



# CARROTS

## Market Opportunities

Carrots are used extensively in the Island, whether it be for use in local cuisine as well as in the production of many juices and pastries.

## Value Added Products

### Juices



### Pastries



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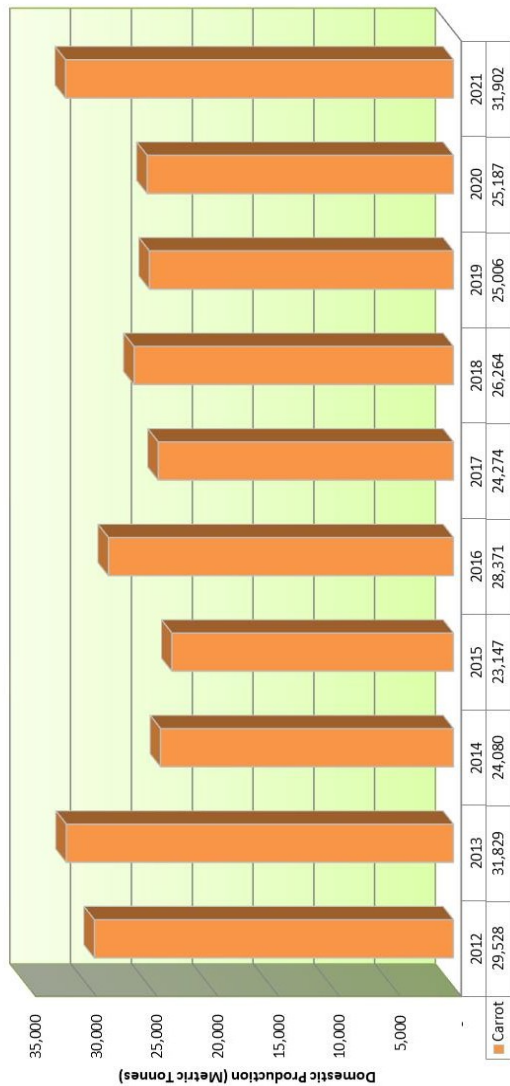
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Carrot Production, 2012-2021



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## Overview

Carrot is a traditional root vegetable produced in Jamaica. The crop is grown in all parishes. However, the parishes of Manchester, St. Ann, St. Elizabeth, Clarendon and Trelawny account for approximately 82% of domestic carrot production.

Approximately 31,902 metric tonnes of carrot was produced in Jamaica in 2021, the highest for the past decade.

The top five (5) carrot producing parishes for the year 2021 were as follows:

Parish	Tonnes
Manchester	10,226
St Ann	6,010
St Elizabeth	4,324
Clarendon	2,855
Trelawny	2,587

## Crop Profile

Locally grown carrot production fluctuated throughout the past decade. The average yield per hectare across the parishes for carrot in 2021 was 16 t/ha. The crop was sold at an average JM\$193.45 per kilogram at the farms.

## Growing Carrots

Carrots are best grown in sandy or loamy soils which have been deeply tilled. Stones and other obstructions should be removed from soil as these can result in irregularly shaped crops. Mulch can be added to the field to speed germination and retain moisture content within the soil. For optimal yields, at least one inch of water should be applied to field weekly.



## Comparison of Traditional and Improved Varieties

### Traditional Variety

*Danvers 126*



- \* Capable of high yields;
- \* Rich reddish colour;
- \* Tuber is short tapering, medium length;
- \* Susceptible to Long day drought-like conditions, thrives best when relatively large amount of moisture is present;
- \* Matures in 75-95 days.

