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MINISTRY OF AGRICULTURE, LAND AND FISHERIES

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Cassava Varieties for Various Uses

There are several varieties of cassava available to the farmer in Trinidad and Tobago. The variety selected for planting should match the requirements of the intended market.

Unfortunately, farmers are often unaware of some of the most important characteristics of the tubers, thereby limiting the potential to choose the best varieties for their purpose. The Ministry of Agriculture, Land and Fisheries (MALF) has introduced and assessed eleven (11) new varieties of cassava for chemical composition such as starch, protein, fat and fibre content. Field trials were conducted with three of the most promising varieties to assess the yield, pest and disease tolerance, fertiliser response and keeping quality.

Cassava for Fresh Market

The fresh markets are usually frequented by householders. This market wants a slender tuber with loose skin that boils easily and keeps its shape after boiling. Ideally, the tubers should have a shelf life of at least one week.

Peeled cassava

KEY POINTS

- In Trinidad and Tobago several varieties of cassava are available to farmers.
- Selection of varieties with key characteristics for planting, should be oriented to the intended market – the fresh market, export market or for processors.
- Yield, resistance to disease and pests are some considerations for choice of plant variety.
- Key processing needs are: production of cassava flour, to produce high-starch commodities and to produce frozen cassava logs or fries.

Slender tubers popular with consumers

Most of the cassava varieties grown in Trinidad and Tobago possess these characteristics, so a producer needs to look at the agronomic characteristics of the varieties when planting for this market. The farmer would require a high yielding variety that can remain unharvested for several weeks without losing quality and is tolerant to the most common pests and diseases: in a nutshell, a perfect cassava, which of course does not exist.

The two high yielding varieties CM 3306-4 and CM 523-7 should be considered for the fresh market. In trials conducted by the Research Division MALF CM 3306-4 yielded 56 tons/ha and CM 523-7 52 ton/ha. In comparison the popular MMEX variety yielded 33 tons/ha. When selling for the fresh market there is no value added component so the farmer has to rely on quantity to maximize profit. The more productive a variety the more lucrative it is.

If planting cassava for a processor, it is critical that both farmer and processor agree in advance which varieties are to be planted, to avoid unpleasant surprises at harvest time.

Cassava for Processing

Flour and Farine

Cassava flour is high in carbohydrates, especially starch. However, the consumer may also want a flour that has more nutrients than merely carbohydrates. Based on laboratory tests, the variety MCOL 1505 was among the top five in carbohydrate, fat and starch content of flours analysed. It however was among the last three in terms of protein content.

Cassava flour

Processors who use cassava flour for meals aimed at weight loss would be more interested in the highest protein flour, produced by variety CM 6119-5. The variety HMC 1 was amongst the top five in protein and fat but came in at 10 out of 16 for carbohydrates and starch.

It is important to note that the terms high protein or low carbohydrate are relative, as cassava is inherently a high carbohydrate, low protein food.

The same characteristics will make a variety suitable for processing into Farine.

Starch

The flour with the highest starch content was produced using the variety CM 2776-5.

This is a desirable option for those who are processing cassava to produce tapioca and other starch-based commodities.

Cassava starch

Syrup

The most common syrup made from cassava is cassareep. The cassava is grated and squeezed to extract the juices which are boiled and allowed to concentrate and caramelize. To get the best product, a variety high in sugar such as CM 2772-3 is preferred. This variety has the highest sugar content of any of the varieties analysed, so it is the best choice to plant to process into syrup.

Freezing

One of the more common methods of processing cassava, is freezing as French fries or as logs. The best variety for this is a high starch variety that contains more amylopectin than amylase, as amylase can cause grittiness when the frozen product thaws.

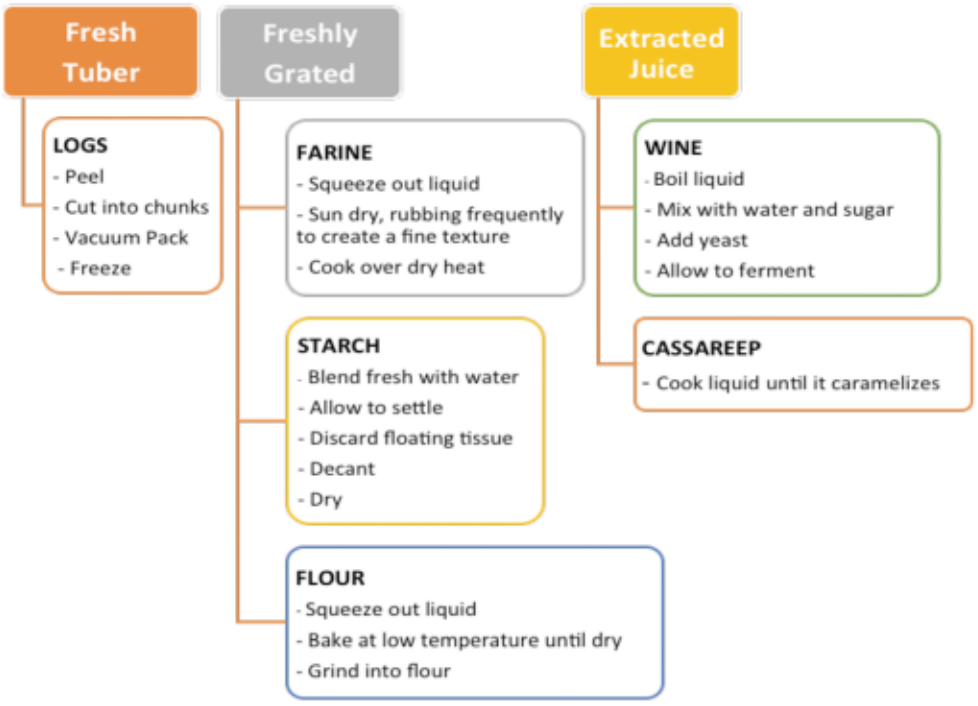
CM 2776-5 has the highest starch content of all the varieties and the second highest amylopectin level. Variety CG 1450-4 had the highest level of amylopectin and a fairly high overall level of starch, so this is also a good choice for processing into logs or fries.

