

Sugar Industry

Authority

Annual

Crop Report

2015



Sugar Industry Authority's Board of Directors



Dr. Wesley Hughes - Chairman



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Overview of Jamaica's Sugarcane Industry

Currently, sugarcane cultivation in Jamaica occurs in five distinct agro-ecological zones: Central Uplands, Dry North Coast, Irrigated Southern Plains, Wet East, and Wet West, *Fig. 1*. The data for 2015 shows 35,164 ha under cultivation: 19,067 ha on farms affiliated with six factories and 16,097 on farms (owned or leased) operated by 8,841 registered independent producers.

The 2014/2015 Sugar Crop began at Appleton on January 10, 2015 and ended at Monymusk on July 4, 2015, a span of 188 days. This was 32 days shorter than the 2013/2014 crop which lasted 220 days.

In its current state, sugar extraction occurs in six factories within a completely privatised Industry where, on average, some 138,900 tonnes are produced annually over the last three years.

The cost to produce sugar in Jamaica varies within the cost parameters relating to cultivating, harvesting and transporting of canes to the factory for milling, and the unmet sugar recovery at factory standard operating efficiency (91%). Worthy Park and Appleton factories are the more efficient producers of sugar in the country. However Worthy Park with a FRI of 98.38 was the only factory which

Fig. 1

Sugar Cane Areas of Jamaica



Overview of Jamaica's Sugarcane Industry cont.

exceeded the standard.

Chemical ripening was done on 1,880 ha in the 2015 Crop via aerial application of glyphosate and fluazifop largely. However small amounts of bio-chemicals were integrated because of environmental concerns. The Wray & Nephew Group is the leading proponent for use of ripeners having applied 1,400 ha during the Crop.

Water balance was negative for the majority of the growing period, with severe deficits on the Irrigated Plains. This affected both cane and sugar production. Nonetheless, the bulk (~105,000 tonnes) of the annual sugar is produced from rainfall. Only ~30,000 tonnes or 22% of annual production comes from irrigated fields.

The decline in the area reaped for sugar production over the last three years along with the failure of some factories to meet standard operating indicators of production are challenges to overcome. This is not encouraging, especially in light of forecasted reduction in the price paid for sugar produced - as a result of the impending removal of the preferential pricing mechanism by 2017.

Sugar Organisations in Jamaica

- ◇ Sugar Industry Authority (SIA) is a statutory body within the Ministry of Agriculture and Fisheries with powers to regulate and control the industry
- ◇ Sugar Industry Research Institute (SIRI) is a division of the SIA and its core business is research and development
- ◇ All Island Jamaica Cane Farmers' Association (ALLCANE), is body corporated by the cane farmers to promote, foster and encourage the growing of canes
- ◇ Cane Expansion Fund (CEF) is the body charged with managing the revolving loan for cane planting and expansion
- ◇ Everglades Farms Limited are producers of sugar cane and operator of Everglades sugar factory
- ◇ Jamaica Cane Products Sales Ltd (JCPS) is the oldest marketing company for sugar produced in Jamaica.
- ◇ J Wray and Nephew Ltd. owner of Appleton sugar factory is a private large scale producer of cane and a manufacturer of sugar

Sugar Organisations in Jamaica cont.

- ◇ PAN CARIBBEAN is the operator of Frome and Monymusk sugar factories and markets the sugar produced
- ◇ Seprod Ltd is a manufacturing conglomerate and the owner of Golden Grove sugar factory. Seprod will market the sugar produced by Golden Grove
- ◇ Sugar Manufacturers Corporation of Jamaica (SMCJ) is the umbrella organization of sugar factories
- ◇ Sugar Producers' Federation (SPF) deals with the industrial relations and staff welfare matters of the sugar manufacturers
- ◇ Sugar Transformation Unit (STU) oversees the implementation of the Jamaica Country Strategy for the Adaptation of the Sugar Industry: 2006 to 2015
- ◇ Worthy Park is a private medium scale producer of cane and a manufacturer of sugar

