Onion Production

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BACKGROUND OF PROBLEM

Onion (Allium Cepa) is thought to have originated in South-Western Asia, but is now grown throughout the world. The crop can be grown under a wide range of climates from **Temperate** to **Tropical**. Under normal conditions onion forms a bulb in the first season of growth and flowers in the second season. The production of the Onion bulb is highly dependent on daylength which varies from 11-16 Hrs. Only short and intermediate onions are grown in Jamaica, since the country's hours of daylight does not exceed 14 hrs. The onion crop flourishes in mild climates with little or adequate rainfall; however, adequate water and cool weather are considered beneficial for the establishment of onion within the initial growth phase. At minimum, the government of Jamaica is seeking to replace at least 70% of onion imports with local production over the long term, but in the near, to medium term 40% of current imports is being targeted. Onions produced in Jamaica is sold mainly on the local market with St. Elizabeth being the main producing parish. Onion, however, can be produced island-wide, but is mainly grown in St. Thomas, Clarendon, St. Catherine, Trelawney and St. Ann and of course St. Elizabeth. The Jamaican Onion market is faced with the following problems/challenges:

1. Meeting consumer demand for Jamaican onion
2. Improving industry competitiveness
3. Technology transfer to farmers for better production practices

With every challenge/ problem there exist an opportunity to provide a solution, therefore, let's explore in detail the **Business Prospects** relating to the production of Onions in Jamaica.

PROFILE OF THE ONION INDUSTRY

The onion is a relative of Escallion, Garlic, Leeks and Chives. The condiment is required in the fresh market as well as in the Agro–Processing Industry. The main varieties of onions produced in Jamaica include the Caballero and Orlando (mid-day onions) and the Texas Early Grano and Granex (short-day onions). The main bearing season is between April and September. Jamaica currently produces very little onions for domestic consumption, with

signs of decline going back as far as 1992 ***(please see figure 2 and 3).***

In fact, the island has been experiencing an import surge of the product for the past 15 years, due to reducing production rates. According to information on external trade, Jamaica imported approximately US$4.95M (J$496.2M) of onions in 2013 while local production was valued at over US$0.997M (J$99.74M). Jamaica imports nearly 89% of onions demanded locally and only produces about 11%. It is thus evident, based on the data presented, that there is a significant investment opportunity as it relates to onions in Jamaica.

WHEN TO PLANT ONIONS IN JAMAICA

In Jamaica Onions are classified in 3 categories: short, intermediate or long-day types. This classification reflects the hours of sunlight/daylight needed to trigger bulb formation. The information below depicts in detail the time of year most suitable for the planting of onions in Jamaica:

- The Short type needs less than 12 hours of daylight, the intermediate an average of 12-14 hrs., while, the long day types requires in excess of 14 hours of daylight for proper crop yield.
- Between the period of March 12 and September 26, the country's average hour's daylight is 12.7 and during this period the intermediate type if more suitable for production.
- The best production period for short-day onions are between September 27 and March 11, which presents a mean of 11.5 sunshine hours.

VARIETIES OF ONIONS IN JAMAICA

There are eight (8) different types of Onions produced locally. Below are a list of the varieties broken down into two groups based on the most suitable times for their production.

I. Best produced between Mid- October and December:
   1. Mercedes
   2. Arad
   3. Superex
   4. Grano

II. Best produced between the months of March and April:
   5. Orlando

6. Caballero
7. Yellow Granex Hybrid
8. Noam

CROP NUTRITION AND IRRIGATION

It is important that onions receive the necessary nutrients to enhance their growth/yield volume. The essential nutrients needed are nitrogen, phosphorus, potassium, sulphur, manganese, copper, and molybdenum. Prior to the application of fertilizers a soil analysis must be completed to determine soil texture, organic matter, soil compaction and nutrient availability. The Onion crop cycle is approximately 110 days and requires roughly 500,000 gallons of water to fully enhance growth and development per crop cycle. It is critical to avoid moisture stress at the stages of germination and bulbing; and a sprinkler, drip or furrow irrigation methods may be employed in the production of onion.

