2021

Ministry of Agriculture, Food Security and Enterprise

2021 End OF YEAR AGRICULTURE PRODUCTION REPORT

POLICY AND STATISTICS UNIT

GREGORIO CANTO

Table of Contents

Overview 2
Belize Agriculture Management Information System (BAIMS) 5
TRADITIONALS 6
SUGAR 7
BANANA 8
CITRUS 8
ORANGE 9
GRAPEFRUIT 9
LIME 10
MARINE PRODUCTS 11
FRUITS 13
GRAINS/LEGUMES 15
CORN 16
RICE PADDY 17
RK BEANS 17
BLACK BEANS 18
COWPEAS 18
SOYBEANS 19
SORGHUM 19
PEANUTS 20
OTHER BEANS 20
VEGETABLES 21
LIVESTOCK 24
CATTLE 25
DAIRY 26
SHEEP 26
POULTRY 26
TURKEY 27
POULTRY LAYERS 27
SWINE 28
HONEY 28
RAINFALL 29
ACKNOWLEDGEMENT 30

Overview

The following report reviews the Ministry of Agriculture's priority commodities which have been produced and harvested from January 2021 to December 2021

These commodities have been selected based on their contribution to economic output, trade, foreign exchange, employment, significance in sustaining food security and the development of rural communities.

The report is a compilation of data collected from Industry, Associations, micro, small, medium and large farms. All monetary values quoted in the report are in Belize dollars.

Primary Agriculture Output Value at Producer Price			
Economic Value (BZD) of Agriculture Output 2020 and 2021			
Sector	Value (BZD) 2020	Value (BZD) 2021	% Chg
Sugarcane (tons)	$84,143,304.00	$89,740,689.57	7%
Banana	$94,708,905.00	$100,205,769.00	6%
Citrus	$29,846,457.82	$19,085,860.50	-36%
Marine Products	$40,741,950.91	$55,045,988.98	35%
Fruits	$16,838,356.30	$18,629,291.97	11%
Grains/Legumes	$106,786,268.66	$128,930,366.20	21%
Vegetables & Roots and Tubers	$21,211,778.45	$24,301,617.65	15%
Livestock	$166,388,722.57	$188,185,720.94	13%
OUTPUT	$560,665,743.71	**$624,125,304.81**	**11%**

Table 1. Data showing primary agriculture output value (BZD) for the year 2020 and 2021.

The agriculture sector contributed an estimated $624,125,304.81 million in agriculture output in 2021 equivalent to an estimated 11% increase from 2020 as shown in *Table 1*. When compared to the year 2021, the Marine Products sector exhibits the highest economic output value contributing $55 million (BZD) to the economy of Belize an equivalent of 35% increase from 2020. This increase is attributed to 37% increase in lobster exports and 63% increase in Conch exports. Shrimp exports fell by 53% from 2020 to 2021 but was offset by the increases in Lobster and Conch exports. This increase was the contrast of 2020 when marine products experienced the lowest economic output during that period.

The Grains sector experienced the second largest overall increase of 21%, from 106.7 million (BZD) in 2020 to 128.9 million (BZD) in 2021. This huge increase was due to increased production in soybean, white corn, RK Beans and rice paddy. These commodities also fetched better price hence the production increased. The commodity that experienced huge decrease of 37% was cowpea due the effects of Asian Bean Thrip (*Megalurothrips usitatus).* The Asian Bean Thrip was prevalent at the time within the Cayo, Orange Walk and Corozal Districts. This also caused farmers to move to alternative crops such as corn which was not affected by the Asian Bean Thrip. Due to better market opportunity these commodities had during this time period farmers increased production in both the west and north of Belize. The weather conditions during

this time were also optimal for production which also coincided with better yields. *See weather data in Fig 1.*

The Livestock sector saw a 13% increase in Economic value in 2021 from 166.3 million (BZD) in 2020 to 188.1 million (BZD) in 2021. Data obtained from the Belize Livestock Producers Association (BLPA) indicate that the increased exports was from 22,713 heads in 2020 to 42,405 heads in 2021 equivalent to an 86.7% increase in Beef export. Sheep local consumption saw a 35% increase from 1,362 heads in 2020 to 1,845 in 2021. Honey experienced a 22% increase in economic value in 2021 when compared to 2020. Poultry also saw a 5% increase in economic value all related to increased production. The milk industry also recorded an increase of 66% in Economic Value with increased production of 9.9 million Lbs. in 2020 to 16.6 million Lbs. in 2021. The economic value for pig fell by 27% directly related to decreases in slaughtering from 4.5 million Lbs. in 2020 to 4.1 million Lbs. in 2021. This was the result of downward production related to the effects of COVID-19 which caused difficulties with the sale of pig and pork products during this time.

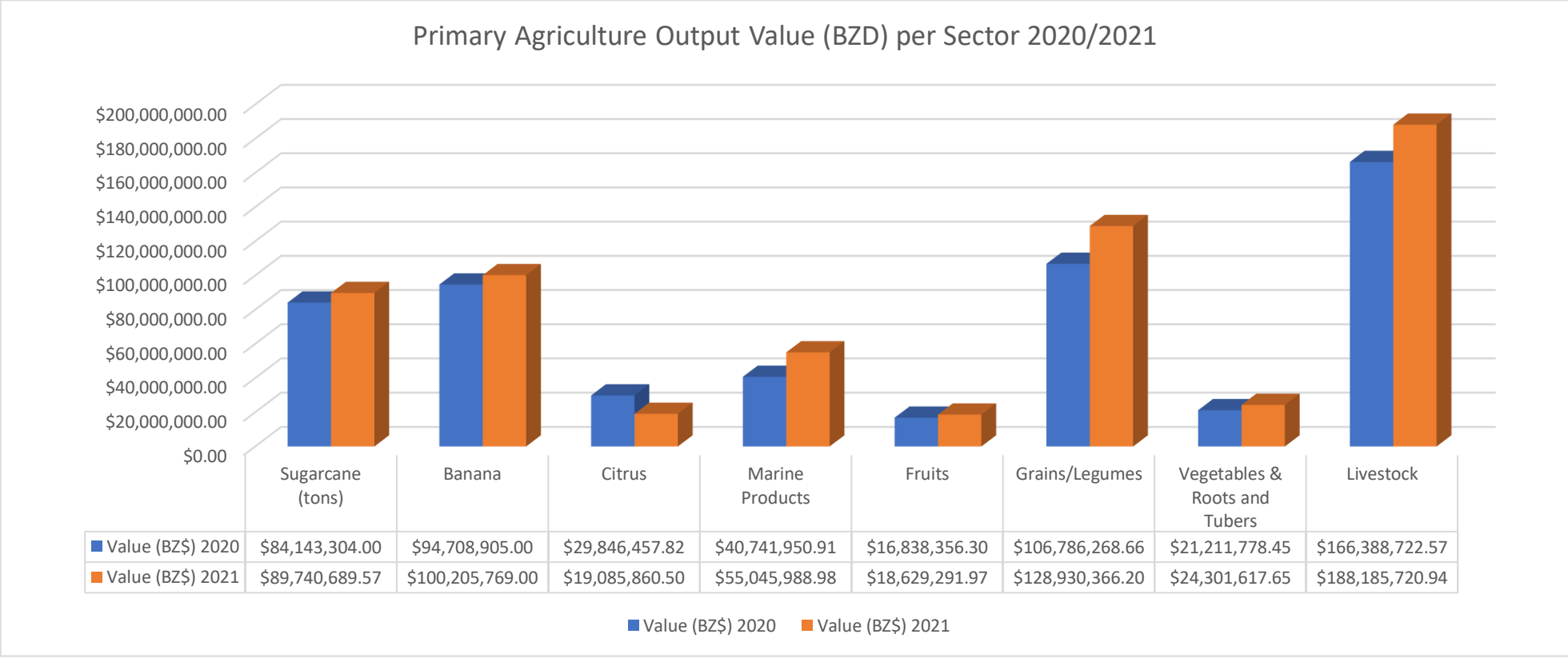
The sugarcane sector, one of the traditional crops in Belize, saw a 7% increase in economic value of 84.1 million (BZD) in 2020 to 89.7 million (BZD) in 2021. Sugarcane production also saw a steep increase in production from 1.5 million MT in 2020 to 1.89 million MT in 2021. Even with less value per MT the drastic increase in production from both ASR/BSI and most notably SANTANDER Sugar allowed the industry to increase the economic output by 7%.

The Banana sector has seen a slight increase of 6% in economic output which saw an increase of 94.7 million (BZD) in 2020 to 100.2 million (BZD) in 2021. This increase is a direct result of increased production from the replanting program within the banana belt in the south of Belize and better yields due to optimal weather condition.

The Citrus sector, another of the traditional crops, saw a drastic decrease of 36% in economic value from 29.8 million (BZD) in 2020 to 19 million (BZD) in 2021. This continued decrease is attributed to less productivity of citrus groves and ongoing effects of HLB.

Table 1 above is clearly indicative of good performance within all sectors of the agriculture industry except for the citrus industry. The data shows that the largest economic output value was experienced by the Marine Products sector with a 35% increase. The second-best performance indicator was the Grains/Legumes sector which recorded 21% increase in economic output value. This is followed by the Vegetables & Roots and Tubers industry which saw a 15% increase in economic output value in 2021 when compared to 2020. The livestock industry performance indicates that there was a 13% increase in economic value from 2020 to 2021.

