SIA

Sugar Industry Authority

Annual Report 2018

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Mission Statement

The mission statement of the Sugar Industry Authority is to enforce the provisions of the Sugar Industry Control Act, to ensure the viability of the sugar industry. This is done by taking a leadership role in the development of the industry and by being a strong and efficient organization with highly motivated and professional employees.

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BOARD OF DIRECTORS FOR THE PERIOD
November, 2017 – OCTOBER, 2018

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Dr. Horace Charoo	**-**	**Member**
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SUGAR INDUSTRY AUTHORITY

ANNUAL REPORT 2018

INTRODUCTION

The year 2018 marked forty-eight years since the Sugar Industry Authority (SIA) has been in existence. Despite the attendant challenges of a constantly-changing global and local sugar landscape, the S.I.A continued to deliver effective stewardship and guidance throughout the year; providing cutting-edge research and development services; and the facilitation and protection of a regulatory framework based on international best-practices that ensured the harmonious compliance of industry stakeholders to the Sugar Industry Control Act (SICA).

The 2017/2018 sugar crop commenced on December 13, 2017 at the Pan Caribbean Sugar Company, Frome sugar factory in Westmoreland, lasting two hundred and twenty (220) days – forty-two (42) days less than the 2016/2017 crop – before coming to an end at the Appleton Sugar Estates in St. Elizabeth on July 20, 2018.

The crop started with what has now become, the customary uncertainties, as there were great doubts surrounding whether or not the Monymusk Sugar Factory would operate for the crop. These fears however were eventually allayed, with operations finally getting underway in March, 2018.

As has been the case since 2015/2016, farmers from the Trelawny and St. James area were again assisted by the government with the provision of transport subsidies to move canes from the area to the Appleton and Worthy Park sugar factories. Approximately 6,2889 tonnes of canes were transported from the area to Appleton, while 21,758.23 tonnes of cane were transported to Worthy Park.

PRODUCTION

Total sugar production for the 2017/2018 crop was 82,360 tonnes of 96° sugar; a 6% decrease when compared with the previous year's figure of 87,978 tonnes. With the exception of Frome, which saw its sugar production increase by approximately 14% over 2016/2017, all factories experienced varying degrees of decline in production, ranging from 7% at Worthy Park to as much as 28% experienced at Monymusk.

The overall reduction in sugar production was due to a combination of reasons, including severe weather conditions in most areas earlier in the crop; challenges with harvesting logistics, particularly in the Monymusk area, reduced cane quality in some cane growing areas, as well as a general reduction in cane yield.

A total of 1,028,392 tonnes of cane was ground for sugar production during the crop; an approximately 10% reduction when compared with the 1,138,528 tonnes ground in 2016/2017. Total sugar cane production for the crop was affected by the perennial problem of the illicit burning of canes, concentrated mainly in the Frome area; as well as issues with harvesting logistics in some areas.

While canes supplied by the estates experienced a 3% increase when compared to 2016, canes supplied by farmers declined by a considerable 21%. Approximately 53% or 550,082 tonnes of the canes milled for sugar production were supplied by estate farms while 47% or 478,310 tonnes were supplied by farmers.

As illustrated in Figure 1 below, cane supply and sugar production has been trending downwards over the past twenty years, with 2018 recording the lowest production levels over the period.

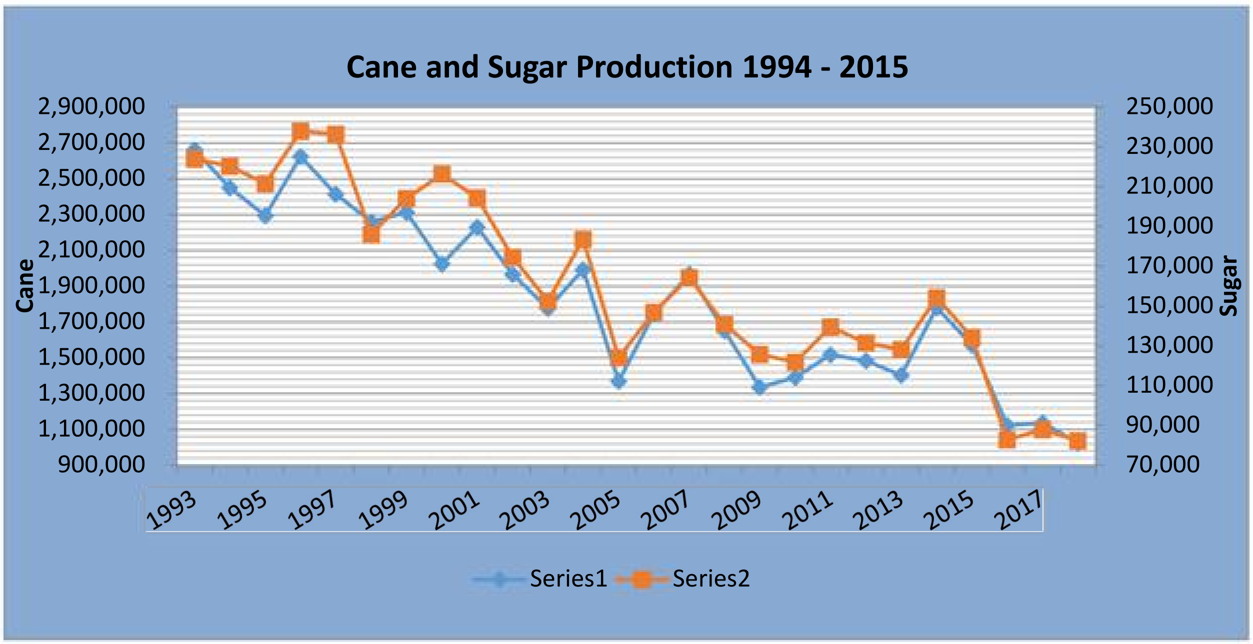


Figure 1: Cane & Sugar Production 1995 – 2018

There was a notable improvement in the rate of recovery of sugar from cane ground in 2018; with only 12.40 tonnes of cane being required to produce a tonne of sugar compared to the 12.86 tonnes of cane per tonne of sugar required in 2017.

As is shown in Figure 2 below, Monymusk, Appleton and Worthy Park factories experienced varying degrees of improvement in their tonnes cane/tonne sugar (TC/TS) ratios, while Frome and Golden Grove experienced declines.

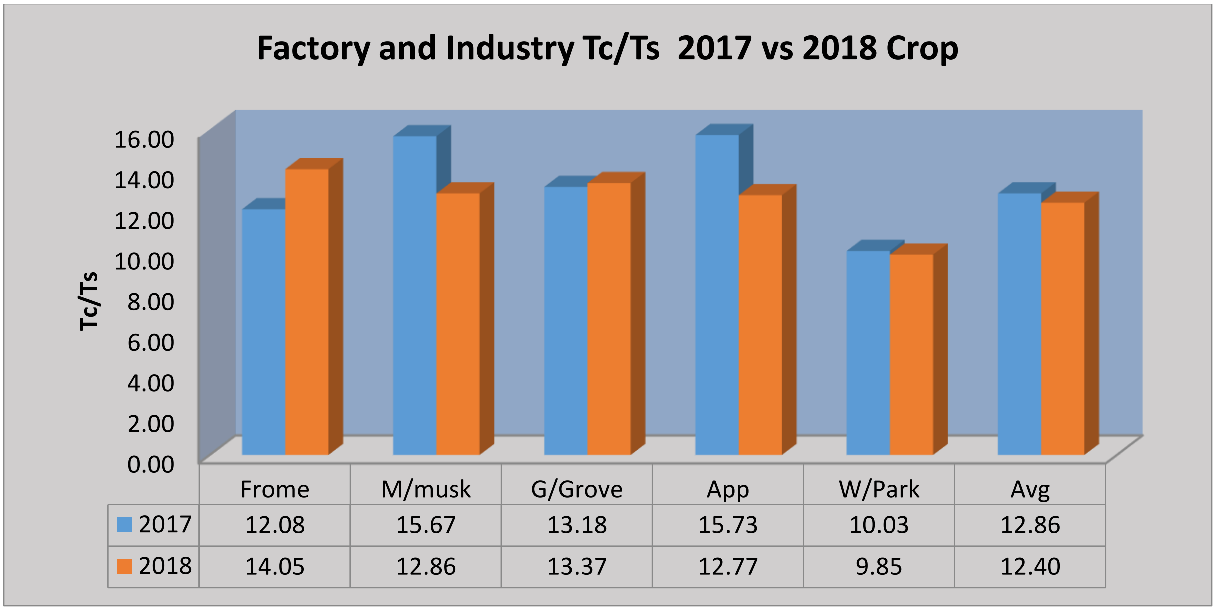


Figure 2: 2017 vs 2018 TC/TS

As indicated by the summary of production statistics presented in Table 1 below, not only were there declines in productivity in the sugar producing factories in 2018, but there were also productivity declines in the fields. In 2017/2018, 18,560 hectares of canes were reaped, compared to the 19,503 hectares reaped in the 2016/2017 crop; while cane yield declined from 58.38 tonnes canes/hectare in 2016/2017 to 55.42 tonnes canes per hectare in 2017/2018.

	2017	**2018**
Cane Milled ('000 tonnes)	1,139	1,028
Farmers	647	478
Estates	492	550
96^0 Sugar Production	87,977.70	82,358.65
Hectares Reaped ('000)	19.50	18.56
Tonnes cane/hectare	58.38	55.42
Tonnes cane/tonne sugar	12.94	12.49
Tonnes Sugar/hectare	4.51	4.44

Table 1: Selected Production Statistics for the 2016/2017 Crop

CANE QUALITY

The average Jamaica Recoverable Cane Sugar (JRCS), a key parameter used to measure cane quality, was 9.62 in 2018 comparing favourably with the 9.61 achieved in 2017. Of the five factories which operated for the 2017/2018 crop, four experienced improvements in cane quality with Worthy Park recording the best JRCS of 10.63 and Golden Grove achieving the lowest JRCS of 9.17. Frome was the only factory experiencing a decline in the quality of canes it received, with JRCS moving from 10.02 in 2016/2017 to just 8.76 in 2017/2018; a 12.57% decline.

FACTORY EFFICIENCY

The Factory Recovery Index (FRI), is a key indicator used to measure factory efficiency. The industry average FRI for 2017/2018 of 83.51% which was the highest FRI achieved since 2015, and 2.89 percentage points higher than achieved in the previous year. Worthy Park was the only factory which not only achieved or surpassed the industry standard of 91%, but also improved on the previous years' efficiency. The FRI figures for three other factories – Frome, Monymusk, and Appleton had a somewhat similar fate to Worthy Park, with efficiencies of 81.18%, 73.14% and 78.82% respectively, improving over the previous crop. Golden Grove experienced the industry's only decline, moving from 84.74 in 2016/2017 to 81.55% in 2017/2018.

Cane growers are paid based on a 91% FRI regardless of the actual FRI achieved by the factory; factories that fail to meet the industry standard of 91% will therefore inevitably incur losses. The industry suffered losses estimated at approximately $427 million as a result of the relatively low FRI achieved during for the crop.

TIME LOSS

The average grinding time for factories during the crop was 55.29% of the total available time. This represents only a slight improvement compared to the previous year's figure of 55.21%. Time loss attributed to factory-related stoppages was 8.40%, which was an improvement on the 12.31% recorded in 2016/2017.

Non-factory stoppages accounted for 35.99% of the time lost at the factories, which was notably higher than the levels from the previous crop. The main factor contributing to non-factory related stoppages was the adverse weather conditions experienced during the crop, which severely hampered cane throughput at the factories. No factory was able to achieve the generally accepted operating time benchmark of 85%. Worthy Park, which had the best time efficiency, was able to grind for 79% of the net time available to the factory.

CANE AND SUGAR PRICES

The average price per tonne sugar paid to growers and manufacturers decreased from $71,895 in 2017 to $56,227 in 2018. This represents a 22% decrease when compared to the previous year's figure. The average price for sugar is determined by the marketing activities of the marketing agents locally and overseas.

The share of proceeds from the sale of sugar between cane growers and manufacturers, based on the split of 62% to growers and 38% to manufacturers was as follows:

	2016/17	**2017/18**
Cane Growers (62%)	$44,575	$34,891
Sugar Manufacturers (38%)	$27,320	$21,336
	$71,895	**$56,227**

The average price per tonne cane paid to farmers at the factories was $3,362.98. Monymusk paid an average price per tonne of $4,120.51, the highest payment of all the five factories that operated during the crop. The lowest average price was $3,038.80 per tonne, paid out at Frome.

MARKETING

Export Market

There was a slight increase in the volume of sugar exported in 2017/2018 when compared to the export figures of 2016/2017. Of the 35,910 tonnes of sugar exported, 20,255 tonnes valued at US$6,863,000 (gross value) were shipped to the EU, 11,074 tonnes went to the United States at a value of US$ 6,252,000 while the remaining 4,581 tonnes went to CARICOM and other markets at a value of US$2,855,000. It is to be noted that the exports to CARICOM and other markets, which in 2016/2017, recorded its highest total volume and gross revenue to date, fell marginally to 4,581 tonnes in 2017/2018 from 4,745 tonnes in the previous year.

Despite the increased volume in total exports, there was an overall decrease in the total revenues received from exports, as a result of a 9% decrease in the average price per tonne sugar received from exports when compared to the previous year. The average price for 2017/2018 was US$445 per tonne, compared to US$491 per tonne in 2016/2017. Exports to the European Union saw an increase in the volume shipped and a 26% decline in the price per tonne received when compared to the previous year. In contrast, exports to the US market experienced a small decline in volume, and a 23% increase in the price per tonne received from the sale of sugar.

As is customary, exports to the Caribbean market offered the best price per tonne sugar of US$623. Exports to the USA averaged US$565 per tonne and exports to the EU market averaged US$338 per tonne.

Domestic Market

The amount of locally produced raw sugar sold on the domestic market during the 2017/2018 crop was 39,671 tonnes. This represents a 9.47% decrease from the 43,824 tonnes sold for the 2016/2017 period, continuing on its downward trend in recent years. This of course is a source of grave concern since the average price of US$922.02 per tonne obtained on the local market is by far, the best price obtained by the industry from the sale of sugar.

THE RESEARCH DIVISION (SIARD)

Non-Technical Summary

The Research Division of the Sugar Industry Authority (SIA) is located in Mandeville, Manchester, and has a cadre of researchers with specialised skills in sugarcane variety selection, agricultural and mechanical engineering, environmental management, soil chemistry, sugarcane agronomy, and sugar technology. Its main functions are to research and develop improved sugarcane varieties and related agricultural technology to increase sugarcane production, as well as to boost efficiency in sugar recovery geared towards increasing profitability and sustainability of the Industry.

The main R&D strategic priorities are to increase yield, productivity, and profitability and to increase adoption of R&D outcomes. The key focus areas include:

- developing highly productive sugarcane varieties
- improving farming systems and production management
- soil health and nutrition management studies
- agro meteorological forecasting
- agrochemical use and impacts
- improving factory efficiency and technologies, and
- improving harvesting logistics

The Research and Development activities are supported by analytical testing from a laboratory that is internationally recognised with ISO accredited status for its sugar and soil methods, and approval from the Ministry of Health for testing of wastewater. Analytical testing of sugar produced in Jamaica by an ISO accredited laboratory provides acceptance in the international marketplace, and reduces barriers to trade.

Research Activities

Variety Department

Cane and sugar production remained the focus of the Variety Development Programme of the SIARD. The program, in collaboration with the West Indies Central Sugar Cane Breeding Station (WICSCBS), developed sound crosses, and then evaluated them in experiments locally. With average sugar productivity just below (five) 5 ts/ha, the results from the programme offered great hope for continuity as there were several promising varieties on route to be released. Many of the varieties released the previous year, for example BJ9736, BJ9702, and BJ0633, were yielding sugar more than twice the national average of 4.28 ts/ha (AIJCFA provisional report 2018) and 6.62 ts/ha based on the SIARD updated figures. Two new varieties, BJ9702 and BJ9736, were released during the year.

Fuzz (true seeds of sugar cane) imported from the WICSCBS comprised the BJ20 Series, and contains crosses bred specifically for the local environmental conditions of Jamaica. Some 58,278 seedlings were germinated in February to March 2018. Approximately 34,061 seedlings were potted during the period April 09 to May 27, 2018, of which 27,000 were eventually planted in the field for evaluation.

A stage I nursery for the BJ2020 Series was started on a 2.8 ha plot at SIARD's Springfield farm in August, 2018, while stage 1 nurseries for the BJ2019, BJ2018 and BJ2017 Series were assessed for selection and further development. Some 2,189 and 3,400 clones were selected from the BJ2019 and BJ2018 Series respectively, for advancement to a stage II nursery. The canes in the BJ2017 stage I nursery were deemed too old and had to be reaped and sent to the factory for crushing. Approximately 3,200 seedlings from this series were selected and planted at Frome Estate in June, 2018. Stage III for the BJ2016 and 2015 series were assessed. Both showed some promising potential varieties.