### Improved Variety (Hybrid)

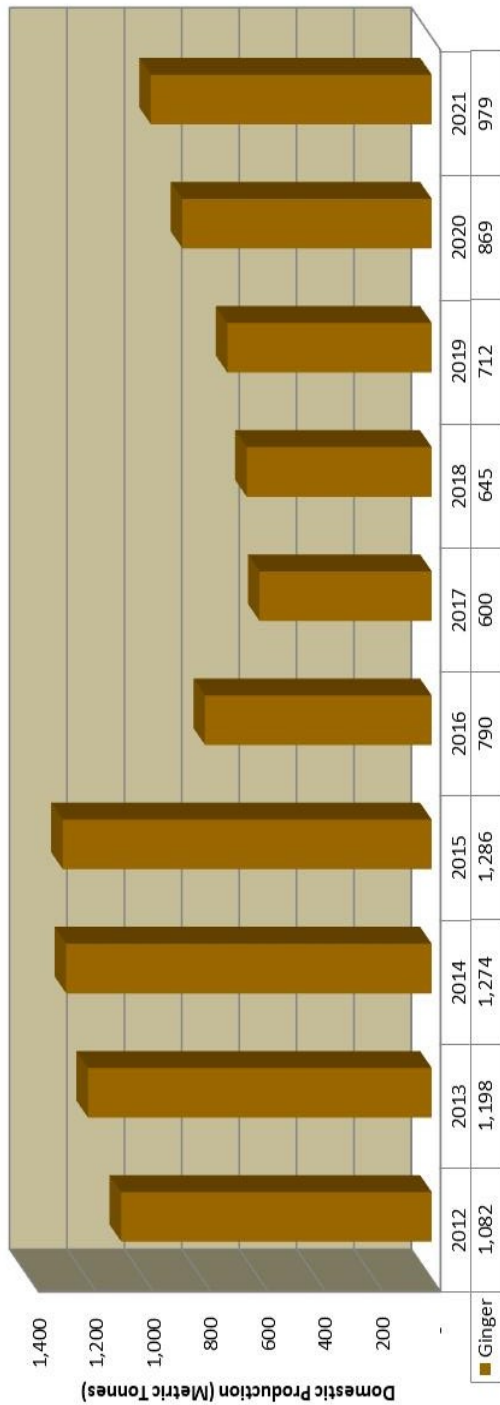
*EX4098*



- \* Much higher yields;
- \* Deep orange colour;
- \* Tubers have cylindrical roots with blunt tip;
- \* Improved strain which enhances the chances of survival under adverse conditions;
- \* Matures in 85-95 days.



## Ginger Production, 2012-2021



### Health Benefits

Ginger has been used to provide cold and flu relief. Ginger also helps to lower blood sugar levels and mitigate against the risk of heart disease.

### Value Added Products

Jamaican  
Ginger Extract



Jamaican  
Ginger Flavored  
Biscuit



# GINGER



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## Overview

Ginger is a perennial creeping plant, which produces pungent underground stems called rhizomes. Production in Jamaica has fallen significantly over the past millennium, cascading from being listed as one of the top three world producers of ginger between the 1930's and 1960's to being ranked as the world's twenty-fifth (25th) top producer in 2017.

The decline experienced in ginger production is directly attributed to the prevalence of the Ginger Rhizome Rot disease which severely impacts the plant. Contrary to popular beliefs, ginger is a true cultigen, meaning it does not grow in a wild state.



Approximately 979 metric tonnes of ginger was produced in Jamaica in 2021. The crop was sold at an average JMS\$419.50 per kilogram at the farms.

The top five (5) ginger producing parishes for the year 2021 were as follows:

Parish	Tonnes
Clarendon	231
St Elizabeth	152
St Ann	104
Manchester	96
Trelawny	80

## Crop Profile

**Family:** Zingiberaceae

**Specie:** Zingiber Officiale

**Planting Material:** Rhizome cuttings

**Soil type:** Well drained loamy

**Climate:** Tropical with both a wet rainy and a hot dry season.

**World average yield:** 8.17 t/ha. (dried)

**Jamaican yield:** Average dried yield has risen from a low of 2.74 t/ha in 2012 to a slight increase with 3.29 t/ha in 2021.

**Main Parishes:** Clarendon, St. Elizabeth and St. Ann were the top three (3) main producing parishes of ginger in 2021.

