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CARIBBEAN FOOD CROPS SOCIETY

PROCEEDINGS



**ELEVENTH ANNUAL
MEETING**

**A PRELIMINARY REPORT ON THE COMPARATIVE PERFORMANCE
OF SOME SOUTHERN TYPE VARIETIES AND HYBRIDS OF
ONIONS IN THE U.S. VIRGIN ISLANDS**

by

RUDOLPH SHULTERBRANDT

and

DARSHAN S. PADDA

*Commissioner of Agriculture, and Director of
Marketing and Crop Production respectively.*

Department of Agriculture – St. Croix.

INTRODUCTION

Onions are among the most popularly used vegetables in the Virgin Islands. An annual importation of onions into the U.S. Virgin Islands ranges from approximately 800,000 to 1,000,000 pounds. (See Table 1) Although the agro-climatic conditions are suitable for crop production, the growing of vegetables is discouraged by lack of enough farm labor and irrigation water. As the labor and water requirements for onions are relatively less, there are better chances for its adoption by the growers.

The degree of change in natural photoperiod is the most reliably consistent factor in a plant's environment. Onion is basically a long-day plant. All kinds bulb on long-days but luckily some varieties tolerate shorter long days than others. This variation in varieties has led to the development of short-day bulbing kinds for the tropics. This paper reports a study of comparative performance of thirteen (13) short-day varieties and hybrids of onions on St. Croix.

MATERIAL AND METHODS

The material comprised thirteen (13) short-day varieties and F-1 hybrids supplied by Northrup King and Company, Minneapolis, Minnesota, and Dessert Seed Company, Elcentro, California. The seedlings of these varieties were transplanted on January 13, 1973 in a randomized block design with three replications at the Agricultural Station of the V.I. Department. The plants were spaced at 36 inches between rows and 3 inches between plants in rows giving a plant population of 58 thousand per acre. Duration of sunlight and mean daily maximum and minimum temperature during various months of the year 1972 for St. Croix are presented in Table 2. The soil type of the experimental site was loamy clay with a pH of 7.5. The crop was harvested in the last week of April. Observations were recorded on five (5) randomly selected plants for maturity, bulb shape, bulb color, top-bulb ratio, and yield.

RESULTS AND DISCUSSION

Data on maturity, bulb characters, top-bulb ratio and yield of five (5) varieties and eight (8) F-1 hybrids are presented in Table 3. Hybrids--Yellow Cranex, Dessex Yellow, and Golden Creole were early in maturity. Hybrids Tropicana Red and Red Creole were late and all others were medium in maturity. On St. Croix the length of day increases from 11.18 hours in January to 13.14 hours in June. The late maturing varieties might have longer day requirements for bulbing and therefore would be expected to yield higher if planted later than January or left in the field a little longer. McClelland (2) in 1928 was first to add onion to the list of photoperiodically sensitive plants. And in 1937 Magruder and Allard (1) observed that the time when an onion plant will start to bulb is determined by the length of day and the critical light period for bulbing ranging from twelve (12) hours for the extra early varieties to about fifteen (15) hours for the late types is a varietal characteristic.

The bulb shape and color is a matter of choice. Since all the varieties bulbed satisfactorily, consumer demand for any color or shape can be met.

Top-bulb ratios indicate the proportion of tops out of the total weight. Since the bulb is the main economic product, the varieties with smaller percentages are preferable. Late varieties Tropicana Red and Red Creole had the highest top-bulb ratio. This could be due to the reason that these varieties were not yet ready for harvest.

There was enough variation in yield between varieties. All the varieties gave satisfactory yields. Varieties Texas Early Grano 502 and Yellow Grano New Mexico Strain produced the highest yield of 22.5 tons per acre. Varieties Texas Early Grano, Yellow Grano, White Granex, White Grano, Tropicana Red and Alamo White out yielded the standard variety Yellow Bermuda.

In order to make final recommendations about variety and time of planting, further testing over three-years period will be necessary. Traditionally, one crop of onion is raised on St. Croix. This crop is planted in September and is harvested in January. The present study offers the possibility of raising two crops of onions a year. The first crop from September to December and the second from January to April.

SUMMARY

In order to find the best variety for the Virgin Islands, thirteen (13) southern-type varieties and F-1 hybrids were planted on January 13, 1973 in a randomised block design with three (3) replications. All the varieties under test bulbed satisfactorily. Varieties Texas Early Grano 502 and Yellow Grano New Mexico Strain gave the highest yield of 22.5 tons per acre and were followed by White Granex with 20 tons per acre. These studies indicate a definite possibility of raising a successful spring crop of onions on St. Croix, and the varieties exist to meet the varied consumer demand for size, color, and shape.

REFERENCES

Magruder, R. and H. A. Allard (1937) *J. Agricultural Research* 54: 719-752.

McClelland, T. B. (1928) *J. Agricultural Research* 37:603-628.

Table 1

THE QUANTITY AND VALUE OF FRESH ONIONS IMPORTED
 INTO THE U.S.V.I. 69-72

YEAR	POUNDS	VALUE
1969	993,227	\$69,478
1970	1,024,985	86,867
1971	1,021,165	85,867
1972	835,674	62,226

Table 2

DURATION OF SUNLIGHT AND MEAN DAILY MAXIMUM AND
 MINIMUM TEMPERATURE DURING VARIOUS MONTHS
 AT ST. CROIX, U.S. VIRGIN ISLANDS

MONTH	AVERAGE HOURS OF SUNLIGHT	MEAN DAILY MAX. TEMP.	MEAN DAILY MIN. TEMP.
January	11.18	83.1	70.0
February	11.54	83.2	70.0
March	12.02	84.3	70.7
April	12.52	85.6	72.5
May	12.96	86.4	74.3
June	13.14	87.8	75.7
July	13.09	88.0	75.8
August	12.72	88.5	75.7
September	12.26	88.1	75.0
October	11.80	87.6	74.8
November	11.32	85.9	73.3
December	11.05	84.3	71.7

Table 3

MATURITY, BULB CHARACTERS, TOP-BULB RATIO AND YIELD OF THIRTEEN VARIETIES

VARIETY	MATURITY	BULB SHAPE	BULB COLOR	TOP-BULB RATIO (%)	ESTIMATED YIELD PER ACRE POUNDS
Texas Early Grano 502	M	Top	Yellow	3.01	45,000
Yellow Grano N.M. STR.	M	Top	Yellow	6.76	45,000
White Granex F-1	M	Thickflat	White	5.49	40,312
White Grano N.M. STR.	M	Flat. Globe	White	2.66	34,687
Tropicana Red F-1	L	Globe	Red	25.0	32,812
Alamo White F-1	M	Flat	White	2.98	30,932
Yellow Bermuda	M	Flat	Yellow	2.96	30,932
Yellow Granex F-1	E	Thickflat	Yellow	1.61	29,062
Robust White F-1	M	Thickflat	White	6.45	27,182
Dessex Yellow F-1	E	Thickflat	Yellow	1.78	26,250
Majestic White F-1	M	Granex	White	5.0	17,812
Red Creole	L	Thickflat	Pink	23.40	16,875
Golden Creole F-1	E	Semi-globe	Yellow	3.33	14,062