Two lattice Propagation Nurseries (LPN), containing the BJ2014 series, were planted at Frome and Worthy Park. These will be used in the establishment of (lattice trial) First Objective Yield Trial in the 2019 planting season. One BJ08 (lattice trial) First Objective Yield Trial was planted at Worthy Park Estate. However, this trial was abandoned due to poor germination caused by drought, and no seed material to supply after germination.

Six experiments were harvested and analysed during the year: Four First Objective Lattice trials, and two Final Objective Yield Trial, *Table 1*. Among the test varieties, two standard commercial varieties were used in each experiment: one to compare for cane yield and the other for cane quality.

Table 2: List of Objective Yield Experiments established and analysed						
Series	**Type of Experiment**	**Location**	**Cycle**	**Years Remaining**	**Month Reaped**	**# Test Varieties**
BJ08	Lattice	Frome	Plant	+4	January	2
BJ99	Final Trial	Worthy Park	Plant	+2	June	7
BJ04	Lattice	Worthy Park	1R	+3	February	23
BJ03	Lattice	Worthy Park	1R	+3	March	22
BJ06	Final Trial	Worthy Park	2R	0	January	7
BJ06	Lattice	Holland Est.	1R	+3	January	23

After final analysis for quality and yield, most of the varieties in the BJo8, BJ99, BJ04, BJ03, BJ06 (Lattice) and BJ06 (Final) series outperformed the standards in both sucrose content and yield. This type of productivity may be considered highly profitable.

Several varieties were propagated at various farms around the island, including Frome, Golden Grove, Worthy Park and Monymusk Estates.

Four of ten 10 high fibre cane varieties imported by the SIARD were expanded at **Appleton Estate** and will be further expanded to meet their ultimate objective of 10 ha each for Factory test. A total of 30 varieties, also imported, had to be discarded due to improper storage during shipment and in Customs.

Several commercial varieties have remained in cultivation, including the BJ7465, BJ7504, BJ78100, BJ7934, BJ2119, BJ8783, BT80311 and BJ9764, all of which have very high yields and/or quality. The BJ7938 and BJ82119 varieties also display very high resistance to pests and diseases. Several varieties such as the BJ8226, BJ82156 and BJ9186 varieties have been removed from circulation, while the BJ7015 and CR892023 varieties have seen a reduction in cultivation due to their susceptibility.

The SIARD hosted a Cuban delegation of sugar experts visiting the island with interest in our BJ varieties as potential parent material for their local industry. The team visited Frome and Worthy

Park Estates where they were greatly impressed with the variety performance and displayed their approval by requesting 9 BJ vvarieties from Jamaica.

Team members from the Variety Section participated actively in the SIARD Post-Crop Seminar at which the release of one new variety was announced.

Staff participated in seminars hosted by the AIJCFA. Variety recommendations and best practices for management were highlighted to target increased productivity and production among growers.

Denbigh 2018

was a good one for the Variety Development Section. Everyone participated to make it a great success. There were displays of fuzz, seedlings germinated after a week, older ones ready to be placed in field, and also commercial cane along with charts showing empirical data.

Sugarcane Pathology

The major aspects of the pathology programme continue to be the disease screening of newly established varieties, survey of Sugarcane Orange Rust Disease (SORD), the testing of the viability of sugarcane smut spores, and the survey of Ratoon Stunting Disease (RSD).

Ratoon Stunting Disease

In an effort to determine the varieties in the Jamaican Sugarcane Industry that are affected by Ratoon Stunting Disease (RSD), a survey was done between November 2017 and February 2018, when some 70 fields across the industry were sampled, for the detection of the disease. The commercial varieties within the Sugarcane Industry formed the foundation for the survey. However, the survey was aborted due to technical issues with the chemical needed for the diagnosis. A new survey to be conducted in 2019 involving the top 10 varieties, will be a project in collaboration with the Louisiana State University (LSU) in the United States of America.

In treating the causative agent of RSD, hot water was administered successfully to infected seedlings of the variety BJ7919 at the SIARD. The variety, taken from a nursery at Frome in March, comprising some 600 one-eyed pieces was heat treated, cooled and planted in black polythene bags and placed in the holding area for germination. Germination counts revealed the emergence of 88% of the seedlings. The seedlings were then transported and planted in a field **(Middle Piece 2)** at Worthy Park Estate on May 15, 2018 with the coordinates (GPS) of the location recorded to enable further monitoring. A biannual assessment to determine the RSD status will be conducted. Seed material will be used to develop a healthy seed cane nursery across the sugarcane industry.

Survey of Sugarcane Smut in Commercial plantings

A comprehensive survey of sugarcane smut, similar to one done in 2013, was undertaken in 2018 to determine to what extent smut was affecting the Sugarcane Industry. The survey commenced in June 2018 on the Worthy Park farms and ended in October 2018 at the Palm Section, Cambria Farms, St Catherine. The method of analysis used was adopted from Australia in which the number of stools, as well as the number of stools infected was counted. The infected stools were then expressed as a percentage of the number of stools within the same distance. It is recommended that fields having an estimated stool infection above **5%**, or **600** stools per hectare, should be destroyed and replanted.

The areas surveyed include fields from Appleton Estate, Holland, Cambria Farms, Caymanas Estate, Frome Estate, Golden Grove Sugar Estate, Long Pond Estate, New Yarmouth Estate, Palm and Wallen Farms, Tulloch and Worthy Park Estate. All 12 areas assessed yielded an estimated mean stool infection less than 5%, *Table 2*.

Table 3: Summary of Mean Estimated Stool Infection Survey 2108			
Area	**Total Area (ha)**	**Mean Estimated Stool Infection (%)**	**Highest Infection Level (%)**
Appleton	84.37	1.5	3.2
St. Holland	59.55	1.8	2.8
Cambria Farms	31.75	2.6	4.8
Caymanas Estate	25.69	1.7	3.6
Frome Estate	2.9	0.8	0.8
Golden Grove Estate	87.1	2.3	4.8
Long Pond Estate	-	1.9	-
New Yarmouth Estate	47.54	1	1.6
Palm Farms	18.5	1.9	2.8
Wallen Farms	7.06	2.2	5.2
Tulloch Estate	22.28	2.9	3.6
Worthy Park Estate	20.7	2.9	4.4

All areas surveyed for smut seem to be contaminated with susceptible varieties such as BJ8532 and BJ8534, especially in fields planted with BJ8783. The variety BJ78100 occasionally shows smut whips. Fields with mixed varieties are more likely to have contamination by smut. Therefore, it is important to emphasise and ensure that pure varieties planted within the sugarcane industry. With great effort, however, along with good variety and disease management, the threat of smut disease has somehow reduced drastically to a desired level.

Sugarcane Orange Rust

A decline in the yield of fields affected by the Sugarcane Orange Rust Disease (SORD) - *Puccinia kuehnii* was observed in the 2017/2018 crop season. The overall productivity on the Estate decreased by 7% from 84tc/ha in the 2016/2017 crop to 78tc/ha in 2017/2018. Production yield from disease-prone varieties such as BJ8252 and BJ9186 fell by 28% and 19% respectively. Inadequate rainfall also contributed to the decline, as at the beginning of the year the Estate experienced drought.

Leaf analyses continued at Worthy Park to ascertain the level of SORD severity. Twenty fields were assessed for the estimated leaf severity percentage (LSP), that is, the estimated leaf area covered by lesions of the Sugarcane Orange Rust Disease. The estimation was done by randomly observing 10 affected leaves per field, at the third visible dewlap (VD3) across and down the length of each leaf. The tests were conducted on a population ranging from two-month-olds to nine-month-olds at Worthy Park, and lasted from June to October, 2018.

During the 2017/2018 crop season, the peak of the SORD at Worthy Park occurred in August at a mean leaf severity of 31%, in contrast to the 8.53% at peak for the same period in 2017. Some fields displayed LSP of over 50%. Several varieties also showed increased severity when compared to the previous year.

Other Activities

The task of planting standard varieties at SIARD's Experimental Farm for the purpose of sugarcane smut trials was satisfactorily completed in February, 2018. Herbicide application for weed control was applied on April 23, 2018.

SIARD's display at Denbigh Show 2018 highlighted sugarcane varieties susceptible to SORD, and Sugarcane Rust Disease. The display of active whips of smut, and pustules of orange rust excited patrons, and had them repeatedly viewing the samples under the microscope.

Sugarcane Physiology

During the crop year, several activities were undertaken as part of the work programme. These included:

- Management of *Distichlis spicata* a rank grass weed (aka granny bombo hair, GBH) on irrigated Southern plains of Clarendon and St. Catherine
- Consultations on weed management on farms operated by SIARD at Comfort, and Springfield in Clarendon
- Consultations on chemical ripening and other physiology-related activities
- Presentations at pre-crop training of farmers
- Preparation (calibration and adjustment) of boom sprayer at Worthy Park

- Reviewed protocols for studies with crop nutrition and weed management products on behalf of a supplier of resources to the sugarcane industry
- Peer review of article destined for publication in Tropical Agriculture Journal
- Investigated and identified unusual occurrences of grass weeds in the sugarcane industry

A few of these activities are highlighted below

Management of GBH

The objectives of this specific weed management programme were to:

- Test the herbicide *asulam* at both pre and post emergence for control of the rank grass weed *Distichlis spicata*
- Determine a suitable rate of *asulam* in cocktail with other herbicides (*diuron*, *ametryn*, and *terbutryn*) that gives acceptable control
- Determine the preferred timing of application for best results
- Use other herbicides singly, or in cocktails to achieve adequate, and sustained management
- Integrate chemical management with mechanical and physical methods as practical

Procedures

The fields selected had high populations of GBH at Springfield and Caymanas. The treatments as applied to the demonstration plots in Clarendon occupied units 10 m long and 5 m wide, to comprise an area of 0.005 ha per plot. The knapsack sprayer delivering the mixtures had calibration of 180 L/ha. Ten spray mixtures, singly and in combination with the adjuvant BreakThru at 1.0 mL/L comprised the treatments. Evaluations of the effects were at 7-day intervals up to 28 days, post application.

Findings

At Springfield, Clarendon, from the first evaluation done seven days after application, and holding out as the better indicators up to 28 days were *diuron* at 5 L/ha; *diuron* plus *ametryn*, and *diuron* plus *asulam*. The outcomes suggested that the *diruon* component in the mixtures did the damage since neither of *ametryn*, *asulam*, or *hexazinone* used alone did worthwhile damage to the weed.

Figure 3: Control levels of *Distichlis spicata* (left) vs unsprayed (right), Caymanas Farm, August 2018.

At Caymanas, St. Catherine, the treatment of *diuron* alone had the best kill, followed by *asulam* plus *diuron*. *Terbutryn* did a reasonable job on juvenile GBH, but as it got older the control waned. Nonetheless, *terbutryn* did better when used alone, than in cocktail with *hexazinone*. Similar to observations in Clarendon, *hexazinone* had little effect.

Conclusions

With regards to chemical management of *Distichlis spicata*, aka granny bombo hair (GBH), the way forward is for the use of *diuron* alone, *diuron* with either *asulam* or *terbutryn*, or *asulam* with *terbutryn* at the prescribed rates outlined previously.

Consultations on weed management

- There were quarterly assessments of conditions on farms operated by SIARD at Comfort and Springfield, Clarendon. An appropriate recommendation of management options and best practice for adoption followed each visit. This allowed the farm manager to plan activities proactively in order to keep the farms productive.
- Investigation of reports of a strange grass weed in sugarcane fields in Clarendon led to the identification of what growers call wild guinea grass. The weed, *Paspalum virgatum*, inhabits sections of fields with impeded drainage and degraded soils. The recommendations were for adequate field drainage, followed by chemical applications of *glyphosate* or *fluazifop-butyl* as necessary. The presence of the weed is not new, and poses no immediate challenge to the industry at this time.

Figure 4: *Sorghum halepense* (Johnson grass) showing developing rhizome.

- Assess distribution of wild sorghums (Johnson grass, *Sorghum halepense* and rice grass, *Sorghum verticilliflorum*) throughout the industry. The grassy weeds have distribution throughout the cane-growing zones, but only at Innswood was Johnson grass, with creeping rhizome, *Fig. 2*, positively identified.

Consultations on sucrose enhancement and growth modifiers

With the changed face of the industry, many physiological activities recommended by SIARD were curtailed. The application of sucrose enhancing substances to boost sugar recovery at the start of the crop season is no longer pursued by producers for various reasons.

The interest by stakeholders for SIARD to test and validate products for use in the industry remains high. As such, SIARD reviewed protocols to involve studies with products to manage crop nutrition and weeds, as submitted by various interests.

Looking ahead

Although there is a downturn in demand for sugar with concomitant lowered prices paid for the product, there remains an interest in sugarcane as an industrial crop with high potential. Fine-tuning the control levels for *Distichlis spicata* (GBH) could bring back fertile land into production and concentrate on the area of production to more manageable levels, while rebuilding productive capacity.

Sugarcane Nutrition

Soil Nutrients

Soil samples taken from fields by estates and independent farms were analysed for phosphorus (P), potassium (K), calcium (Ca) and sodium (Na) as a function of the Fertiliser Advisory Service made available to the Industry by SIARD. The reduction in the number of soil samples received from the estates and farmers continued. However, majority of the samples were from famers. This could result from a number of estates having ceased operations.

Results from the analyses done showed that majority of the areas sampled had adequate levels of mean phosphorus, potassium and calcium. However, it is important to note that Worthy Park estate samples had higher than normal soil P and K levels. In contrast, samples received from the Golden Grove area were relatively low. There was also a considerable number of fields in the Worthy Park and St. Elizabeth area with deficiencies in calcium and potassium respectively. Appropriate fertilizer recommendations were made to counter/correct the observed anomalies.

While crops do not require the nutrient sodium in substantial amounts, it is useful in minor amounts to aid metabolic processes such as photosynthesis and osmosis in plants, like sugarcane. Farms in Clarendon recorded the highest average Na levels. St. Elizabeth farms, similar to 2017, recorded low Na levels.

Observations from soil pH analyses revealed that majority of the fields classified as acidic were from Worthy Park, a usual occurrence for soils in that region. Varying fertiliser grades were suggested for the soils. On average, most fields were within optimum standards for soil pH. The fields regarded as alkaline were, in most instances slightly alkaline, and therefore, not a cause for extensive inhibition to nutrient uptake.

Leaf Nutrients

Leaf nutrient analyses along with soil analyses serve as a monitoring tool and guide fertiliser recommendations. Routine analyses were conducted on samples submitted to SIARD Central Laboratory. Only New Hope Farm, St. Elizabeth submitted samples in 2018.

From the four fields analysed, satisfactory levels were observed for nitrogen and potassium, while phosphorus levels were deemed excessive. Recommendations made considered this factor.

Humic Acid Trial

A trial using humic acid was commissioned on July 31, 2017 at Worthy Park Estate. The aim was to observe the effects of humic acid on the uptake of nutrients from the soil. The variety selected for the trial was BJ7938 and the canes were in the second ratoon cycle. Leaf samples were collected from the trial at Worthy Park on January 4, 2018, after approximately 6 months' regrowth. Samples were taken for the twenty established plots. Thirty (30) leaves were taken in a manner representative of each plot.

Analyses determined that there was no statistical difference in nutrient content for the primary nutrients of N, P and K, when humic acid was added. However, a statistical difference was observed for the trace nutrient boron. The possible presence of sampling error was noted due to factors affecting the procedure.

Preparation of Soil Monolith for Displays and Exhibitions

The display at the 2018 Denbigh Agricultural Show highlighted a soil monolith, that is, a vertical cross-section of the soil profile, removed from the field and mounted for display purposes. The soil type displayed at the show was the Agualta Clay from Springfield, Clarendon where the SIARD farm is located. *Figures 3 and 4* show the preparation of the monolith. By features, the soil is very deep, slightly acid to slightly alkaline, has good moisture retention, and very slow internal drainage. Natural fertility features of the soil type include low nitrogen levels, and medium to high phosphate and potash in the soil.

Figure 5: Soil Pit from which Soil Monolith was extracted

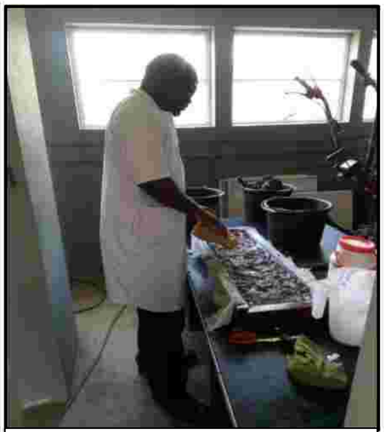


Figure 6: Preparation of Soil Monolith

International Training Programme – Decision Support System for Agro-technology Transfer (DSSAT)

A training on assessing crop production, water and nutrient management, climatic risks and environmental sustainability with simulation models was attended from May 14 -19, 2018 in Griffin, Georgia, USA. Topics relating to soil organic matter, nitrogen and phosphorus in relation to soil and crop development with application simulation modelling were covered.