WEED CONTROL

In the production of onions it is critical to manage and control weed as onions are a slow-growing crop and cannot tolerate weeds at the early stages of development. The use of herbicides may be employed, and is considered effective against weeds whiles being safe for the onions. Additionally, the application of plastic or organic mulch, such as guinea grass is also helpful in the efforts of controlling weed.

HEALTH BENEFITS OF ONIONS

In a time where people are becoming more health conscious; onions presents a great opportunity to tap into the health industry, as they are great at providing the following health benefits:

- Consuming **onions** supplies your **body** with soluble fiber and flavonoids, antioxidant compounds that fight free radicals
- Flavonoids from onions assist in thinning the blood
- Decrease inflammation

- Fighting cancer.

OPPORTUNITIES

The Government's thrust to decrease onion imports creates a lucrative opportunity for production on the local market. Based on a local requirement of an average 10.0 million kg of onion per year with a value of approximately US$4 million, there is a significant market opportunity. Since almost all of this quantity is imported some of the major importers have indicated their interest in utilizing Jamaican produced onions whilst supplies are constant and of good quality. Additionally, investing in Onions, also present the following opportunities to an investor:

- A very lucrative Business/product
- Local demand is High
- Local Production of Onions are low
- Quicker access to local markets in comparison to importers
- The drying, curing and bagging end of the value chain also present investment opportunities.
- Short production period

CHALLENGES

- Local production is inadequate to meet local demands
- Local production is not constant
- Currently, local produce are not of the best quality
- Onion production requires 11-16 hour of daylenght
- Exports of Onions are Low

Grading Specifications for Onions

According to the Ministry of Agriculture, the standard/quality of onions in based on colour, firmness, shape, dryness, maturity, level of pungency. They should also be free from neck and scale greening, decay, bruises, sprouts, root growth, diseases and other defects
The minimum requirements presented for Onions is that they should be of similar characteristics, clean, mature, firm, dry cured, and free from diseases. The table below

further outlines the different characteristics as well as the grading level of each.

Characteristics	Grade 1	Grade 2	Grade 3
Size: Jumbo Medium Small	> 60mm (> 21/2 inches) in diameter. 45 to 60mm (2 to 21/2 inches) in diameter. 35 to 40mm in diameter.	> 60mm (> 21/2 inches) in diameter. 45 to 60mm (2 to 21/2 inches) in diameter. 35 to 40mm in diameter.	> 60mm (> 21/2 inches) in diameter. 45 to 60mm (2 to 21/2 inches) in diameter. 35 to 40mm in diameter.
Firmness	Onion is firm and does not yield to pressure.	Onion may yield to Moderate pressure.	Onion yield to slight pressure.
Appearance	Well trimmed. Completely free from decay, damage, loose scales, bottled neck, watery scales, blemish, sprout, root growth, doubles and any other defects.	Fairly well trimmed. Completely free from decay, damage, bottled neck, watery scales, sprout, root growth, any other defects. Blemish should not exceed more than 5% of the surface area.	Fairly well trimmed. Completely free from decay, sprout and serious damage. Blemish should not exceed more than 10% of the surface area.
Colour	Uniform colour, typical of the variety.	Uniform colour, typical f the variety.	Uniform colour, typical of the variety.
Shape	Well shaped, typical of the variety. Not lopsided or otherwise deformed	Fairly well shaped, typical of the variety. Not lopsided or otherwise deformed	A range of shapes within the variety.
Storage Temperature	10°C to 18°C (65 to 70% Relative humidity) between 1 to 8 months		

Source: Ministry of Agriculture and Fisheries Grading manual February 2018

MAIN FORMS OF IMPORTED ONION

- Onions fresh or chilled.
- Onions shredded or powdered
- Onions naturally dried

WHERE ARE our ONIONS FROM?