Table 1 : Area Reaped as a Percentage of Area in Cane, by Factory, 2013 - 2015 Crop Years

2013

Factory Areas	Area in Cane	Area Reaped	% Area Harvested
Appleton	5,975	5,184	87
Everglades	2,519	1,671	66
Frome	10,239	8,830	86
Golden Grove	3,488	3,004	86
Monymusk	8,253	6,940	84
Worthy Park	3,715	3,568	96
Grand Total	34,189	29,197	85

2014

Appleton	5,924	5,268	89
Everglades	1,275	913	72
Frome	11,156	8,008	72
Golden Grove	3,739	3,261	87
Monymusk	8,368	7,298	87
Worthy Park	3,679	3,503	95
Grand Total	35,934	29,705	83

2015

Appleton	5,835	5,278	90
Everglades *	2,792	2,792	100
Frome	11,156	6,836	61
Golden Grove	3,739	3,030	81
Monymusk	8,463	6,871	81
Worthy Park	3,179	2,729	86
Grand Total	35,164	27,536	78

** 2015 data is provisional*

**Table 2: Cane Production Report 2013 - 2015
Crop Years**

Year	Area reaped (ha)	Tonnes Cane
2015	27,536	1,539,992
2014	29,705	1,804,521
2013	29,197	1,458,289

Year	Tonnes 96° Sugar	tc/ha	ts/ha
2015	134,223	55.93	4.87
2014	154,361	60.75	5.20
2013	128,196	49.95	4.39

**Table 3: Mean Annual Rainfall in the
Ecological Zones, 2013 - 2015**

	2015	2014	2013
<u>Ecological Zones</u>			
Central Uplands	860	1090	1469
Dry North Coast	639	834	100
Irrigated Southern Plains	240	460	761
Wet East	453	1014	1099
Wet West	1465	2063	1745
Total	3469	5461	5174

Table 4: Cane Production & Productivity Report 2013

Factory Areas	Area Reaped	Tonnes Reaped
Appleton	5,184	298,974
Everglades	1,671	77,086
Frome	8,830	454,104
Golden Grove	3,004	181,511
Monymusk	6,940	255,180
Worthy Park	3,568	191,434
Grand Total/Average	29,197	1,458,289

Factory Areas	Tonnes 96° Sugar	tc/ha	ts/ha
Appleton	29,513	57.67	5.69
Everglades	6,674	46.13	3.99
Frome	36,700	51.43	4.16
Golden Grove	14,107	60.42	4.70
Monymusk	18,501	36.77	2.67
Worthy Park	22,701	53.65	6.36
Grand Total/Average	128,196	49.95	4.39

Table 5: Cane Production & Productivity Report 2014

Factory Areas	Area Reaped	Tonnes Reaped
Appleton	5,268	370,674
Everglades	913	60,039
Frome	8,008	505,969
Golden Grove	3,261	255,024
Monymusk	7,298	300,775
Worthy Park	3,503	227,326
Grand Total/Average	29,705	1,804,521

Factory Areas	Tonnes 96° Sugar	tc/ha	ts/ha
Appleton	33,890	70.36	6.43
Everglades	11,724	65.76	12.84
Frome	38,603	63.18	4.82
Golden Grove	19,403	78.20	5.95
Monymusk	23,091	41.21	3.16
Worthy Park	27,650	64.89	7.89
Grand Total/ Average	154,361	60.75	5.20

**Table 6: Cane Production & Productivity
Report 2015 Crop**

Factory Areas	Area Reaped	Tonnes Reaped
Appleton	5,278	304,577
Everglades *	2,792	137,888
Frome	6,836	438,702
Golden Grove	3,030	196,750
Monymusk	6,871	286,398
Worthy Park	2,729	175,677
Grand Total/Average	27,536	1,539,992

Factory Areas	Tonnes 96° Sugar	tc/ha	ts/ha
Appleton	26,914	57.71	5.10
Everglades	11,103	49.39	3.98
Frome	32,785	64.18	4.80
Golden Grove	16,018	64.93	5.29
Monymusk	19,775	41.68	2.88
Worthy Park	27,628	64.37	10.12
Grand Total/Average	134,223	55.93	4.87