Research Projects Branch

The Research Projects Branch (formed in May 2018) planned, and executed the research and development of special projects related to value-added aspects for the industry. General collaboration with other departments facilitated improvements to data collection methods and instruments to facilitate key analyses at various stages of the work programme.
The Research Projects Branch will promote continued action in the development of sustainable projects in areas of key concern to the industry. The priority areas for future investigation include value-added uses of the sugar cane plant, and associated technologies for improved production and productivity, and gains of efficiency in methods and systems for agro-processing. The Branch places emphases on training and stakeholder engagement to ensure compliance with standards.

Entomology

The focus of the Entomology Department was on biological control of the key pests affecting the Jamaica Sugar Industry. These pests include the Sugarcane Stalk Borer (*Diatraea saccharalis*), the Canefly (*Saccharosydne saccharivora*), and the Yellow Aphid. However, the latter two have remained relatively quiescent throughout the crop year.

The Sugarcane Stalk Borer continues to be the most significant pest to the industry, causing damage above the economic threshold of 5% across several cane-growing areas. To combat the pest, the department conceived specific assignments in research and production targeting the development and maintenance of a scalable rearing system for the Cotesia wasp (*Cotesia flavipe*). These assignments included:

- An annual Borer Damage Survey to identify infestation levels in fields across the island. This survey also assesses the control, distribution and migration patterns of the borer.
- Basic and strategic research in the control of bio-control agents, particularly Cotesia. This approach led to the revision of laboratory rearing methods, which in turn produced some 24,173 wasps, representing a 101.4% increase over the annual performance target of 14,400 wasps.

- Importation of 350,000 Cotesia wasps from Columbia in October 2018 to boost the genetic fitness and augment local wasp population through distribution to borer hotspots island-wide, *Table 3*.

***Table 4*: Release of imported *Cotesia* factory area**	
Parish	**Number of imported *Cotesia flavipes* released**
St Catherine	200,000
Clarendon	70,000
St Elizabeth	30,000
Trelawny	20,000
Westmoreland	20,000
St Thomas	8,000
Total	**348,000***

*2,000 wasps retained in the laboratory for observation and breeding.

Sugar Technology

Training sessions were conducted for Core laboratory staff at Worthy Park and Golden Grove in preparation for the 2017/18 crop. The key focus areas for the training activity were the use and care of Core Laboratory equipment; work place safety; operations of shredder and the hydraulic press; and the importance of proper sampling techniques.

Quality checks of analytical equipment at the various factories revealed that most were in accordance with recommended operating standards. The equipment assessed were NIR polarimeter, hydraulic press, balances, centrifuge, ovens, and shredder (preparation index test). As the non-conformances can have impact cane payment, instances identified at factories were referred to management for corrective action.

SIARD conducted a simultaneous sugar collaborative test to evaluate all operating factory laboratories with regards to methods, operators, and equipment used in analyses related to the cane payment system. The aim was to determine standardization of methods and conformity to standards as described in the “Manual of Analytical Methods for Use in the Control Laboratories of Raw Sugar Factories.” The exercise identified areas where improvements were needed at the factories that fell below the standards for each method comprising pol, moisture, Brix, and mud volume. Recommendations were also made.

Other activities

A glasshouse modernization project was approved and implemented during the year with a view to develop capacity to seedling-stage sugarcane variety experiments.

Agro Meteorology

During the 2017/2018 crop, weather patterns influenced cane-related activities in the following ways:

- **Harvesting –** The wet conditions that prevailed throughout November and December, which are traditional dry months, affected the scheduled start of February 8, 2018 for the Appleton Sugar Factory. The high rainfall in April ultimately led to the closure of the factory's closure. In the Monymusk area, the May rains were extensive enough to cause notable interruptions in the crop, resulting in the cumulative loss of some 400 tonnes of canes.
- **Fertilizer Application –** Frequent rainfall also contributed significantly to late application of fertilizer in many areas. Some farmers did not apply due to late receipt of fertilizer. In stark contrast to prevailing wet conditions earlier in the year, drought conditions in July prevented farmers within the Appleton area from fertilizing their fields. Golden Grove farmers also rescheduled fertilizing. During the drought conditions in August, the Bernard Lodge farmers had to curtail fertiliser applications.
- **Weed Management –** On the Appleton Estate, weed control operations were significantly affected by wet infield conditions.
- **Irrigation and Drainage** – Consequent to adequate rainfall, only a small amount of irrigation was conducted in the irrigated plains. At Springfield, the drainage system for the removal of excessive rainfall or irrigation water was compromised. However, excess water follows the regional drainage system and subsides naturally. In the Frome area, the Dutch Canal that conveys factory wastewater as well as other infield wastes, required routine dredging. The drainage issues in the St Thomas area were less challenging due to adequate infield drains being present on most farms. At Pera Farms in St Thomas, the drain outlets to the sea had been clogged, posing a serious challenge. However, reduced sugarcane-related activities diminished the need for immediate assistance in this area. A similar situation arose in the Everglades area of Trelawny, where frequent bouts of flooding occurred. A reduction in cane farming activities lessened the number of complaints or requests for drainage assistance.
- **General growth of canes:** During October 2017, there were 18 rainy days at Frome Estate. This is expected to influence the crop re-growth (ratooning) for 2019. The rainfall recorded in New Yarmouth, Monymusk and, Bernard Lodge resulted in continuous re-growth and was welcomed by growers. This may have impacted the over (sixty-three 63 tic/ha yield within the lower St Catherine and Bernard Lodge area. Farmers, especially within the Woodland area of Bernard Lodge, got a reprieve from the cost of irrigation water from the National Irrigation Commission.

- **Sampling of soil and leaf:** During May, the wet conditions prevented the collection of soil samples from farms in the Appleton area. Leaf sampling was rescheduled for July. The dry conditions within the Bernard Lodge area prevented routine soil test.

Sugar Cane Production

SIARD Research Farms

Canes reaped at SIARD Farm, (Baugh's, Comfort, Clarendon), during the period May 26 to June 2, 2018 yielded 453.48 tonnes, with a JRCS of 8.87. Fields #6, #3, and #2, all immature cane fields, as well as fields #7and, #5, were lost to illicit fire. Selection from the BJ2019 Stage I Nursery saw 2,854 clones advancing to BJ2019 Stage II. However, owing to administrative decision taken in October to discontinue operation at that location, the other farm at Springfield will host the new varieties whenever seed materials become available.

At Springfield, some 37 hectares of canes were irrigated using the drip system. Low pressure in some areas reduced its efficiency and subsequently, flood irrigation replaced the existing system. Weed management was administered using a combination of chemical and mechanised activities. A total of 80 bags (50 kg each) of fertiliser was applied to 16 ha at a rate of 250 kg/ha. The newly established canes were growing slowly but with added moisture, growth should normalise within a few months. Wide gaps were filled to have good population to facilitate efficient use of land and added nutrients.

Land preparation on 7 ha of land to host Stage I Nursery of the BJ2020 Series and Stage II of the BJ2018 and BJ2019 Series were also completed. The Stage I Nursery contained 27,000 seedlings, while the BJ2019 and BJ2018 Stage II nurseries contained 2716 and 3065 potential varieties respectively.

Drip Irrigation System

The program was faced with the challenges of high capital costs exceeding USD 5,000/ha, and so very few drip systems were installed during 2018. This came on the heels of a failure to meet yearly targets of 500 ha between 2011 and 2017 with grant funding from the EU/Sugar Transformation Unit (STU) programme.

Despite the availability of 7,300 ha for the possible establishment of a drip system within the irrigated plains of St Catherine and Clarendon, the Programme only achieved approximately 1,200 ha by 2018. The development of these systems, established at New Yarmouth Estate and among some 35 small/medium farms, was accompanied by annual repairs and maintenance costs, including repairs of drip tubes damaged during harvesting.

During the first quarter of 2018, routine data collection at over 17 drip-irrigated farms within the Clarendon plains was undertaken. This included the data on volumes of irrigation and the corresponding operating pressures. This investigation revealed that on several occasions, due to adequate rainfall, only a small amount of water, varying between one and 48 m^3, was registered on seven of the 17 farms visited.

Reports of vandalism and praedial larceny prompted a public outcry from Braeton Small Farms who lost a significant portion of valves and water meters that were installed above ground. SIARD responded by providing moral support and advice in the area of rehabilitation and replacement of the well-needed equipment. This experience was similar to that of SIARD in June within the Springfield area.

During the period, SIARD was the sole entity that embarked on the installation and management of a major drip irrigation system. This was at Springfield where 37 ha, already established, were intended as a model system. The objective of the system was to facilitate research and development of drip-irrigated production and was funded through the EU/STU grant.

Tractor–mounted Harvester

Following the receipt of the Hodge tractor-mounted harvester and subsequent training activities organized by the supplier, preliminary testing revealed several issues, and so the harvester and tractor were returned for extensive repairs. SIARD received the repaired harvester in August 2018. The harvesting and follow-up training resumed later in August, but with the operator from SIARD at the controls. Plans for its continued evaluation advanced to the 2018/2019 Crop.

Figure 7: Hodge Harvester in towing position at SIARD

Cost of Operations (CoP) Trends

A study was conducted during the period on the cost of production trends for the 10 years 2008 – 2018.
This study was aided by the preliminary cost of production data for the various estates obtained from the extension personnel at the AIJCFA, for the 2017/2018 crop year. The impact of climate change on production and productivity levels, especially those about weed control, irrigation, drainage, as well as harvesting were investigated. Ranked data related to Return on Investments (ROIs) and Net Present Values (NPVs) for suppliers of canes to the Monymusk factory was the

main focus of the study. The impact of the recent changes and challenges to the marketing arrangements were also investigated. Results from the project are outlined below.

Land Preparation

Coming from a low of $12,765/ha in 2008, within the Central Uplands of St Catherine and Clarendon, costs fluctuated from $50,000/ha in 2014 and 2015 to as high as $100,000/ha in 2016. Land Preparation costs remained relatively stable at approximately $50,000/ha in the Wet West for the last five years. Within the zones comprising the Dry North Coast, as well as the irrigated Clarendon and St Catherine plains, costs rose to over $73,000/ha in 2017 and 2018.

Planting

Costs increased from a low of $28,458/ha for planting in 2008 to as high as $99,780/ha during 2017 across the dry North Coast, and the irrigated Clarendon and St Catherine region. Planting costs also increased in the wet West above $100,000/ha between 2017 and 2018.

Fertilizing

The cost of fertilizer application rose from a low of $4,659/ha in 2008, to just below $55,000/ha in 2014 and 2015. In 2016 these costs increased to over $61,000/ha in most of the ecological zones, except for the hills of Clarendon and St Catherine.

Weed Control

Management costs increased from a low of $1,726/ha in 2008, to just below $28,000/ha in 2014 and 2015. These costs were again increased to over $34,000/ha across the Central, Wet West, and Wet East zones during 2016. During 2018, these costs returned to as low as $14,087/ha in the irrigated Clarendon region but remained above $30,000 within the Wet West region.

Irrigation

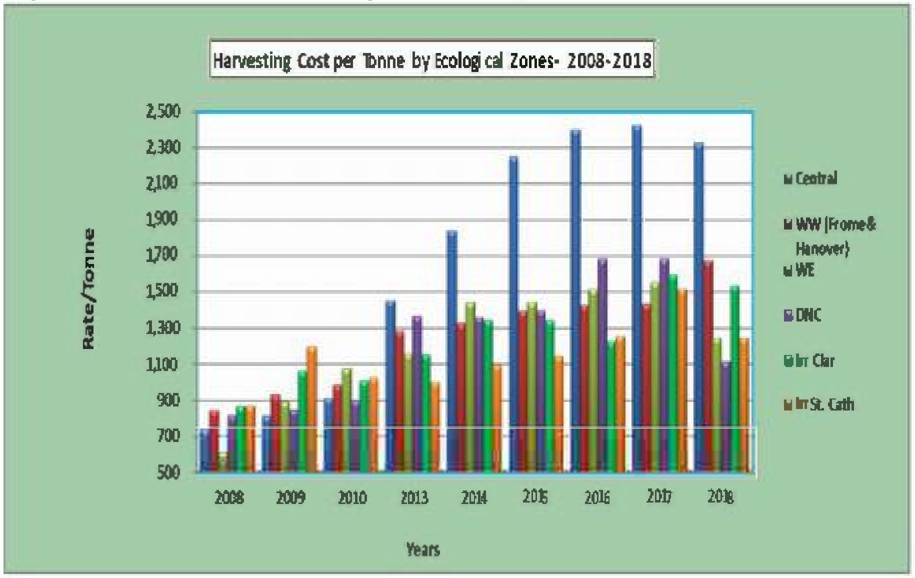
Arising from a 109% increase in NIC irrigation rates since 2017, farmers have not been able to afford or apply the average 15,000 m^3 per ha required to satisfy the annual requirements for crop water. A reliance on rainfall and an increase in overall irrigation efficiencies became more critical. The importance of the NIC embarking on the installation of measuring devices, and the lobbying efforts by stakeholders for a reduction in charges, were contemplated.

Harvesting

Costs rose from a low of $612/tonne in 2008 to approximately$2,400/tonne during 2018, *Figure 1*. Harvesting costs, although trending upwards, remained relatively stable within most regions during the last two years. The 2018 harvesting season was also plagued with several disruptions due to excessive rainfall. These factors also accounted for a shortfall in sugar production in 2018.

The apparent low cost of $1,112/tonne for the Dry North Coast area excluded the cost of government transport subsidy to deliver cane to Worthy Park and Appleton Estates.

Figure 8: Trends in Harvesting cost for the period, 2008 -2018



Return on Investments (ROIs), and Net Present Values (NPVs)

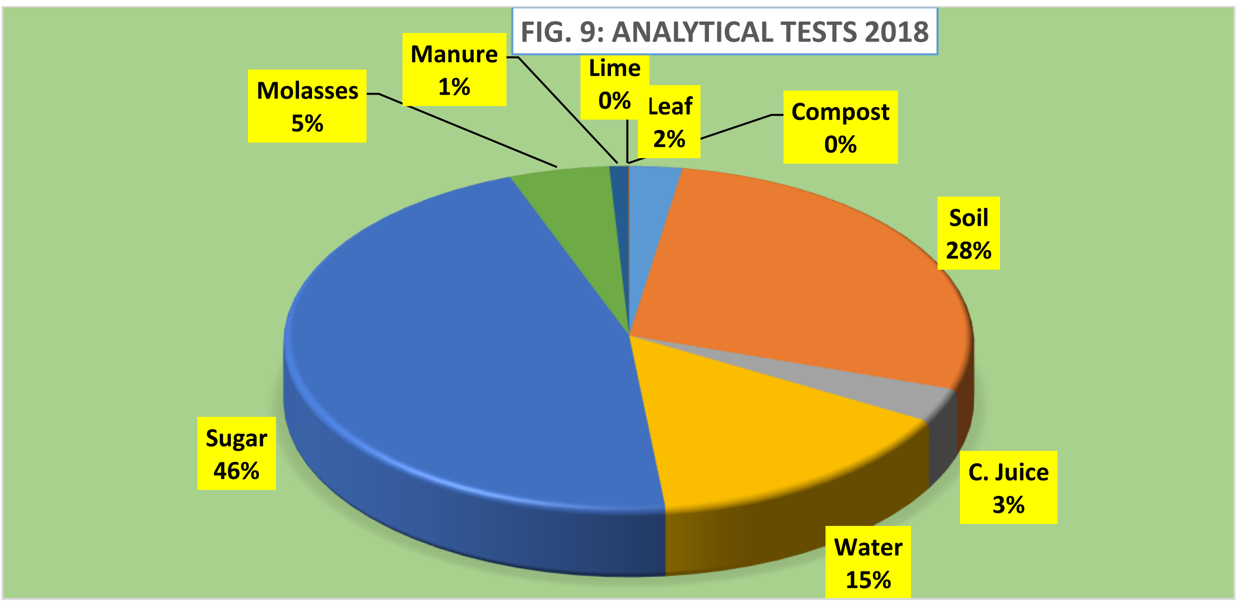
The most profitable of the last 10 years within the Monymusk belt occurred in 2008 when suppliers achieved an ROI of 16%. In addition, ROI of 47%, and positive NPVs of $163,205 per ha were possible for suppliers achieving (eighty) 80 tc/ha, despite the relatively low revenue stream of approximately $686 million. This success may be linked to efficient production levels that resulted in costs falling below the price of $2,827 per ton cane. This performance was reversed in 2010, when the WTO signalled intent of the removal of subsidies by as much as 36%. ROI plunged to negative 36%, and all ROIs, and NPVs were negative even for the suppliers who achieved 80 tc/ha. Despite the efforts by marketing agents to improve the payments for sugar since 2011, except the 2013/2014 and 2015/2016 crop seasons, the downward viability spiral continued, culminating with a low ROI of negative 44%, at Monymusk during 2018, the worst ever in the last 10 years.

Correlation between Sugar Price and Cane Payment at the Monymusk Factory (2008 to 2018)

The correlation exercise indicated that a cane price of $5,050 per tonne of cane was required for an economically viable 2018 crop. However, this was predicated on a productivity level of 80 tc/ha at standard JRCS. This equation when transformed also generated a minimum declared price for sugar at $71,055 per tonne. This compares favourably with the declared price of $72,000 per tonne of sugar by Seprod Ltd. at Golden Grove for the 2018 crop.

