

The Antigua Black Pineapple

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History of the Antigua Black Pineapple

- Originated in South and Central America
- Due its adaptability to the drought-prone island, was identified as a crop for diversification of the agricultural sector in the 1980's.
- Cades Bay Agricultural Station was established with the aim of producing the crop commercially .
 - Over 20 acres of pineapple were under production during its peak in the late 1980's to early 1990's
 - Was a key source of planting material to farmers



Key attributes of the Antigua Black Pineapple

- Has characteristics of both the Queen (Morphological) and Pernambuco (Genetic) group of Pineapples
- Hardy fruit with small predominant (deep) eyes
- Yellow flesh when ripe; pleasant aroma
- Inner core is edible: usually soft and sweet
- Smaller than other popular varieties (Weight inclusive of crown ranges from 0.76- 0.89kg)
- Mostly grown in the southern parts of the island
- Marketed as the world's sweetest pineapple; largely sought after by visitors to the island
- National fruit: part of the Coat of arms



Status of research work and Constraints to production

Research work on the Antigua Black Pineapple is limited and outdated:

- Siroy, Marie-Aude. 1996. *Development of pineapple in Antigua; Optimization of a rapid multiplication technique*. IICA Office in Trinidad and Tobago
- Glennie, John. 1982. *Antigua Pineapple cultivation and processing*. Industrial Development Unit, Commonwealth Fund for Technical Cooperation Commonwealth Secretariat, Marlborough House, London SW1.
- Robin, G., Pilgrim, R., Jones, S., Etienne, D. 2011. *Caribbean Pineapple Production and Post Harvest Manual*. Food and Agricultural Organisation, Caribbean Agricultural Research and Development Institute.

Major constraints to production:

- Lack of clean planting material
- Pest and disease (Pineapple Mealy Bug Wilt)
- Limited number of farms under commercial production

An Evaluation of the Characteristics of the Antigua Black Pineapple

- **Objective:**

- To analyse the key external and internal characteristics of the Antigua Black Pineapple as outlined in output 4 in the Stepwise approach to reach the Geographical Indication recognition and start its implementation under the project TCP/ANT/3702C1 - Acquisition of Intellectual Property Rights utilizing Geographical Indications for selected crops.

Methodology



Sample selection and collection

During July to August 2021, 120 fruits at four (4) stages of maturity were harvested from Claremont Farms, Old Road, Antigua.

- Index 3 (Mature fruit, few eyes at the base of the fruit are yellow)
- Index 4 (25% of eyes at the base are yellow)
- Index 5 (50% of eyes at the base are yellow)
- Index 6 (75% of eyes at the base are yellow)

Fruits were subdivided into groups of 30 according to the appropriate maturity stage.

Antigua Black pineapple fruits at 4 maturity stages (L-R, Index 3, Index 4, Index 5, Index 6)



External and Internal Characteristics

External Characteristics

- Overall Length (Crown + fruit)
- Fruit length
- Overall weight (Crown + fruit)
- Fruit weight
- Circumference
 - Top
 - Middle
 - Base
- Shape

Internal Characteristics

- Pulp colour
- Total soluble solids (%Brix)
- pH
- Total Acidity (%citric acid)
- TSS:TA ratio

Results



External Characteristics

Table 1: External characteristics of the Antigua Black Pineapple at various stages of maturity

Physical Characteristics		Maturity stage			
		Index 3	Index 4	Index 5	Index 6
Overall Weight – crown + fruit (g)		794.57 ± 157.32	885.02 ± 149.98	880.81±117.91	794.39 ± 117.52
Fruit weight (g)		671.06 ± 144.37	756.60 ± 145.74	746.07±119.08	656.83 ±116.73
Overall Length-crown + fruit (mm)		277.26 ± 25.94	303.03 ± 52.32	289.38 ± 28.22	283.55 ±37.40
Length of fruit (mm)		144.34 ± 14.15	155.36±34.15	147.36 ± 15.64	142.59 ±14.66
Circumference (mm)	C1 (top)	217.05 ± 16.55	225.89 ±13.76	222.94 ± 12.44	213.11 ±14.70
	C2 (middle)	272.00 ± 19.74	280.31 ± 14.54	281.99 ± 11.30	268.95 ± 15.76
	C3 (base)	262.60 ± 24.98	265.84 ± 23.32	258.95 ± 16.04	247.96 ±22.77

External Characteristics cont...

Shape

- Not all fruits had the distinct conical shape for which the Antigua Black is known.
- An intermediate shape between conical and cylindrical was observed.
- Siroy, 1996 also reported similar findings.

Internal Characteristics: Pulp colour



Index 3



Index 4



Index 5



Index 6

Chemical Characteristics

Table 2: Chemical Characteristics of Antigua Black Pineapple at the various stages of maturity.

Chemical Characteristics	Maturity stage			
	Index 3	Index 4	Index 5	Index 6
TSS (% Brix)	13.30±0.43 ^a	14.38 ± 0.08 ^{ab}	15.27 ± 0.98 ^b	14.10 ± 0.30 ^{ab}
pH	3.52 ± 0.18 ^a	3.55 ± 0.03 ^a	3.63 ± 0.14 ^{ab}	3.68 ± 0.07 ^b
TA (% Citric acid)	0.95 ± 0.18 ^a	0.86 ± 0.18 ^a	0.90± 0.14 ^a	0.87 ± 0.07 ^a
TSS: TA ratio	14.41± 2.79 ^a	17.50 ± 1.24 ^b	17.02± 1.90 ^{ab}	16.36 ± 1.51 ^{ab}

Conclusion: The way forward...

1) Further research on the Antigua Black Pineapple is needed.

➤ A comprehensive study utilizing fruits grown on multiple farms needs to be undertaken with specific focus on the following:

The genetic characteristics of the Antigua Black Pineapple.

Terpenes profile

The impact of agronomic practices on the characteristics of the Antigua Black Pineapple

➤ fertilizer regime

➤ floral induction (i.e) Age at which induction is done

➤ moisture management

Conclusion: The way forward...

- ❑ Physical and Chemical Analysis of soils best suited for cultivation of the Antigua Black Pineapple.

2) A project is being developed to be submitted to the FAO's BSF that will focus on the Revitalization of the industry and research.

3) The technical specifications for production and harvesting; particularly the stages at which they are harvested need to be established.

Thank you!