* *Provisional Report*

Fig. 2: Percentage Share of Area (ha) Reaped Under Respective Varieties, 2012 Crop

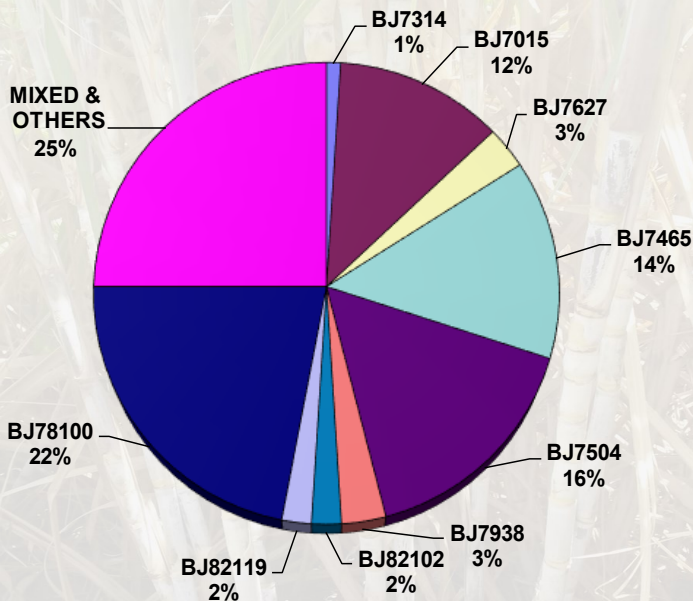


Fig. 3: Percentage Share of Area (ha) Reaped Under Respective Varieties, 2013 Crop

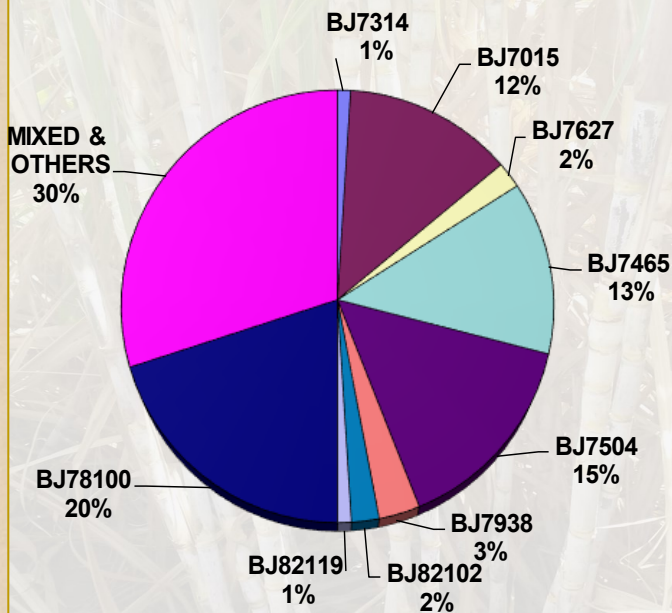
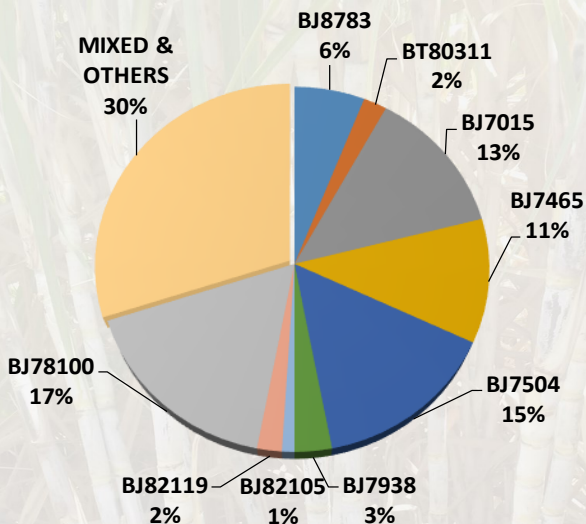


Fig. 4: Percentage Share of Area (ha) Reaped Under Respective Varieties, 2014 Crop



Release of New Sugarcane Varieties

Four new varieties - BJ9250, BJ9310, BJ9428 and BJ9764 - with good agronomic characteristics for tillering, germination, stalk erectness, yield and quality are being released for cultivation for the 2016 crop. Growers can now update the variety options, and manage them for sustained productivity and profitability.

