PROCEEDINGS

OF THE

CARIBBEAN FOOD CROPS SOCIETY

TENTH ANNUAL MEETING
PUERTO RICO

1972

VOLUME X

EVALUATION OF SLICING CUCUMBER VARIETIES AT UNION AGRICULTURAL STATION, SAINT LUCIA

Calixte George
Ministry of Agriculture, St. Lucia

INTRODUCTION

The cucumber (Cucumis sativus L) is a very popular vegetable in St. Lucia. Cucumbers are grown almost entirely by small farmers for the local market. Although cucumbers are grown on a small scale, they have a great potential not only for the export trade, but also for satisfying the rapidly expanding local market arising from the development of the tourist industry.

In 1965, slicing cucumbers contributed about one third of the total production of vegetables in the State. This amounted to 570,000 pounds valued at $39,900 (1). It is estimated that in 1971, although production dropped to about 300,000 pounds, the value to farmers was $54,000.

There are several factors limiting cucumber production in St. Lucia, but the choice of a suitable variety adaptable to local conditions is probably the most important. Long Marketer was chosen as the standard slicing variety mainly because it was reported to be performing well in other Caribbean Islands. In St. Lucia, however, there was a tendency for the variety to die prematurely on account of powdery mildew caused by (Erysiphe cichoracearum) despite regular applications of Karathane. There was a need, therefore, for finding suitable varieties adaptable to local conditions.

EXPERIMENTAL PROCEDURE

A varietal trial involving ten cucumber varieties was conducted at Union Agricultural Station. The objective of the trial was to evaluate the performance of some new cucumber varieties alongside the variety now commonly grown. The standard variety is Long Marketer and the newer ones were Palmetto, Smoothe, Stono, Cherokee, Poinsett, Table Treat, Palomar, Burpee Hybrid and Ashley.

The design of the experiment was a randomized complete block of ten treatments (varieties) each replicated three times. Each plot comprised 4 rows three feet apart and 15 feet long giving an area of 180 square feet. The two centre rows in each plot were harvested. The experimental was laid down on Faveneau Clay, a heavy, intractable smectoid clay soil.

Seeds were sown on March 7th, 1970, on mounds 3 feet aplart and the seedlings were thinned about nine days after germination to three plants per mound. An NPK (10:10:30) fertilizer plus Triple Super phosphate at 3 cwt per acre and 1 1/2 cwt/acre, respectively, was broadcast on the experimental site one month before the making of mounds. At thinning an NPK (13.5:13.5:13.5) fertilizer at the rate of 3 oz. per mound was applied inside the mounds. At flowering time 2/3 oz. of sulphate of ammonia was also applied to each mound.

Weeding was done by hand as necessary throughout the growth of the crop. Pests and disease control was effected by weekly sprays of Basudin, Karathane and Dithane M45. Just prior to harvesting and during the harvesting period Sevin and Dithane was used instead.

Harvesting began 45 days after sowing and continued for a period of 41 days. Harvesting was done at 2 to 3 day intervals throughout the period. Fruits which were not less 1 1/2 inches in diameter and 4 inches long were considered to be marketable.

Irrigation water was provided by sprinklers whenever needed as judged by soil and crop conditions. Rainfall amounted to only 3.81 inches during the experiment.

RESULTS

Flowering

The results of the analysis of variance for the number of plants producing female flowers one month after sowing showed that varieties differed greatly in their flowering ability. The mean number of plants bearing female flowers, per variety ranged from 6 to 27 and is given in Table 1.

Table 1 - Number of plants with female flowers one month after planting

Variety	Mean Number of Plants Flowering per Plot
CHEROKEE	27
PALOMAR	22
TABLE TREAT	21
LONG MARKETER	21
BURPEE HYBRID	19
SMOOTHIE	18
POINSETT	13
PALMETTO	13
ASHLEY	13
STONO	6

Duncan's Multiple Range Test at 5% level.

It is noted that after one month all varieties had flowered. Cherokee produced a significantly greater number of flowers than the varieties Stono, Ashley, Palmetto, and Poinsett, but was not significantly different from the other varieties.

There was no significant difference between Palomar, Table Treat, Long Marketer, Burpee Hybrid and Smoothie, but these varieties all produced a significantly greater number of flowers than Stono. There was no significant difference between the above varieties which outyielded Stono and Poinsett, Palmetto and Ashley nor was there between the latter group and Stono.

Earliness

The number of plants producing fruit one month after planting is given in Table 2.

Table 2 - Number of Plants producing fruit one month after planting

Variety	Mean Number of plants fruiting per plot
CHEROKEE	21
TABLE TREAT	14
SMOOTHIE	11
PALOMAR	4
POINSETT	4
LONG MARKETER	2
BURPEE HYBRID	0
PALMETTO	0
ASHLEY	0
STONO	0

Duncan's Multiple Range Test at the 5% level

Cherokee significantly outyielded all other varieties in the early production of fruit. There was no significant difference in early fruit production between Table Treat and Smoothie, but they significantly outyielded the other varieties. However, there was no significant differences among the other varieties.