Banana and Sugar Sectors saw a marginal 6% and 7% increase in economic value respectively. The citrus industry has been experiencing a downward trend over the past few years and in 2021 it recorded a 36% decrease in overall economic output value. The output of the entire agriculture sector saw a 11% increase from 560.6 million (BZD) in 2020 to 624.1 million (BZD) in 2021. *See Fig 1.*



	Sugarcane (tons)	Banana	Citrus	Marine Products	Fruits	Grains/Legumes	Vegetables & Roots and Tubers	Livestock
Value (BZ$) 2020	$84,143,304.00	$94,708,905.00	$29,846,457.82	$40,741,950.91	$16,838,356.30	$106,786,268.66	$21,211,778.45	$166,388,722.57
Value (BZ$) 2021	$89,740,689.57	$100,205,769.00	$19,085,860.50	$55,045,988.98	$18,629,291.97	$128,930,366.20	$24,301,617.65	$188,185,720.94

Fig 1. Graph Illustrating Economic Output Value (BZD) of Agriculture Output 2020 and 2021

Belize Agriculture Management Information System (BAIMS)

In 2021 many people who were unemployed due the COVID19 restrictions turned to the agriculture sector as a source of sustenance. As a result of this the Ministry of Agriculture also saw a 15.8% increase in farmers being registered on the Belize Agriculture Information Management System (BAIMS). As of 31 December 2021, there were approximately 13,638 farmers registered on BAIMS compared to 11,770 in December 31, 2020. *See Table 3* below.

District	# of Farmers
Belize	695
Cayo	2,527
Corozal	3,758
Orange Walk	3,266
Stann Creek	847
Toledo	2,545
Grand Total	**13,638**

Table 2. Farmers Registered on BAIMS in 2021 by District

Similarly, in 2021 there were approximately 2,991 female farmers (21.9%), 10,560 male farmers (77.4%) and 87 companies/schools registered (0.64%) on BAIMS. See *Table 4 & Fig 2* below.

Gender	# of Farmers	% represented
Female	2991	21.93%
Male	10560	77.43%
Companies/ Schools	87	0.64%
Grand Total	**13638**	**100.00%**

Table 3. Farmer Demographic Distribution on BAIMS in 2021 by gender

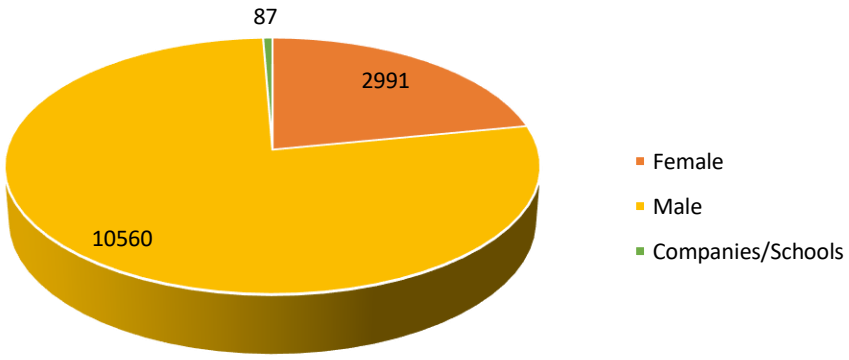


Fig 2. Demographic Distribution BAIMS Registry 2021

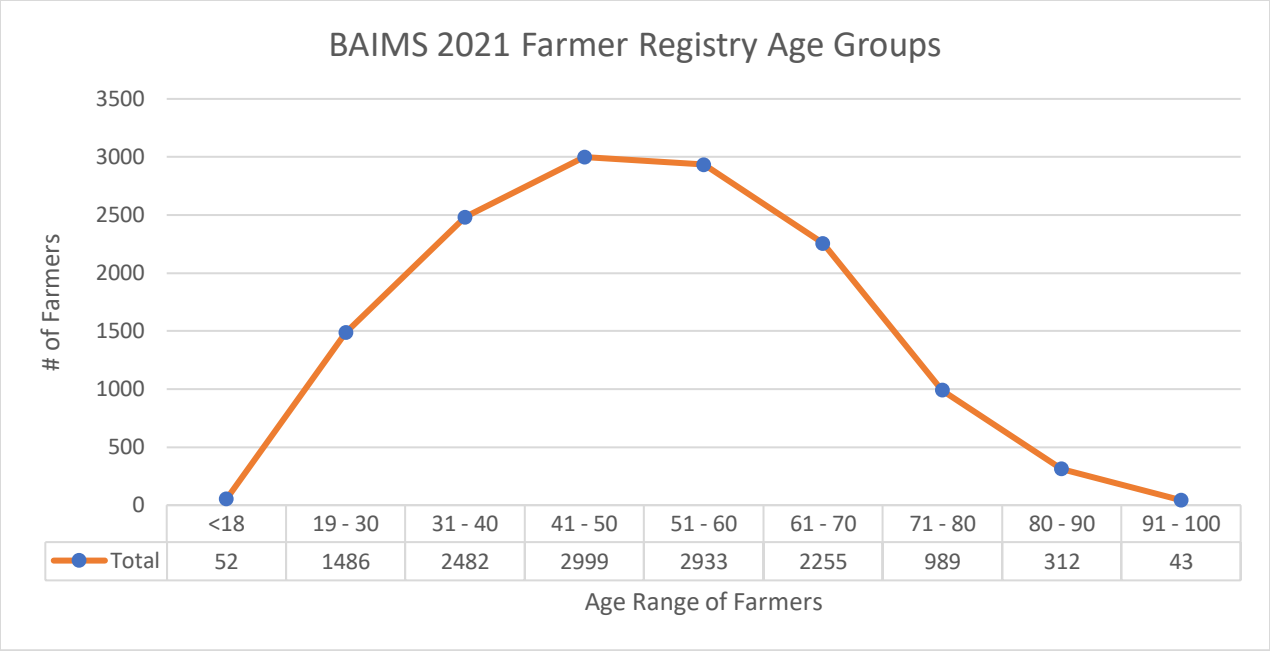


Fig 3. Graph Illustrating the BAIMS 2021 Farmer Registry Age Grouping

The data gathered from the BAIMS 2021 in Fig 3 indicate that most farmers are within the age range of 31 – 70. A further analysis indicates that the largest group of farmers are within the age range of 41 – 50, followed by 51 – 60 age groups. This indicates that most farmers fall within the average working age. We can also observe that young farmers falling within 19 – 30 years age group are a small percentage of overall farming population. Young farmers less than 18 are those classified as 16 – to 18-year-old farmers who do farming under parental consent. The older farmers are also less when compared to the most productive farmer age groups as can be seen in Fig 3. Although the United Nations (UN) defines youth as those persons between the ages of 15 and 24 which varies depending on different regions and cultures. (FAO, JIFAD, Youth and Agriculture: Key Challenges and Concrete Solutions, 2014).

TRADITIONALS

Historically, Belize is known for the production and export of traditional crops primarily: Sugar, Citrus and Bananas. These major crops have been the foundation of the Belizean economy since the 1800's. These crops are still in production today and its contribution to the GDP and economic output are significant as can be seen in Figure 3 below. The traditional crops aggregately contributed to 208.7 million (BZD) in 2020 to 209 million (BZD) in 2021 an increase from one year to another of 0.2% in Economic Output.

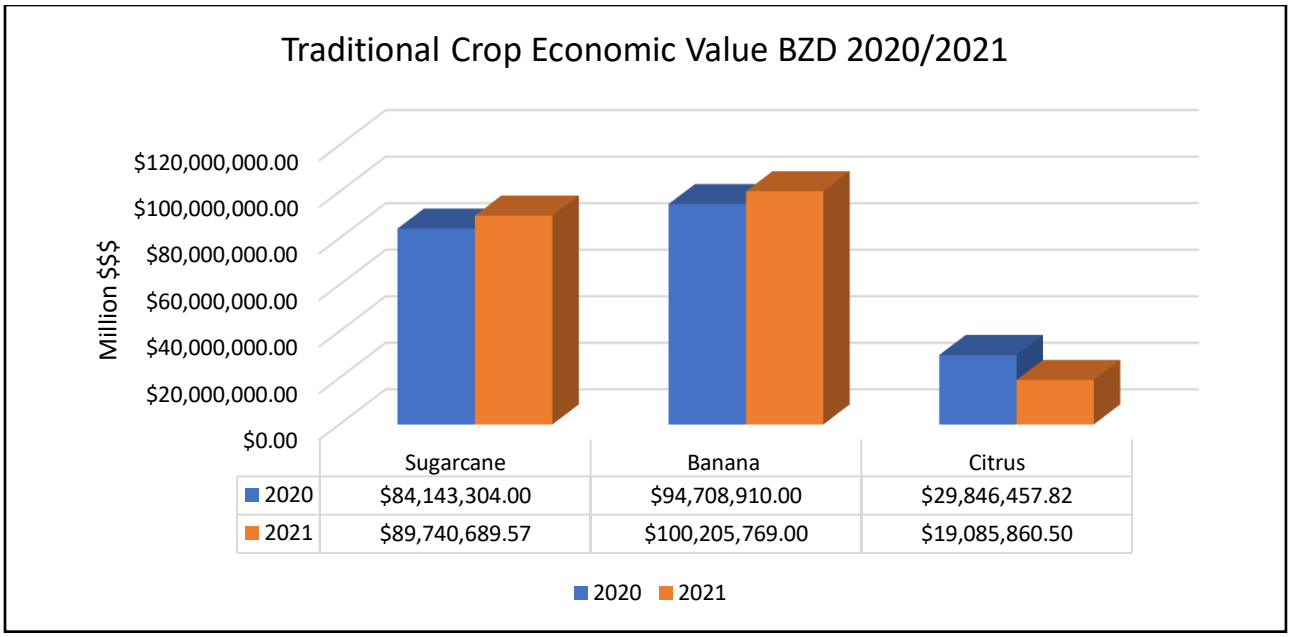


Fig 4. Graph illustrating Traditional Crops Economic Value (BZD)

SUGAR

CROPS				
TRADITIONAL CROPS				
Commodity	**Units**	**2020**	**2021**	**% Change**
Sugar	MT	144,020	177,875	24%
Sugarcane	MT	1,536,864	1,893,663	23%
Acres	Acres	98,700	103,358	5%
Value (BZD)	BZD	$84,143,304.00	$89,740,689.57	7%

Table 4. Table illustrating national sugarcane production, acreage and economic value (BZD) for years 2020 and 2021.

