

# INVESTMENT PROFILE FOR TURMERIC

APRIL  
2019



# AGRO-INVEST

## AGRO-INVESTMENT CORPORATION

Promoting and Facilitating Agri-Business Investments



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## LIST OF ACRONYMS

COP - Cost of Production

FAO - Food and Agriculture Organization of the United Nations

GOJ - Government of Jamaica

ITC - International Trade Center

JMD - Jamaican Dollars

MICAF - Ministry of Industry, Commerce, Agriculture and Fisheries

STATIN - Statistical Institute of Jamaica


U.K. - United Kingdom

USA/U.S. - United States of America

USD - United States Dollars

## Product Profile

Table 1: Product Profile for Turmeric

Turmeric	<b>Botanical Name and Origin:</b> The turmeric ( <i>Curcuma longa</i> ) has its origins in South East Asia.		
	<b>Species and Description:</b> It is an herb of the ginger family and like ginger has a thick, round rhizome with short "fingers". As many as 133 species of <i>Curcuma</i> have been identified worldwide.		
	<b>Nutritional Value:</b>		
	<b>Nutrient</b>	<b>Unit</b>	<b>1Value per 100 g</b>
	Water	g	12.85
Energy	kcal	312	
Protein	g	9.68	
Total lipid (fat)	g	3.25	
Carbohydrate, by difference	g	67.14	
Fiber, total dietary	g	22.7	
Sugars, total	g	3.21	
Calcium, Ca	mg	168	
Iron, Fe	mg	55	
Magnesium, Mg	mg	208	
Phosphorus, P	mg	299	
Potassium, K	mg	2080	
Sodium, Na	mg	27	
Zinc, Zn	mg	4.5	
Vitamin C, total ascorbic acid	mg	0.7	
Thiamin	mg	0.058	
Riboflavin	mg	0.15	
Niacin	mg	1.35	
Vitamin B-6	mg	0.107	
Folate, DFE	µg	20	
Vitamin B-12	µg	0	
Vitamin A, RAE	µg	0	
Vitamin A, IU	IU	0	
Vitamin E (alpha-tocopherol)	mg	4.43	
Vitamin D (D2 + D3)	µg	0	
Vitamin D		IU	
Vitamin K (phylloquinone)	µg	13.4	
Fatty acids, total saturated	g	1.838	
Fatty acids, total monounsaturated	g	0.449	
Fatty acids, total polyunsaturated	g	0.756	
Fatty acids, total trans	g	0.056	

Source: USDA 2019

**Medicinal Uses:** Turmeric may be used for the treatment of rheumatoid arthritis, conjunctivitis, urinary tract infections, and liver ailments (Dixit, Jain, and Joshi 1988). It is also used for digestive disorders; for abdominal pain and distension (Bundy et al. 2004).

**By-Products:** Before turmeric can be used, the turmeric rhizomes must be processed. Rhizomes are boiled or steamed to remove the raw odor, gelatinize the starch, and produce a more uniformly colored product. Turmeric is also used in manufactured food products such as canned beverages, dairy products, baked products, ice cream, yellow cakes, yogurt, orange juice, biscuits, popcorn, sweets, cake icings, cereals, sauces, and gelatins. It is a significant ingredient in most commercial curry powders.

## Crop Production

**Cost of Production:** A one acre turmeric farm is a highly viable proposition. The projected marketable yield for a one (1) acre turmeric farm is 8000kg. The farm-gate price for 1kg of Turmeric is estimated to cost \$88.00 JMD. A summary is given in table 2 below.

Table 2: Estimated Cost of Production for a one acre Turmeric Farm

Item	Unit	Quantity	Rate/Unit	Total (\$)
Land Preparation				
Land Cleaning	man day	5	2000	10,000.00
Ploughing	acre	1	9000	9,000.00
Harrowing	acre	1	6000	6,000.00
Furrowing	acre	1	5000	5,000.00
Buildings and Structures				
Irrigation Equipment	rolls	10	20000	200,000.00