Central Laboratory

The Laboratory, the local benchmark for quality and integrity, built its reputation on quality, client service, and technical excellence. The laboratory's policy and objectives on quality form the basis of how the business of analytical testing is performed. Testing services offered include analysis of sugar, molasses, water (wastewater and irrigation), tissue (leaf), cane juice, and soil. All methods for raw sugar and five methods of soil analysis are ISO/IEC 17025:2005 accredited. The Laboratory retained its accreditation based on a surveillance assessment during July 30-31 this year. The methods for wastewater retain their approval by the Ministry of Health. The Laboratory is currently transitioning to the new standard, ISO/IEC 17025:2017. During the period October 2017 to November 2018, the Laboratory performed 9,360 analyses, *Figure 7*.



The number of soil analyses was 1,526 representing a 6.6% decrease when compared to 2017. The number of sugar analyses was 4301, representing an 8.6% increase when compared to 2017.

Training

The Laboratory maintained its training exercises for the continuous improvement of the quality system and competence of staff. Training exercises were in the form of webinars (online), internal and external by the Central Laboratory and JANAAC respectively. In addition, the Laboratory provided training for five staff members from the Golden Grove Sugar Factory over the period January 3-4, 2018. Areas of training included sugar pol and moisture, molasses Brix and pol.

Surveillance visit/Internal Audits

The Laboratory conducted several internal audits including seven scheduled audits as stipulated on the Laboratory's Year Calendar over the period January to December. The surveillance visit by JANAAC was conducted over two days, July 30-31. Five parameters were assessed, reducing sugar, starch, insoluble solids, pH and nitrogen. There were no non-conformances. The Laboratory accepted and addressed all findings by the accreditation body (JANNAC), hence continuation of the laboratory's accreditation for sugar and soil methods was granted.

Summary

The Central Laboratory anticipates a challenging year with the focus being the transitioning to the new standard ISO/IEC 17025:2017, which is presently approximately 60% complete. The next assessment by the external body (JANNAC) will be against this standard. The Laboratory seeks to maintain the accreditation status of its methods through ongoing training and quality service. The accreditation of these methods provides our clients with reliable and accurate results promptly. The Laboratory continues to strive for excellence in the services provided to both the Research Division and external customers.

Technical Support Services Division

Overview

The Technical Support Services (TSS) Division maintains all buildings and equipment owned by the Sugar Industry Authority (SIA) and ensures that the grounds of the SIA and the Sugar Industry Authority Research Division (SIARD) are well kept. The division provides the necessary technical support for the daily operations of Core Laboratories, as well as other divisions within the SIA and to the sugar factories. The team remains dedicated and committed to giving quality service on time and will continue to contribute to the SIA achieving its objectives.

Maintenance of Buildings, Equipment, and Utilities

Several projects to increase energy efficiencies, and improve safety and security among other duties were executed during the year and included:

- Facilitation of site visits by PCJ at all three locations in Kingston, Mandeville and Denbigh to develop the technical specifications and designs of the solar PV systems
- Continued repairs to the roof and rainwater harvesting projects at the SIA
- Installation and commissioning of new inverter mini split A/C units in SPF's offices at the SIA and decommissioned the central A/C unit
- Acquisition of a new food warmer for the canteen at the SIA
- Acquisition and installation of hurricane shutters on the larger windows at the SIA
- Cleaning of the water storage tank at the SIA

- Replacing large water tank toilets with low-volume water tank toilets at the SIA
- Servicing the standby generators and A/C units at the SIA and SIARD
- Installation and commissioning of a new fire alarm and a security camera system at the SIARD
- Painting of the buildings at the SIARD
- Renovation of the Entomology laboratory, glass houses, barbeque area and constructed additional barbeque area at the SIARD
- Retrofitting an office at Broadlands for the CEO
- Construction of a garbage holding area building at the SIARD
- Prepared sandboxes, a gas cylinder and security grill for the Central Laboratory
- Preparation of the grounds and building at Denbigh for the annual Agricultural show
- Preparation of the facilities at the SIARD for the annual Post Crop Seminar
- Maintenance of the facilities at the SIA and SIARD

Maintenance of Core Laboratory

The TSS division completed out-of-crop repairs at the Golden Grove core laboratory and supplies were delivered on time to the facility for the start of the 2017/2018 Sugar Crop. The air conditioning units at Golden Grove core laboratory were serviced every month during the sugar crop.
The air compressor, an A/C unit, hydraulic ejector cylinder, and shredder timer were damaged at Golden Grove core laboratory during the crop and had to be either repaired or replaced. Assistance was given to the engineers at the other core laboratories with repairs to the core sampler units at their locations.

Preventive Maintenance

Preventive maintenance services were carried out on items of equipment that operate at high speed at the sugar factories. Services included were vibration measurement, dynamic balancing and laser alignment. Equipment serviced were mill turbines, powerhouse turbines, powerhouse alternators, gearboxes, cane knives, cane shedders, boiler fans, centrifugal baskets and pumps. Preventive maintenance service was also executed in the Central Laboratory every month for all pieces of rotating equipment.

Instrumentation

All analytical instruments in the Central, Core and Factory Laboratories were repaired, serviced, calibrated, tested and delivered on time for the 2017/2018 Sugar Crop. In the Central Laboratory, routine maintenance of equipment was done as per schedule developed under the maintenance programme and records were updated. In the Central Laboratory, a new leaf mill was installed and commissioned.

During the sugar crop, all reported issues with the instruments were urgently and successfully addressed on time. The calibration weights used in the section were sent to the Jamaica Bureau of Standards for certification.

The TSS division repaired, serviced, and calibrated electronic sugar, juice and truck scales at various locations such as Worthy Park, Golden Grove and Monymusk, before the start of the crop. Similarly, repairs and servicing of all sugar samplers at the sugar factories were done.

Other Activities

During the period, team members attended and participated in various workshops, training, meetings, seminars, presentations, audits and reviews, etc.

THE CANE EXPANSION FUND

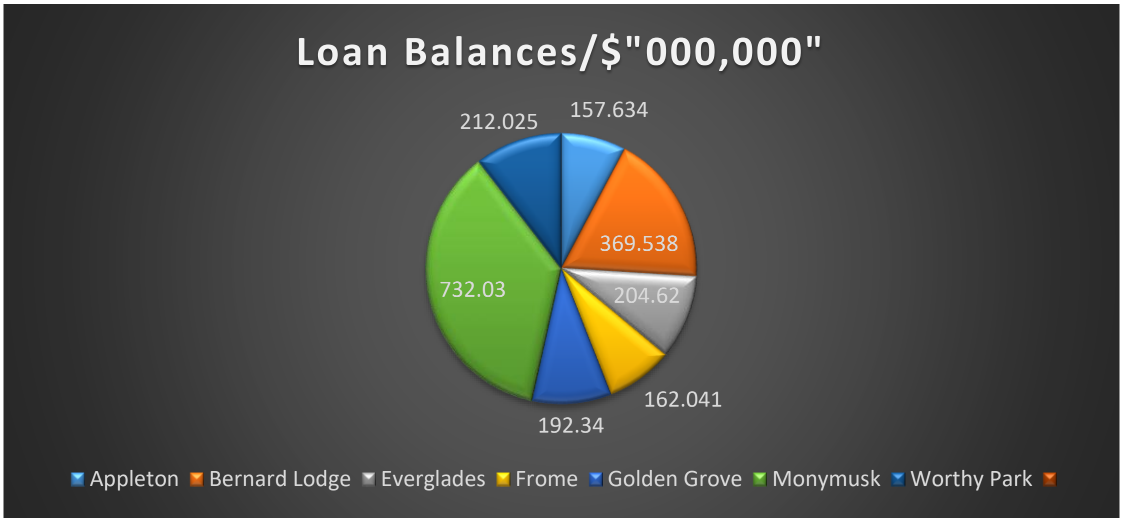
The Cane Expansion Fund is a project of the Sugar Transformation Unit of the Ministry of Industry, Commerce, Agriculture and Fisheries. The operations of the Cane Expansion Fund commenced in 2007 with the principal objective being to provide additional funding to the sugar cane sector to support increased production, productivity and efficiency in supporting the achievement of the objectives of Component (1) of the Revised Sugar Area Development Programme – Strengthening Commercial Competitiveness of the Sugar Cane Sector, under the Government of Jamaica's Sugar Adaptation Strategy. To date, the total injection from the Ministry of Industry, Commerce, Agriculture and Fisheries for grant and loan financing is J$2.259B.

The Loan Portfolio

The Loan Portfolio has grown significantly showing an approximate balance of J$2.03B as of December 27, 2018, with 1787 loans and under 13,000 hectares of canes planted throughout the industry, *Figure 7*.

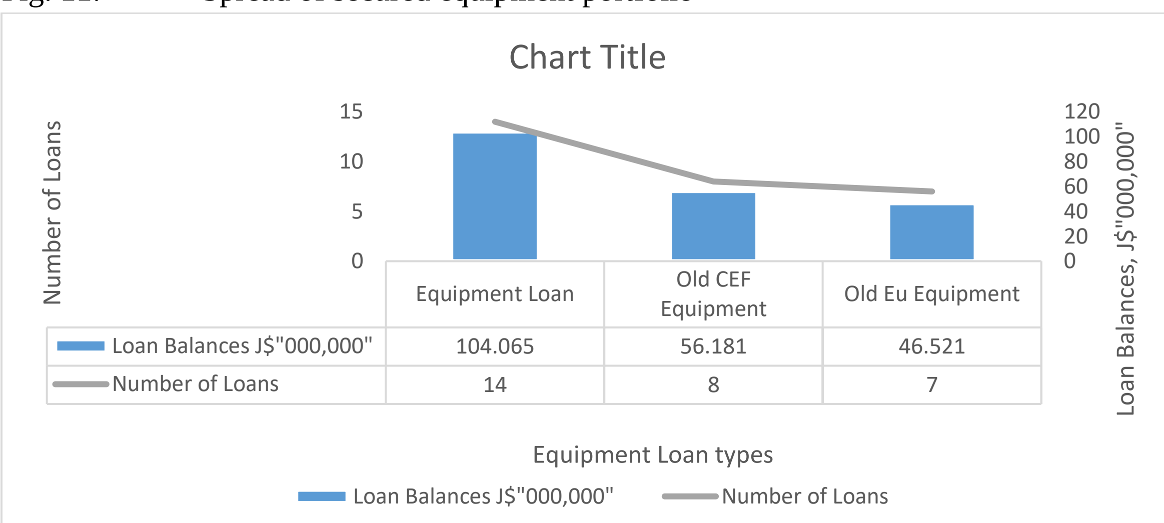
The Diagram below gives a summary of the loan balances as proportioned across the seven factory areas.

Fig. 10: Loan Balance as of December 2018



While most of the loans issued by the Cane Expansion Fund are secured by a crop lien, that is, an assignment over income from the crop, or by an assignment over work done by equipment; there are loans issued for equipment purchase. These are secured by a bill of sale over the equipment purchased. This secured portfolio represents approximately J$206.767M of the portfolio for twenty-nine (29) equipment loans. This J$206.767M represents 10.18% of the total CEF loan portfolio as of December 27, 2018.

Fig. 11: Spread of secured equipment portfolio



Portfolio Performance

Following a decision taken on March 31, 2014 to change the CEF's financial year end from October 31 of the calendar year, most loans become due on the year end of the given calendar year to facilitate timely remittances of the repayments/deductions from the sugar cane crop collected from the 2nd and subsequent payment, with some minor exceptions to a few short-term loans introduced in 2016. As of March 31, 2018 more than 56% of the portfolio, an amount of J$962.774M in principal balance and J$183.765M in interest balance was delinquent with age listing ranging from 70 to 1096 days. A loan will become a bad debt after three consecutive periods of no repayment (greater than or equal to 1095 days/3 years). As of March 31, 2018 less than 50% of the delinquent loans were classified as bad debt.

Some of the reasons for such a high delinquency are:

- Severe drought conditions experienced in 2014-2015
- Ministerial decision for no or minimum repayment in 2016, 2017, 2018 and the ensuing 2019 crop year. This decision was in response to an appeal from the farmer's stakeholder group. However, some farmers continue to remit funds to reduce the loan balances incurred despite this decision.
- Reduction in the price of sugar on the European Union Market resulted in the loss of sale opportunities from the marketing agents in the industry.
- Poor distribution of sugar in the domestic market further compounded the effects of the loss of market opportunities.
- Selling of farmers' canes in other farmers' names, constituting a breach in the SIA act.
- Abandonment of sugarcane fields by key stakeholders resulting in a decline sugar production over the years.
- Nonoperation and the threat of closure of at least three (3) Sugarcane factory
- Death of farmers and a lack of continuity for production on the farms.
- A lack of strong enforcement of sanctions for breaches (relating to the CEF loan portfolio) before 2015.
- Absence of a strong monitoring team for CEF financed projects before February, 2015
- Conflicting of interest regarding influential stakeholder decisions.
- Incidences of Crop Loss due to acts of God (drought conditions), illicit fires, mismanagement of farms, and incorrect cultivation practices resulting in low yields.
- Repayments anticipated from factory deductions are evaded due to diversion of cane sale (sale of cane seeds)
- Oversights in computations
- Deferred payments.

Achievements

- **AMS Targets**
  Since the inception of the fund all the AMS targets related to the planting of sugarcane and the outfitting of efficient irrigation infrastructure for specific hectares were met with the exception of the targets due on September 30, 2016. Details of these reports are available by the office of the Sugar Transformation Unit.
- **Administrative Achievements**
  I. The current administration has effectively structured the procedural guidelines to include the introduction of short-term loans which were originally not facilitated under the programme.
  II. Additionally, given the changes in the industry and the high risk associated with closure and non-operations of the factory, the procedures have been updated to address this with several options available for repayment.
  III. Prior to 2015, there was a challenge with adequately accounting for grants and loans issued to farmers in the loan system. The department has since conducted an extensive investigation to verify the details of the farmer's borrowings, separating the grant-financed projects and accounting for such in a palatable manner.
  IV. Farmers' statements more accurately reflect the borrowings intended.
  V. Acquisition of robust software which offers more flexible terms for repayment given the dynamic nature of the sugar industry.
  VI. Said software provides a platform for accurate accounting reconciliation with a host of controls to ensure the maintenance of correctness.

Administrative Challenges

Some of the administrative challenges noted were:

- **Lack of land tenure document**: Some lease documents presented were not deemed to be legally acceptable, while some farmers had illegally occupied some farmlands, leaving such loans a high financial risk since land tenure was not initially established. Legal advice is being sought for the treatment of these loans.
- **Misplaced security documents**: Security documents for some loans established prior to 2015 were not located, although the disbursement evidence (the cheque stubs) is seen on file. Security documents for all loans approved since 2015 are held on file.
- **Over disbursement**: Some loans approved prior to 2015 were over-disbursed. The over disbursement has been uploaded to the farmer's loan statement and the evidence of the disbursement is available on file. This represents approximately J$89.65M
- **Low Cooperation from some stakeholders**: Low cooperation from some stakeholders in the industry continues to be a challenge. Improvement in this area is required if all stakeholders are to benefit from the fund.

Lessons Learnt

I. When the project commenced, employees were seconded to carry out the administration of the fund. In 2012, an audit was completed which recommended that an independent department be established with the sole purpose of working on the project.

II. The audit identified several shortfalls in the department prior to 2014/2015, which included a shortfall in the ability to store adequate and accurate data. Since the establishment of the new team, data collected have been carefully stored for reference The team holds expertise in loan administration and implemented tighter controls to ensure the loans are repaid promptly and where there are breaches the necessary sanctions are applied.

III. Had this team been established from the onset of the project then the administration would have been more effective in monitoring some of the canes planted pbefore2015.

IV. It was hypothesized for some time that the larger farmers are more likely to become delinquent. However, no solid test was conducted due to the absence of streamlined data.

THE TEST:

A sample of 100 random farmers was identified from the new CEF database with a classification of borrowings from J$1 million to J$10 million.
The data was collected and analyzed by a team of experts where other variables were considered including the varying occupations of farmers, other income streams outside of the production of sugarcane, number of years of experience as a farmer based on the SIA Farmer registration database.
LIMITATIONS:

I. The limitations to this research were noted in that 100 samples represented less than 10% of the database of farmers. Farmers with loan balances over J$10M were not considered and delinquency was seen where farmers had balances that were more than J$10M.

II. There was limited time for the research.

III. The research did not consider loan categories and the relationship between loan types and delinquency.

THE FINDINGS, RESULTS AND CONCLUSIONS:

1. Farm sizes over 30 hectares with balances between J$1M and J$10M and more than two types of loans displayed an 82% chance of becoming delinquent.

2. Farmers with borrowings less than J$1M and were haulage contractors, agronomists and so on displayed a 55% chance of having a delinquent loan. The report is available to be reviewed.

INFORMATION SYSTEMS DIVISION

Pre-crop Preparations and Maintenance

The Information Systems Division continued on its mandate of providing the requisite maintenance and support services to the SIA and the wider industry by extension. To this end, the division was engrossed in pre-crop preparations and subsequent ongoing maintenance for the 2017/2018 sugar crop within the SIA offices and at all operating factories, as well as sugar and core laboratories. These activities included program fixes, modification, and upgrade of databases, network troubleshooting, equipment maintenance, and also user support and training.

