMRN) June (2002).

Parker, Andre J., and Theo H. Veldsman. "The Validity of World Class Business Criteria across Developed and Developing Countries." *South African Journal of Human Resource Management* 8, no. 1 (2010): 1-17.

ProAnd Australia, "Aglime for Belize" Dec 2013

Rosegrant, M. W., R. Valmonte-Santos, T. Thomas, L. You, and C. Chiang. "Climate Change, Food Security, and Socioeconomic Livelihood in Pacific Island Countries." Mandaluyong City, Philippines: Asian Development Bank and International Food Policy Research Institute. Available online: <http://www.adb.org/sites/default/files/publication/175046/climate-change-food-security-pacific.pdf> (2015).

Sugar Cane Farmers Cooperative of Florida. "ASR Invests in Belize (2014)." <http://www.scgc.org/asr-invests-in-belize/>

United Nations Statistics Division, "*Population by age, sex and urban/rural residence*," <http://data.un.org/Data.aspx?d=POP&f=tableCode%3A22>

Annex 1 Fairtrade Theory of Change for Small Producer Organisations with Codes and Colours