Fruit Setting

The results for mean number of fruits harvested were highly significant indicating that varieties differed greatly in their fruit setting potential. The mean number of fruits harvested per variety ranged from 8.7×10^3 to 96.0×10^3 and is presented in Table 3.

Table 3 - Mean number of fruits harvested per acre

Variety	Number of Fruits per acre x 10^3
CHEROKEE	96.0
POINSETT	82.6
STONO	57.8
ASHLEY	56.5
TABLE TREAT	55.8
SMOOTHIE	54.9
PALOMAR	51.5
BURPEE HYBRID	37.4
LONG MARKETER	19.8
PALMETTO	8.7

Duncan's Multiple Range Test et the 5% Level

Cherokee and Poinsett produced e significantly greater number of fruit than all the other varieties, but there was no significant difference between these two varieties. There was no significant difference between Stono, Ashley, Table Treet, Smoothie, Palomar and Burpee Hybrid, but they all, with the exception of Burpee Hybrid, produced e significantly greater number of fruit than Palmetto and Long Marketer. Burpee Hybrid was significantly better than Felmetto, but did not produce a significantly higher number of fruit then Long Marketer. There wes no significant difference between Long Marketer and Palmetto.

Yield of Marketeble Fruit

The results for the yield of marketable fruit were highly significant indicating that varieties differed greatly in their producing capacity. The weight of marketable fruit harvested per veriety varied from 1.9 to 20.4 tons per acre and is presented in Table 4.

Table 4 - Mean Yield of Marketable Fruits in Tons per Acre

Variety	Wt. of Marketable Fruit Tons per Acre
CHEROKEE	20.4
POINSETT	18.0
STONO	12.1
SMOOTHIE	12.1
TABLE TREAT	12.1
PALOMAR	11.8
ASHLEY	11.5
BURPEE HYBRID	8.7
LONG MARKETER	4.8
PALMETTO	1.9

Duncan's multiple range test at the 5% level.

Both Cherokee and Poinsett significantly outyielded the other varieties, but there was no significant difference between them. There was no significant difference in the weight of marketable fruit produced between Stono, Smoothie, Table Treat, Pelomar, Ashley and Burpee Hybrid, but they all with the exception of the latter outyielded Palmetto and Long Marketer. Burpee Hybrid was significantly better than Palmetto, buf did not significantly outyield Long Marketer. There was no significant difference between Long Marketer and Palmetto.

DISCUSSION

There seems to be very little or no published information on the performance of slicing cucumber varieties under Eastern Caribbean conditions. The results presented indicate the wide range of performance of imported American varieties.

The high overall yields obtained were probably due to the high standards of management maintained. Heavy doses of fertilizer were applied and regular pest and disease control schedules were maintained. Of particular importance was the use of Karathane for control of Powdery Mildew. Samuels (2) indicated thet cucumbers planted in Winter in Puerto Rico tand to give high yields, and that this was partly due to lower rainfall.

The experiment reported here was performed during the dry season and better control of water was effected with irrigation. This also, no doubt, contributed to the high yields obtained.

The yields of marketable fruit from Cherokee and Poinsett were outstanding. This is probably due to the fact that these varieties were least affected by Powdery Mildew. Most of the other varieties showed greater evidence of Powdery Mildew attack, but this did not seem to adversely affect yields to any great extent, as the attack appeared very late in the growth of the crop, except in the case of Palmetto and Long Marketer.

The pattern of production of the varieties also differed. The highest number of fruit at any one harvest was obtained at the first harvest for Cherokee and Smoothie. The other varieties gave their highest number of fruit per picking much later on. Further both Cherokee and Smoothie yielded over 50% of the total production of fruit in about 10 days from first harvest. Poinsett, the other outstanding variety, gave 50% production a week later, and reached its highest production per harvest at 22 days from first picking. In these respects it differed from Cherokee.

The results clearly indicate that the standard variety Long Marketer was outclassed in many respects by several new varieties notably Cherokee and Poinsett. The need for the proper evaluation of varieties under local conditions cannot be overephasized, as significant ecological differences occur from island to island in the Caribbean. Even within a small State such as St. Lucia, locational differences are quite marked because of varying climatic, topographical and edaphic factors. Thus further trials of a similar nature are planned to test the adaptability of imported varieties to different ecological zones in the State before recommendations are made.

Literature Cited

1. British Development Division in the Caribbean, Agricultural Statistics, 1958. Current Estimates of Agriculture, April to March 1965, St. Lucia.

2. Samuels, G., 1967 The influence of the time of planting on Food Crop Production in Puerto Rico. Proceedings Caribbean Food Crops Society 5, 128-133.