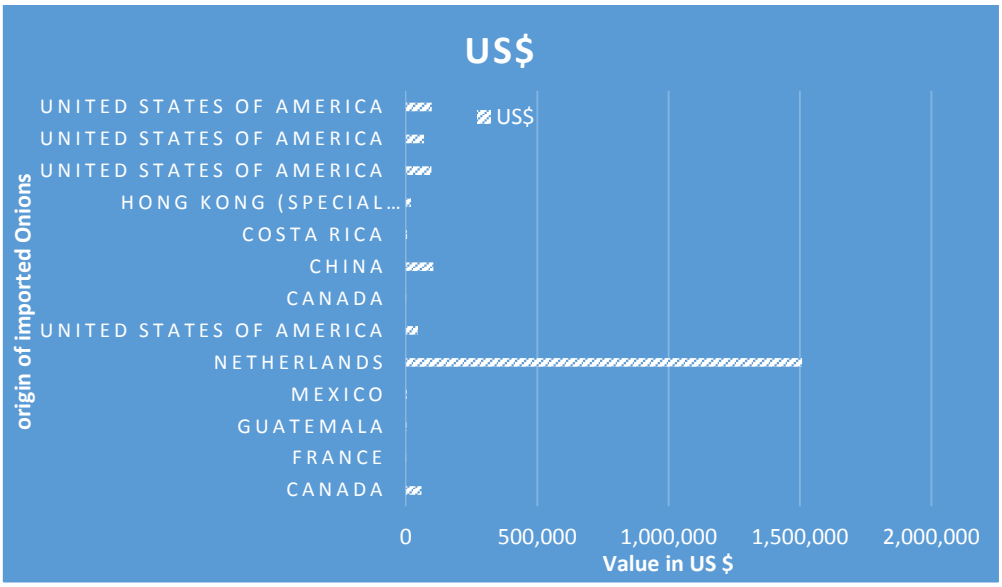
Onions are normally imported from the following countries:

Belize	Mexico
Canada	United Kingdom
China	France
Netherlands	Guatemala
Panama	Costa Rica
United States of America	India

MAIN ONION IMPORTERS FOR THE PERIOD JANUARY- OCTOBER 2017

During the period January- October 2017, the following countries were listed as the main importers of onions to Jamaica

Figure 1.



Based on the data presented it is evident that Jamaica's importation of onion is considerable higher than its current export volume

MAIN COUNTRIES OF EXPORT

Jamaica mainly export onions to the following countries:

- Canada
- St. Marten (Dutch Part)
- United States of America

Assuming all imported onions are consumed or fully utilized, it is safe to assume based on the presented data that the current market demand for onions locally is valued at **US$2,011,328.00, or JM$258,303,535.00**