<b>Subtotal</b>				230,000.00
Equipment and Material				
Planting Material	kg	1,000.00	77	77,000.00
Fertilizer				24,000.00
Fungicide				10,000.00
Herbicide				4,800.00
Water	month	7	3000	21,000.00
<b>Subtotal</b>				136,800.00
Works				
Installing Irrigation equipment	man day	2.00	2000	4,000.00
Prepare Planting Material	man day	3.00	2000	6,000.00
Planting	man day	10.00	2000	20,000.00
Fertilizer Application	man day	3.00	2000	6,000.00
Weed Control	man day	24.00	2000	48,000.00
Harvesting	man day	20.00	2000	40,000.00
<b>Subtotal</b>				124,000.00
<b>Total</b>				490,800.00

**Crop Maturity:** 7 months

**Reaping Period:** 2 months

**Project Viability:** Investment in the production and exportation of the Jamaican Turmeric is lucrative as supported by financial projections.

**Gross Revenue:** Under favourable conditions, investors can expect a gross revenue of \$704,000 JMD.

**Net Income:** Investors can expect a net income of \$213,200 JMD over a period of 1 year.

**Return on Investment:** Turmeric farming guarantees a ROI of 43.44%.

**Suitable Locations:** Suitable locations for commercial turmeric production are in the parishes of Hanover, Westmoreland, St. Elizabeth, St. James, Clarendon, St. Catherine, St. Mary and St. Thomas.

**Drainage:** It requires a well-drained soil with sufficient nutrient supply.



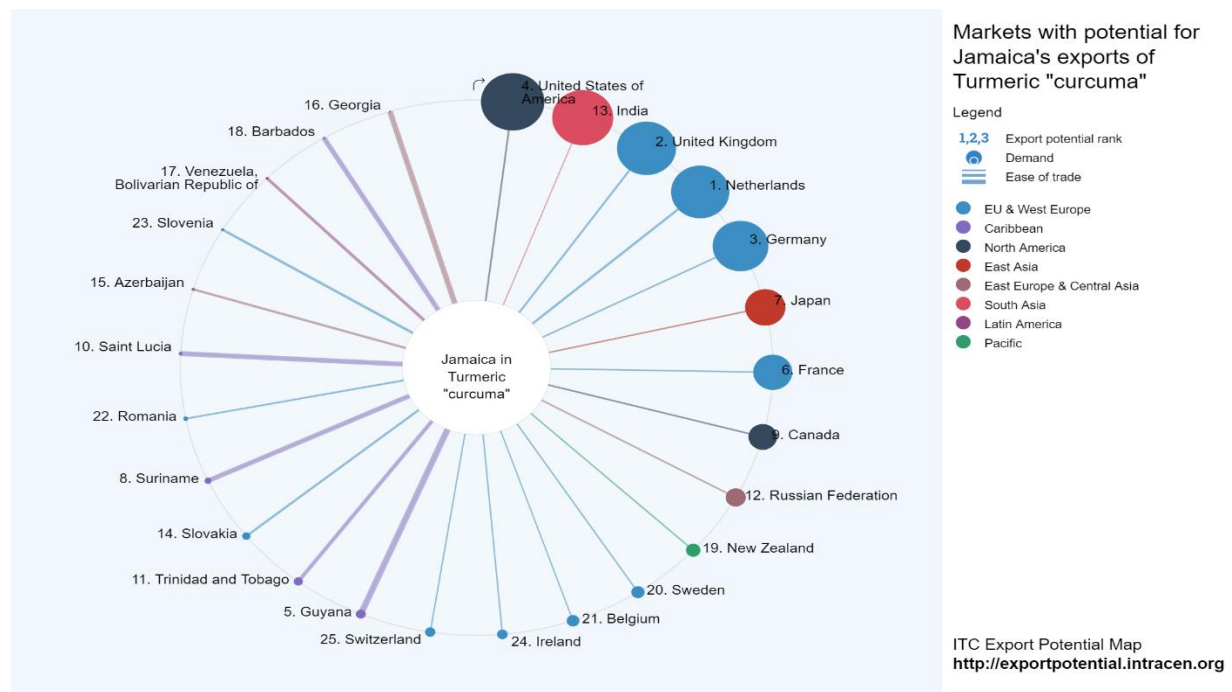
**Harvesting Methods:** Turmeric readiness for harvest is indicated by the drying of the plant and stem. The rhizome bunches should be carefully dug out by hand-picking, manually dug with a spade. It is recommended to first cut the leaves before lifting the rhizomes. Rhizomes are then cleaned by soaking in water. (FAO 2004).

