CARIBBEAN FOOD CROPS SOCIETY

PROCEEDINGS

ELEVENTH ANNUAL MEETING

ONION PRODUCTION IN BARBADOS 1967 TO 1973

by

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and

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Onion production in Barbados started as a result of small handplanted trials laid down in 1966-67 by Jeffers, Williams and Alleyne at Sayes Court and Bullens research stations. Subsequently in 1968 commercial production was attempted by the introduction of direct-seeding with precision seed spacing drills. In 1968-69 thirty acres were planted by the Ministry on ten farms throughout the island (Eavis and Jeffers 1969). Since 1969 many farmers purchased their own planters and acreage has expanded to about 200-250 acres a year (Table 1).

The potential market for locally produced onions in the eastern CARIFTA countries is estimated at about 560,000 bags (of 50 lbs) a year worth $5.6 million EC at the new CARIFTA price of $10.00 per bag f.o.b. At present, therefore, less than one tenth of the market is supplied by Barbados production. As with any crop which is essentially foreign to the region, new problems continuously present themselves for solution. The more important constraints have been pests and diseases, weeds, seasonality of production, post-harvest keeping quality and the element of risk. Attention has therefore been directed to solving these problems in an attempt to supply a larger proportion of the CARIFTA market, thus displacing some of the extra-regional imports.

TABLE 1

Increase in acreage and production of onions from 1968 to 1973

Year of harvest	Acreage planted	Production (total)	Local sales (bags of 50 lbs)	Exports to CARIFTA	Price per lb f. o. b.	Total Value (EC doll.)
1968	2	800	800	nil	(7c)*	2,800
1969	153	8,000	8,000	nil	(8c)*	32,000
1970	90	11,000	8,500	2,500	15c	82,500
1971	153	35,000	18,000	17,000	15c	262,500
1972	250	50,000	20,000	30,000	16c	400,000
1973 (until June)	200	36,000	16,000	20,000	16c	288,000

*to the farmer

VARIETY AND SEASON

Over 70 varieties have been tested in trials laid down by Frances Roach, Richard Hoad, Merland Burke, Wynter Headley and Brian Eavis, plantings being made both in the normal season (September to November) and out-of-season in January, February and May and June.

Daylength and seasonal effects on bulbing have been evaluated both for short-day and medium-day varieties. Granex F1 Hybrid is the recommended variety for planting between October and 15th January and has also performed well when planted in April, May and early June. Dessex is a promising variety for planting in August and September to supply the market from mid November to mid February giving better bulbing and thinner necks than Granex in the short days at this time of year. Also of promise for this period are R10 Hybrid and Beth Alpha Autumn from Israel. None of the above varieties keeps well and the most promising variety for storage is a red variety introduced to us by I.N.R.A. Guadeloupe from Niger in Africa called Violet de Galmi. Possibly of promise are the Yellow Creole selections now being made by some seed companies in the U.S.A. which combine yellow colour with the reputed storage characteristics of Red Creole.

Good commercial yields of onions have been obtained in plantings between 15th September and 15th January for reaping over the period January to mid May (bulb size decreasing with the later planting date). Plantings in February and March have given low yields due to the small size of the bulbs so that June and July production has not proved economic. In 1970 and 1971 good results were obtained at Graeme Hall by planting in May and early June and reaping from mid August to mid October but subsequently the problem of 'blast injury' has prevented commercial attempts to grow the crop at this time of year. Harvesting in the wet months needs further investigation and artificial drying is essential with the present varieties.