Total sugarcane acreage harvested in 2021 increased by 5% from 98,700 acres in 2020 to 103,358 acres in 2021. This increase was reported within the western side of the country, where this area is continuously expanding acreage under production. Increasing production coincided with increased TC/TS all related to better weather in 2021 yielding more sugar content in sugar stalk. Aggregated data for Sugarcane delivered at both northern and western mill increased from 1.53 million Metric Tons (MT) in 2020 to 1.89 million MT in 2021 accounting for a 23% increase. The overall economic output generated by both mills saw a 7% increase from 84.2 million (BZD) to 89.7 million (BZD).

BANANA

CROPS				
TRADITIONAL CROPS				
Commodity	**Units**	**2020**	**2021**	**% Change**
Banana	40 lb Box	5,001,141	5,370,000	7%
Acres	Acres	7518	7809	4%
Value (BZD)	BZD	$87,498,815.00	$91,949,329.00	5%

Table 5. Table illustrating banana production, acreage and economic value (BZD) for years 2020 and 2021.

Banana production increased by 7% from 5 million 40 Lbs. Boxes in 2020 to 5.3 million 40 Lbs. Boxes in 2021. This increase also coincided with a 4% acreage increase from 7,528 acres in 2020 to 7,809 acres in 2021. The increase is a direct result of the replanting program launched in previous years. The yields increased thus indicating that better farm practices and adaptability of the plants are being successful. The contribution to economic value also increased by 5% from 87.49 million (BZD) in 2020 to 91.94 million (BZD) in 2021.

The banana sector like that of the citrus sector also experienced challenges with getting access to seasonal labor from neighboring countries. The effects however were not as impactful. The banana companies ensured the smooth flow of production and delivery by quickly adopting health protocols to secure the health of their employees.

CITRUS

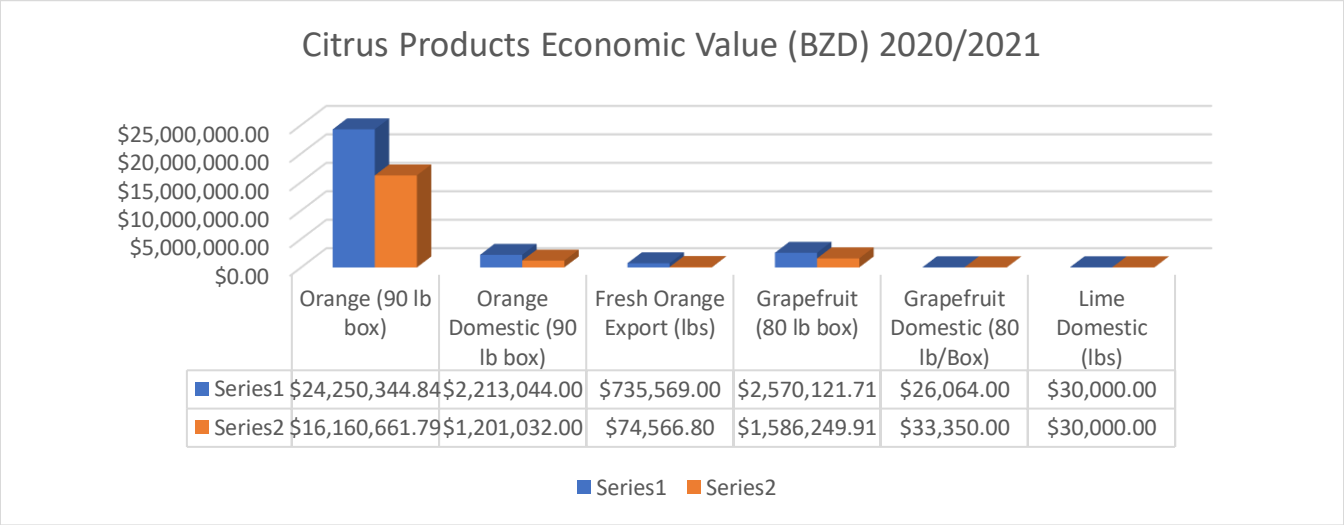


Fig 5. Graph illustrating Citrus (Orange and Grapefruit) production, acreage and economic value (BZD) for years 2020 and 2021.

Citrus products include a variety of commodities that are namely Oranges (Domestic and Export), Grapefruit (Domestic and Export) and lime for domestic consumption. Total economic value for citrus decreased by 36% from 29.8 million (BZD) in 2020 to 19 million (BZD) in 2021. Orange concentrate is the largest economic contributor in the Citrus sector followed by grapefruit concentrate.

ORANGE

Commodity	Units	2020	2021	% Change
Orange (90 lb box)	bxs 90 lb	2,329,524	1,334,489	-43%
Acres	acres	16,794	18,811	12%
Value (BZD)	BZD	$24,250,344.84	$16,160,661.79	-33%
Orange Domestic (90 lb box)	bxs 90 lb	116,476	66,724	-43%
Value (BZD)	BZD	$2,213,044.00	$1,201,032.00	-46%
Fresh Orange Export (lbs)	lb	2,176,042	169,315	-92%
Value (BZD)	BZD	$735,569.00	$74,566.80	-90%

Table 6. Table illustrating banana production, acreage and economic value (BZD) for years 2020 and 2021.

The economic value of orange decreased by 36% from an aggregated 27.1 Million (BZD) in 2020 to 17.4 Million (BZD) in 2021. Table 6 above shows that Oranges (90 Lbs. box) had an increase in acreage of 12% from 16,794 acres in 2020 to 18,811 acres in 2021. Production however decreased by 43% from 2.3 million in 2021 to 1.3 million in 2021. This was the direct result of Huanglongbing (HLB) continuing to affect the citrus industry. The lower yield indicates that HLB is significantly affecting the productivity of orchards. The need for replanting and rejuvenation of the industry is vital to increase production and value. The economic value of citrus decreased by 33% from 24.2 million BZD in 2020 to 16.1 million BZD in 2021.

Orange Domestic sales (90 Lbs. box) also decreased by 43% from 116,476 Lbs. in 2020 to 66,724 Lbs. in 2021. Fresh oranges exported (lbs.) also decreased by 92% from 2.1 million in 2020 to 169K in 2021. In the domestic market, orange was scarce especially during the COVID-19 lockdown due to the lower productivity of the plants because of the HLB disease affecting the trees. Production which was harvested and destined for specific international markets suffered major drawbacks due to the disruption of the trading routes caused by COVID-19 and the challenges associated with the harvesting of fruit. Majority of the laborers in the citrus sector are immigrant workers and during the COVID-19 period it was challenging for them to travel.

GRAPEFRUIT

Commodity	Units	2020	2021	% Change
Grapefruit (80 Lbs. box)	bxs 80 Lbs.	144,847	115,029	-21%
Acres	acres	4,144	1,745	-58%

Value (BZD)	BZD	$2,570,121.71	$1,586,249.91	-38%
Grapefruit Domestic (80 Lbs. /Box)	bxs 80 Lbs.	1,448	1,150	-21%
Value (BZD)	BZD	$26,064.00	$33,350.00	28%

Table 7. Illustrating Citrus (Grapefruit) production and economic output value (BZD) for both domestic and exports 2020 and 2021.

Grapefruit (80 Lbs. box) saw a 21% decrease in production from 144,847 in 2020 to 115,029 in 2021. This drastic decrease in production was a direct attribute to the impact of HLB on the citrus industry. Likewise, the acreage under production fell by 58% from 4,144 acres in 2020 to 1,745 acres in 2021. The decrease in citrus acreages was the main factor in less production. This overall impact in production also caused a decrease of 38% in economic value from 2.5 million (BZD) to 1.58 million (BZD) in 2021.

Grapefruit Domestic (80 Lbs./Box) also saw a 21% decrease in harvest an equivalent of 1,448 in 2020 to 1,150 in 2021. The scarcity of the product worldwide caused higher world market prices and as a result there was an increase of 28% in economic value from 26k (BZD) in 2020 to 33K (BZD) in 2021 for grapefruit. This commodity overall success had minimal impact on overall economic impact of the citrus of sector.

LIME

Commodity	**Units**	**2020**	**2021**	**% Change**
Lime Domestic (Lbs.)	Lbs.	150,000	150,000	0%
Value (BZD)	BZD	$30,000.00	$30,000.00	0%

Table 8. Illustrating Lime production and economic output value (BZD) for both domestic lime lbs. 2020 and 2021.

Lime production for domestic consumption remained the same as in 2020; the price per pound on average also remained the same as in 2020 at 0.20 cents per Lbs. in 2021. The Economic value of lime for domestic consumption did not grow in the year 2021. Productivity of lime orchards is still being affected by the HLB. Even so production does not meet demand.