### Market Opportunities and Challenges

**Export Potential:** Turmeric falls under the International Harmonised System code 091030, comprising of “Turmeric ‘curcuma’”. The total untapped export potential of Turmeric "curcuma" globally stands at US\$ 185.3 million.

The markets with greatest potential for Jamaica’s exports of Turmeric are the Netherlands, United Kingdom and Germany. Netherlands shows the largest absolute difference between potential and actual exports in value terms, leaving room to realize additional exports worth US\$ 159.7 k (See Figure 1).

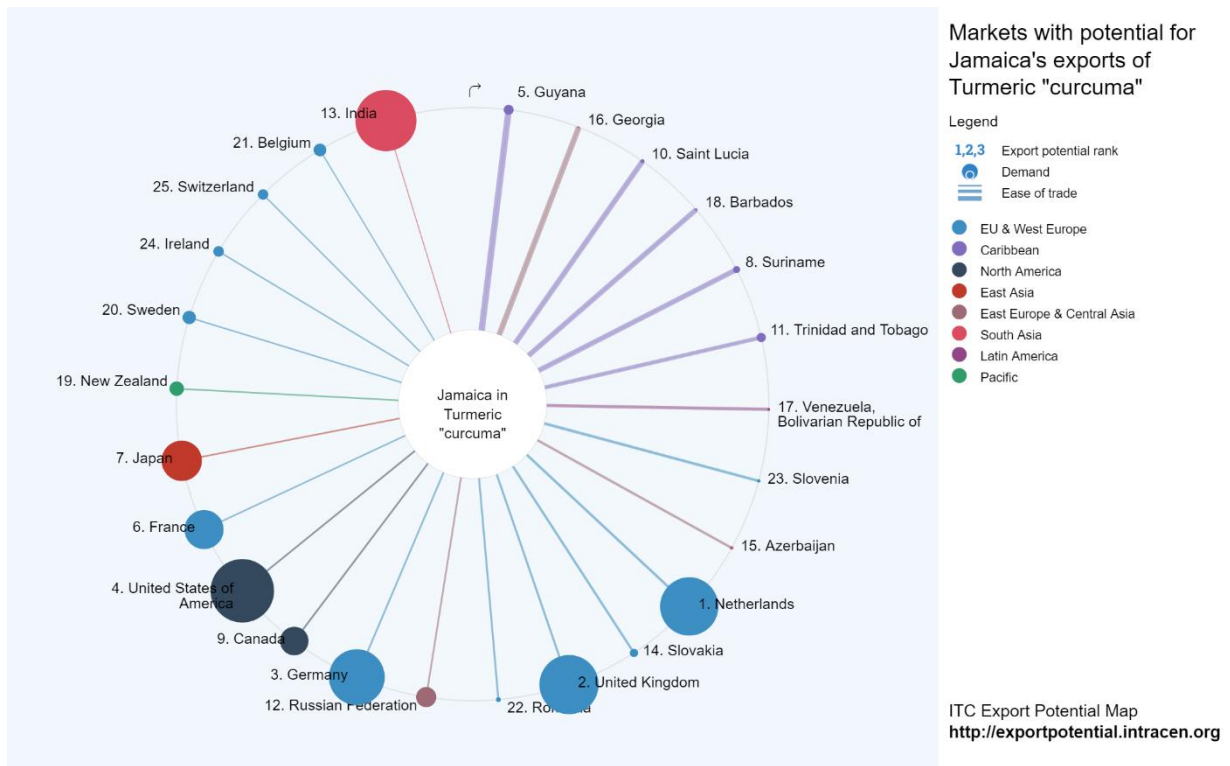
Figure 1: Markets with the Greatest Potential for Jamaica’s Exports of Turmeric



Source: ITC (2019)