New Sugarcane Varieties for Release 2015

Fig. 5



Fig. 6



New Sugarcane Varieties for Release 2015 cont.

Fig. 7

BJ9428



Fig. 8

BJ9764



Table 8. Industry Cane and Sugar Production (2013 - 2015)

Crop Year	Cane Ground for Sugar (t)	96° Sugar Made (t)	tc/ts
2013	1,408,540.08	128,196.00	11.13
2014	1,788,162.51	154,361.00	11.73
2015	1,564,216.91	134,223.00	11.89
Average	1,586,973.17	138,926.67	11.58
TARGET	3,000,000.00	300,000.00	10.00

Fig. 9

**Sugar Production
2013 - 2015**

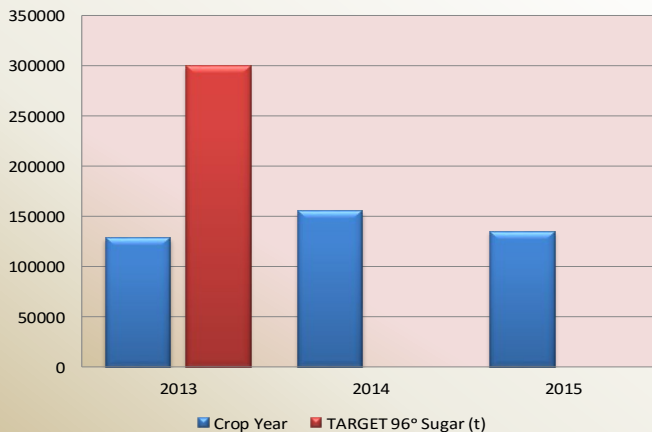


Table 9. Cane and Sugar Production by Factories (2013 - 2015)

Factory	2014/15		2013/14		2012/13	
	Cane Ground for Sugar (t)	96° Sugar Made (t)	Cane Ground for Sugar (t)	96° Sugar Made (t)	Cane Ground for Sugar (t)	96° Sugar Made (t)
Appleton	314,752	26,914	369,802	33,890	293,861	29,513
Everglades	132,981	11,103	131,111	11,724	72,625	6,674
Frome	426,981	32,785	505,951	38,603	440,170	36,700
G/Grove	196,631	16,018	252,659	19,403	181,510	14,107
M/musk	253,415	19,775	270,177	23,091	221,017	18,501
W/Park	247,606	27,628	247,019	27,650	193,381	22,701
Total/Avg	1,572,367	134,223	1,776,718	154,361	1,402,564	128,19



**Table 10. Factory Recovery Index (FRI)
by Factories (2013 - 2015)**

Factory	2014/2015	2013/2014	2012/13
	FRI		
Appleton	88.82	92.22	95.32
Everglades	87.62	87.23	92.1
Frome	79.52	80.6	83.95
G/Grove	89.04	87.36	84.66
M/musk	70.18	79.35	80.43
W/Park	98.38	98.34	96.19
Averages	85.59	86.85	88.28
Standard FRI	91.00	91.00	91.00

**Table 11. Jamaica Recoverable Cane Sugar
(JRCS) by Factories (2013 - 2015)**

Factory	2014/2015	2013/2014	2012/13
	JRCS		
Appleton	9.56	9.96	10.58
Everglades	9.36	10.15	10.06
Frome	9.54	8.91	10.17
G/Grove	9.16	8.79	9.27
M/musk	11.12	10.99	10.62
W/Park	11.34	11.41	12.2
Averages	10.01	9.88	10.49
Standard JRCS	10.1239	10.5456	10.4287