**International markets:** Japan, USA and Western Europe.

**Mainly affected by :** The Ginger Rhizome Rot.

### Disease: The Ginger Rhizome Rot

This disease affects all parts of the plant causing leaves to lose their naturally radiating green colour (turning yellow) and drooping. The plant eventually dries and falls over before reaping time resulting in lowered production. The disease is more destructive in wet conditions.

Due to the prevalence of the Rhizome rot disease in recent times, the Ministry launched a new thrust to propagate disease free planting materials through the practice of tissue culture that is expected to be more disease resistant and produce higher yields.



## Tissue Culture

The Scientific Research Council (SRC) is the main entity that commercially produces ginger tissue culture within the island. One hundred trays of cultured plants (termed G-zero) totaling 3,600 plants can produce the 2,024 lbs needed to entirely plant an entire acre of land.

The cultured tissue must undergo two distinct growing seasons before marketable yield is obtained. The first growing season results in rhizomes being produced by the plants, which will then be cut up and planted (termed G-one) in the second growing season. At the end of the second growing the crop (termed G-two at that point) is harvested.

### G-zero tissue cultured plants



### G-one cultured plants ready for rhizome production



## Onion Production, 2012-2021



## Average Prices of Onions

Imported onions are sold at both the supermarkets and parochial markets. Most of the onions consumed locally are imported, which is a direct result of the high cost of production associated with the cultivation of the condiment locally. The average farmgate price for onions in 2021 was approximately \$295.97 per kg.



## Investment Opportunities

There exists a constant market for onions as it is a major ingredient in many local cuisine. This in part is thanks to the emergence of the Micro Small Medium Enterprise (MSME) industry. The Ministry is promoting onions through the aforementioned Import substitution program as it has been noted the crop can be grown successfully in many parts of the island. Onion production can be profitable when suitable varieties along with adequate agricultural practices are employed.

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## Overview

Onions are believed to have been in production for over 5,000 years. They are best cultivated in fertile, well drained soils in raised beds. Onions are day length-sensitive crops meaning their production are dependent on the number hours of sunlight they receive each day . All cultivated varieties fall within the three day length sensitive classes: Long day (requiring a minimum of 14 hours of daylight), Intermediate (requiring 12-13 hours of daylight) and Short day (requiring 11-12 hours of daylight) .

## Production

In Jamaica, onions have always been grown on a limited scale. The production of onions, however, has seen a relative increase in recent years with the support of the Productivity Incentive Programme, which sees farmers being encouraged to produce more of the condiment through easier and free access to seeds, chemicals, fertilizers and other agricultural inputs. The highest production recorded in the last two decades (20 years) was that of 2021 when approximately 2,355 metric tonnes was reaped.

The top five (5) onion producing parishes for the year 2021 were as follows:

Parish	Tonnes
St. Thomas	763
St Elizabeth	672
St. Catherine	491
Clarendon	120
St Ann	103