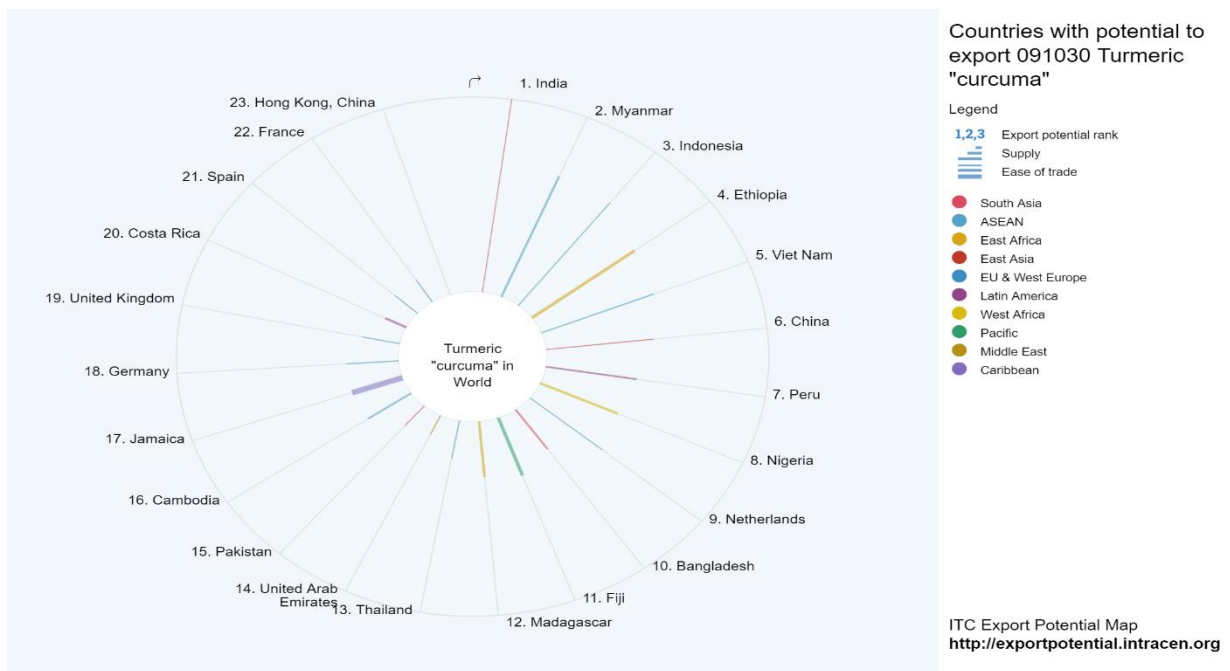
Figure 2: Markets with the Greatest Ease of Trade for Jamaica’s Exports of Turmeric

Based on data from the ITC (2019), Jamaica has closest export links with Guyana based on the Treaty of Chaguaramas.



Source: ITC (2019)

Figure 3: Countries with potential to export Turmeric to the World



Source: ITC (2019)

The United States of America is the market with the highest demand potential for 091030 Turmeric "curcuma" worldwide. For investors to successfully take advantage of this market it requires several key components: pricing to remain competitive and profitable, good sales and marketing strategy, using attractive packaging similar other exporting countries and having a nearly all year-round presence in the market.

With the U.S. representing a potential share of 100% of Jamaica's exports of Turmeric, U.S. Imports of Turmeric, Investors would face rigorous competition from India as they are the biggest exporter of Turmeric to the U.S. representing US\$ 22 million (ITC 2019). Jamaica ranks number 17 with the greatest potential to supply turmeric in the world out of a total of 23 countries.

**Standards:** Turmeric must be produced and handled under the necessary sanitary and hygienic processes. These sanitary and phytosanitary measures therefore requires pest and disease free Turmeric. Investors must ensure that Turmeric produced are of the highest quality. While wild harvesting is acceptable in some markets, in most target markets, turmeric is cultivated under controlled conditions, which meet and satisfy international requirements.

In the U.S., weighed samples are usually passed through a sieve (U.S. Standard No 8 or 9) with a white paper underneath to observe foreign matter, insects and mammalian excreta. Rhizomes are then examined for mold and defiling insects. Foreign matter is reported by count (insects) or by weight (FAO 2004).

