New Hot Pepper Lines for the Caribbean

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Introduction

Hot pepper (*Capsicum spp*) has been grown in the Caribbean from times immemorial.This region forms part of the Centre of Origin for the species of *C.chinense* Jacq. and *C.frutescens* L. Hot pepper is exported from many CARICOM countries. The West Indies Red cultivar is widely marketed. However, there is a growing demand for fruits with more uniformity in fruit quality than the West Indies Red.

Origin

Therefore, a recurrent mass selection procedure was started in 1997 (See Chart 1) with the aim of selecting uniform fruits. The main selection criteria were fruit colour, fruit shape and prolificacy.

Description and performance

Three breeding lines have been selected, described and named as follows:

- Caribbean Green
- Caribbean Red
- Caribbean Purple

Tolerances to diseases and pests

Just like the base population from which they were selected, all three lines exhibited high levels of tolerance to the geminiviruses, bacterial and fungal wilts in the open field with natural infestations. They also stood up against whitefly, aphids, thrips, mites and stink bugs.

High aroma and pungency

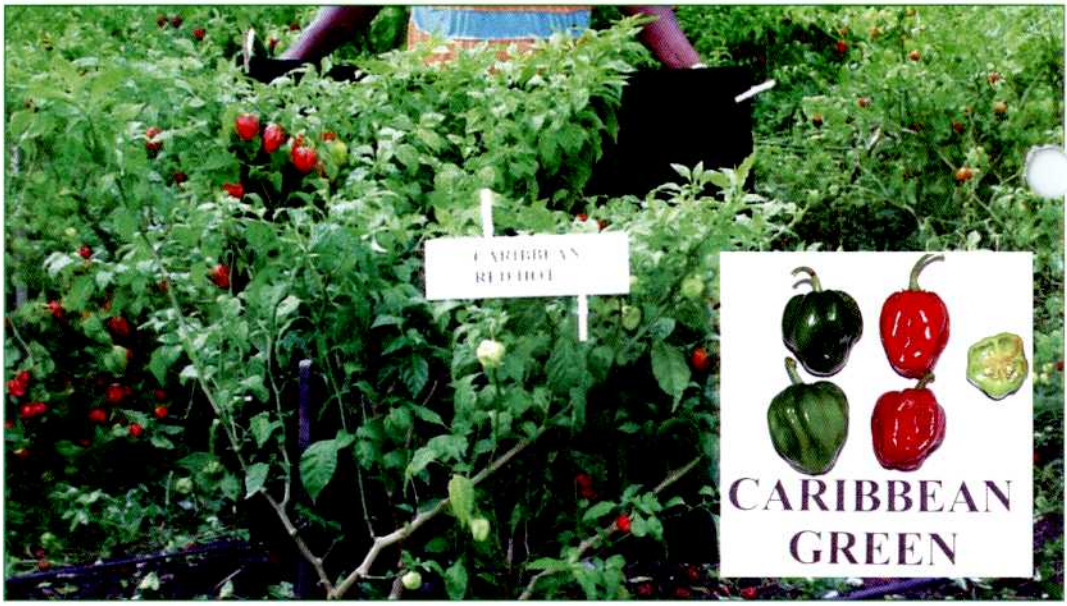
The lines possess an unique aroma and organoleptic qualities which is characteristic of the Scotch Bonnet group.

High yielding

All the lines averaged 20,000 kg/ha of fresh berries in large scale plantings; this yield was three times higher than the standard average yields obtained by farmers in Barbados.

Showing plant ideotype of the Caribbean Purple selection.

Showing plant ideotype of the Caribbean Green selection.



Showing plant , shape, colour and the 4 locules of the berry of the Caribbean Green Selection.

Year-round adaptability

Planting can be done anytime during the year providing there is adequate soil moisture.

Plant population density

Plants spaced at 84 cm x 40 cm and 84 cm x 30 cm produced yields of over 20,000 kg/ha. These spacings effectively kept down weeds as soon as the canopy closed over at about 30 days after transplanting.