## Crop Profile

**Family:** Allium

**Genus :** Cepa

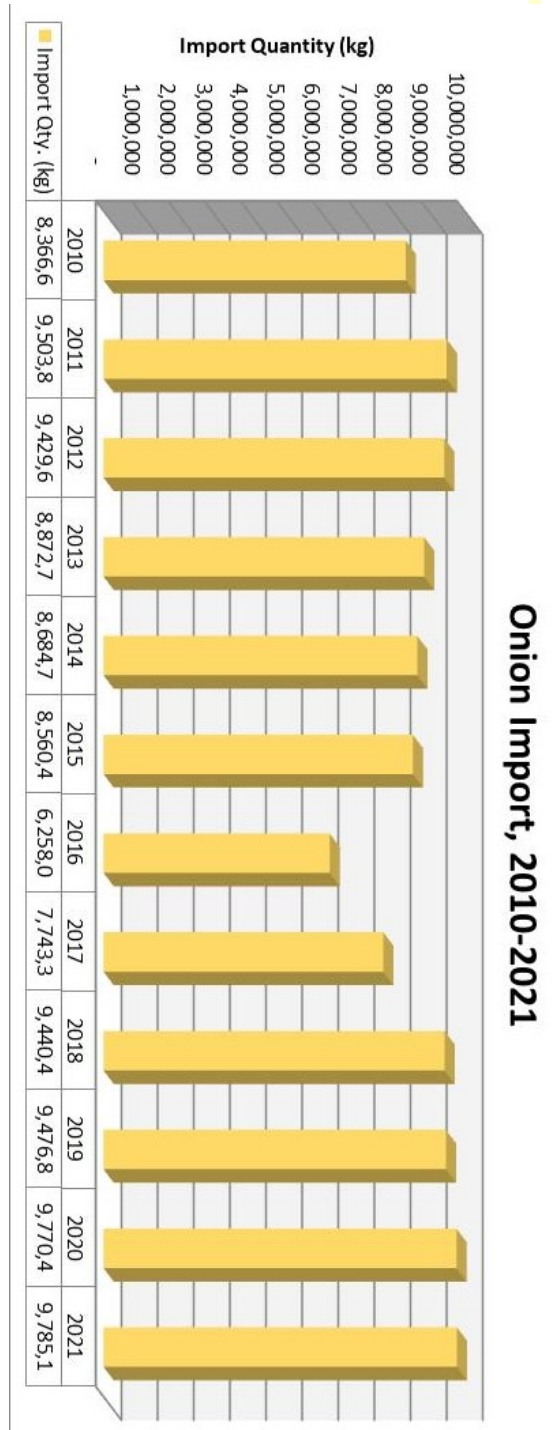
There are several varieties of onions. These vary in size, shape, color and levels of pungency. The main variety cultivated in Jamaica is the “Texas Early Grano 502” and more recently the high yielding hybrid variety “Mercedes.”



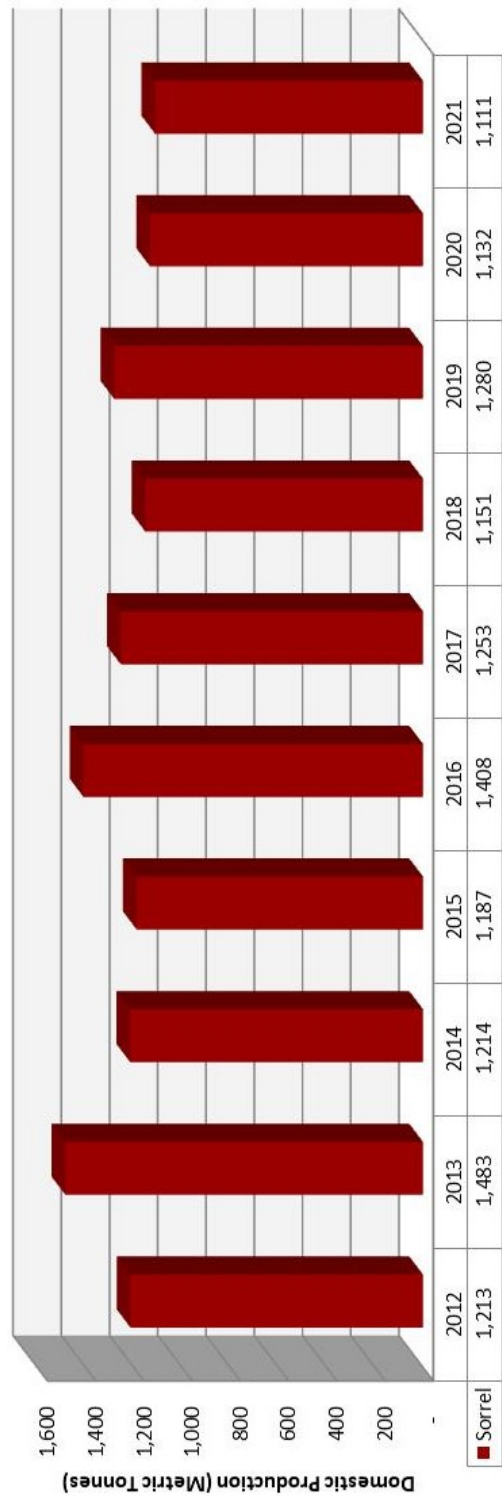
## Onion Import Statistics

High volumes of onions are still imported, although there exists the drive to reduce importation and promote local production. Onion imports peaked in 2003 when approximately 10,100t of the commodity was brought into the island, since then we have seen mild fluctuations in the quantity imported.