Additionally, the specialized duties of Systems Administrator, Network Administrator, Database Administrator, Internet and Network Security, Web Developing, and Graphics Designing were carried out by all division personnel during the year under review. Other activities such as computer and peripheral repairs, servicing and computer assembly was done at both the Sugar Industry Authority and the Research Division.

Cane Yield Survey (CYS)

To increase efficiency in the management and output of data, the database management program “Clipper 5.3” was acquired and modified to incorporate the CYS system. Fertilizer data transferred from three databases was used to demonstrate the effectiveness of the program.

Hardware and Software Maintenance

Several hardware and software maintenance activities were undertaken throughout the year. These include testing the Human Resource Management System, Access Control System, Inventory Management system, and Loan Management system. There were also activities targeted at configuring and reconfiguring certain hardware and software at SIA and SIARD to facilitate a smooth flow of information.

SIA/SIRI website and Publishing

The IS division also completed formatting and updating activities for publications. The division also updated the SIA website with information received from factories, research, and the organization.

Workshops were also conducted on Microsoft Excel, Cloud computing, and Internet Security, as well as training in the use of Statistical Package.

APPENDICES

SUGAR INDUSTRY AUTHORITY

SENIOR EXECUTIVE COMPENSATION

2017/2018

Position of Senior Executive	Year	Salary ($)	Gratuity or Performance Incentive ($)	Motor Vehicle Upkeep ($)	Pension or Other Retirement Benefits ($) 5%	Other Allowances ($) (Lunch Allowance)	Non-Cash Benefits	Total ($)
Chief Executive Officer	2017	6,781,681.92	1,695,420.48	1,542,864.00	-	-	-	10,019,966.40
Director, HR & Administration	2017	4,898,475.84	-	1,542,864.00	-	74,084.40	-	6,515,424.24
Financial Controller	2017	5,160,189.24	1,290,047.31	1,542,864.00	-	74,084.40	-	8,067,184.95
Director, Industry Regulations	2017	4,898,475.84	1,224,618.96	1,542,864.00	-	74,084.40	-	7,740,043.20
Acting Director of Research	2017	4,898,475.84	-	1,542,864.00	-	74,084.40	-	6,515,424.24
TOTAL		**26,637,298.68**	**4,210,086.75**	**7,714,320.00**	**-**	**296,337.60**	**-**	**38,858,043.03**

DIRECTORS' COMPENSATION (2017/18)

APPENDIX 1B

Name of Director	Fees ($)	Motor Vehicle Upkeep/Travelling or Value of Assigned Motor Vehicle ($)	Honoraria ($)	All Other Compensation Including Non-Cash Benefits as Applicable ($)	Total ($)
Mr. Phillip Henriques - Chairman	381,800.00	-	-	-	381,800.00
Dr. Horace Charoo	186,900.00	-	-	-	186,900.00
Mr. Allan Rickards	274,300.00	-	-	-	274,300.00
Mr. Peter McConnell	135,000.00	-	-	-	135,000.00
Mr. Kavan Gayle	306,500.00	-	-	-	306,500.00
Dr. Derrick Deslandes	101,400.00	-	-	-	101,400.00
Ms. Stephanie Muir	148,800.00	-	-	-	148,800.00
Total	**1,534,700.00**	**-**	**-**	**-**	**1,534,700.00**

APPENDIX TABLES

Table 5: Cane Milled (Tonnes) 2017 & 2018

FACTORIES	2017			2018		
	Estates	Farmers	Total	Estates	Farmers	Total
Frome	140,823	106,256	247,079	205,416	121,682	327,098
Monumysk		179,193	179,193		104,492	104,492
Golden Grove	66,256	84,963	151,219	54,401	85,330	139,731
Appleton	188,856	110,565	299,421	156,110	62,119	218,230
Worthy Park	138,259	123,358	261,616	134,155	104,686	238,841
TOTAL	**534,194**	**604,334**	**1,138,528**	**550,082**	**478,310**	**1,028,392**

Table 6: Tonnes 96^0 Sugar Produced: 2014- 2018

FACTORIES	2014	2015	2016	2017	2018
Frome	38,603	32,785	27,507	20,451	23,275
Monumysk	23,091	19,775	16,985	11,230	8,105
Everglades	11,724	11,103	3,027	-	-
Golden Grove	19,403	16,018	11,282	11,297	10,248
Appleton	33,890	26,915	-	18,936	16,480
Worthy Park	27,650	27,628	24,054	26,076	24,252
TOTAL	**154,361**	**134,224**	**82,855**	**87,990**	**82,360**

Table 7: Cane Quality – Jamaica Recoverable Cane Sugar (JRCS) 2014 – 2018

FACTORIES	2014	2015	2016	2017	2018
Frome	8.91	9.55	8.97	10.02	8.76
Monumysk	10.99	11.12	9.03	9.59	10.61
Everglades	10.15	9.34	8.80	-	-
Golden Grove	8.79	9.16	8.00	8.94	9.17
Appleton	9.96	9.56	-	8.84	9.62
Worthy Park	11.41	11.35	9.99	10.57	10.63
AVERAGE	9.93	10.02	9.15	9.61	9.62

Note: Since the inception of the core sampling method of testing cane quality in 1991, cane suppliers have been paid by the Jamaica Recoverable Cane Sugar (JRCS) as measured by the core sampling operation.

Table 8: Factory Recovery Index (FRI) 2014 – 2018

FACTORIES	(Rating) 2018	2014	2015	2016	2017	2018
Frome	3	89.47	75.27	74.29	77.92	81.18
Monumysk	5	79.35	70.16	77.69	66.79	73.14
Everglades	6	87.23	90.00	55.37		-
Golden Grove	2	87.37	89.09	79.02	84.74	81.55
Appleton	4	92.22	89.41	-	72.31	78.82
Worthy Park	1	98.09	98.39	96.04	94.35	95.50
AVERAGE	**#N/A**	**89.31**	**84.59**	**80.60**	**80.62**	**83.51**

Note: Cane payments are now based on a standard Factory Recovery Index (FRI) of 91%. Factories below 91% are required to make up for their inefficiency while those above gain benefits. The FRI is derived from the core sample testing of the sugar cane entering a factory and this measure has replaced a former measure of Overall Efficiency which was derived in the Factory, that is to say, the sugar is measured coming into the factory rather than going out.

Table 9: Time Account 2016 & 2017 (Time loss as a % of Total Available Time)

FACTORIES	TOTAL TIME LOSS		STOPPAGES					
			Factory		Non-Factory		Cleaning	
	2017	2018	2017	2018	2017	2018	2017	2018
Frome	38.11	40.56	12.38	9.60	25.21	29.28	0.52	1.68
Monumysk	60.70	71.40	21.06	8.16	38.68	63.24	0.95	-
Golden Grove	60.02	50.83	12.01	12.76	48.01	38.07	1.70	1.85
Appleton	46.55	51.27	13.93	11.09	32.61	40.18	3.11	3.49
Worthy Park	18.80	21.00	4.30	1.87	14.50	19.13	5.81	6.44
TOTAL	**44.79**	**44.71**	**12.31**	**8.40**	**32.25**	**35.99**	**2.74**	**3.00**

Total time loss (time not available for milling) is broken down into causes for stoppages related to (i) "factory" such as factory breakdown (ii) "non-factory" such as weather, lack of cane or strikes and (iii) time devoted to weekend cleaning and expressed as a percentage of total available time.

Table 10: Sugar Exports by Destination 2014 – 2018

DESTINATION	2014		2015		2016		2017		2018	
	QUANTITY (TONNES)	VALUE (USD) ($'000)	QUANTITY (TONNES)	VALUE (USD) ($'000)	QUANTITY (TONNES)	VALUE (USD) ($'000)	QUANTITY (TONNES)	VALUE (USD) ($'000)	QUANTITY (TONNES)	VALUE (USD) ($'000)
EU	77,457	59,406	64,571	49,483	24 136	8 930.2	19 000	8 745	20 255	6 863
USA	11,016	5,883	13,202	6,302	11 854	6 942.8	11 222	5 158	11 074	6 252
Other	36	51	703	393	2 054	1 428.2	4 745	3 269	4 581	2 855
TOTAL	**88,509**	**65,340**	**78,476**	**56,178**	38 044	17 301.3	34 967	17 172	35 910	15,970

SUGAR INDUSTRY AUTHORITY

Financial Statements

31 October 2018

Charlton Hylton F.C.C.A., F.C.A., Hayseworth Hylton F.C.A., MBA
Dwayne Lindsay F.C.C.A., MBA, Paula Thorpe F.C.C.A., MBA

C.R.Hylton & Co.
Chartered Accountants

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JAMAICA

Report of the Independent Auditors

To the Members of

Sugar Industry Authority

Opinion

We have audited the financial statements of Sugar Industry Authority ("the Authority") which comprise the statement of financial position as at 31 October 2018, the statement of comprehensive income, statements of changes in equity, cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements give a true and fair view of the financial position of the Authority as at 31 October 2018, and of its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs).

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISA's). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Authority in accordance with the ethical requirements that are relevant to our audit of the financial statements in Jamaica. and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with IFRSs, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement. whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Authority's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Authority or to cease operations. or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Authority's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements (Cont'd)

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement. whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISA's will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Authority's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However. future events or conditions may cause the Authority to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Report of the Independent Auditors (Cont'd)
To the Members of
Sugar Industry Authority

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other Matter
The financial statements of the Authority for the financial year ended 31 March 2017 were audited by another auditor who expressed an unmodified opinion on those financial statements on 15 July 2020.

Report on Additional Matters as Required by the Sugar Industry Control Act

We have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of our audit. In our opinion, proper accounting records have been maintained so far as appears from our examination of those records and the financial statements, which are in agreement therewith, give the information required by the Sugar Industry Control Act, in the manner required.

Chartered Accountants
Kingston, Jamaica

September 15, 2021

Sugar Industry Authority

Statement of Financial Position
As at 31 October 2018
(Expressed in Jamaican dollars unless otherwise indicated)

	Notes	2018 $'000	2017 $'000
ASSETS			
Non-current assets			
Property, plant and equipment	6	139,049	162,740
Retirement benefit asset	7	149,582	166,731
Loans receivable	8	66,106	75,135
		354,737	404,607
Current assets			
Inventories	9	4,998	605
Current portion of loans receivable	8	23,440	514
Due from related parties	10	-	183,427
Accounts receivable	11	388,468	231,105
Cash and cash equivalents	12	204,472	362,485
		621,378	778,136
Total assets		976,115	1,182,742
EQUITY AND LIABILITIES			
Fund and reserves			
Fund balances at end of the year		511,080	462,979
Accumulated surplus on imported raw sugar	13	2,461	2,461
Capital reserves	14	126,607	126,607
Actuarial reserve	15	-	60,015
Revolving loan fund reserve	16	20,000	20,000
		660,148	672,062
Non-current liabilities			
Retirement benefit obligation	7	128,129	69,365
Long-term loans	17	27,917	27,917
		156,046	97,282
Current liabilities			
Trade and other payables	18	159,921	396,178
Bank overdraft	19	-	17,221
		159,921	413,399
Total equity and liabilities		976,115	1,182,742

The accompanying notes form an integral part of these financial statements.

Approved for issue by the Board of Directors on September 15, 2021 and signed on its behalf by:

Chairman Chief Executive officer Director

Sugar Industry Authority

Statement of Comprehensive Income
Year Ended 31 October 2018
(Expressed in Jamaican dollars unless otherwise indicated)

	Notes	2018 $'000	2017 $'000
Income			
Cess		505,000	505,000
Other income	20	55,235	54,361
		560,235	559,361
Expenses			
Administrative	21	419,171	474,640
Surplus for the year		141,064	84,721
Other Comprehensive Income (loss)			
Other comprehensive income (loss) not to be reclassified to income in subsequent periods:			
Remeasurement loss on retirement benefit asset	11(f)	(66,610)	-
Remeasurement gain on retirement benefit obligation	17(e)	62,609	-
Total other comprehensive income		(141,178)	-
Total Comprehensive Income		(4,115)	84,721

The accompanying notes form an integral part of these financial statements.

Sugar Industry Authority

Statement of Operation – Imported Raw Sugar Account
Year Ended 31 October 2018
(Expressed in Jamaican dollars unless otherwise indicated)

	2018 $'000	2017 $,000
Income		
Funds granted for road repairs	-	24,000
Expenses		
Road repairs	-	24,000
Net Income	-	-

The accompanying notes form an integral part of these financial statements.

Sugar Industry Authority

Statement of Changes In Equity
Year Ended 31 October 2018
(Expressed in Jamaican dollars unless otherwise indicated)

	RESERVES									
	General Fund $'000	Sugar Industry Research Industry $'000	Capital Rehabilitation $'000	SIARD Farm Fund $'000	Board Approved Projects Fund $'000	Capital Reserve $'000	Accumulated Surplus on imported Raw sugar $'000	Actuarial Reserve $'000	Staff Revolving Loan Fund $'000	Total $'000
Balance at 31 October 2016	354,122	-	7,944	-	-	126,607	2,611	66,668	20,000	577,953
Expenditure on road repair	-	-	-	-	-	-	(150)	-	-	(150)
Movement in pension asset/(liability)	34,564	-	-	-	-	-	-	(6,653)	-	27,911
Grant received for drip irrigation for SIAD Farm	(15,920)	-	-	15,920	-	-	-	-	-	-
Transfers to advance crop fund	39	-	-	-	-	-	-	-	-	39
Transfer to established Board Approved projects	(15,170)	-	-	-	15,170,	-	-	-	-	-
Expenditure on Board-Approved projects	-	-	-	-	(14,332)	-	-	-	-	(14,332)
Movement in Retained earnings	(4,080)	-	-	-	-	-	-	-	-	(4,080)
Surplus for the year	84,721	-	-	-	-	-	-	-	-	84,721
Balance at 31 October 2017	438,276	-	7,944	15,920	838	126,607	2,461	60,015	20,000	672,061
Expenditure on road repair										
Movement in pension asset/(liability)										
Grant received for drip irrigation for SIAD Farm										
adjustments	(4,942)	-	-	-	-	-	-	-	-	(4,942)
Transfer to established Board Approved projects		-	-	-	-	-	-	-	-	-
Expenditure on Board-Approved projects		-	-	-	(2,856)	-	-	-	-	(2,856)
Movement in Retained earnings	60,015	-	-	-	-	-	-	(60,015)	-	-
Surplus for the year	(4,115)	-	-	-	-	-	-	-	-	(4,115)
Balance at 31 October 2018	489,234	-	7,944	15,920	(2,018)	126,607	2,461	-	20,000	660,148

The accompanying notes form an integral part of these financial statements.

Sugar Industry Authority

Statement of Cash Flows
Year Ended 31 October 2018
(Expressed in Jamaican dollars unless otherwise indicated)

	2018 $'000	2017 $'000
CASH FLOWS FROM OPERATING ACTIVITIES		
Surplus on main activities	141,064	84,721
Surplus on imported raw sugar	-	2,461
Total surplus for the year	141,064	87,182
Adjustments to reconcile surplus to net cash provided by operating activities:		
Depreciation and amortisation	23,985	18,387
Bad debt written off	8,940	-
Interest income earned	(12,451)	(19,720)
Loss on disposal of property, plant and equipment	-	3,944
Actuarial adjustments	11,007	-
Transfer to actuarial reserve	-	(6,653)
Movement in pension asset (liability)	-	34,564
Transferred to imported raw sugar	-	(2,461)
	172,545	115,243
Changes in operating assets and liabilities:		
Inventories	(4,393)	(605)
Accounts receivable and sundry assets	(246,304)	(108,360)
Accounts payable and accrued expenses	(236,261)	(75,270)
Due from related parties	183,427	24,884
Retirement benefit asset	-	(27,489)
Retirement benefit obligations	-	(422)
Cash used in operating activities	(130,986)	(72,019)
Cash flows from investing activities:		
Interest received	12,461	19,720
Additions to property, plant and equipment	(572)	(41,807)
Receipts from loan receivables	(13,897)	19,062
Expenditure on road repairs	-	(150)
Expenditure on Board-approved projects	(2,856)	(14,332)
Movements in retained earnings	(4,942)	(4,080)
Transfers from Advance Crop Fund	-	39
Net Cash used in investing activities	(9,806)	(21,548)
Cash flows from financing activities		
Long term loan received	-	27,917
Bank overdraft	(17,221)	17,221
Net cash (used in) provided by financing activities	(17,221)	45,138
Net decrease in cash and cash equivalents	(158,013)	(48,429)
Cash and cash equivalents at beginning of year	362,485	410,914
Cash and cash equivalents at end of year	204,472	362,485

The accompanying notes on form an integral part of these financial statements.

1 IDENTIFICATION

The Sugar Industry Authority (SIA) is a Jamaican Government statutory body, incorporated under the Sugar Industry Control Act. The registered office is at Kendal Road, Mandeville, Jamaica. Its main activity comprises industry regulation, arbitration, research and the provision of technical assistance.