MARINE PRODUCTS

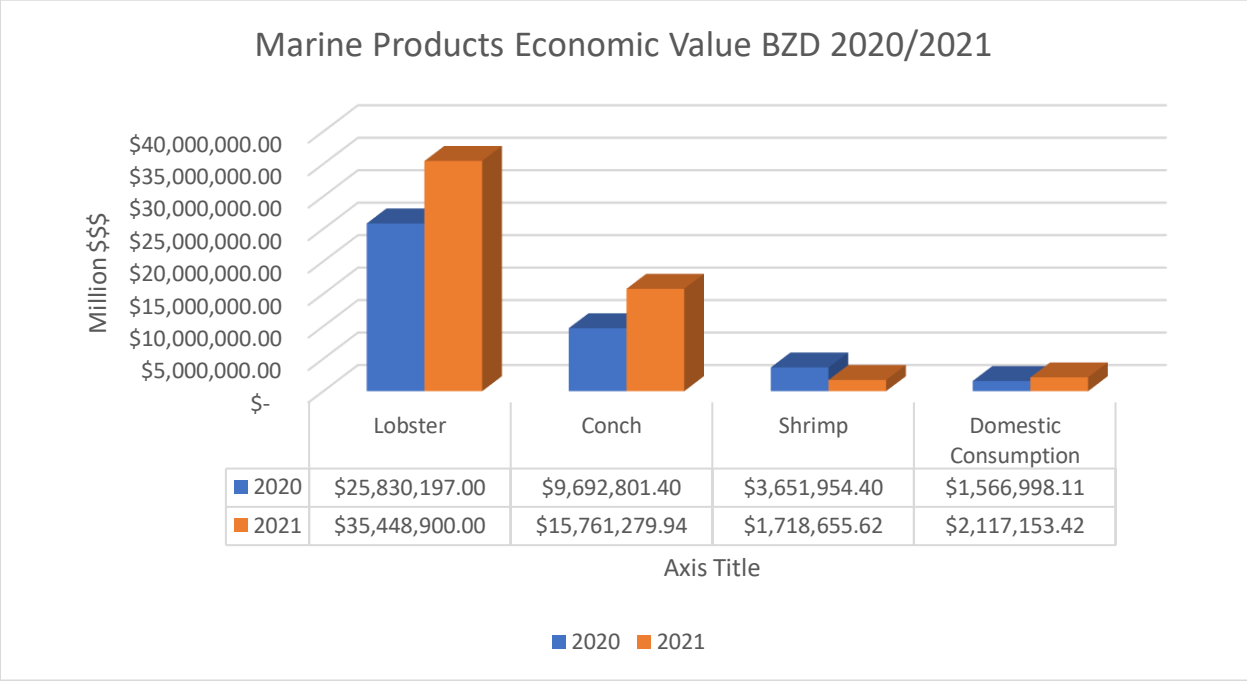


Fig 6. Graph illustrating Lobster, Conch, Shrimp and Domestic Consumption of marine products economic value (BZD) for years 2020 and 2021.

	Units	2020	2021	% Change
Lobster	Lbs.	$ 25,830,197.00	$ 35,448,900.00	37%
Conch	Lbs.	$ 9,692,801.40	$ 15,761,279.94	63%
Shrimp	Lbs.	$ 3,651,954.40	$ 1,718,655.62	-53%
Domestic Consumption	Lbs.	$ 1,566,998.11	$ 2,117,153.42	35%
Total	$	$40,741,950.91	$55,045,988.98	35%

Table 9. illustrating Marine products economic output value (BZD) for 2020 and 2021.

The Marine Sector showed the largest growth in economic value in the 2021 production statistics when compared to 2020 (*See Fig 5.).* The sector saw a 35% increase from 40.7 million (BZD) in 2020 to 55 million (BZD) in 2021. When compared individually Conch saw the largest economic value increase of 63% from 9.6 million (BZD) in 2020 to 15.7 million (BZD) in 2021. This was followed by Lobster which increased by 37% equivalent of 25.8 million (BZD) in 2020 to 35.4 million (BZD) in 2021. The Domestic consumption of marine products also increased by 35%

from 1.5 million (BZD) in 2020 to 2.1 million (BZD) in 2021. (*See Table 9.*) The sales of local fish products increased especially after the introduction of policy in support of buying local.

The commodity that saw a 53% decline in economic output is the inland Shrimp. In 2020 there were 3.6 million (BZD) in economic value reported and in 2021 the economic value declined to 1.7 million (BZD). This sharp decrease is attributed to the continued effects of the Early Mortality Syndrome which has been affecting the shrimp industry since 2015. The production of shrimp is also drastically reduced hence the impacts on economic output value.

FRUITS

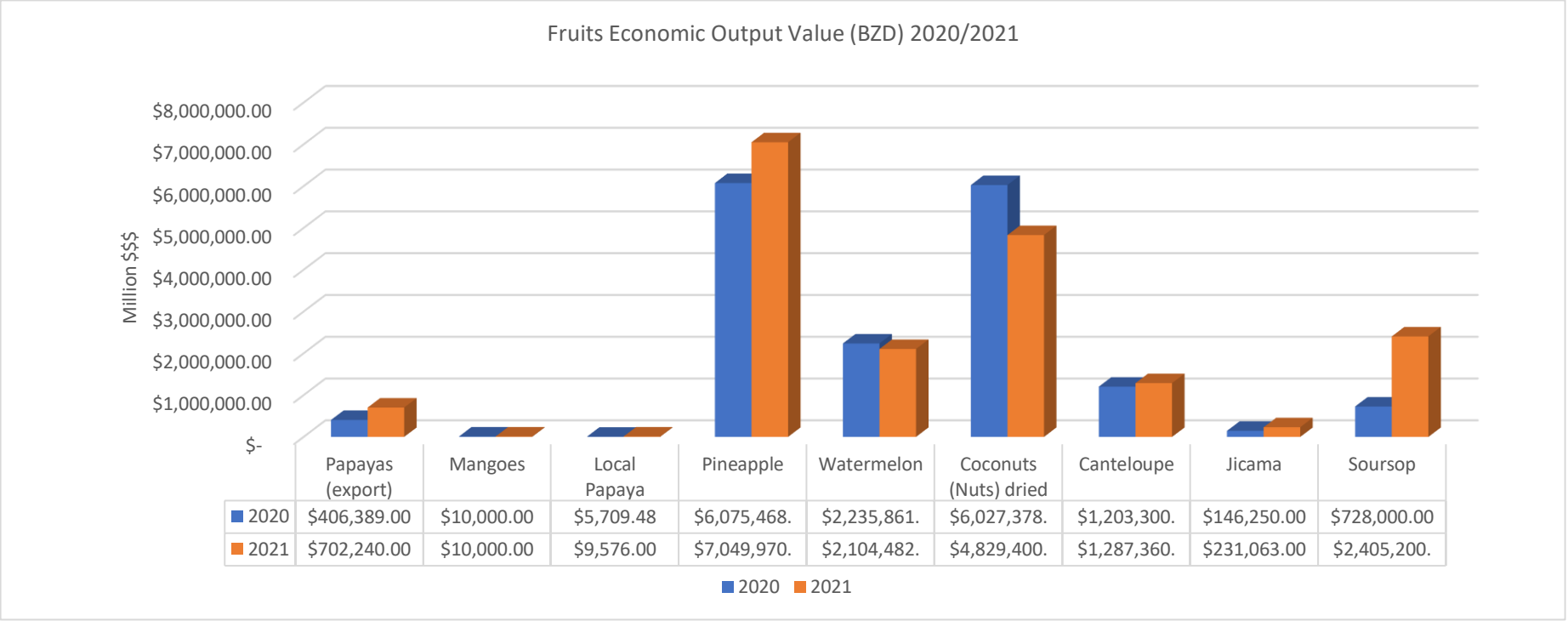


Fig 7. Graph illustrating economic value (BZD) of Fruits for years 2020 and 2021

The overall economic output value of fruit crops increased by estimated 11%. This growth was from 16.8 million (BZD) in 2020 to 18.6 million (BZD) in 2021. From *Fig 6.* It can be observed that the fruit crops which experienced the largest economic value growth were Pineapple, and Coconut followed by Soursop and watermelon. The later three commodities have experienced significant growth due to large private sector investments. As of recent pineapple production have been growing exponentially. They are primarily grown in 2 areas of the country namely Trio in the Toledo District and Santa Martha in the Orange Walk District. Though recently Buena Vista village, and Aremenia villages in the Cayo District and other areas across the country are starting to increase production. Pineapple saw a 16% increase in Economic Value output from 6 million (BZD) in 2020 to 7 million (BZD) in 2021. Production of Soursop and coconut has also seen significant increases as can be seen

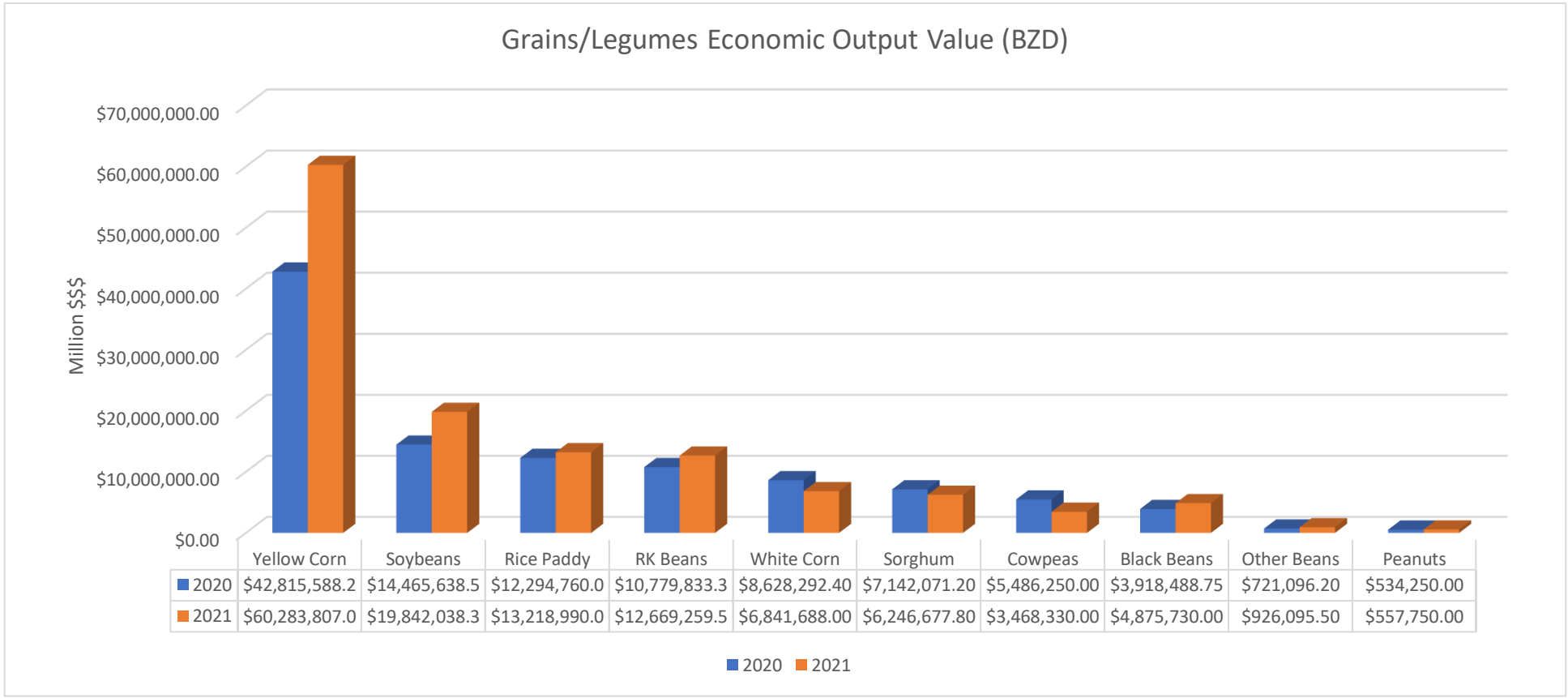
in *Table 10* below. CPBL, Texbel, Silk Grass Farms just to name few companies/ processors are demanding the products listed above. The Ministry has also been supporting the processing of these commodities for the tourism sector and for export.

