In Focus

The development of the cassava industry can assist the region in meeting its food security and nutrition targets.

The crop can thrive on nutrient poor soils and hot, dry conditions making it an ideal crop for farmers to adapt to climate change.

Its roots are a rich source of dietary energy and micronutrients.

Cassava has enormous commercial potential. The products can become significant income earners and raise the standard of living of people involved in the industry.

Cassava (Manihot esculenta), also known as yucca, manioc and tapioca, is one of the most popularly cultivated root crop in the Caribbean. Production is done mainly by small farmers, a few of whom have shifted to mechanization. In Dominica, however, the crop is cultivated on a small scale using traditional methods.

CARICOM governments have identified the development of the cassava industry as an opportunity to effectively respond to the region’s food security and nutrition challenges. While the crop is not widely traded within the region or with international trading partners, the development of the cassava industry presents tremendous opportunities to Dominican and other Caribbean stakeholders.

About the plant

Cassava belongs to the Euphorbiaceae family. It is a perennial, woody shrub which grows from 1 m to 5 m in height. Depending on the variety, the tubers (roots) are ready for harvesting in 8 to 14 months but can remain in the soil for up to two years. In the Caribbean, the plant is grown mainly for human consumption of its starchy roots.

Unlike most tropical crops, cassava can thrive and still produce reasonable yields on nutrient poor soils with little or no inputs. However, research has shown that by adopting good agricultural practices, optimal yields are attainable.

Cassava can also tolerate drought conditions, making it an ideal crop to grow in the Caribbean’s changing climate. Among the major staples, cultivated cassava is found to be the least sensitive to climate change and can withstand natural disasters such as hurricanes as its storage roots are underground. Cassava cannot tolerate waterlogged conditions for more than a few days. Cassava production also has a lower carbon footprint when compared to other crops.
Cassava varieties

Cassava varieties are classified as ‘bitter’ or ‘sweet’ depending on the levels of hydrogen cyanide (HCN) they produce. The ‘bitter’ varieties have a glucoside content > 100 mg/kg fresh weight whereas the ‘sweet’ varieties have a glucoside content < 100 mg/kg fresh weight (Alves, 2002).

Both sweet and bitter varieties are cultivated in Dominica. Over six local varieties are available for cultivation and can be obtained from other farmers and the Ministry of Blue and Green Economy, Agriculture and National Food Security (MoBGEANFS). Four improved, high yielding varieties (CM 3306-4; CM 3064-4; CM 6119-5; and COL 1522) obtained from the International Centre for Tropical Agriculture (CIAT) are being evaluated by the Caribbean Agricultural Research and Development Institute (CARDI) and the MoBGEANFS. Once completed, the better adapted varieties will be added to the existing gene pool.

Nutritional value

Cassava roots have a high starch content making them a rich source of dietary energy.

Nutritionally, the roots contain significant amounts of vitamin C, thiamine, riboflavin and niacin. They are also a good source of calcium, iron, potassium, magnesium, copper, zinc and manganese. Their content is comparable to many legumes.

Cassava is also gluten free, making it an ideal food for persons with celiac disease and gluten intolerance.

Cassava industry development

Ford (2015) estimates that cassava could reduce the region’s food import bill by ten per cent. Cassava has the potential to substitute for a significant proportion of CARICOM’s imports of intermediate inputs used in food manufacturing such as corn (for animal feed), wheat (consumer food applications) and malt (for brewing), among other uses.

Across the Caribbean, cassava continues to be used in traditional cooking. In terms of value-added product development, this multipurpose crop can be processed into flour, breads, pancake mixes, drinks, cereals, and a range of sweet and savoury snacks. The leaves, roots and stems can also be processed into pellets, chips and meal and used as animal feed.

The growing global $12.9 billion plant-based food market provides a massive opportunity for cassava-based food products (Ewing-Chow, 2019). With the rise in gastronomy tourism, and more tourists seeking out immersive experiences, the development of a ‘farm to fork’ enterprise is a worthwhile venture.

Industrially, starch and bioethanol can be derived from the cassava plant and with Dominica’s thrust to become the first climate resilient country, these can present significant opportunities. Starch is used in the agri-foods industry as a binding agent in food and beverage applications, to treat water, and to produce paper, textiles and bioplastics.

Value-added product development gives rise to several agro-based enterprises that have the potential to become significant income earners and raise the standard of living of people involved in the industry.

References