In excess of 80% of the onions consumed locally each year is imported with the majority being brought in from the Netherlands. The PIP continues to positively impact the production of onions island wide.



## Sorrel Production, 2012-2021



## MARKET

Due to the numerous health benefits of sorrel such as contributing to the proper functioning of the liver, kidney and bladder and its powerful taste. The fruit continuously fetches high prices each year. An average farmgate price of approximately \$357.69 per kg was recorded in 2021.

## VALUE ADDED PRODUCTS

### Tea bags



### Jams



### Beers



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# SORREL



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## OVERVIEW

Sorrel is a herbaceous annual plant that grows between 3-8 ft tall. It bears narrow leaves approximately, 3-5 inches long. Its upright reddish stems contribute to a solid, shrubby appearance. The flower petals are funnel shaped, typically pale yellow with deep red blotches, and grow up to about 5 inches wide. They are edible with a citrus like flavor. The flowers must be harvested quickly, as they only last a day on the plant. Once the petals fall off, the calyces enlarge and become crisp and juicy. The length of the sorrel pods range between 1 - 1.5 inches, with stubby, wine red flower buds. While several cultivars are planted throughout the island, the cultivar preferred by most farmers is the Traditional Red.

Sorrel grows best in free draining soil, with a pH of between 4.5 - 8. When planting sorrel, there are four major factors to consider. These are: Climate, Rainfall, Day length and Elevation.



## CROP PROFILE

**Family:** Malvaceae or Mallow

**Scientific name:** Hibiscus Sabdariffa

**Other names:** Roselle, Jamaican sorrel, Indian Sorrel, Queensland jelly plant, sour - sour, lemon bush and Florida cranberry.

**Uses:** Liquors ,Salads, Jellies, Jams, Sauces, Tarts, soups, Beverages, Chutneys, Pickles, Puddings, Syrups, and Wine.

**Cultivars :** Traditional Red, Manchester Black, White Sorrel, the three month hybrid termed “Bashment”.

**Major Producers:** St. Elizabeth, Clarendon, and Westmoreland accounted for approximately 55% of local production in the year 2021.

**Jamaican yield:** Average dried yield was 1.63 t/ha in 2021.

Although sorrel is a staple in most Jamaican households typically around the Christmas to new year period, demand for the fruit happens to be strong year round . This is especially true for the processing industry, which struggle to meet their market demand each year.



The Traditional Red, Manchester Black and white sorrels are typically planted in the late spring or mid summer months such as: May - August in order to meet the increased market demand around the festive period.

To meet this strong year-round demand, farmers are now shifting to the three month hybrid variety termed “Bashment”. This variety not only is ready for harvesting in half the time of the traditional varieties but it is also higher yielding (2.2 kg—2.5 kg per plant) when compared to the Manchester Black (1.2kg—1.5 kg per plant) and the Traditional Red (1kg per plant) varieties. This represent increases which can span up to 150% in harvest achieved compared to traditional varieties. This results in farmers being able to receive better harvests and year round production.





**Strawberry (Fresh) Imports to Jamaica, 2010-2021**



### Health Benefits

- ⇒ Good source of vitamin C, manganese, folate (vitamin B9), and potassium.
- ⇒ May decrease the risk associated with heart disease and cancer, as well as aid in the regulation of blood sugar.

### Value Added Products

#### Jamaican Strawberry Jam



#### Strawberry Syrup



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# STRAWBERRY



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## Overview

The cultivated **Strawberry** which belongs to the *Fragaria* genus is a succulent and fragrant accessory fruit, which is widely appreciated for its sweetness, juicy texture and its characteristic aroma. Cultivation began in the early 1700's in France and since then production has spread worldwide.