Frozen Cassava Logs

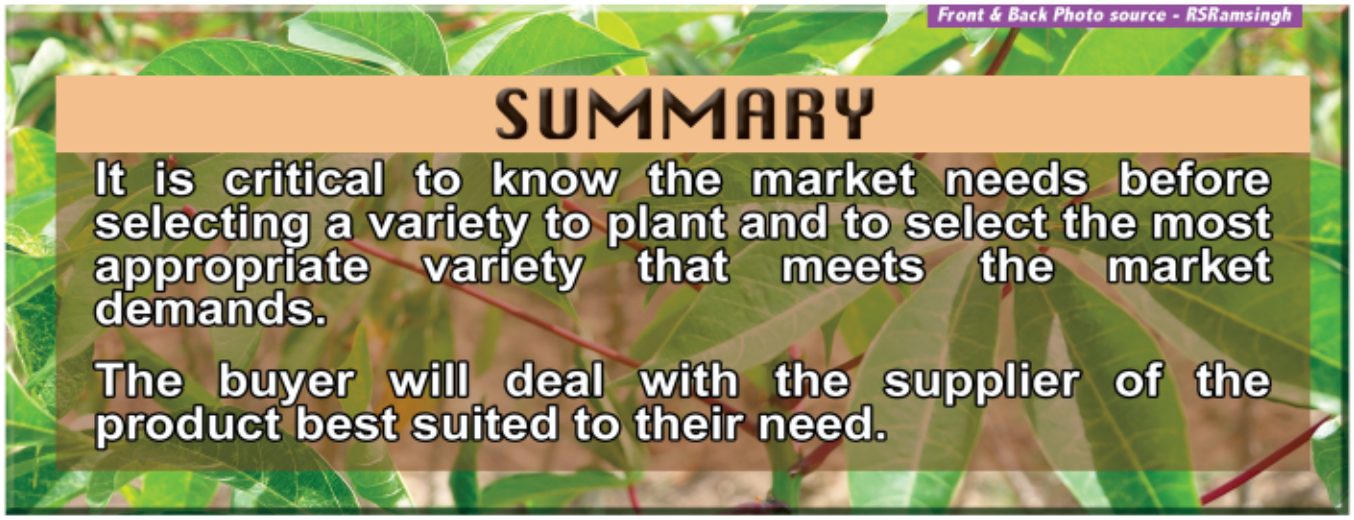
Proximate Analysis of Cassava Flour

Source Research Division MALF 2019

VARIETY	CARBOHYDRATE g/Kg DB	PROTEIN g/Kg DB	TOTAL SUGAR g/Kg DB	STARCH		
				TOTAL STARCH g/Kg DB	% AMYLOSE	% AMYLOECTIN
CM6119-5	839	31	53	775	31	69
CM 523-7	856	8	30	822	35	65
MCOL 2215	850	29	34	806	35	65
CM 3306-4	850	10	32	804	37	63
CG 1450-4	848	18	13	826	31	69
MBRA 383	848	19	48	798	37	63
CM 2776-5	897	4	10	874	35	65
MPER 183	842	8	14	812	41	59
CM 2772-03	821	18	57	751	36	64
MCOL 1505	881	6	40	829	42	58
HMC 1	838	22	20	811	38	62
MMEX	868	4	30	831	33	67
CIAT	828	20	11	808	53	47
MCOL 22	876	16	33	835	39	61
YUCA	858	17	18	823	39	61
BLACK STICK	863	14	16	839	67	33



Techniques used to produce value added products from cassava



References

1) Science Direct. 2021. In: Science Direct [online]. [Cited 26 March 2021]. https://www.sciencedirect.com/topics/food-science/starch-retrogradation
2) Singh, R. P. and Anderson, B. A. 2004. The major types of food spoilage: An overview. In: R. Steele, Ed., Understanding and measuring the shelf-life of food. CRC Press, Boca Raton, pgs. 3-23. doi:10.1533/9781855739024.1.3

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