Figure 2. ONION IMPORTS OVER 5 YEARS

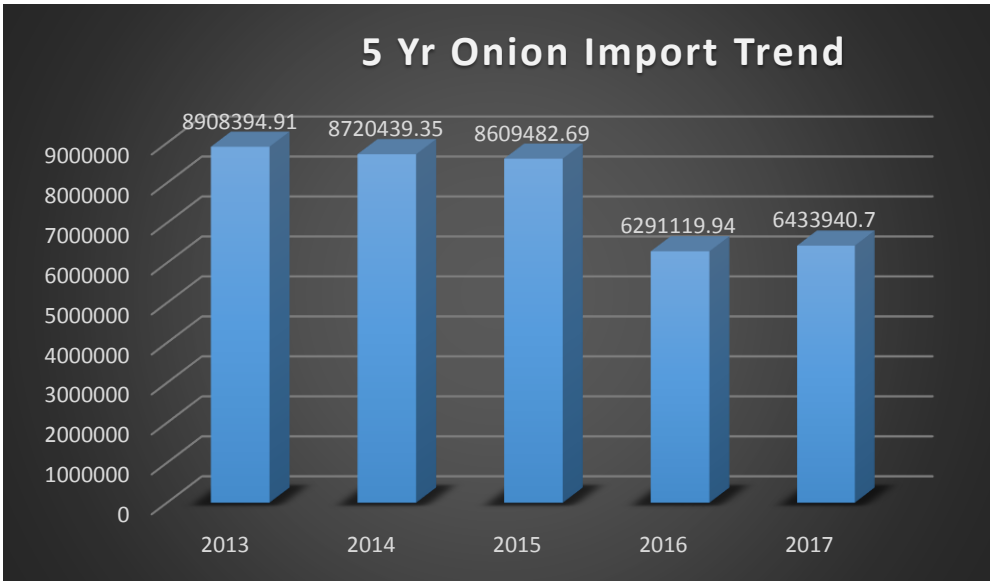


Figure 3. ONION EXPORT OVER 5 YEARS

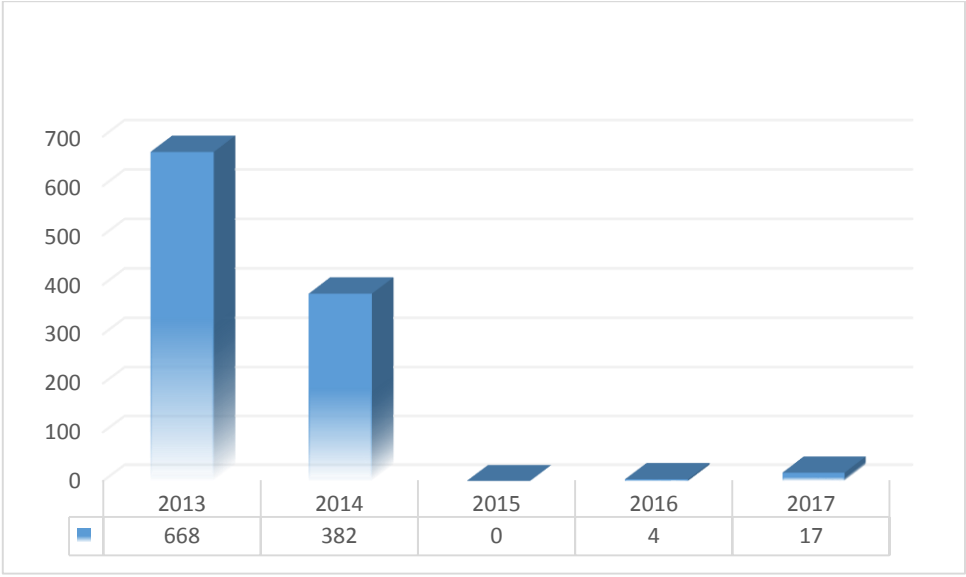
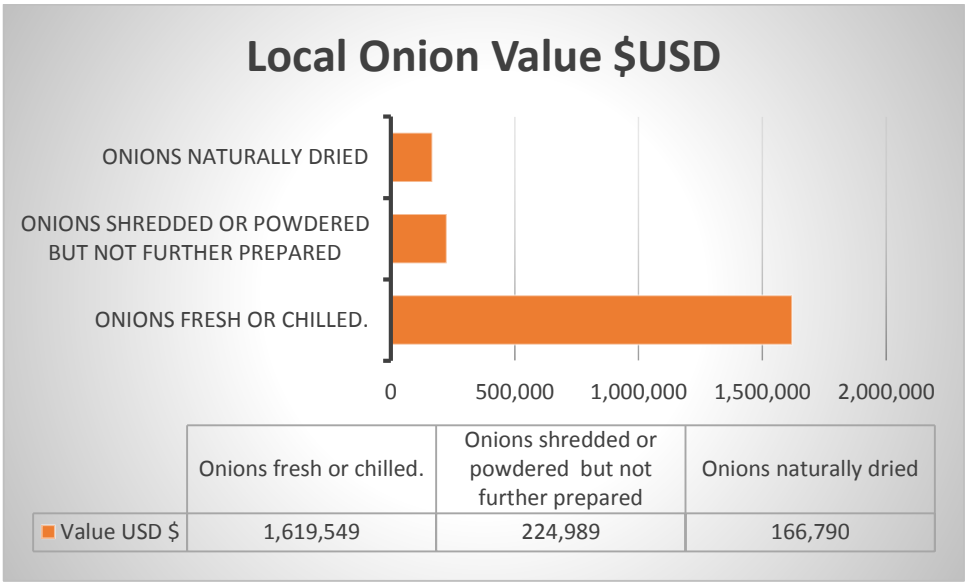