Commodity	2020 Acres	2021 Acres	2020 Production (Lbs.)	2021 Production (Lbs)	2020	2021	% Change
Papayas (export)	10	37	951,580	1,596,000	$ 406,389.00	$ 702,240.00	73%
Mangoes			20,000	20,000	$ 10,000.00	$ 10,000.00	0%
Local Papaya			19,032	31,920	$ 5,709.48	$ 9,576.00	68%
Pineapple	914	1040	8,438,151	9,791,626	$ 6,075,468.72	$ 7,049,970.72	16%
Watermelon	340	284	4,065,202	4,676,627	$ 2,235,861.10	$ 2,104,482.15	-6%
Coconuts (Nuts) dried	44917	2942	17,221,080	13,798,286	$ 6,027,378.00	$ 4,829,400.10	-20%
Cantaloupe	165	110	1,337,000	1,287,360	$ 1,203,300.00	$ 1,287,360.00	7%
Jicama	73	87	146,250	231,063	$ 146,250.00	$ 231,063.00	58%
Soursop	130	429.50	208,000	687,200	$ 728,000.00	$ 2,405,200.00	230%
Total					**$ 16,838,356.30**	**$ 18,629,291.97**	**11%**

Table 10. Illustrating Fruits economic output value (BZD) for 2020 and 2021.

The commodity with the largest economic value increase was Soursop which saw a 230% increase from $728,000 (BZD) in 2020 to 2.4 million (BZD) in 2021. This increase was due to significant increases in productivity which went from 208,000 (Lbs.) in 2020 to 687,200 (Lbs.) in 2021. Simultaneously there was an increase in total acreage from 130 acres in 2020 to 429 acres in 2021. The other commodity that experienced high economic value output was Papayas (export); from $406,389 in 2020 to $702,240 in 2021. Papayas for Export also recorded increased acreages from 10 acres in 2020 to 37 acres in 2021. Likewise, the other commodity that showed significant economic output was Local Papayas which increased by 68% equivalent of $5,709.48 in 2020 to $9,576 in 2021. Jicama also experienced a significant increase in economic value output of 58% from $146,250 in 2020 to $231,063 in 2021. There was also an increase in acreage from 73 acres in 2020 to 87 acres in 2021. Coconuts (Nuts) Dried saw a steep decline in economic output of -20% from 6 million (BZD) in 2020 to 4.8 million (BZD) in 2021.

GRAINS/LEGUMES



	Yellow Corn	Soybeans	Rice Paddy	RK Beans	White Corn	Sorghum	Cowpeas	Black Beans	Other Beans	Peanuts
2020	$42,815,588.2	$14,465,638.5	$12,294,760.0	$10,779,833.3	$8,628,292.40	$7,142,071.20	$5,486,250.00	$3,918,488.75	$721,096.20	$534,250.00
2021	$60,283,807.0	$19,842,038.3	$13,218,990.0	$12,669,259.5	$6,841,688.00	$6,246,677.80	$3,468,330.00	$4,875,730.00	$926,095.50	$557,750.00

Fig 8. *Graph illustrating economic value (BZD) of Grains and Legumes for years 2020 and 2021*

The Grains and Legumes Sector is mostly dominated by mechanized and commercial farming within the Mennonite communities of Little Belize in the Corozal District, Shipyard, Indian Creek and Blue Creek in the Orange Walk Districts and Spanish Lookout in the Cayo District. The other area that has high concentration of grain and legumes farmers is within the Mayan communities in the Southern most district of Belize, Toledo. The farmers down south are milpa farmers who farm using traditional methods and do not use any form of mechanized farming methods. Grains produced by the commercial growers are sold within the country and exported formally to other markets around the region. The grains and

legumes in the Toledo District are used for self-consumption by the communities and sold to the Guatemalan market. From *Fig 7* above it can be observed that yellow corn contributed the largest Economic output when compared to the other commodities followed by Soybean etc. Details of each commodity are explained in tables below. The main harvest of corn within the Mennonite communities occurs between September and November yearly. The norm has always been to increase production on the commodity that has better profits and more demand. In this case for example if Corn is yielding more profit, then more will be planted the next production period. This norm in turn affects the planting quantities of other grains e.g., sorghum or cowpeas. Other factors which are considered when determining which commodity to plant also includes weather, pest and the effects of climate change.

CORN

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Yellow Corn	Lbs	152,912,815	215,299,311	41%
Acres Harvested	Acres	11,173	5,834	-48%
Value (BZD)	BZD	$42,815,588.20	$60,283,807.08	41%
White Corn	Lbs	30,815,330	24,434,600	-21%
Acres Harvested	Acres	15446	12,428	-20%
Value (BZD)	BZD	$8,628,292.40	$6,841,688.00	-21%
Total		**$51,443,880.60**	**$67,125,495.08**	**30%**

Table 11. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Yellow and White Corn

Yellow Corn saw the largest economic output of 41% which was 152 million (BZD) in 2020 to 215 million (BZD) in 2021. This growth thus indicates that production was intensified by better farm management, use of irrigation and overall increase in yield per acre when compared to 2020. Good weather, better prices and high demand for yellow corn were indications that a bumper crop would be profitable surpassing the expectations of the Mennonite and Mayan communities.

Due to this reason white corn saw less demand hence farmers planted less acreage equivalent of 20% less from 15,446 acres in 2020 to 12,424 acres in 2021. The total economic output of white corn decreased by 21% from 8.6 million (BZD) in 2020 to 6.8 million in 2021. The largest market for export of corn commodity was in the Guatemalan market where they are experiencing shortages especially during the COVID19 pandemic. Corn is exported by the Mennonite and Mayan communities to Guatemala.

RICE PADDY

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Rice Paddy	Lbs.	33,047,475	30,736,900	-7%
Acres Harvested	Acres	7,609	6,531	-14%
Value (BZD)	BZD	$12,294,760.00	$13,218,990.00	8%

Table 12. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Rice Paddy

Rice Paddy is primarily grown in three geographic regions of Belize. These include Blue Creek in the Orange Walk District, Spanish Lookout in the Cayo District and the Toledo district. The north and west districts use only mechanized farming methods. On the other hand, rice grown in southern Belize in the Toledo District are mostly milpa farmers. There are also small amounts of farmers that do mechanized and semi-mechanized rice farming in the south of Belize. The main harvest period for rice paddy is between September and November.

From the statistics in *Table 12* above we can see that the economic value of rice paddy increased by 8% from 12.2 million (BZD) in 2020 to 13.2 million (BZD) in 2021. This increase was due to better weather conditions and increased use of irrigation systems. Increases were also experienced in both the Toledo and Orange Walk Districts. Farmers in Toledo District sell their rice to the mill at Big Falls but also sell their product to the Mill in Spanish Lookout. Additionally, rice Farmers in south also sold their rice to Guatemala through the Jalacte border crossing.

RK BEANS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
RK Beans	Lbs	11,347,193	14,076,955	24%
Acres Harvested	Acres	11,769	16,679	42%
Value (BZD)	BZD	$10,779,833.35	$12,669,259.50	18%

Table 12. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for RK Beans

RK beans saw a 18% increase in economic value output from 10.7 million (BZD) in 2020 to 12.6 million (BZD) in 2021. This increase in production and value is as a result of the decreased planting of cowpeas which were being plagued with the Asian Bean Thrips disease. R.K beans prices and demand were also at an all-time high during the year.

BLACK BEANS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Black Beans	Lbs.	4,124,725	4,875,730	18%
Acres Harvested	Acres	4,369	5,234	20%
Value (BZD)	BZD	$3,918,488.75	$4,875,730.00	24%

Table 13. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Black Beans

Black Beans saw a 24% increase in economic value output equivalent of 3.9 million (BZD) in 2020 to 4.8 million (BZD) in 2021. Increase was also observed in total acres harvested which increased by 20% from 4,369 acres in 2020 to 5,234 acres in 2021. Increased export of black beans was seen in the Toledo District.

COWPEAS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Cowpeas	Lbs.	5,775,000	3,853,700	-33%
Acres Harvested	Acres	6,136	7,915	29%
Value (BZD)	BZD	$5,486,250.00	$3,468,330.00	-37%

Table 14. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for RK Beans

Cowpeas was the commodity that saw a significant decrease of 37% from 5.4 million (BZD) in 2020 to 3.4 million (BZD) in 2021. This decrease was significant since the area harvested increased by 29% from 6,136 acres in 2020 to 7,915 acres in 2021. Even with higher acres harvested the yield decreased by 33% from 5.7 million Lbs. in 2020 to 3.8 million Lbs. in 2021. This decrease was attributed to the severe effects of Asian Bean Thrips especially within the Spanish Lookout and Indian Creek communities. This caused severe harvest losses up to 100% in certain areas.