These financial statements include the combined financial position and results of the following funds, divisions and trading accounts administered by the SIA.

Funds
- General Fund
- Sugar Industry Capital Rehabilitation Fund
- Ecu Reserve Fund
- Certified Seed Cant Reserve Fund
- Training Programme Fund

Division
- Sugar Industry Authority Research Division (SIARD) (formerly Sugar Industry Research Institute (SIRI))

Trading Accounts
- Imported Refined Sugar
- Imported Raw Sugar

2 ADOPTION OF STANDARDS, INTERPRETATION AND AMENDMENTS

a. Amendments to published standards effective in the current year that is relevant to the company's operations

There were no standards and interpretations that were applied in the year that affected the presentation and disclosures in these financial statements.
The following additional new and revised Standards and Interpretations have been adopted in these financial statements. Their adoption has not had any impact on the amounts reported in these financial statements but may impact the accounting for future transactions or arrangements.

Amendments to Standards		Effective for annual periods beginning on or after
IAS 7	Statement of Cash Flows -Amendments as a result of the Disclosure initiative	January 1, 2017
IAS 12	Income Taxes - Amendments regarding the recognition of deferred tax assets for unrealised losses	January 1, 2017
IFRS 12,	Amendments arising from 2014 – 2016 Annual Improvements to IFRS (clarifying scope)	January 1, 2017

Amendments to IAS 7 as a result of the Disclosure Initiative

The amendments require an entity to provide disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both cash and non-cash changes.

The application of these amendments has had no impact as the company has not undertaken any financing activities necessitating disclosure in its statement of cash flows.

3 SIGNIFICANT ACCOUNTING POLICIES

The principal accounting policies applied to the preparation of these financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

(a) Foreign Currency Transactions -

Functional and Presentation Currency
Items included in the financial statements are measured using the currency of the primary economy in which the Authority operates (the functional currency). The financial statements are presented in Jamaican currency which is the Authority's functional and presentation currency.

Transactions and Balances

Foreign currency transactions are converted into the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from translation at the year-end exchange rates for monetary assets and liabilities denominated in foreign currencies are recognized in the statement of comprehensive income. Monetary assets and liabilities denominated in foreign currency are translated using the closing mid-point rate of exchange at year end. Unrealized foreign exchange differences on unsettled foreign currency monetary assets and liabilities are acknowledged in the statement of comprehensive income.

(b) Consolidation

Subsidiaries are those entities in which the Authority has an interest of more than one half of the voting rights or otherwise has power to govern the financial and operating policies.

Associates are those other entities over which the Authority has the power to participate in the financial and operating policy decisions but is not in control or joint control.

These financial statements present the results of the operations of the Authority standing alone and therefore do not include consolidated results for its subsidiaries and associates. Consolidated results are not presented as:

- The assets and liabilities of the subsidiary, Sugar Industry Housing Limited were transferred to the Authority in 2002. The company is to be wounded up as it is no longer operational.

- Natural Cane Products Limited is inactive and therefore the investment has been written off.

- The associated companies, National Sugar Company Limited and Jamaica Sugar Holdings Limited have not been accounted for under the equity method of accounting as the entities are dormant. The investments in these entities have been written off.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(c) Revenue

Revenue comprises the fair value of the consideration received or receivable for the sale of services in the ordinary course of the Authority's activities. Revenue is recognized as follows:

Cess

The Authority's primary income is from a cess levied on the manufacturers of sugar and is recognized on an accrual basis.

Interest Income

Interest income is recognized on an accrual basis. Where collection of interest income is considered doubtful, a provision is made. Interest income is recognized based on the rate of interest that is used to discount the future cash flows for the purpose of measuring the recoverable amount.

Gains and loss arising from trading in foreign currencies are recognized when realized and are shown net in the statement of comprehensive income.

(d) Intangible Asset

Costs associated with developing or maintaining computer software programs are recognized as an expense incurred. Cost that are directly associated with acquiring identifiable and unique software products which are expected to generate economic benefits exceeding cost beyond one year are recognized as intangible assets. These costs are amortized over the estimated useful life of the software (three years).

(e) Receivables

Receivables are carried at cost which approximates the fair value of those assets. A provision for impairment of receivables and loans is established when there is objective evidence that the Authority will not be able to collect all amounts due according to the original terms of the receivables. The amount of the provision is the difference between the carrying amount and the recoverable amount, being the present value of the expected cash flows discounted at the market rate of interest for similar borrowers.

(f) Expenses

All expenses are recognized in the statement of comprehensive income. Accrued expenses are recognized at fair value.

(g) Borrowings

Borrowings are recognized initially at the proceeds received; net of transaction costs incurred. Borrowings are subsequently stated at amortized cost using the effective yield method.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(h) Cash and Cash Equivalents

Cash and cash equivalents include cash in hand, demand deposits, other short-term highly liquid investments with original maturities of three months or less.

(i) Use of Estimates and Judgement

The preparation of financial statements in accordance with International Financial Reporting Standards requires the Board of Directors to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. These estimates are based on historical experience and the Board of Directors' best knowledge of current events and actions and are reviewed on an on-going basis. Actual results could differ from those estimates.

(j) Employee Benefits

Pension Obligations
The Authority participates in two multiemployer defined benefit pension plans which are open to all permanent employees and administered by Sagicor Life Jamaica Limited and Guardian Life Insurance Company Limited. The plans are generally determined by periodic actuarial valuations.

A defined benefit plan is one that is not a defined contribution plan. Typically, defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation.

The asset or liability recognized in the statement of financial position in respect of defined benefit pension plans is the difference between the present value of the defined benefit obligation at the reporting date and the fair value of plan assets, together with adjustments for unrecognized actuarial gains or losses and past service costs.

The defined benefit obligation is calculated annually by independent actuaries using the projected credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash flows using interest rates of high-quality Government of Jamaica bonds that are denominated in the currency in which the benefits will be paid and that have terms to maturity approximating to the terms of the related pension liability.

Actuarial gains and losses arising from experience adjustments, changes in actuarial assumptions and amendments to the pension plan are charged or credited to other comprehensive income. The adjustment experience is divided into three categories being net actuarial gain/(loss) on retirement asset, net actuarial gain(loss) on retirement obligations and net change in unrecognized asset. The cumulative net effect of all experience adjustment is recorded in the actuarial reserve account reported under equity.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(j) Employee Benefits (Cont'd)

Termination Obligations

Termination benefits are payable when employment is terminated by the company before the normal retirement date or whenever an employee accepts voluntary redundancy in exchange for these benefits. The company recognizes termination benefits when it is demonstrably committed to either terminating the employment of current employees according to a detailed formal plan without possibility of withdrawal; or providing termination benefits as a result of an offer made to encourage voluntary redundancy. Benefits falling due more than twelve (12) months after the reporting date are discounted to present value.

Other Retirement Benefit Obligations
The Authority also provides medical benefits to qualifying employees upon retirement. The entitlement to these benefits is usually conditional on the employees remaining in service up to retirement age and the completion of a minimum service period. The expected costs of the benefits are accrued over the period of employment valued annually by independent qualified actuaries.

(k) Property. Plant and Equipment

Building comprise mainly warehouses, factories and offices and are shown at deemed cost less accumulated depreciation. All other property, plant and equipment are stated at cost less accumulated depreciation.

Depreciation of property, plant and equipment is calculated on the straight-line basis at annual rates estimated to amortize the cost or valuation of each asset over the term of its expected useful life. The expected useful lives are as follows:

Buildings	25 years
Pilot Plant and Office Accommodation,	25 years
Plant, Equipment and Furniture	4 – 10 Years
Motor Vehicles	4 years

Land is carried at deemed cost and is not depreciated as it is deemed to have an indefinite life. Gains and losses on disposal of property, plant and equipment are determined by reference to their carrying amount and are taken into account in determining operating results.

(l) Impairment of Non – Current Assets

Property, plant and equipment and other non-current assets are reviewed for impairment losses whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the carrying amount may not be recoverable. An impairment loss is recognized if the amount by which the carrying amount of the asset exceeds its recoverable amount, which is the greater of the asset's net selling price and the value in use. For the purpose of assessing impairment, assets are grouped at the lowest level for which there are separate identifiable cash flows.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(m) **Payables**

Payables are stated at cost.

(n) **Investment Securities**

Investment securities are measured at fair value by reference to quoted market prices when available. If quoted market prices are not available, then fair values are estimated on the basis of pricing models or other recognized valuation techniques.

(o) **Inventories**

Inventories are stated at the lower of cost and net realizable value. Cost is determined on the first-in. first-out basis. These items are stated less provision for write down to net realizable value where necessary. Net realizable value is the estimated selling price in the ordinary course of business, less the cost of completion and selling expenses.

(p) **Loans and Receivables**

When assets are leased out under finance leases, the present value of the lease payments is recognized as a receivable. Lease income is recognized over the term of the lease using the net investment method, which reflects a constant periodic rate of return.

Loans receivable are stated at the principal amount remaining to be repaid over the period of the loans less provision made for impairment.

(q) **Capital Reserves**

The matching value of property, plant and equipment received as gift or grant is included in a capital reserve fund and released to equity over the estimated useful life of the assets, in line with the relevant depreciation charge. Unrealized surpluses arising on previous revaluation of land and buildings are also included in capital reserves.

(r) **Financial investments**

(i) Classification

The Authority classifies its investment in debt and equity securities. These financial assets are classified as available-for-sale investment securities and loans and receivables.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(r) **Financial investments**

(ii) Recognition and derecognition

Regular purchases and sales of investments are recognized on the trade date, the date on which the Authority commits to purchase or sell the investment. Investments are derecognized when the rights to receive cash flows from the investments have expired and the Authority has transferred substantially all risks and rewards of ownership.

(iii) Measurement

Financial investments are initially recognized at fair value including transaction costs. Subsequent to initial recognition, all financial investments are measured at fair value based on quoted bid prices or amounts derived from cash flow invested. Unrealized gains and losses are recognized in the statement of comprehensive income.

(iv) Fair Value Estimation

The fair value of the financial instruments traded in active markets (such as equity securities) is based on quoted market prices at the year-end date. The quoted market prices used for financial assets held by the Authority is current bid price.

(v) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for those with maturities greater than twelve (12) months after the date of the statement of financial position. These are classified as non-current assets. Loans and receivables are classified as 'loans receivable' and 'accounts receivable and sundry assets' and are included in non-current assets and current assets in the statement of financial position.

(vi) Financial liabilities

The Authority's financial liabilities are initially measured at fair value and are subsequently measured at amortized cost using the effective interest method. These liabilities are classified as accounts payable and accrued expenses and are included in current liabilities in the statement of financial position.

(vii) Government Grants

Government grants are recognized when there is a reasonable assurance that the Authority has complied with the conditions attached to the grant and the grant will be received.

These grants are recognized in the statement of comprehensive income over the periods necessary to match them with the related costs which they are intended to compensate on a systematic basis. These grants are included in non-current liabilities as deferred income.

3 SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

(s) Related Party Balances and Transactions

A related party is a person or entity that is related to the entity that is preparing its financial statements (referred to in IAS 24, Related Party Disclosures as the "reporting entity").

(a) A person or a close member of that person's family is related to the reporting entity if that person
- (i) has control or joint control over the reporting entity;
- (ii) has significant influence over the reporting entity; or
- (iii) is a member of the key management personnel of the reporting entity or of a parent of the reporting entity.

(b) An entity is related to the reporting entity if any of the following conditions applies:
- (i) The entity and the reporting entity are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
- (ii) One entity is an associate or joint venture of the other entity (or an associate or joint venture of member of a group of which the other entity is a member).
- (iii) Both entities are joint venture of the same third party.
- (iv) One entity is a joint venture of a third entity and the other entity is an associate of three third entity.
- (v) The entry is a post- employment benefit plan for the benefit of employees of either the reporting entity or an entity related to the reporting entity. If the reporting entity is itself such a plan, the sponsoring employers are also related to the reporting entity.
- (vi) The entity is controlled or jointly controlled by a person identified in (a).
- (vii) A person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entry (or of a parent of the entity).
- (viii) The entity, or any member of a group of which it is a part. provides key management personnel services to the reporting entity or to the parent of the reporting entity.

4 FINANCIAL RISK MANAGEMENT

The Authority's activities expose it to a variety of financial risks: credit risk, liquidity risk and market risk (including currency risk, fair value interest rate risk, cash flow interest nate rate and price risk). The Authority's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Authority's financial performance.

The Authority's risk management policies are designed to identify and analyze these risks, to set appropriate risk limits and controls and to monitor the risks and adherence to limits by means of reliable and up-to-date information systems. The Authority regularly reviews its risk management policies and systems to reflect changes in markets, products and emerged best practice.

The Board of Directors is ultimately responsible for the establishment and oversight of the Authority's risk management framework. As a government-run entity, written principles of overall risk management as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, use of derivative financial instruments and non-derivative financial instruments, and investment of excess liquidity, are provided in government policy. Compliance with these policies is monitored by the Auditor General Department, through periodic reviews. The Board has established the following committee for managing and monitoring risk.

Finance Committee

It is responsible for managing the Authority's assets and liabilities and the overall financial structure. It is primarily responsible for the funding and liquidity risk of the Authority. This is carried through the Authority's Finance department, which identifies, evaluates and hedges financial risks and reports to the Finance Committee.

(a) **Credit Risk**

The Authority takes on exposure to credit risk, which is the risk that its debtor or counterparties will cause a financial loss for the Authority by failing to discharge their contractual obligations. Credit risk is the most important risk for the Authority's business; management therefore carefully manages its exposure to credit risk. Credit exposure arise principally from the Authority's receivables, loan receivable and investment activities.

Credit Review Process

The Authority has established a Finance Committee whose responsibility involves regular analysis of the ability of borrowers and other counterparties to meet repayment obligations.

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(a) Credit Risk (Cont'd)

(i) Loans and Other receivables

Loans receivable relate to loans to farmers, estates and factories, motor vehicles lease receivables and mortgage and home improvement loans. The Authority makes these loans to the sugar industry, primarily from grant funds received or from the proceeds of loans received for on-lending. Other receivables relate to current amounts due from within the industry. The Authority's credit exposure is limited as repayment under the loans are deducted from crop proceeds due to the farmers, estate and factories, prior to the remittance of these proceeds to the farmers, estates and factories.

The Authority establishes an allowance for impairment that represents its estimate of incurred losses in respect of loans and other receivables. The Authority's average credit period on other receivables normally spans one cane harvesting period while loans receivable are normally due over several harvesting periods. Receivables are provided for based on an estimate of amounts that would be irrecoverable, determined by taking into consideration past default experience, current economic conditions and expected receipts and recoveries once impaired.

The following table summarizes the Authority's credit exposure for receivables at their carrying amounts, as categorized by the customer sector:

	2018 $'000	2017 $'000
Trade and other receivables	427,841	331,175
Loans to partners, estates and factories	89,546	114,944
Due from related parties	-	83,427
Mortgage and home improvement loans	-	2,227
Motor vehicle lease	-	11,427
	517,387	543,200
Less: Provision for credit losses	(39,373)	(39,365)
	478,014	503,835

All loans and other receivables are due from debtors in Jamaica.

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(a) Credit Risk (Cont'd)

(ii) Cash and Cash equivalents

The Authority limits its exposure to credit risk by investing in liquid deposits with financial institutions of a high credit quality. Accordingly, management does not expect any counterparty to fail to meet its obligations.

The maximum exposure are as follows:

	2018 $'000	2017 $'000
Loans receivable	89,546	75,649
Due from related parties	-	83,427
Accounts receivable and sundry assets	427,841	331,105
Cash and cash term deposits	204,472	362,485
	721,859	852,666

The above table represents a worst-case scenario of credit risk exposure to the Authority at 31 October 2018 and 2017.

(iii) Ageing analysis of loans and other receivables

Receivables that are less than one year past due are not considered impaired. As of 31 October 2018, receivables of $39,373,000 (2017 - $139,365,046) were impaired. The amount of the provision was $39,373,000 (2017 - $139,365,046). The individually impaired receivables mainly relate to farmers, estates and factories that are in unexpected difficult economic situations.

The ageing of these receivables is as follows:

	2018 $'000	2017 $'000
Over 365 days	39,373	139,365

Movements on the provision for impairment of receivables are as follows:

	2018 $'000	2017 $'000
At 01 November	139,365	139,365
Amounts written off against receivables during the year	(99,992)	-
	39,373	139,365

The creation and release of provision for impaired receivables have been included in expenses in the statement of comprehensive income. Amounts charged to the allowance account are generally written off when there is no expectation of recovering additional cash.

There are no financial assets other than those listed above that were individual impaired.

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(b) Liquidity Risk

Liquidity risk is the risk that the Authority is unable to meet its payment obligations associated with its financial liabilities when they fall due. Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed credit facilities.

Liquidity risk management process

The Authority's liquidity management process, as carried out within the Authority and monitored by the Finance Committee, includes:

(i) Monitoring future cash flows and liquidity on a weekly basis. This incorporates an assessment of expected cash flows and the availability of funding if required;
(ii) Maintaining a portfolio of liquid assets that can easily be liquidated as protected against any unforeseen interruption to cash flow;
(iii) Optimizing cash returns on investment; and
(iv) Managing the concentration and profile of debt maturities.