Figure 4. Value of Onions Locally



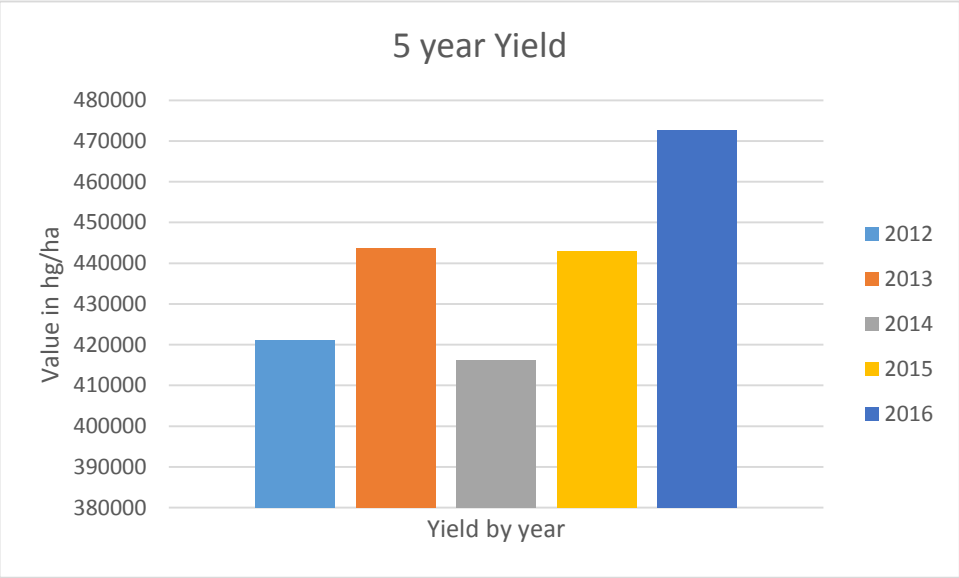
INVESTMENT REQUIRED

The estimated capital expenditure and working capital required to fully establish a 5 acre plot to participate in an integrated onion subsector contributing positively to GDP and where maximum value is achieved **US$25,613.00** (**J$3.23M**) in capital expense and working capital.

Crop	**ONION**
Crop Maturity	4 Months
Reaping Period	1 Month
Planting Distance in cm (l x w)	.3 x 30
Planting Density @ 0.4 hectare	145200
Terrain	Relatively Flat Land Farm
Land Preparation	Mechanical
Irrigated/Rain fed	Fertigation
Area	0.4 hectare
Man-day Charge (excluding lunch)	$1,500
Projected Marketable Yield (Kg)	9,091
Cost of Production $/Kg	$71