SOYBEANS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Soybeans	Lbs	30,136,747	38,157,766	27%
Acres Harvested	Acres	26,342	28,851	10%
Value (BZD)	BZD	$14,465,638.56	$19,842,038.32	37%

Table 15. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Soybeans

Soybeans saw a 37% increase in economic output value from 14.4 million (BZD) in 2020 to 19.8 million (BZD) in 2021. This increase was also coupled with a 10% increase in acres planted from 26,342 acres in 2020 to 28,851 acres in 2021. More acres were planted after the effects of the Asian Bean Thrips started affecting the cowpea farms. Production also increased by 27% from 30.1 million Lbs. in 2020 to 38.1 million Lbs. in 2021. Two large areas that did not plant in 2021 was the Banana Bank and Valley of Peace Farms. Spanish lookout planted less as they planted more RK beans and corn. It was reported that there was higher demand for animal feed.

SORGHUM

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Sorghum	Lbs	32,463,960	28,393,990	-13%
Acres Harvested	Acres	13,385	12,614	-6%
Value (BZD)	BZD	$7,142,071.20	$6,246,677.80	-13%

Table 16. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Sorghum

Sorghum saw a 13% decrease in economic value from 7.1 million (BZD) in 2020 to 6.2 million (BZD) in 2021. There was also a decrease of 6% in acres harvested from 13,385 acres in 2020 to 12,614 acres in 2021. This also had a significant effect on productivity as less harvested acres meant production fell by 13% from 32 million Lbs. in 2020 to 28 million in 2021. Orange Walk farmers planted more Sorghum in 2021 than corn due to better prices. Spanish Lookout planted less sorghum and more beans.

PEANUTS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Peanuts	Lbs.	213,700	223,100	4%
Acres Harvested	Acres	253	300	19%
Value (BZD)	BZD	$534,250.00	$557,750.00	4%

Table 17. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Peanuts

Peanuts showed a marginal increase of 4% growth in economic value from $534,250 (BZD) in 2020 to $557,750 (BZD) in 2021. This was also coupled with a 4% increase in productivity from 213,700 Lbs. in 2020 to 223,100 Lbs. in 2021. Acreage harvested also increased by 19% from 253 acres in 2020 to 300 acres in 2021. The demand for peanuts has been increasing over the past few years and the economic output for this commodity has been increasing.

OTHER BEANS

CROPS				
GRAINS/PULSES				
Commodity	**Units**	**2020**	**2021**	**% Change**
Other Beans	Lbs.	801,218	1,028,995	28%
Acres Harvested	Acres	606	968	60%
Value (BZD)	BZD	$721,096.20	$926,095.50	28%

Table 18. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Other Beans

The other beans include pinto beans, small red beans, frijol Bayo etc. These types of beans contribute significant amounts to the economy and its production has increased by approximately 28%, an economic value increase from $721,096.20 (BZD) in 2020 to $926,095.50 (BZD) in 2021. This increase also coincides with increase in production from 801,218 Lbs. harvested in 2020 to 1 million Lbs. harvested in 2021. There was a 60% increase in acreage planted as well.

VEGETABLES

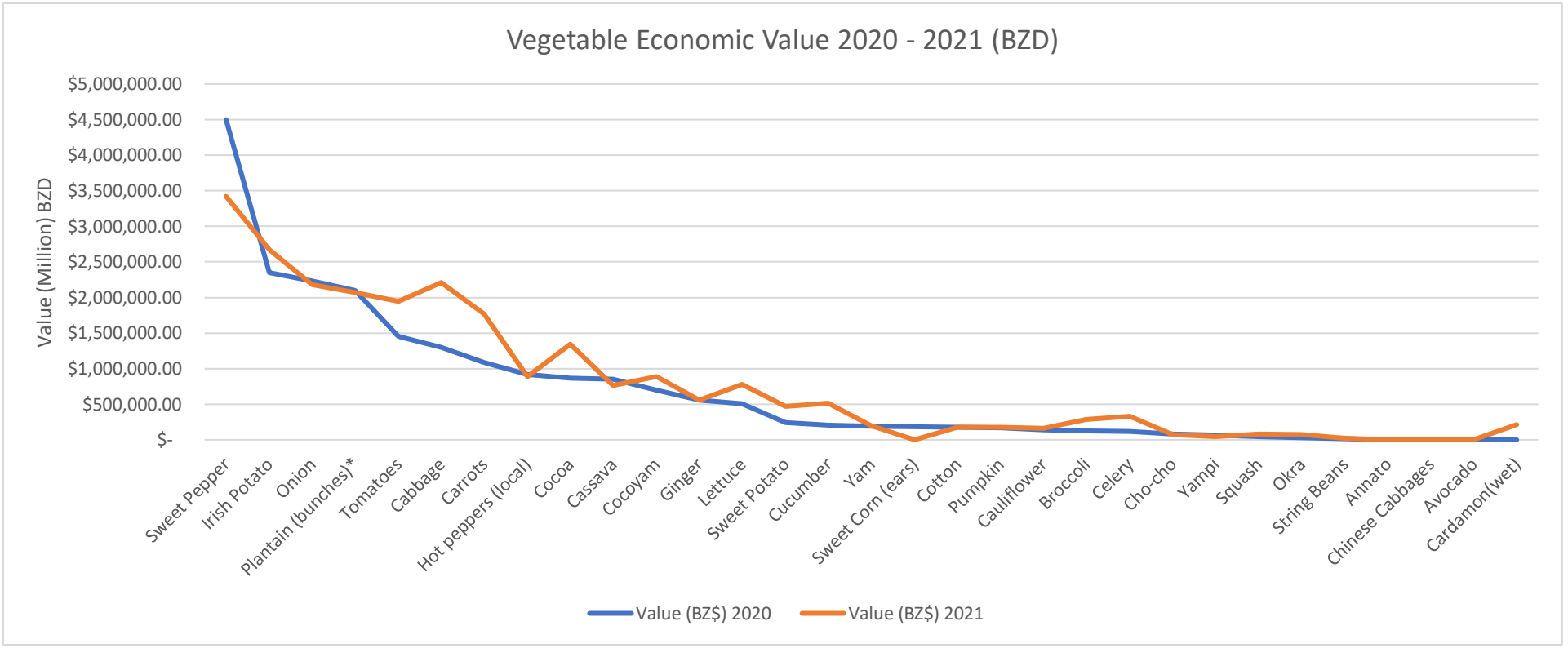


Fig 9. *Graph illustrating economic value (BZD) of Vegetables for years 2020 and 2021*

Vegetables are one of the primary agriculture outputs for Belize's food basket. Most vegetables produced are used for local consumption thus considered a very important food source, income earner and contribution to economic output. The cost of producing vegetables has increased during the pandemic which shows severe strain on Cost of Production (COP). During the pandemic the Ministry of Agriculture had extended support to the farmers by closing importation during production of Onion, Potato and Carrots. Other commodities production has been monitored as the ministry holds pre-production seminars with producers, importers and technical officers highlighting the need to share data and rely on them to make adequate decisions which will ensure the nation's food security. As with other commodities vegetables are a market-oriented commodity that is highly influenced by the supply and demand cycle. The cost varies at certain times which can be seen in Fig 9. Below.

Commodity	Value (BZ$) 2020	Value (BZ$) 2021	% Chg
Sweet Pepper	$ 4,497,512.00	$ 3,420,264.00	-24%
Irish Potato	$ 2,349,781.20	$ 2,673,090.20	14%
Onion	$ 2,232,838.65	$ 2,181,645.70	-2%
Plantain (bunches)*	$ 2,098,887.00	$ 2,072,329.00	-1%
Tomatoes	$ 1,455,229.00	$ 1,942,635.00	33%
Cabbage	$ 1,301,897.25	$ 2,205,627.75	69%
Carrots	$ 1,086,805.75	$ 1,770,958.85	63%
Hot peppers (local)	$ 914,350.50	$ 885,169.50	-3%
Cocoa	$ 864,318.00	$ 1,345,865.50	56%
Cassava	$ 847,667.50	$ 762,490.00	-10%
Cocoyam	$ 697,702.50	$ 890,515.25	28%
Ginger	$ 561,050.00	$ 561,000.00	0%
Lettuce	$ 507,269.00	$ 780,764.00	54%
Sweet Potato	$ 240,336.80	$ 468,540.40	95%
Cucumber	$ 208,547.50	$ 511,762.00	145%
Yam	$ 191,732.80	$ 194,761.60	2%
Sweet Corn (ears)	$ 181,600.00	$ -	-100%
Cotton	$ 176,000.00	$ 176,000.00	0%
Pumpkin	$ 166,800.00	$ 176,560.00	6%
Cauliflower	$ 142,215.00	$ 157,980.00	11%
Broccoli	$ 127,683.00	$ 282,762.00	121%
Celery	$ 120,832.50	$ 331,276.50	174%
Cho-Cho	$ 80,625.00	$ 72,150.00	-11%
Yampi	$ 66,684.00	$ 46,754.40	-30%
Squash	$ 45,900.00	$ 80,800.00	76%
Okra	$ 28,020.00	$ 70,125.00	150%
String Beans	$ 17,475.00	$ 21,600.00	24%
Annatto	$ 1,980.00	$ 1,782.00	-10%
Chinese Cabbages	$ 38.50	$ -	-100%
Avocado	$ -	$ 1,125.00	#DIV/0!
Cardamon (wet)	$ -	$ 215,284.00	#DIV/0!
Total	**$ 21,211,778.45**	**$ 24,301,617.65**	**15%**

Table 19. Illustrating Grains/Pulses economic output value (BZD) for 2020 and 2021 for Other Beans

The commodity that experienced the highest economic output was Celery which increased by 174% in 2021. Celery increased from $120,832.50 (BZD) in 2020 to $331,276.50 (BZD) in 2021. Okra also experienced a steep increased by 150% in economic output value. This increase went from $28,020 (BZD) in 2020 to $70,125 (BZD) in 2021. This was followed by Cucumber which also saw a steep increase of 145% in economic value output. Cucumber recorded $208,547.50 (BZD) in 2020 and increased to $511,762 (BZD) in 2021. Broccoli also recorded a steep increase of 121% from $127,683 (BZD) in 2020 to $282,762.50 (BZD) in 2021. This increase occurred because farmers from throughout the country, not only Mennonite farmers,

started to compete in the production of Broccoli. The other commodity that saw a sharp increase in economic output of 95% is sweet potato which increased from $240,336.80 (BZD) in 2020 to $468,540.40 (BZD) in 2021.