The maturities of assets and liabilities and the ability to replace, at an acceptable cost, interest-bearing liabilities as they mature, are important factors in assessing the liquidity of the Authority and its exposure to changes in interest rates and exchange rates.

Financial liabilities cash flows

The tables below summarize the maturity profile of the Authority's financial liabilities at 31 October based on contractual undiscounted payments.

	Within 1 month $'000	1 to 3 Months $'000	3 to 12 months $'000	Total $'000
As at 31 October 2018				
Accounts payable and accrued expenses	-	64,284	95,637	159,921
Total financial liabilities (Contractual maturity dates)	-	64,284	95,637	159,921

	Within 1 month $'000	1 to 3 Months $'000	3 to 12 months $'000	Total $'000
As at 31 October 2017				
Accounts payable and accrued expenses	-	194,084	202,094	396,178
Total financial liabilities (Contractual maturity dates)	-	194,084	202,094	396,178

Assets available to meet all the liabilities include cash and short-term investment and loans receivable from farmers, estates and factories.

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(c) **Market Risk (Cont'd)**

The authority takes on exposure to market risk, which is the risk that fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risks mainly arise from changes in foreign currency exchange rates and interest rates. Market risk is monitored by the Finance Committee which carries out reviews and monitors the price movement of financial assets on the local market. It is measured using sensitivity analysis. There has been no change to the Authority's exposure to market risk or the manner it manages the risk.

(i) Currency risk

Currency risk is the risk that the fair value of future cash flows of a financial instruments will fluctuate because of changes in foreign exchange rates.

The Authority is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the US dollar and the Pound sterling. Foreign exchange risk arises from recognized assets and liabilities.

The authority manages its foreign exchange risk by ensuring that the net exposure in foreign assets and liabilities is kept to an acceptable level by monitoring currency positions.

Concentration of currency risk

The table below summaries the Authority's exposure to foreign currency exchange rate risk at 31 October.

	JA $'000	US J$'000	GBP J$'000	EURO J$'000	Total J$'000
As at 31 October 2018					
Financial asset					
Loans receivable	89,546	-	-	-	89,546
Due from related party	-	-	-	-	-
Accounts receivable and sundry assets	427,841	-	-	-	427,841
Cash and cash term deposits	199,472	-	-	5,000	204,472
Total financial assets	716,859	-	-	5,000	721,859
Financial liabilities					
Accounts payable and accrued expenses	159,921	-	-	-	159,921
Total financial liabilities	159,921	-	-	-	159,921
Net Financial positions	556,938	-	-	5,000	561,938

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(c) Market Risk (Cont'd)

(i) Currency risk (Cont'd)

	JA J$'000	US J$'000	GBP J$'000	EURO J$'000	Total J$'000
As at 31st October 2017					
Financial asset					
Loans receivable	75,649	-	-	-	75,649
Due from related party	83,426	-	-	-	83,426
Accounts receivable and sundry assets	331,105	-	-	-	331,105
Cash and cash term deposits	357,931	348	10	4,196	362,485
Total financial assets	848,111	348	10	4,196	852,665
Financial liabilities					
Accounts payable and accrued expenses	396,178	-	-	-	396,178
Total financial liabilities	396,178	-	-	-	396,178
Net Financial positions	451,933	348	10	4,196	456,487

Foreign Currency Sensitivity

The following tables indicate the currencies to which the Authority had significant exposure on its monetary assets and liabilities and its forecast cash flows. The change in currency rate below represents management's assessment of the possible change in foreign exchange rates. The sensitivity analysis represents outstanding foreign currency denominated monetary items and adjusts their translation at the year-end for a 2% revaluation (2017 - 2%) 4% devaluation (2017 - 4%) in foreign currency rates. The percentage change in the currency rate will impact each financial asset/liability included in the sensitivity analysis differently. Consequently, individual sensitivity analysis was performed. The effect on the surplus/deficit of income over expenditure is the total of individual analysis. There was no impact on other components of equity.

	Change in Currency rate 2018 %	Effect on Surplus 2018 $	Change in Currency rates 2017 %	Effect on Surplus 2017 $
USD – Revaluation	2	-	2	6,954
USD – Devaluation	4	-	4	(13,909)
Other – Revaluation	2	-	2	84,133
Other – Devaluation	4	-	4	(168,265)

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(c) Market Risk (Cont'd)

(ii) Interest rate risk (Cont'd)

Floating rate instruments expose the Authority to cash flow interest rate risk, whereas fixed interest rate instruments expose the Authority to fair value interest risk. The following tables summarize the Authority's exposure to interest rate risk. It includes the Authority's financial instruments at carrying amounts, categorized by the earlier of contractual repricing or maturity dates.

	Within 1 month $'000	1 to 3 months $'000	3 to 12 months $'000	1 to 5 years $'000	Non-Interest Bearing $'000	Total $'000
As at 31 October 2018:						
Financial Asset						
Loans Receivable	-	-	89,546	-	-	89,546
Accounts Receivable and Sundry Assets	-	-	-	-	427,841	427,841
Cash and Cash Term Deposits	-	-	189,922	-	14,550	204,472
Total Financial Assets	-	-	279,468	-	442,391	721,859
Financial Liabilities						
Accounts payable and accrued expenses	-	-	-	-	199,294	199,294
Total Financial Liabilities	-	-	-	-	199,294	199,294
Net Financial Position	-	-	279,468	-	243,097	522,565

4 FINANCIAL RISK MANAGEMENT (CONT'D)

(c) Market Risk (Cont'd)

(ii) Interest rate risk (Cont'd)

	Within 1 month $'000	1 to 3 months $'000	3 to 12 months $'000	1 to 5 years $'000	Non-Interest Bearing $'000	Total $'000
As at 31st October 2017:						
Financial Asset						
Loans Receivable	-	-	514	15,135	-	75,649
Due from Related Parties	-	-	-	-	83,427	83,426
Accounts Receivable and Sundry Assets	-	-	-	-	331,105	331,105
Cash and Cash Term Deposits	87,410	111,419	56,262	-	107,394	362,485
Total Financial Assets	87,410	111,419	56,776	75,135	521,926	852,666
Financial Liabilities						
Accounts payable and accrued expenses	-	-	-	-	396,118	396,112
Total Financial Liabilities	-	-	-	-	396,178	396,178
Net Financial Position	81,410	111,419	56,776	75,135	125,748	456,488

Interest rate risk is the risk that the value or future cash flows of a financial assets will fluctuate because of changes in market interest rates. Interest is earned on short-term deposits and loans receivable. All the Authority's financial liabilities are non-interest bearing. Due to the nature of these items, there is no significant interest rate risk to which the Authority is exposed.

5 CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS IN APPLYING ACCOUNTING POLICIES

The Authority makes estimates and assumptions that affect the reported amounts of assets and liabilities within the next financial year. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

The cost of these benefits and the present value of the pension and the other retirement liabilities depend on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumption used in determining the net periodic cost (income) for pension and retirement benefits includes the expected long-term rate of return on the relevant plan assets, the discount rate and in the case of post-employment medical benefits, the expected rate of increase in costs. Any changes in these assumptions will impact the net periodic cost (income) recorded for pension and retirement benefits and may affect planned funding of the pension plans. The expected return on plan assets assumption is determined on a uniformed basis, considering long-term historic returns, asset allocation and future estimates of long-term investment returns. The Authority determines the appropriate discount rate at the end of each year, which represents !he interests rate that should be used to determine the present value of estimated future cash flows expected to be required to settle the pension and retirement benefit obligation. In determining the appropriate discount rate, the Authority considered interest rate of high-quality corporate bonds that are denominated in the currency in which the benefit will be paid, and that have terms to maturity approximating the terms of the related pension liability. The expected rate of increase of medical costs has been determined by comparing the historical relationship of the actual medical costs increases with the rate of inflation in the respective economy. Past experience has shown that the actual medical costs have increased on average by one time the rate of inflation. Other key assumptions for the pension and post retirement benefits cost and credits are based in part on current market conditions.

6 PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment comprise:

	Computer and Equipment $'000	Furniture and Fixture $'000	Motor Vehicles $'000	Assets on loan To Jamaica Cane Products Sales Limited $'000	Freehold Land and Buildings $'000	Pilot Plant and Office Accommodation $'000	Total $'000
At cost or valuation							
31 October 2016	160,505	17,062	13,400	13,507	139,649	2,181	346,304
Adjustments	-	(81)	-	-	-	-	(81)
Additions	5,768	-	36,039	-	-	-	41,807
Disposals	-	-	(3,944)	-	-	-	(3,944)
31 October 2017	166,273	16,981	45,495	13,507	139,649	2,181	384,086
Adjustments	-	-	-	-	-	-	-
Additions	296	-	-	-	-	-	296
Disposals	-	-	-	-	-	-	-
31 October 2018	166,569	16,981	45,495	13,507	139,649	2,181	384,382
Accumulated depreciation							
31 October 2016	114,945	11,065	13,400	13,500	48,502	1,629	203,041
Adjustment	-	(1,822)	-	-	-	-	(1,822)
Charge for year	15,792	335	2,449	-	1,394	159	20,129
31 October 2017	130,737	9,578	15,849	13,500	49,896	1,788	221,348
Adjustment							
Charge for year	15,851	1,859	4,722	-	1,394	159	23,985
31 October 2018	146,588	11,437	20,571	13,500	51,290	1,947	245,333
Net book value							
31 October 2018	19,981	5,544	24,924	7	88,359	234	139,049
31 October 2017	35,536	7,403	29,647	6,835	89,754	394	162,740

6 PROPERTY, PLANT AND EQUIPMENT

(a) General Fund:

	Computer and Equipment $'000	Furniture and Fixture $'000	Motor Vehicles $'000	Assets on loan to Jamaica Cane Products Sales Limited $'000	Freehold Land and Buildings $'000	Total $'000
At cost or valuation						
31 October 2016	69,836	3,266	4,156	13,507	31,992	122,757
Adjustments	-	(81)	-	-	-	(81)
Additions	2,149	-	36,039	-	-	38,188
Disposals	-	-	(3,944)	-	-	(3,944)
31 October 2017	71,985	3,185	36,251	13,507	31,992	156,920
Adjustments	-	-	-	-	-	-
Additions	296	-	-	-	-	296
Disposals	-	-	-	-	-	-
31 October 2018	72,281	3,185	36,251	13,507	31,992	157,216
Accumulated depreciation						
31 October 2016	45,969	2,490	4,156	13,500	11,520	77,635
Charge for year	6,073	59	2,449	-	247	8,828
31 October 2017	52,042	2,549	6,605	13,500	11,767	86,463
Adjustment	-	-	-	-	-	-
Charge for year	6,132	59	4,722	-	159	11,072
31 October 2018	58,174	2,608	11,327	13,500	11,929	97,535
Net book value						
31 October 2018	14,087	577	24,924	3	20,069	59,681
31 October 2017	19,943	636	29,647	7	20,226	70,458

6 PROPERTY, PLANT AND EQUIPMENT

(b) **SIRI**:

	Plant, Computer and Equipment $'000	Furniture and Fixture $'000	Motor Vehicles $'000	Pilot Plan And Office Accommodation $'000	Freehold Land and Buildings $'000	Total $'000
At cost or valuation						
31 October 2016	90,669	13,796	9,245	2,181	107,657	223,548
Additions	3,619	-	-	-	-	3,619
31 October 2017	94,288	13,796	9,245	2,181	107,657	227,167
Adjustments	-		-	-	-	
Additions	-	-	-	-	-	-
Disposals	-	-	-	-	-	-
31 October 2018	94,288	13,796	9,245	2,181	107,657	227,167
Accumulated depreciation						
31 October 2016	68,976	8,575	9,245	1,629	36,982	125,407
Adjustments	-	(1,822)	-	-	88	(1,734)
Charge for year	9,719	276	-	159	1,147	11,301
31 October 2017	78,695	7,029	9,245	1,788	38,217	134,974
Adjustment						
Charge for year	9,719	1,800	-	159	1,147	12,825
31 October 2018	88,414	8,829	9,245	1,947	39,364	147,799
Net book value						
31 October 2018	5,874	4,967	-	234	68,293	79,368
31 October 2017	15,593	6,767	-	394	69,528	92,282

7 POST EMPLOYMENT BENEFITS

	General Fund 2018 $'000	SIARD 2018 $'000	Total 2018 $'000	Total 2017 $'000
Assets/(Liabilities) recognized in the statement of financial position				
Pension scheme	79,332	70,250	149,582	166,731
Medical benefits	(128,129)	-	(128,129)	(69,365)
Amounts recognized in the statement of comprehensive income (Note 22):				
Pension scheme	1,669	(6,350)	(4,681)	5,158
Medical benefits	2,957	-	2,957	8,639

(a) Pension Scheme benefits

The pension plans are legally separate from the Authority and its division are administered by Sagicor Life Jamaica Limited and Guardian Life Limited.
The valuation of the plan's assets and the present value of the defined benefit obligation at March 31, 2018 was carried out by Eckler Jamaica Limited and Rambarran and Associates Limited, the Principals of both are Fellows of the Society of Actuaries. The present value of the defined benefit obligation and the related asset service cost were measured using the projected unit credit method.

The plans are funded by the employees' contributions at 5% of salary with the option to contribute an additional 5% and employer contribution as recommended by the independent actuaries. Pension at normal retirement age is based on 2% of final 3 year average salary per year of pensionable service, plus any declared bonus pensions. The defined benefit asset recognized in the Balance Sheet was determined as follows:

(i) General Fund

The defined benefit assets recognized in the statement of financial position was determined as follows:

	2018 $'000	2017 $'000
Fair value of plan assets	395,085	342,879
Present value of funded obligations	(474,417)	(305,799)
	(79,332)	37,080

7 POST EMPLOYMENT BENEFITS (CONT'D)

(a) Pension Scheme benefits (Cont'd)

(i) General Fund (Cont'd)

Movement in the surplus recognized in the statement of financial position.

	2018 $'000	2017 $'000
At the beginning of year	342,879	304,293
Expected return on plan assets	44,529	26,778
Employer contributions	2,484	2,327
Employee contributions	2,427	2,087
Benefits paid	(14,558)	(27,587)
Charges	(3,170)	-
Transfer of assets from SIRI	99,322	-
Remeasurement	-	25,611
Value of immediate annuities	504	9,370
At end of year	474,417	342,879

Movement in the present value of the defined benefit obligation during the year was as follows:

	2018 $'000	2017 $'000
At the beginning of year	305,799	302,002
Past service cost	-	2,985
Current service cost	5,222	4,521
Interest cost	26,903	26,378
Employee contributions	2,427	2,087
Benefits paid	(14,558)	(27,587)
Remeasurement	68,788	(13,957)
Value of immediate annuities	504	9,370
At end of year	395,085	305,799

The amounts recognized in the statement of comprehensive income are as follows:

	2018 $'000	2017 $'000
Past service cost	8,014	2,985
Current service cost, net of employee contributions	-	4,521
Interest cost	38,657	26,378
Expected return on plan assets	(35,237)	(26,778)
Total included in staff cost (Note 22)	11,434	7,106

The total charge was included in staff costs in administration expenses.
The actual return on plan assets was $44,529,000 (2018 - $55,193,000). Expected contributions to the plan for the year ending 31 October 2019 amount to $5,498,000 (2018 - $4,611,000).

7 POST EMPLOYMENT BENEFITS (CONT'D)

(a) Pension Scheme benefits (Cont'd)

(i) General Fund (Cont'd)

	2018 $'000	%	2017 $'000	%
Equity fund	117,341	25	80,151	23
Mortgage and Real Estate Fund	76,254	16	67,120	20
Fixed income fund	22,261	5	1,982	1
Money market	6,992	1	5,355	2
Other	251,569	53	188,271	54
	474,417		342,879	

The expected return on plan assets was determined by considering the expected returns available on the assets underlying the current investment policy. Expected yields on fixed interest investments are based on gross redemption yield as at the date of the statement of financial position. Expected returns on equity and property investments reflect long-term real rates of return experienced in the respective markets.