Table 3: Cleanliness Specifications for Turmeric

Whole dead insects,	Excreta, Mammalian	Excreta, Other	Mold	Insect Defiled/Infested	Extraneous Matter	Foreign
by count	by mg/kg	by mg/kg %	by weight %	by weight %	by weight	
3	11.1	11.1	3	2.5	0.5	

\*extraneous matter includes but is not restricted to: stones, dirt, wire, string, stems, sticks, non-toxic foreign seeds, excreta, manure, and animal contamination

Source: FAO (2004)

## Tariffs applied by United States of America:

Table 4: Tariffs applied by the U.S to Jamaica

Product description	Tariff regime	Applied tariff (as reported)	Applied tariff (converted)	Total ad valorem equivalent tariff
Turmeric (curcuma)	MFN duties (Applied)	0	0	0

Source: ITC (MAcMap) 2018

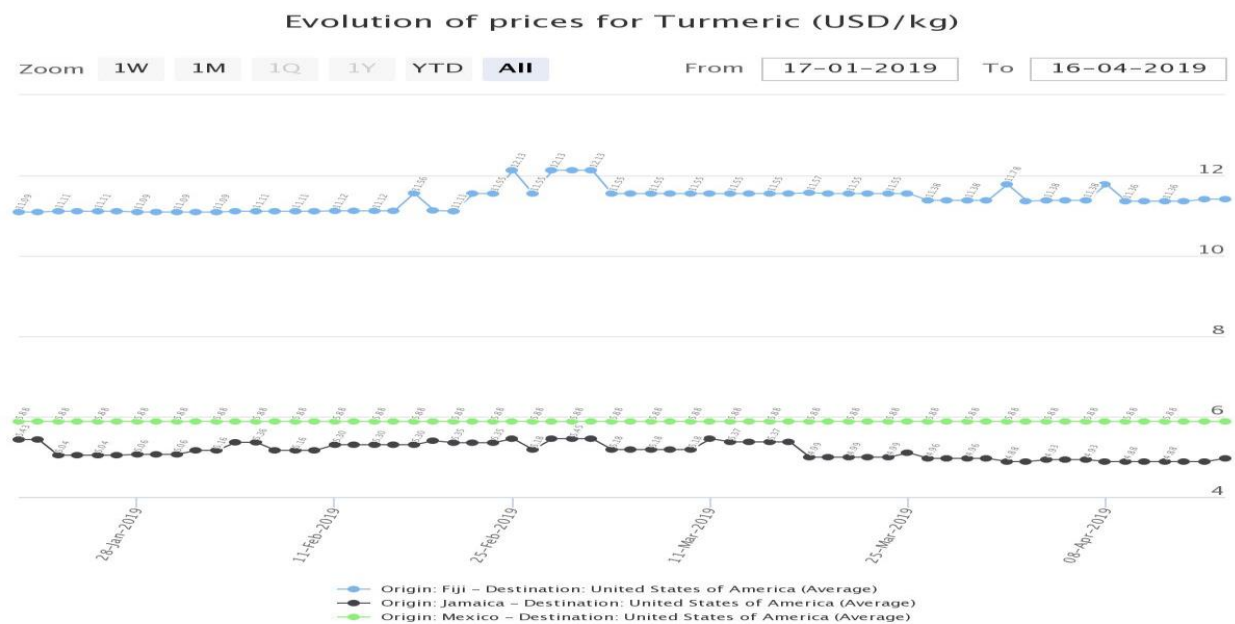
## Market Analysis

### Market Prices

According to MICAFA (2012), at 4% curcumin content, Jamaican turmeric is valued in the higher end of the turmeric trade and is particularly desired as a food additive and for curry manufacturing. In 2017, data from STATIN revealed that the average market price (export) for turmeric was sold at an average of 2.35 USD/kg with the lowest price being 1.46 USD/kg and highest at 4.28 USD/kg.

According to ITC (2019), the average retail price for turmeric in the U.S. is 7.42 USD/kg with the lowest price being 4.96 USD/kg and highest at 11.41 USD/kg.

Figure 4: Evolution of Prices for Turmeric



Source: ITC (2019)

## World Export Characteristics

India, Vietnam and Indonesia accounted for over 80% of the world's export of Turmeric in 2018. Jamaica accounted for 0.6% of the world export of Turmeric.