Commodities of significant importance due to import sensitivity are Irish Potato, Onions, and Carrots. Which also generate significant economic output. In 2021 Irish Potato increased 14% in economic output value from 2.3 million (BZD) in 2020 to 2.6 million (BZD) in 2021. Onion on the other had saw a 2% decrease in economic output value from 2.2 million (BZD) in 2020 to 2.1 million (BZD) in 2021. This decrease was a direct attribute of less production in key areas such as Little Belize and San Carlos communities in the North of Belize. Carrots on the other hand saw a significant increase of 63% in economic output value. Carrots increased from 1 million (BZD) in 2020 to 1.7 million (BZD) in 2021. This was a direct result of increased production in key areas such as San Carlos (Orange Walk), San Antonio (Cayo) and Roseville (Stann Creek).

The other commodity that saw significant increase in economic output value of 69% was cabbage. It went from 1.3 million (BZD) in 2020 to 2.2 million (BZD) in 2021. This increase was also a direct result of more production within key vegetable production areas of Belize. Tomato also saw an increase of 33% in economic value output from 1.4 million (BZD) in 2020 to 1.9 million (BZD) in 2021. The commodity that saw a steep decline of 24% was Sweet Pepper which decreased from 4.4 Million (BZD) in 2020 to 3.4 Million in 2021. This was a million dollar decrease all related to lower productivity within the vegetable farming zones and the loss of tourism market where majority of the product is sold to. Plantain also saw a marginal decrease of 1% from 2.09 million (BZD) in 2020 to 2.07 million (BZD) in 2021.

The new commodity observed to take new role in production and contribution to economic output value was Cardamom. This new commodity has been added to the list of Ministry priority commodities and is grown primarily within the border communities of Toledo District. Cardamom is sold directly to Guatemala as wet or dried product which fetch different prices. All other commodities can be seen in *Table 19* above highlighting the fluctuation and trend on *Fig 8.*

LIVESTOCK

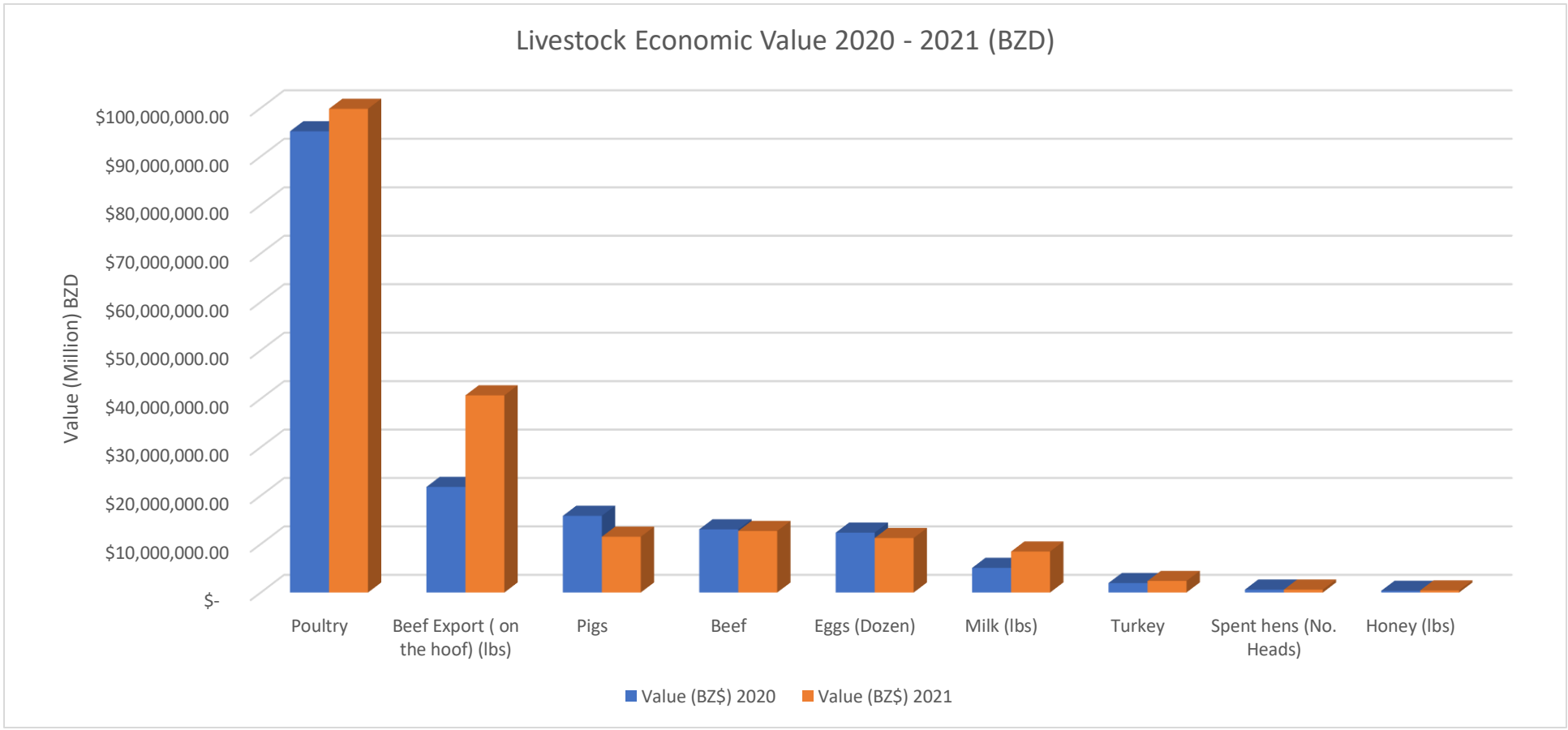


Fig 10. Graph illustrating economic value (BZD) of Livestock for years 2020 and 2021

Livestock was one of the agriculture commodities that was severely affected by the COVID-19 restrictions and the government halting exportation of cattle up to November 2021. It was projected that the economic output which was expected to increase reflected the opposite cattle slaughtering ceased. Beef

Exports grew by 86.7%, over 2020. *Fig 10.* above shows that Poultry remained the largest economic earner as it is the affordable meat preferred by most Belizeans followed by beef etc.

CATTLE

LIVESTOCK	**2020**	**2021**	**% Change**
Cattle Population (Head)	170,945	168,096	-1.7%
Beef Population (Heads):			
Heads Slaughtered (local):	7,733	7,523	-2.7%
Liveweight (Lbs.)	6,959,700	6,770,700	-3%
Dress weight (Lbs.)	3,479,850	3,385,350	-2.7%
Value (BZD) Slaughter Local	***$13,049,437.50***	***$12,695,062.50***	***-3%***
Beef Export (on the hoof) Heads	22,713	42,405	86.7%
Value (BZD) Exports	***$21,804,480.00***	***$40,708,800.00***	***87%***
Grand Total (Local Slaughter and Exports)	**$34,853,917.50**	**$53,403,862.50**	**53%**

Table 20. Illustrating Cattle economic output value (BZD), Population, Heads Slaughtered and Exported for 2020 and 2021

The total cattle population (head) in 2021 stood at 168,096 which saw a decrease of 1.7% from 170,945 heads in 2020 to 168,096 in 2021. Likewise, the total # of cattle heads slaughtered locally decreased by 2.7% from 7,733 heads in 2020 to 7,523 heads in 2021. This also coincided with liveweight (Lbs.) decrease of 3% in 2021 and decrease in dress weight (Lbs.) of 2.7%. `

Beef heads exported rose by 86.7% from 22,713 heads in 2020 to 42,405 heads in 2021. Cattle exports to Guatemala resumed in November 2021 which saw more economic output as seen in *table 20* above. The increase in economic output for Beef export (on the hoof) saw a 87% increase from $21,804,480 million BZD in 2020 to $40,708,800 million BZD in 2021. During the pandemic less beef was consumed due to higher retail cost compared to other meats such as chicken. The Economic output of cattle that were slaughtered locally saw a decrease of 3% from 13 million BZD in 2020 to 12.6 million BZD in 2021.

The overall economic output saw a 53% increase from $34.8 million BZD in 2020 to $54.4 million BZD in 2021. This increase is expected to continue pending the approval of SENASICA to allow the entire country of Belize to export liveweight cattle to Mexico in mid-2022. With the recovery of the Belize economy and the lifting of all restrictions the value of economic output on the cattle industry is expected to increase.

DAIRY

LIVESTOCK	2020	2021	% Change
Dairy Population (Heads):			
MILK			
Total Production (Lbs.)	9,968,223	16,596,189	66.5%
Economic Value (BZD)	**$5,083,793.73**	**$8,464,056,.39**	**66%**

Table 21. Illustrating Dairy Cattle economic output value (BZD) and production for 2020 and 2021

Dairy cattle have seen a sharp increase of 66.5% in milk production from 9.9 million (Lbs.) in 2020 to 16.5 million (Lbs.) in 2021. This increase in production also coincides with increase in economic output value of 66% from 5 million (BZD) in 2020 to 8.4 million (BZD) in 2021. Western Dairies in the Cayo District reported an increase in production. Mennonite communities in Shipyard and Indian Creek in Orange Walk district reported purchasing more milk from Western Dairies to produce cheese products.

