



Progress in the Selection of Cayenne Pepper for Processing

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Background

The Cayenne pepper is a group of cultivars which belongs to a sub-specie of *Capsicum annum* and which is used for the production of dried and ground hot pepper. CARICOM manufacturers of curry powder and other condiments imported ground hot pepper from extra-regional sources. However, the agro-ecological and socio-economic conditions in the Caribbean are ideal for the cultivation and processing of Cayenne peppers to replace imports and develop an export capability.

Origin

CARDI imported germplasm from the Asian Vegetable Research and Development Center (AVRDC) and 20 pure lines were evaluated during 1999 in Barbados.

Description and performance

The results of the evaluation to date have shown 6 of the pure lines (*Table 1*) to be of high general adaptability to local conditions, and their berries were of a very high quality. The food processing laboratory of the Barbados Agricultural Development and Marketing Corporation (BADMC) collaborated

Table 1. Some characters of the Caribbean Cayenne Selections. Mean values of length and width of berries were computed from 10 randomly chosen berries.

Name of Selection	Code Number	Resistant to	Length of Berries (cm)	Width of Berries (cm)
Caribbean Cayenne Selection #1	PP 977 116	*CVMV	9.23	2.00
Cayenne Cayenne Selection #2	PBC 161	*CMV,PVY	8.00	0.72
Caribbean Cayenne Selection#3	PP 977 197-1	-	10.82	0.82
Caribbean Cayenne Selection#4	PP 977 127	*CVMV	9.41	1.50
Caribbean Cayenne Selection#5	PP9656-06	*CMV,PVY,BW	6.83	1.23
Caribbean Cayenne Selection#6	PP 977 644	-	9.14	1.06

* Source: AVRDC: CVMV = Cucumber Veinal Mottle Virus; CMV = Cucumber Mosaic Virus; PVY = Potato Virus Y; BW= Bacterial Wilt.

to process the berries. Drying and grinding tests produced ground hot pepper of very high quality. The long and thin berries (See Table 1 and photographs of the berries) dried well. The ground product retained the dark red pigmentation and the aroma of the berries.

Plant Ideotype

(See Table 2 and photographs of plants)

Plant heights of the Caribbean Cayenne Selections ranged from 83 - 107 cm, plant canopy width from 102 - 159 cm whilst West Indies Red was shorter (80 cm) and its canopy width was narrower (97 cm). The plants flower at 39 days after transplanting which is the same for West Indies Red. The duration of harvest is at least 3 - 4 months, the same as for West Indies Red. Harvest can be prolonged to more than 6 months with consistently high level management.

Year-round adaptability

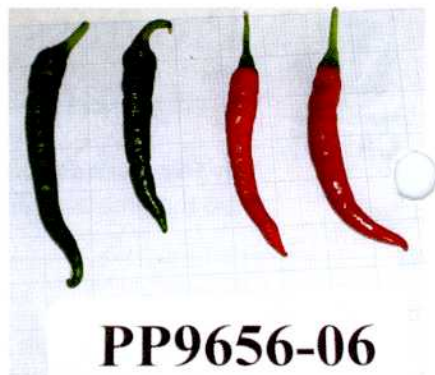
Owing to the fact that these selections are photoperiod insensitive, they can be planted in any month of the year providing there is adequate soil moisture.

Multiple harvests

Harvests can be spaced at fortnightly intervals. The minimum number of pickings is 6 - 7 and these can be extended.

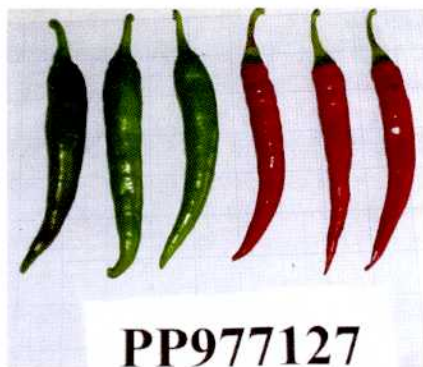
Disease and pest resistances

These lines were bred at the AVRDC for resistances as shown in Table 1. Bacterial Wilt (BW) is of particular importance during wet weather in the Caribbean. The lines



PP9656-06

Showing shape, size (cm squares in background) and colour of green and ripe berries of Caribbean Cayenne Selection # 5 (PP 9656-06).



PP977127

Showing shape, size (cm squares in background) and colour of green and ripe berries of Caribbean Cayenne Selection # 4 (PP 977 127).

Table 2. Mean values of 5 randomly chosen plants showing plant height and canopy width of the Caribbean Cayenne Selections and West Indies Red.

Name of Selection	Height of plant (cm)	Width of canopy (cm)
Caribbean Cayenne Selection #1	107	125
Caribbean Cayenne Selection #2	107	159
Caribbean Cayenne Selection #3	84	122
Caribbean Cayenne Selection #4	83	124
Caribbean Cayenne Selection #5	106	128
Caribbean Cayenne Selection # 6	83	102
West Indies Red	80	97

are being tested also for the virus diseases such as the geminiviruses which are important in the region.

Main Production Practices

Land preparation, weed management and pests and disease control are basically the same as for West Indies Red. However, plants could be spaced wider at 90 cm x 50 cm to give about 22,200 plants/ha (about 10,000 plants per acre). Rainfed crops are to be timed for transplanting to take place at the onset of the rains. Drip irrigation is highly recommended. The supply of fertilizers through the drip lines (fertigation) also reduces the cost of application. It is good practice to apply foliar fertilizers containing micro-nutrients together with compatible insecticides and fungicides.

Chemical analyses should be done on soil samples to determine the best kinds and rates of fertilizers for each field. Crop and field rotations are essential to prevent the build-up of virus diseases, in particular. For this same reason, fresh seeds should be obtained from a certified outlet since many diseases are seed borne and recouping seed from the previous crop is fraught with dangers.

Further Developments

Multi-seasonal and multi-locational tests will be carried out over the region. Responses to geminiviruses have to be specifically tested. Agronomic practices will be further refined paying special attention to the use of irrigation water, fertilizers and integrated pest management methods.

Availability

Pure and clean seed will be maintained to meet the needs of farmers and other users, by CARDI.



PP977197-1

Showing shape, size (cm squares in background) and colour of green and ripe berries of Caribbean Selection #3 (PP 977 197-1).



PP977116

Showing shape, size (cm squares in background) and colour of green and ripe berries of Caribbean Cayenne Selection#1 (PP 977 116).



PBC161

Showing shape, size (cm squares in background) and colour of green and ripe berries of Caribbean Cayenne Selection#2 (PBC 161).



At Left: Showing plant ideotype of Caribbean Cayenne Selection #4 (PP 977 127).

Below: Showing plant ideotype of Caribbean Cayenne Selection #3 (PP 977 197-1).



Acknowledgements

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