Source: MOA cost of production estimates 2013

Figure 5

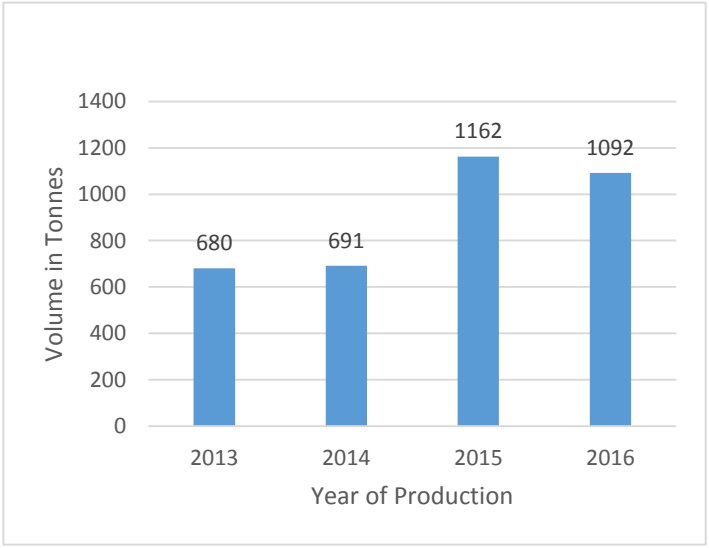


WORLD PRODUCTION OF ONIONS

ONION CONSUMPTION IN THE UNITED STATES

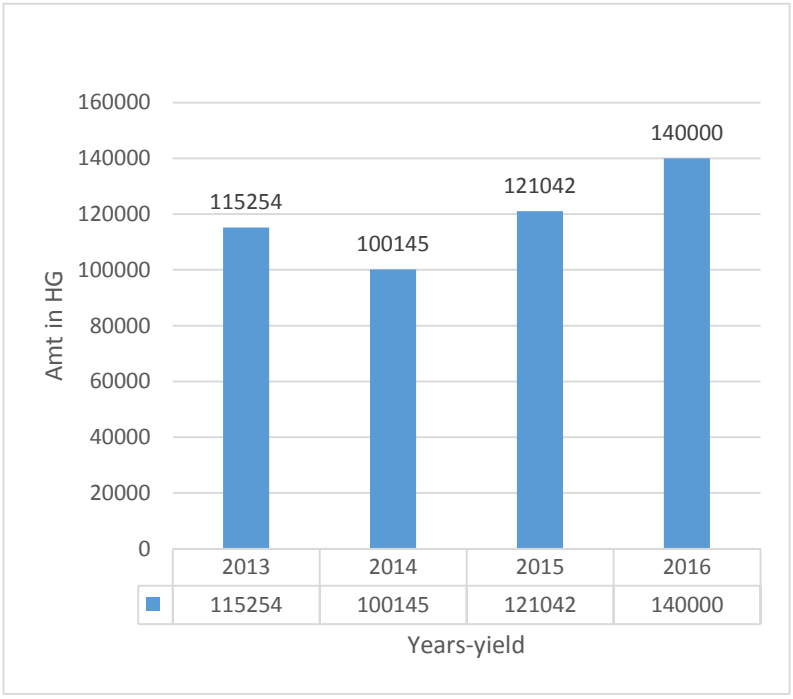
According to the Agricultural Marketing Resource Centre, Onions are the fourth mostly consumed fresh vegetable in the United States. In 2016, the utilization per person was estimated at 20.3 pound per person annually. 93 % of the onion consumed in United States was in its fresh state. The market value for Fresh produce was estimated at $968.18 million while the processing value was $73 million.