The five-year trend for the fair value of the plan assets, the defined benefit obligation, the surplus in the plan and experience adjustments for plan assets and liabilities are as follows:

	2018 $'000	2017 $'000	2016 $'000	2015 $'000	2014 $'000
As at 31st October:					
Fair value of plan assets	395,085	342,879	304,293	283,811	258,381
Present value of defined benefit obligation	(474,417)	(305,799)	(302,002)	(299,519)	(257,555)
(Deficit)/Surplus	(79,332)	37,080	2,291	(15,708)	826
Experience adjustments:					
Fair value of plan assets	171,385	342,879	304,293	283,811	258,381
Defined benefit obligation	110,225	(305,799)	(302,002)	(299,519)	(257,555)

(ii) SIARD (Formerly SIRI)

The defined benefit asset recognized in the statement of financial position was determined as follows:

	2018 $'000	2017 $'000
Fair value of plan assets	466,764	289,612
Present value of funded obligations	(396,515)	(159,961)
	70,249	129,651

7 POST EMPLOYMENT BENEFITS (CONT'D)

(a) Pension Scheme benefits (Cont'd)

(ii) SIARD (Formerly SIRI) (Cont'd)

	2018 $'000	2017 $'000
At the beginning of year	412,676	469,346
Expected return of plan assets	36,989	40,773
Employer contributions	7,011	7,412
Employee contributions	6,447	7,097
Benefits paid	(543)	(56,565)
Value of Annuities purchased	-	11,566
Administrative expenses	(1,856)	(1,718)
Remeasurement	6,040	5,461
At end of year	466,764	483,372

The movement in the present value of the defined benefit obligation during the year was as follows:

	2018 $'000	2017 $'000
At the beginning of year	247,887	337,848
Current service cost	6,823	7,774
Past service cost	-	684
Interest cost	21,958	28,649
Employees contributions	6,447	7,097
Actuarial (gain)/losses on obligations	-	5,670
Benefits paid	(543)	(56,565)
Value of annuities purchased	-	11,566
Remeasurement	113,943	2,085
At end of year	396,515	344,808

The amounts recognized in the statement of comprehensive income are as follows:

	2018 $'000	2017 $'000
Current service cost, net of employee contributions	6,823	7,774
Interest cost	(15,031)	28,649
Administrative fees	1,856	1,718
Expected return on plan assets	-	(40,773)
Total included in staff cost (Note 21)	(6,352)	(1,948)

7 POST EMPLOYMENT BENEFITS (CONT'D)

(a) Pension Scheme benefits (Cont'd)

(ii) SIARD (Formerly SIRI) (Cont'd)

The total charge was included in staff costs in administration expenses.

The actual return on plan assets was $ 70,250,000 (2017 - $164,790,000). Expected contributions to the plan for the year ending 31 October 2019 amount to $7,340,000 (2018- $308,000).

The distribution of plan assets was as follows:

The plan forms a part of the Guardian Life Limited Deposit Administration Fund, as such there are no assets that are explicitly allocated.

The five-year trend for the fair value of the plan assets, the defined benefit obligation, the surplus in the plan, and experience adjustments for plan assets and liabilities is as follows:

	2018 $'000	2017 $'000	2016 $'000	2015 $'000	2014 $'000
As at 31 October:					
Fair value of plan assets	466,764	289,612	299,524	297,797	518,177
Present value of defined benefit obligation	396,515				
(Deficit)/Surplus	70,249	129,651	136,951	144,396	101,670
Experience adjustments:					
Fair value of plan assets	6,040	289,612	299,524	297,797	518,177,000
Defined benefit obligation	-	(159,961)	(162,573)	(153,401)	(416,507,000)

(b) Medical Benefits

The Authority and its division operate a post-employment medical benefit scheme. Funds are not built up to cover the obligations under the medical benefit scheme. The method of accounting and the frequency of valuations is similar to those used for defined pension schemes.

(i) General Fund

The liability recognized in the statement of financial position was determined as follows:

	2018 $'000	2017 $'000
Present value of undefined obligations	128,129	23,558
Unrecognized actuarial gains	-	-
	128,129	23,558

7 POST EMPLOYMENT BENEFITS (CONT'D)

(b) Medical Benefits (Cont'd)

(i) **General Fund** (Cont'd)

Movement in the liability recognized in the statement of financial position:

	2018 $'000	2017 $'000
At the beginning of year	23,558	23,333
Past service cost	880	(960)
Total charge as shown below	2,077	2,949
Remeasurement	102,597	(781)
Contributions paid	(983)	(983)
At end of year	128,129	23,558

Movement in present value of the defined benefit obligation during the year was as follows:

	2018 $'000	2017 $'000
At the beginning of year	23,558	23,333
Past service cost	-	(960)
Current service cost	2,957	892
Interest cost	-	2,057
Remeasurement	102,597	(781)
Benefits paid	(983)	(983)
At end of year	128,129	23,558

The amounts recognized in the statement of comprehensive income as follows:

	2018 $'000	2017 $'000
Current service cost, net of employee contributions	1,775	892
Interest cost	9,572	2,057
Total included in staff costs (Note 22)	11,347	2,949

The total charge was included in staff costs in administration expenses.

The effects of 1% movement in the assumed medical cost trend rate were as follows:

	Increase $'000	Decrease $'000
Effect on the aggregate of the current service cost	-	-
Interest cost	(6,156)	7,887
Effect on the defined benefit obligation	8,228	(6,456)

7 POST EMPLOYMENT BENEFITS (CONT'D)

(b) Medical Benefits (Cont'd)

(i) **General Fund** (Cont'd)

The five-year trend for the defined benefits obligation and experience adjustments is as follows:

	2018 $'000	2017 $'000	2016 $'000	2015 $'000	2014 $'000
Defined benefit obligation	128,129	23,558	23,333	25,021	19,016
Experience adjustments	-	-	-	-	28,712

(ii) **SIARD (formerly SIRI)**

The liability recognized in the statement of financial position was determined as follows:

	2018 $'000	2017 $'000
Present value of unfunded obligations	(128,129)	45,807

Movement in the liability recognized in the statement of financial position:

	2018 $'000	2017 $'000
At the beginning of year		46,454
Total charge – as shown below		2,383
Remeasurement	107,903	(1,669)
Contributions paid	101,551	(1,361)
At end of year	(128,129)	45,807

The movement in the present value of the defined benefit obligation during the year was as follows:

	2018 $'000	2017 $'000
At the beginning of year	247,887	46,454
Past service cost	-	(3,307)
Current service cost	13,270	1,569
Interest cost	21,958	4,121
Remeasurement	113,943	(1,669)
Benefits paid	(543)	(1,361)
At end of year	396,515	45,807

7 POST EMPLOYMENT BENEFITS (CONT'D)

(b) Medical Benefits (Cont'd)

(ii) SIARD (formerly SIRI) (Cont'd)

The amounts recognized in the statement of comprehensive income are as follows:

	2018 $'000	2017 $'000
Current service cost, net of employee contributions	6,823	1,569
Interest cost	(13,175)	4,121
Total	(6,352)	5,690

The total charge was included in staff costs in administration expenses.

The effects of 1% movement in the assumed medical cost trend rate were as follows:

	Increase $'000	Decrease $'000
Discount rate	(53,586)	69,200
Salary increases	33,633	(28,634)
Pension increases	39,190	(34,509)

The five-year trend for the defined benefits obligation and experience adjustments is as follows:

	2018 $'000	2017 $'000	2016 $'000	2015 $'000	2014 $'000
Defined benefit obligation	336,365	45,807	46,454	50,599	45,610
Experience adjustments	27,472	-	-	-	97,703

(c) Principal actuarial assumptions used in valuing post-employment benefits

The principal actuarial assumptions used in valuating post-employment benefits for employees under the Authority's plan were as follows:

	2018 %	2017 %
Discount rate	7.5	9.0
Future salary increases	6.0	8.5
Future pension increases	2.0	3.5
Medical cost trend rate	4.5	8.0

The average expected remaining service life of the employees is 17 years (2017 - 23 years) for the General Fund.

Post-employment mortality for active members and mortality for pensioners and deferred pensioners is based on the American 1994 Group Annuitant Mortality (GAM94) table.

(Expressed in Jamaican dollars unless otherwise indicated)

7 POST EMPLOYMENT BENEFITS (CONT'D)

(c) Principal actuarial assumptions used in valuing post-employment benefits (Cont'd)

The in-service specimen rates (numbers of occurrences per 1,000 members) are as follows:

Age	Males	Females
20-30	0.35 – 0.66	0.22 – 0.29
30-40	0.66 – 0.85	0.29 – 0.48
40-50	0.85 – 1.58	0.48 – 0.97
50-60	1.58 – 4.43	0.97 – 2.29
60-70	4.43–14.54	2.29 – 8.64

No assumption was made for termination and death prior to retirement.

The principal actuarial assumptions used in valuing pension benefits for the plan covering the majority of the SIARD (formerly SIRI) employees were as follows:

	2018 %	2017 %
Discount rate	7.5	9.0
Future salary increases	6.0	8.5
Future pension increases	2.0	3.5

	Deaths in Service	
Age	Males	Females
20	0.3199	0.1928
25	0.5193	0.2075
30	0.7102	0.2758
35	0.7545	0.3666
40	0.8840	0.4933
45	1.1527	0.6607
50	1.6677	0.9463
55	2.7923	1.8918
60	5.4159	3.9359

8 LOANS RECEIVABLE

Loans receivable comprise:

	Non-current Portion	Current portion 2018	Total Outstanding portion	Total outstanding Loans – Non-current portion 2017
	$'000	$'000	$'000	$'000
Distributed from General Fund				
(a) Replanting loans	78,366	2,214	80,580	78,366
(b) Ratoon loans	4,160	2,737	6,897	9,634
(c) Seed Cane	5,861	1,547	7,408	8,955
(d) NDB/DBJ funded loans	3,495	163	3,658	3,821
(e) Mortgage and home improvement loans	2,101	63	2,164	2,227
(f) Motor vehicle lease	11,426	3,904	15,330	11,427
(g) Staff loans receivable	-	12,812	12,812	-
	105,409	23,440	128,849	
				114,430
Less provision for bad debts	(39,303)	-	(39,303)	(39,295)
	66,106	23,440	89,546	75,135

Loans receivable includes interest receivable of $13,897,000 (2017: $13,613,847).

Loans receivable relate to:

(a) Loans disbursed by the Authority to sugar estates and farmers for establishing commercial cane fields. Interest is charged at the rate of 5% per annum and the balances are recoverable over a three-year period.

(b) Loans disbursed by the Authority to sugar estates and farmers for maintaining commercial cane fields. Interest is charged at the rate of 5% per annum and the balances are recoverable over a one-year period.

(c) Loans disbursed by the Authority to sugar estates and farmers for establishing and maintaining certified seed cane nurseries. Interest is charged at the rate of 5% per annum and the balances are recoverable over a two-year period.

(d) Loans disbursed by the Authority to sugar estates and farmers for establishing and maintaining commercial cane and certified seed cane nurseries. Interest is charged at the rate of 9% per annum and the balances are recoverable over a four-year period, a moratorium being granted in the first year on principal and interest. The loans were disbursed from a loan facility granted to the Authority from the Development Bank of Jamaica (DBJ) for this purpose.

(e) Mortgage and home improvement loans taken over from SIHL. Interest is charged at a rate of 9% per annum and the balances are recoverable over a twenty-five-year period.

(f) Motor vehicles purchased by the Authority and leased to factory inspectors. These are interest free facilities recoverable over a seven-year period.

(g) Staff loans issued to employees at SIARD (formerly SIRI). These are interest free facilities recoverable over an agreed upon period.

9 INVENTORIES

	2018 $'000	2017 $'000
Stores – Chemicals	4,998	605

10 RELATED PARTY TRANSACTION AND BALANCES

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence over the other party making financial and operating decisions. Related party transactions and balances are recognized and disclosed for the following:

(a) Sale of Services

	2018 $'000	2017 $'000
Jamaica Cane Products Sales Limited (Common Directors):		
Rent	1,361	828
Lease of assets	-	7,152
Ministry of Industry, Commerce, Agriculture and Fisheries Cane Expansion Fund		
Management fees	9,730	10,058

(b) Purchase of Services

	2018 $	2017 $'000
The Sugar Producers Federation of Jamaica:		
Rental income	633	690

(c) Key management compensation

	2018 $	2017 $'000
Salaries and other short-term employees' benefits	84,158	36,383
Statutory contributions	10,295	7,420
Pension costs	9,015	933
	103,468	44,736
Directors' emoluments - Management remuneration (included above)	37,049	25,369

(d) Year-end Balance arising from sales/purchases of services:

	2018 $	2017 $'000
Ministry of Industry, Commerce, Agriculture and Fisheries Cane Expansion Fund - receivable	-	83,426

10 RELATED PARTY TRANSACTION AND BALANCES (CONT'D)

(d) Year-end Balance arising from sales/purchases of services (Cont'd):

The decision was made by the entity to write off amount of $100,000,000 receivable from Jamaica Cane Products Sales Limited. The amount represents a revolving loan of $100,000,000 to cane farmers on which interest was earned at a rate of 7%. The loan was written off given the following:

- The time that has elapse since the loan was granted;
  Sugar Industry Authority appeared to have made every effort to recover the proceeds of the loan without success;
- The Ministry of Industry, Commerce, Agriculture & Fisheries is satisfied that the debt is uncollectible.

11 ACCOUNTS RECEIVABLE

	2018 $'000	2017 $'000
Accounts receivable	427,841	231,175
Less: Provision for doubtful debts	(39,373)	(70)
	388,468	231,105

12 CASH AND CASH EQUIVALENTS

For the purpose of the statement of cash flows, cash and cash equivalents comprise the following:

	2018 $'000	2017 $'000
Cash in hand	25	25
Cash at Bank:		
Current accounts	14,425	3,434
Savings accounts	103	7,678
	14,553	11,137
Short-term deposits:		
Fixed deposits	189,919	321,251
Repurchase agreements	-	30,097
	189,919	351,348
	204,472	362,485

The short-term deposits have an average maturity of ___ days (2016 – 50 days) and the weighted average effective interest rate was ____ (2017 – 5.5%).

13 ACCUMULATED SURPLUS ON IMPORTED RAW SUGAR

This represents the surplus on imported raw sugar sold on behalf of the Government of Jamaica (GOJ).

14 CAPITAL RESERVE

(a) This balance represents assets transferred to the Authority during the year ended 31 October 2002 from its subsidiary, Sugar Industry Housing Limited (Notes 1 and 6(a)).

(b) This balance represents the fair value of land and buildings transferred to SIARD (formerly SIRI) from the Government of Jamaica in 2003 (Note 6(b)).

15 ACTUARIAL RESERVE

This consists of amounts derived from the change in defined benefit assets and defined benefit obligations reported on the statement of financial position.

16 REVOLVING LOAN FUND RESERVE

This consists of amounts approved by the Board to facilitate a revolving loan fund for staff members.

17 LONG-TERM LOAN

	2018 $'000	2017 $'000
	27,917	27,917

This represents the balance of a loan granted by the CEF for the establishment of the SIARD farm.

18 TRADE AND OTHER PAYABLES

	2018 $'000	2017 $'000
Advances from imported refined sugar account	41,627	41,627
Accounts payable	26,492	152,455
Accrued expenses	64,284	82,574
Other payables	-	70,413
Advances payable	27,518	48,813
Unexpended public awareness campaign grant	-	297
	159,921	396,178

19 BANK OVERDRAFT

This represents the balance on a current account after taking into account all cheques issued but not presented for encashment at the year-end (i.e. a "book overdraft").

20 OTHER INCOME

	2018 $'000	2017 $'000
Lease and rental	4,529	7,980
Interest income	12,452	19,720
Maintenance income	33,254	10,058
Miscellaneous	5,000	16,603
	55,235	54,361

21 EXPENSE BY NATURE

	2018 $'000	2017 $'000
Advertising and public relations	1,347	5,176
Auditor's remuneration	2,000	1,402
Core lab electricity	2,612	1,810
Core sampler operations	62,662	64,891
Depreciation and amortization	23,985	18,387
Field operations	615	370
Insurance	8,327	2,461
Legal and professional	6,885	4,154
Motor vehicle expenses	2,330	1,626
SIARD Springfield farm	36,128	43,837
Other	14,031	17,311
Postage and communication expenses	206	33
Property tax	1,738	2,269
Repairs and maintenance	5,990	8,055
Security costs	12,909	13,410
Staff costs (Note 22)	96,436	159,362
Travelling expenses	47,489	47,013
Bad debts	8,940	-
Staff welfare	7,328	-
Utilities	17,213	19,131
Extension services expenses	60,000	60,000
Loss on disposal of property, plant and equipment	-	3,944
	419,171	474,640

22 STAFF COSTS

	2018 **$'000**	**2017** **$'000**
Wages and salaries	132,755	124,934
Statutory contributions	10,516	10,072
Pension cost (Note 7)	(75,752)	5,158
Other retirement benefit costs (Note 7)	27,030	8,639
Other	1,887	10,559
	96,436	159,362

Average number of persons employed by the Authority during the year:

	2018	**2017**
General fund		
Full-time	21	20
S.I.R.I.		
Full-time	34	37
	55	57

A redundancy exercise took place in December 2016 resulting in a reduction in the staff complement from 70 to 57.

23 CONTINGENT LIABILITY

During 2010, a claim was filed against the Sugar Industry Authority (SIA) by Joshua Jaddoo, a former employee relating to the termination of his employment contract. Mr. Jaddoo is claiming for redundancy payment and unpaid gratuities. Total payable amount is $ 11,180,675. No accrual was made as SIA was victorious and the decision is now under appeal.

24 ALLOCATION OF ADMINISTRATIVE EXPENSES

As the Ministry of Industry, Commerce, Agriculture and Fisheries Cane Expansion Fund (CEF) operates within the offices of the Sugar Industry Authority, management has determined that twenty percent (20%) of maintenance expenses are to be allocated to the Fund totaling $ 9,729,975 (2017 - $7,692,128).