SHEEP

LIVESTOCK	2020	2021	% Change
SHEEP			
Sheep population (heads)			
Heads Slaughtered:	1,363	1,845	35.4%
Liveweight (Lbs.)	102,225	138,375	35%
Dress weight (Lbs.)	61,335	83,025	35.4%
Value (BZD)	**$153,337.50**	**$311,343.75**	**103%**

*Table 22. Illustrating Sheep economic output value (BZD), Population, Heads Slaughtered, live weight (*Lbs.*) and dress weight (*Lbs.*) for 2020 and 2021*

Sheep head slaughtered increased by 35.4% from 1,363 heads in 2020 to 1,845 heads in 2021. This increase also coincided with 35% increase in liveweight slaughtered (Lbs.) and 35.4% increase in dress weight (Lbs.) slaughtered. These increases also saw a 103% increase in Economic Output Value from $153,337.50 (BZD) in 2020 to $311,343.75 (BZD) in 2021.

POULTRY

LIVESTOCK	2020	2021	% Change
No. of Bird Slaughtered by Processors	10,426,825	10,782,884	3.4%
No of Birds slaughtered by Others (ONLY)	294,057	431,666	46.8%
Total birds slaughtered	10,720,882	11,214,550	4.6%
Liveweight by processors	46,282,310	49,749,953	7.5%

Liveweight by Others	1,566,671	2,450,999	56.4%
Total liveweights	47,848,981	52,200,952	9.1%
Dress weight by processors	39,034,305	40,262,964	3.1%
Dress weight by Others	1,304,764	2,036,741	56.1%
Total Dress weight	40,339,069	42,299,705	4.9%
Value (BZD)	**$ 40,339,069.00**	**$ 42,299,705.00**	**4.9%**

Table 23. Illustrating Poultry economic output value (BZD), Population, Heads Slaughtered, live weight (Lbs.), dress weight (Lbs.) for 2020 and 2021

Poultry saw a 3.4% increase in No. of Birds Slaughtered by from 10.4 million birds in 2020 to 10.7 million birds in 2021. There was a 46.8% increase in slaughtering recorded by other smaller processors from 294,057 heads in 2020 to 431,666 heads in 2021. Aggregately both of large and small processors saw a 4.6% increase in No. of birds slaughtered. Details can be seen in Table 23 indicating the trend of slaughter by dress weight, liveweight and by processor type. The increased slaughter was a direct result of increased sale of chicken due COVID19 lockdown and being cheaper than other types of meat. Due to increased sales a 4.9% increase in economic output value was recorded equivalent of 95.2 million (BZD) in 2020 to 99.8 million (BZD) in 2021.

TURKEY

TURKEY	**2020**	**2021**	**% Change**
No. of Turkey (Slaughtered)	39,563	45,861	15.9%
Live weight	596,507	729,036	22%
Dress weight (Lbs.)	489,318	595,393	21.7%
Value (BZD)	$1,957,272.00	$2,381,572.00	21.7%

*Table 24. Illustrating Turkey economic output value (BZD), Live weight (*Lbs.*), dress weight (*Lbs.*) & Heads Slaughtered for 2020 and 2021*

The number of turkey heads slaughtered saw an increase of 15.9% from 39,563 heads in 2020 to 45,861 heads in 2021. This increase also coincided with increase of 22% in live weight and 21.7% increase in dress weight. An overall increase of 21.7% in economic value from 1.9 million (BZD) in 2020 to 2.3 million (BZD) in 2021 was recorded.

POULTRY LAYERS

LIVESTOCK	**2020**	**2021**	**% Change**
LAYERS Population			

Eggs (Doz.)	4,942,089	5,001,328	1.2%
Value (BZD)	**$12,355,222.50**	**$11,252,988.00**	**-8.9%**

Table 25. Illustrating Poultry Layers economic output value (BZD), Eggs (Dozen) for 2020 and 2021

Poultry layers recorded a 1.2% increase in production from 4.9 million Eggs (Doz.) in 2020 to 5 million Eggs (Doz.) in 2021. The economic output value recorded a decrease of 8.9% less when compared to 12.3 million (BZD) in 2020 to 11.2 million (BZD) in 2021. This was due to decrease in value of eggs per dozen by 11% from $2.50 (BZD) per dozen in 2020 to $2.25 (BZD) per dozen in 2021. This impacted the total economic output negatively.

SWINE

LIVESTOCK	**2020**	**2021**	**% Change**
Pig population (heads)	29,361	21,654	-26.2%
Heads Slaughtered:	37,701	34,896	-7.4%
Liveweight (Lbs.)	7,540,200	6,979,200	-7.4%
Dress weight (Lbs.)	4,524,120	4,187,520	-7.4%
Value (BZD)	**$15,834,420**	**$11,515,680**	**-27**

Table 26. Illustrating Swine economic output value (BZD), Eggs (Dozen) for 2020 and 2021

Total pig population saw a 26.2% decrease in heads population from 29,361 heads in 2020 to 21,654 heads in 2021. This decrease was also evident with the heads slaughtered which saw a 7.4% decrease from 37,701 heads slaughtered in 2020 to 34,896 heads slaughtered in 2021. This is also shown with decrease of 7.4% in dress weight (Lbs.) and dress weight (Lbs.) simultaneously. Due to less pigs being grown/slaughtered because of the economic impact of COVID19 we saw a 27% decrease in economic output from 15.8 million (BZD) in 2020 to 11.5 million (BZD) in 2021.

HONEY

Livestock	**2020**	**2021**	**% Change**
Honey Total Production (Lbs.)	100,159	122,547	22.4%
Value (BZD)	**$350,556.50**	**$428,914.50**	**22%**

Table 27. Illustrating Honey economic output value (BZD) and honey production for 2020 and 2021

Honey saw an increase of 22.4% in production from 100,159 Lbs. in 2020 to 122,547 Lbs. in 2021. Due to increased production and stable price per Lbs. of honey at $3.50 per Lbs.; a 22% increase in Economic value from $350,556.50 (BZD) in 2020 to $428,914.50 (BZD) in 2021 was observed.

RAINFALL

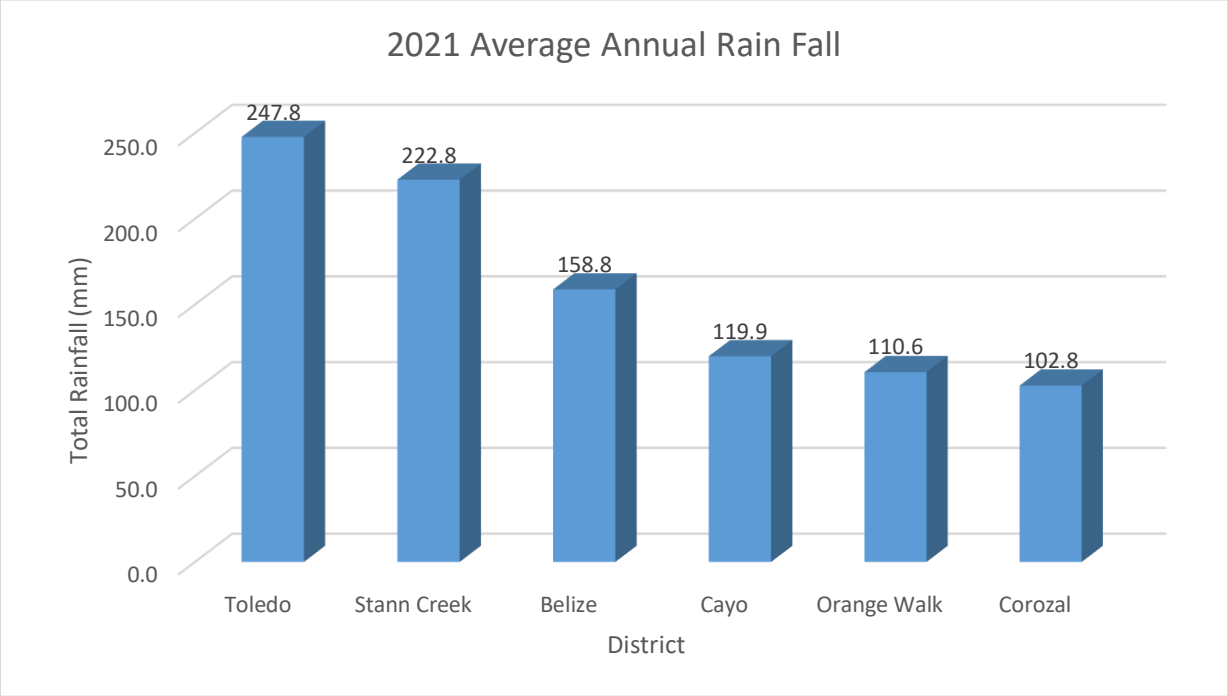


Fig 11. Graph illustrating Average Annual rainfall in 2021 per District

In Fig 10 we can see that the average annual rainfall accumulated in the Toledo and Stann Creek Districts. These include both southern most districts where the rainfall is normally above the rest of the country. The Belize District recorded the second most rainfall followed by the Cayo District. This is also indicative of a below normal rainfall according to the Argo met forecast from the National Meteorological Service of Belize. Both Corozal and Orange Walk, the northern Districts recorded almost similar rainfall conditions and thus remained as the driest of all 6 Districts. Both northern districts remained with least rainfall and precipitation in 2021.

ACKNOWLEDGEMENT

The Ministry of Agriculture and the Policy and Statistics Unit would like to thank the Farmers of various productive sectors for giving us the valuable information to create the National 2021 Agriculture Production Report. We would also like to thank our stakeholders including the Public and Private sector who provided us with prices, estimates and other valuable information to make accurate projections and estimates. Finally, we would like to thank all our hard-working Extension Officers (EO's) for continuously assisting us with collecting, collating, and verifying data using the Belize Agriculture Information Management System (BAIMS).