Multiple harvests

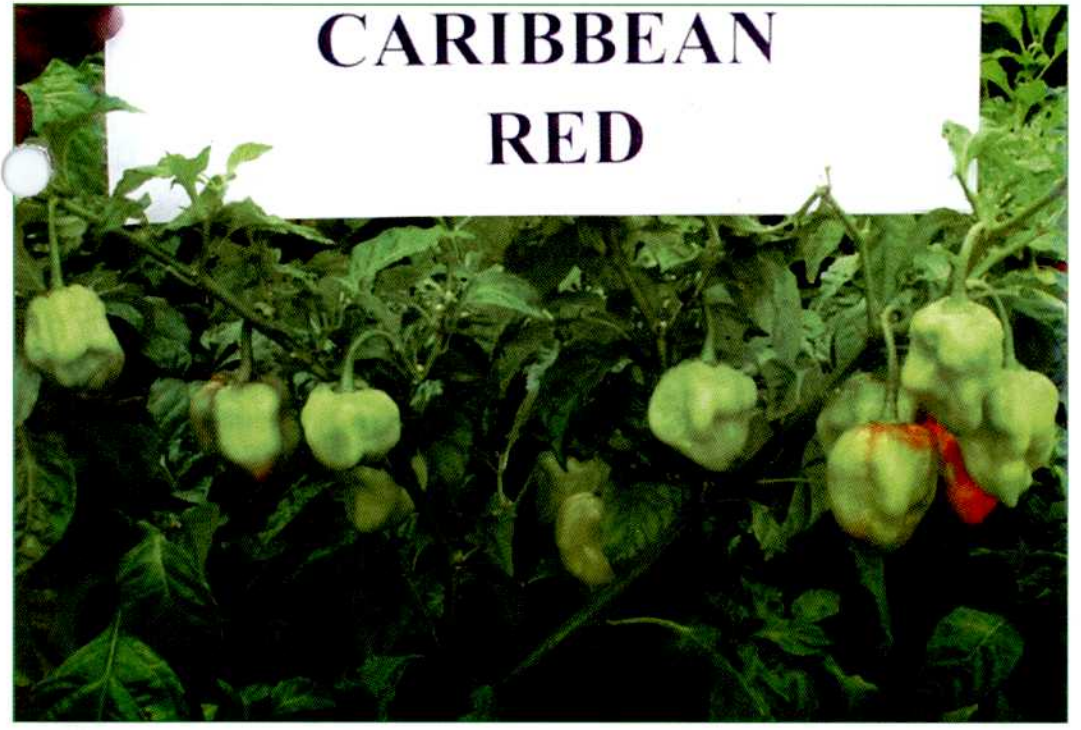
The first picking came 10 weeks after transplanting. The average experimental yield per picking was 6,484 kg/ha (5,785 lb/ac) and the first seven pickings occurred at fortnightly intervals. Farmers do not usually attain yields as high as this.

Main distinguishing characters

Caribbean Green: The fully developed berry is of a deep dark green colour before it turns into a dark red. The length of the berry is 3.76 cm and the width is 3.32 cm giving a blocky shape. The fruit wall thickness is 2.6 mm and the number of locules per fruit is 4. It takes an average of 85 berries to weigh a kg (38 berries in a lb).

Caribbean Red: The fully developed berry is of a pale light green to cream colour. The average fruit length is 4.2 cm and the average width is 2.8 cm giving the fruit an elongate shape. It takes an average of 89 berries to weigh a kg (40 berries in a lb). The fruit wall thickness is 1.2 mm. There are 4 locules per berry.

Caribbean Purple: The fully developed berry is light green in colour with the sides and shoulders painted a purple blush. The berry is 4.6 cm long and 3.9 cm wide giving it a lantern shape. It takes about 100 berries to weigh a kilogramme (45 in a pound). The fruit wall thickness is 2 mm and there are 4 locules per berry.



Showing fruit colour and shapes on plant of the Caribbean Red Selection.

Main production practices

Seed and production of seedlings

Seed must be pure and clean. Seed recouped from previous crops leads to a build-up of diseases and to the breakdown of the cultivar through outcrossing and segregation. Seedlings must be kept free from insect vectors of virus diseases. Select robust seedlings at the 5-6 leaf stage for transplanting.

art 1. The Recurrent Mass Selection Procedure for the extraction of uniform Breeding Lines from the cultivar West Indies Red.

1997	Selection pressure was applied to an isolated plot of West Indies Red to select prolific, healthy and robust individuals. Three different fruit colours were then selected from these plants.
1998	The three different fruit colours were planted into three separate plots and selection was continued for fruit colour and shape.
1999	The seed from the three different fruit types was bulked and three separate plots were planted. Single fruit selections based on colour and shape, were made.These would be planted out in progeny rows and selection practiced between and within rows until homozygosity is reached.

Land preparation

Plough land to a depth of at least 30 cm, harrow and ridge to ensure quick drainage.

Soil fertility

The soil of each field should be tested to determine the kinds and rates of fertilizers to be applied. Foliar fertilizers with micro-nutrients increased yields of hot pepper in Barbados.

Pests and disease management

Some of the pests and diseases were listed above. Field and crop rotations are imperatives to prevent their build-up. Avoid planting after the nightshade or cucurbit crops for they carry the same virus diseases. A systemic insecticide, imidacloprid, gave good control of whitefly and other insects in Barbados, Mexico and Trinidad. Integrated pest management practices such as sticky yellow traps and windbreak rows are recommendable.

Weed management

Successful weed management entails preventing weeds to seed in the preceding crop. The stale seedbed technique coupled with herbicides are highly recommendable. Close spacing helped to keep down weeds since the canopy closed over sooner than wider spacings.

Water

Pepper gives higher yields when soil moisture is adequate. Too much water facilitates bacterial and fungal wilts. Overhead sprinklers create conditions for foliar diseases. Drip irrigation was found to be very efficient. Soluble fertilizers can also be applied through the drip irrigation system.

Acknowledgements

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