**Table 12. Tonne Cane Per Tonne Sugar (tc/ts)
by Factories (2013 - 2015)**

Factory	2014/2015	2013/2014	2012/13
	tc/ts		
Appleton	11.70	10.91	9.96
Everglades	11.98	11.29	10.88
Frome	13.02	13.11	11.99
G/Grove	12.28	13.14	12.87
M/musk	12.81	11.7	11.95
W/Park	8.96	8.93	8.52
Averages	11.71	11.51	10.94

**Table 13. Grinding Rates of Sugar Factories:
Tonnes Cane Per Hour (2013 - 2015)**

Factory	Rated Capacity (tc/h)	Grinding Rate (tc/h)		
		2014/15	2013/14	2012/13
Appleton	150	132.04	137.29	140.44
Ever-	75	69.58	74.23	65.75
Frome	200	187.52	189.37	168.35
G/Grove	75	85.39	85.15	76.6
M/musk	200	131.85	162.61	158.95
W/Park	70	68.2	69.18	67.76
Averages	128	125.73	134.15	129.86

Table 14: Price Per Tonne Cane (\$) by Factories (2013 - 2015)

Factory	Price/Tonne Cane (\$)		
	2014/2015	2013/2014	2012/13
Appleton	\$3,651.49	\$4,446.54	\$4,709.37
Everglades	\$3,534.86	\$4,599.76	\$4,336.04
Frome	\$3,651.48	\$3,688.24	\$4,422.91
G/Grove	\$3,389.71	\$3,596.62	\$3,783.82
M/musk	\$4,664.03	\$5,202.86	\$4,750.69
W/Park	\$4,822.08	\$5,518.44	\$5,875.79
Averages	\$3,953.91	\$4,392.03	\$4,646.62

Table 15: Price Per Tonne Sugar(\$) by Factories (2013 - 2015)

Factory	Price/Tonne Sugar (\$)		
	2014/2015	2013/2014	2012/13
Appleton	70,203.68	79,906.90	78,208.54
Everglades	70,640.80	80,169.35	78,150.08
Frome	70,419.00	80,020.00	78,303.00
G/Grove	70,148.49	79,925.73	78,348.83
M/musk	70,419.00	80,020.00	78,303.00
W/Park	70,695.67	80,161.48	78,388.28
Base Price/Tonne	\$ 68,565.00	\$ 78,003.27	\$ 76,005.00

Table 16: Price per Tonne Cane, for Farmers & Estates by Factory, 2013 - 2015 Crops

	Farmers/ Estates	2015	2014	2013
Appleton	Estate	3,863.79	4,748.41	5,294.09
	Farmers	3,611.49	4,657.66	4,974.98
	Total	3,687.16	4,676.14	5,027.65
Everglades	Estate	3,610.02	4,893.81	4,558.85
	Farmers	3,484.53	4,800.19	4,747.38
	Total	3,544.17	4,843.76	4,670.75
Frome	Estate	3,722.85	4,141.28	4,849.57
	Farmers	3,726.95	3,805.42	4,771.73
	Total	3,725.06	3,982.25	4,814.18
Golden Grove	Estate	3,454.35	3,822.35	4,197.45
	Farmers	3,437.94	3,950.02	4,144.25
	Total	3,447.87	3,878.93	4,172.36
Monymusk	Estate	4,987.58	5,631.45	5,483.23
	Farmers	4,623.28	5,448.10	5,028.97
	Total	4,773.65	5,521.15	5,142.47
Worthy Park	Estate	4,666.36	5,565.13	5,879.07
	Farmers	4,904.94	5,912.22	6,585.03
	Total	4,785.86	5,736.83	6,191.65
Industry	Estate	4,038.46	4,643.87	5,010.36
	Farmers	3,970.97	4,623.88	5,012.71
	Total	4,001.08	4,633.91	5,011.78
First Payment		42,000.00	42,000.00	42,000.00
Second Payment		17,470.00	28,000.00	23,000.00
Third Payment		8,695.00	10,020.00	5,000.00
Fourth Payment				8,303.00
Molasses \$/tonne		8,000.00	8,000.00	8,000.00