## Production

Strawberry production in Jamaica is mainly concentrated in the hilly terrains of St. Andrew, Manchester and more recently Portland, St. Ann and Trelawny. As only day neutral varieties are cultivated island wide, farmers enjoy year round harvests from each plant. The Festival variety is said to be able to produce fruit for eighteen (18) continuous months and the Albion variety for thirty-six (36) continuous months before the need to replant. However as a consequence of diminishing returns, plants are normally removed and replanted within a year of production.

The festival variety is high yielding and produces fruits with a deep red and a sweet taste, this variety is said to have originated from the University of Florida. A plant of the festival variety is expected to yield up to 2 lbs throughout its life cycle.

The Albion variety produces larger fruits when compared to the festival variety, however the level of sweetness is lowered. A plant of the Albion variety can produce an average of 2—3 lbs of fruits throughout its life span.



Propagation of the plant is primarily done through suckers called runners that are produced by mature bearing plants. These suckers are then potted and allowed to grow.

## Crop Profile

There are over 200 cultivars of strawberries grown worldwide. However the cultivars grown locally are the day neutral, high altitude loving varieties. The locally grown varieties are: Festival, Albion and the Seascape variety to a lesser extent. Strawberries require free draining soil (such as sand or gravel) and a constant supply of water to produce a quality harvest.

## How is it grown

Three (3) techniques are primarily employed in the production of strawberry across the island.

These are :

- ⇒ The use of irrigated raised beds on soil
- ⇒ Hydro-ponics with raised trays in greenhouses
- ⇒ Hydro-ponics with the aid of recycled tyres in greenhouses.

### Raised Bed Technique



### Hydro-ponic set up with elevated trays



### Hydro-ponic set up with elevated recycled tyres







# SWEET POTATO

Sweet Potato Production, 2012-2021



## Top 3 Major Export Markets

Canada
United Kingdom
Cayman Islands

## Value Added Products

### Candied Potatoes



### Puddings



### Vegan Burgers



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## Overview

Sweet potato has been a major staple of the Jamaican diet from as far back as the time of slavery. It is cultivated commercially by all parishes, with Manchester generally being the largest producer. However, in 2021 St. Elizabeth was the lead producer of sweet potato followed by Manchester. Kingston & St. Andrew produced the least sweet potato in 2021 with an estimated production of 345 metric tonnes. The crop is particularly loved for its many health benefits and high vitamin content.

Approximately 57,485 metric tonnes of sweet potato was produced in Jamaica in 2021, the highest for the past decade.

The top five (5) sweet potato producing parishes for the year 2021 were as follows:

Parish	Tonnes
St Elizabeth	17,343
Manchester	16,643
St Ann	7,109
Clarendon	5,882
Westmoreland	2,341

## Crop Profile

Sweet potato is grown year-round in moderate climates on a wide range of soil types. Various unidentified cultivars are grown, but preference is given by consumers to smooth red skin types with white flesh. Tubers may have smooth or irregular ribbed surface and the skin and flesh may range from pure white through cream, yellow, orange, pink, to very deep purple, depending on the amount of various carotenoid pigments. It is ranked in the top 6 most important foods in the world. The average yield per hectare across the parishes for sweet potato in 2021 was 17.38t/ha.



## Markets

The majority of the sweet potato produced in Jamaica is consumed locally, with supermarkets, parochial markets, shops, restaurants and hotels being the main outlets. Locally, it is consumed in several forms such as cooked, baked as a pudding, candied or imbibed as a punch. It's sweet flavour is enjoyed by all. The crop was sold at an average JM\$170.26 per kilogram at the farms.

## Export Markets

The major export destinations are Canada and the United Kingdom. These territories accounted for approximately 86% of domestic sweet potato exports in 2021 which was equivalent to in excess of JM\$481 million.

Sweet potato has the potential for expanding production in Jamaica. This is evident with the growing demand for sweet potato on the local and international markets. Currently, China is the world's largest consumer of sweet potatoes.