**Table 5: List of Top 14 Exporters of Turmeric in 2018**

Exporters	Value exported in 2018 (USD thousand)	Quantity exported in 2018	Quantity Unit	Share in world exports (%)	Concentration of importing countries	Ease of doing business ranking
World	337,665	172,796	Tons	100	0.09	
India	236,473	122,151	Tons	70	0.12	77
Viet Nam	23,391	15,962	Tons	6.9	0.86	69
Indonesia	12,958	9,541	Tons	3.8	0.68	73
Netherlands	8,966	2,873	Tons	2.7	0.11	36
Myanmar	6,416	4,841	Tons	1.9	0.53	171
Ethiopia	5,306	4,826	Tons	1.6	0.55	159
Germany	5,008	1,157	Tons	1.5	0.08	24
United Kingdom	4,568	748	Tons	1.4	0.11	9
Peru	3,142	1,510	Tons	0.9	0.21	68
United States of America	2,849	509	Tons	0.8	0.27	8
China	2,779	917	Tons	0.8	0.45	46
Fiji	2,116	981	Tons	0.6	0.91	101
France	2,061	291	Tons	0.6	0.18	32
Jamaica	1,901	754	Tons	0.6	0.91	75

Source: ITC (2019)

## Jamaica Exports to the World

The total exports of Turmeric for 2017 was 1,023,426kg and was valued at US\$1,766,815 with the U.S. being the largest importer of Turmeric from Jamaica. (See Table 6). The U.S. imported US\$1,749,522 worth of turmeric.

**Table 6: Jamaica's Export of Turmeric in 2017 (Preliminary)**

Kg	J\$	US\$	Country
9,227	1,878,272	14,683	Canada
436	151,628	1,184	Cayman Islands
7	3,888	30	Dominican Republic
954	178,197	1,395	United Kingdom

1,012,802	224,154,031	1,749,522	United States of America
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Source: STATIN (2017)

### World Import Characteristics

The turmeric trade is relatively concentrated, with seven countries accounting for 52.1% of imports. Major importers of Turmeric are India, U.S., Iran, U.K. and Morocco. These importing countries represent 44% of the turmeric world trade. India imports most of the world turmeric 15% share (US\$44,417) in word imports with the U.S. accounting for 13% share (US\$37,964) of the world imports.

Table 7: List of Top 10 importers of Turmeric in 2018

Importers	Value imported (USD thousand)	Quantity imported	Quantity Unit	Share in world imports (%)	Concentration of supplying countries	Ease of doing business ranking	Number of non-tariff requirements applied by the country
World	298,686	171,382	Tons	100	0.45		
India	44,417	31,393	Tons	14.9	0.31	77	26
United States of America	37,964	9,655	Tons	12.7	0.52	8	
Iran, Islamic Republic of	22,034	18,563	Tons	7.4	1	128	
United Kingdom	14,357	7,315	Tons	4.8	0.48	9	15
Morocco	12,894	9,723	Tons	4.3	0.94	60	16
Germany	12,212	4,530	Tons	4.1	0.4	24	15
Malaysia	11,694	7,962	Tons	3.9	0.76	15	
Japan	9,383	4,143	Tons	3.1	0.58	39	13
United Arab Emirates	9,017	6,931	Tons	3	0.99	11	25
Netherlands	8,427	3,852	Tons	2.8	0.48	36	15

Source: ITC (2019)

Table 8 below shows the total turmeric imports for the period of 2017. The total imports for this period was 358,610kg. Jamaica's largest import partner of Turmeric was the U.S. totaling US\$749,796.

**Table 8: Jamaica's Total Turmeric Imports in 2017**

kg	J\$	US\$	Country
5,204	2,648,768	20,702	Canada
77,468	17,425,937	136,259	China
50,000	10,533,278	81,170	Hong Kong (Special Administrative Region of China)
2,300	4,595,386	35,689	India
223,638	60,895,020	475,976	United States of America

Source: STATIN (2017)

### USA Imports from World

In 2018, The U.S. imported 9,655 tons of turmeric across the world which amounted to US\$37,964. A majority of the U.S's imports of turmeric come from India at 70.5% while Jamaica supplies the U.S. with Turmeric at a share of 4.8%.