Onion Production (2013-2016) **(Figure 6)**



**** data extracted from FAOSTAT February 2018**

Onion Yield (2013-2016) **(Figure 7)**



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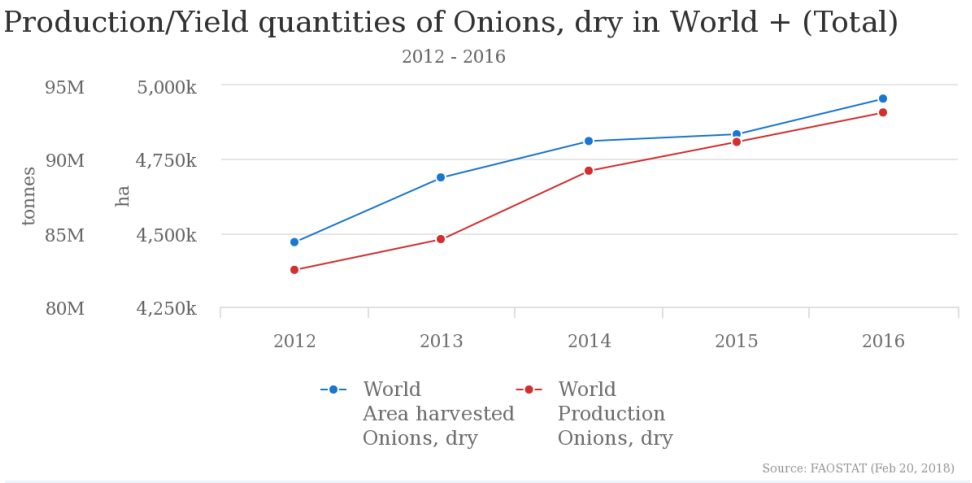
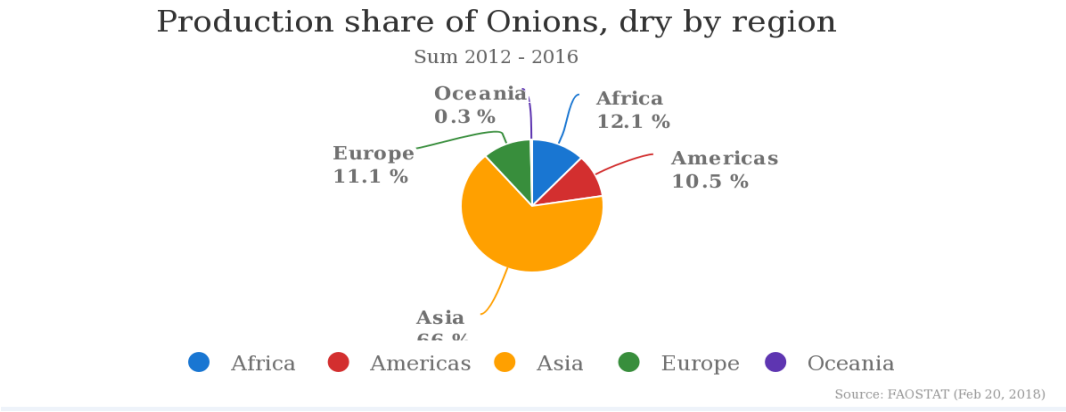
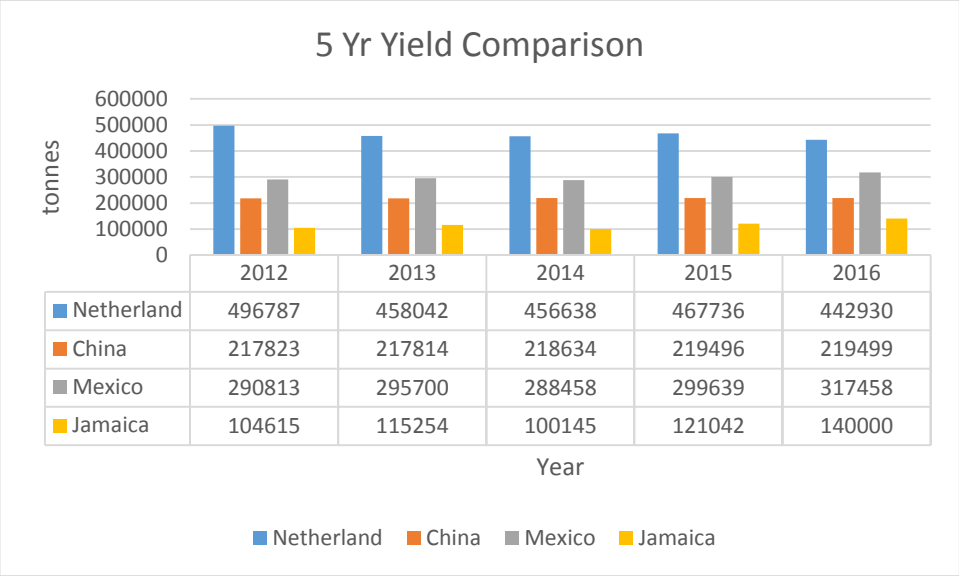




The figure below shows the 5 year comparison between Jamaica and its top onion importers



SOLUTION

It is estimated that Jamaica consumes about 10 million kilograms of Onions annually, however, when compared with local production the problem is quite alarming. Jamaica should in the near to medium term, concentrate its efforts on increasing local production and quality through increased land availability and improved production techniques. The country currently seeks to align itself with the shift in policy presented by the government and the insistence that we as a people should strive for self-sustainability, by "**growing what we eat and eating what we grow"**.

There are currently 5 Agro- Parks which are under the management of Agro-Investment Corporation**.** The Agro- Parks plays a critical role in the effort of Self-Sustainability as, they have the proper infrastructure in place, which includes Irrigation, Technical Support, and linkages through Public Private Partnership which provides farmers on the Agro Park with securing post harvesting, processing, packaging and distribution facilities etc.

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