Number of Tests Conducted at the Central Laboratory: 2012 - 2014

Year	Leaf	Soil	Water	Sugar	Molasses
2012	1317	5757	2476	5861	834
2013	2852	7768	1965	3993	408
2014	667	2965	774	4516	844
Total	4836	16490	5215	14370	2086

Export Sugar Quality Parameters

Results	2013	2014	2015	Sugar Std.
Pol	98.84	98.92	98.87	98.50
Moisture	0.32	0.37	0.38	<0.35
Colour (whole Raw)	2414.24	2700.00	2791.02	3000- 6000
Insoluble Solids	205.47	218.63	325.22	<500
Ash	0.26	0.27	0.27	<0.30

Campaign Against Dextrans

Dextrans are components in stale canes that reduce the production of sugar at the factories resulting in millions of dollars being lost.

Eliminate Dextrans!!

Dextran Levels (mau) in Raw Sugar 2013 - 2015

Factory	2013	2014	2015
Appleton	144	581	456
Everglades	422	671	478
Frome	622	933	952
Golden Grove	574	638	380
Monymusk	487	605	571
Worthy Park	122	299	207
Average	327	559	457
Standard	< 250	< 250	< 250

EU Funded Projects

- ◇ **The Phosphate Index Study** aims at developing appropriate indices for different soil types and land slopes to encourage judicious use of phosphate fertilisers.
- ◇ **The Spectra-Cane Analyser** is a specialised piece of equipment which allows for improvement in sugar cane breeding and selection in Jamaica by using its Near Infrared Red (NIR) technology. This significantly increase the speed of processing samples by up to ten-folds, when compared with wet chemistry analyses.



Spectra-Cane System

- ◇ **Dextran** - The project was aimed at improving the quality of raw sugars by reducing dextran concentrations in process materials. Dextran and Sucrose Analysis (DASA) System allows for the determination of dextran in cane juice.

Testing at the Central Laboratory

- ◇ **Sugar Methods (ISO/IEC 17025:2005 Accredited) :** polarisation, moisture, reducing sugars, colour (affined and whole raw), dextran, ash, insoluble solids, grain size, starch.
- ◇ **Wastewater Methods: (Ministry of Health Approved):** Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), pH, Total Suspended (TSS), Alkalinity, Total Dissolved Solids (TDS), Nitrates (NO_3), Phosphates (PO_4), Total Nitrogen.
- ◇ **Soil Analysis:** pH, Nitrogen (N), Phosphorous (P), Potassium (K), Sodium (Na), Calcium (Ca), Magnesium (Mg), Zinc (Zn), Iron (Fe), Copper (Cu), Manganese (Mn), Boron (B), Organic Matter, Cation Exchange Capacity (CEC), texture, Electrical Conductivity (EC), Salinity
- ◇ **Irrigation Water:** pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Alkalinity, Nitrates (NO_3), Phosphates (PO_3), Sulphates (SO_4), Sodium (Na), Potassium (K), Boron (B), Chloride (Cl), Carbonate (CO_3), Bicarbonate (HCO_3), Calcium (Ca), Magnesium (Mg)
- ◇ **Molasses Analysis:** Polarisation (pol), brix, ash, total sugars
- ◇ **Leaf Analysis:** Nitrogen (N), Phosphorous (P), Potassium (K), Calcium (Ca), Magnesium (Mg), Zinc (Zn), Iron (Fe), Copper (Cu), Manganese (Mn), Boron (B)

For further information and queries, direct concerns to:

Sugar Industry Authority

Trevennion Park, HWT Rd

Kingston 5, Jamaica

Tel: (876)926-5930

Fax: (876)926-6149

Email: sia@jamaicasugar.org

Website: jamaicasugaar.org

Sugar Industry Research Institute

Kendal Road, Mandeville

Manchester, Jamaica

Tel: (876)962-2241; (876)962-1287

Fax: (876)962-1288

Email: sirijam@jamaicasugar.org

Website: jamaicasugaar.org