**Table 9: List of Top 5 Countries that Exported turmeric to the U.S. in 2018**

Importers	Value imported in 2018 (USD thousand)	Share in United States of America's imports (%)	Quantity imported in 2018	Quantity unit
World	37,964	100	9,655	Tons
India	26,754	70.5	7,088	Tons
China	4,095	10.8	238	Tons
Fiji	2,421	6.4	874	Tons
Jamaica	1,815	4.8	741	Tons
Indonesia	614	1.6	197	Tons

Source: ITC (TradeMap) (2019)

## Financial Opportunities for Investment

**Table 10: Financial Opportunities for Investment in Agriculture in Jamaica**

Provider	Finance Type	Amount Lower Limit	Amount Upper Limit	Currency
Development Bank Of Ja Ltd	Grant	Not Specified	\$300,000.00	USD
Development Bank Of Ja Ltd	Loan Commercial	Not Specified	Not Specified	USD
Development Bank Of Ja Ltd	Loan Commercial	Not Specified	Not Specified	USD
First Global Bank Ltd	Loan Commercial	Not Specified	Not Specified	USD
U W I Credit Union Co-operative Society	Loan Commercial	Not Specified	Not Specified	USD
Inter-American Dev Bank	Equity	Not Specified	\$5,000,000.00	USD
Inter-American Dev Bank	Loan Commercial	Not Specified	\$5,000,000.00	USD
EXIM Bank	Loan Commercial	\$8,455.22	\$500,000.00	USD
St Catherine Co-Op Credit Union Ltd	Loan Commercial	Not Specified	\$200,000.00	USD
Access Financial Services Ltd	Loan Commercial	Not Specified	\$150,000.00	USD
Access Financial Services Ltd	Loan Commercial	\$30,000.00	Not Specified	USD
Access Financial Services Ltd	Loan Commercial	\$10,000.00	\$100,000.00	USD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$15,000,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$15,000,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$5,000,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$500,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$5,000,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$2,500,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	Not Specified	\$5,000,000.00	JMD
Development Bank Of Ja Ltd	Grant	Not Specified	\$300,000.00	JMD
Development Bank Of Ja Ltd	Loan Government	\$50,000,000.00	\$500,000,000.00	JMD
EXIM Bank	Loan Government	Not Specified	\$2,000,000.00	JMD
EXIM Bank	Loan Government	Not Specified	\$62,000.00	JMD
First Global Bank Ltd	Loan Commercial	Not Specified	\$30,000,000.00	JMD
National Commercial Bank Ja Ltd	Loan Commercial	Not Specified	\$30,000,000.00	JMD
National Commercial Bank Ja Ltd	Loan Commercial	Not Specified	\$7,500,000.00	JMD



National Commercial Bank Ja Ltd	Loan Commercial	Not Specified	\$5,000,000.00	JMD
JN Small Business Loans Ltd	Loan Commercial	Not Specified	\$5,000,000.00	JMD
JN Small Business Loans Ltd	Loan Commercial	\$30,000.00	\$1,000,000.00	JMD
JN Small Business Loans Ltd	Loan Commercial	Not Specified	\$150,000.00	JMD
JN Small Business Loans Ltd	Loan Commercial	\$30,000.00	\$1,000,000.00	JMD
JN Small Business Loans Ltd	Loan Commercial	\$1,000,000.00	\$5,000,000.00	JMD
Scotia Ja Microfinance Co Ltd	Loan Commercial	\$60,000.00	Not Specified	JMD
Access Financial Services Ltd	Loan Commercial	Not Specified	\$100,000.00	JMD
Access Financial Services Ltd	Loan Commercial	\$100,000.00	\$500,000.00	JMD
Access Financial Services Ltd	Loan Commercial	\$500,000.00	\$1,000,000.00	JMD
Access Financial Services Ltd	Loan Commercial	Not Specified	\$30,000.00	JMD
Bank Of Nova Scotia Ja Ltd The	Loan Commercial	Not Specified	\$500,000.00	JMD
Bank Of Nova Scotia Ja Ltd The	Loan Commercial	\$500,000.00	\$5,000,000.00	JMD

**Contact our Investment Team today for more information on available Investment Opportunities!**

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