PESTS

Three major pests encountered when we went from small-scale plots to larger commercial plantings were a leaf eating caterpillar

TABLE 2

Barbados' Imports Of Onions 1969–72

	1969		1970		1971		1972	
	lbs	EC dol	lbs	EC dol	lbs	EC dol	lbs	EC dol
January	N.A.	N.A.	225,000	30,986	222,249	22,713	142,550	12,048
February	N.A.	N.A.	267,290	39,467	346,257	35,412	225	101
March	N.A.	N.A.	nil	nil	1,225	191	nil	nil
April	N.A.	N.A.**	nil	nil	107	84	500	107
May	124,050	11,707	240,725	50,633	nil	nil	160,498	15,873
June	481,402	66,439	218,588	42,412	458,723	72,370	420,450	63,653
July	199,797	25,273	414,623	73,320	387,454	56,677	308,744	54,344
August	322,497	43,722	436,413	67,010	352,644	50,559	324,221	62,899
September	414,611	43,109	391,440	44,835	327,523	33,316	511,308	79,797
October	301,365	29,843	326,069	33,850	436,535	43,494	153,493	22,239

** Imports between Jan. and Mar. 1969 were normal, but in April 1969 there was some local production for the first time.
N A – Figures are not available.

TABLE 2 *Concluded*

Barbados' Imports Of Onions 1969–72

	1969		1970		1971		1972	
	lbs	EC dol	lbs	EC dol	lbs	EC dol	lbs	EC dol
November	148,558	13,590	196,620	21,315	168,114	13,641	392,191	59,083
December	433,609	52,372	475,350	50,260	413,713	38,892		

Total Imports Ahd C. I. F. Value

year	lbs	EC dollars	Average price per lb (cif)
1969	3,498,470	390,095	11cts
1970	3,192,118	454,088	14cts
1971	3,114,544	367,349	12cts
1972	2,827,893*	432,201*	15cts

*December 1972 is estimated. (*Source:* Government Trade Statistics Department)

(Spodoptera sunia), leaf miner *(Liriomyza munda),* and onion thrips *(Thrips tabaci).* In the first ten acre field planted at Graeme Hall in 1968, the caterpillar nearly wiped out the crop in the seedling stage and a regular series of sprays with DDT, Lannate or Folothion were found essential. Leaf miner also resulted in disappointing yields in some early plantings and continues to give trouble unless the fields are regularly sprayed with Lannate or Dimethoate. Onion thrips proved to be the worst pest until it was found that high volume spraying (sometimes twice a week) with DDT or Lannate could give good control. Occasional outbreaks of grasshoppers (locusts) have caused serious losses.

By following one of two alternative spray programmes (see Ministry of Agriculture's Vegetable Crop Recommendations) good control of insect pests is now obtained (where vigilance is high).

WEEDS

Owing to the small size of the seedling and its slow initial growth rate, high standards of weed control are mandatory. An important reason for the success of commercial production in Barbados is the use of clean land which has been taken out of sugar cane. Attempts to grow onions in rotation with other vegetables have not proved successful due to the weed problem. However, fairly good control of seedling grasses and broadleaf weeds is obtained by using pre-and-post-emergence sprays of Dacthal W75 and Tribunil; and Bensulide (Prefar) shows distinct promise. Creeping weeds such ad *Euphoribia prostrata,* and vegetatively propagated *Brachiaria sp.* and *Portulaca oleracea* (which come back from pieces as well as from seed) are difficult to control except by hand, whilst *Cyperus rotundus* (nutgrass) and onions just do not mix.

DISEASE PROBLEMS

Fasarium sp. caused some major losses in 1970-71 crop, but in the years since has not proved a problem. This is thought to be due to the regular use of Benlate as recommended by D. Norse and W. Small of the Plant Pathology Department. *Sclerotium rolfsii* can be serious on onions

harvested in wet weather causing an external slime (unlike *Fusarium* which causes internal rotting). Bacterial neck rot *(Erwinia carotovora)* has been a major problem in some years (e.g. 1972) but was practically absent in dry years (e.g. 1973). Rapid drying (artificially in wet weather) is necessary to prevent neck rot; the thickness of the neck of the onion is an important factor in obtaining satisfactory rates of drying. *Aspergillus niger* has caused serious post-harvest losses especially up to 1971 when Benlate was introduced. Regular Benlate sprays appear to give good control.

QUALITY CONTROL

First attempts to export onions from Barbados were disastrous. In 1972, to save the onion industry from self destruction, and elaborate programme of quality control was launched in which all onions for export were examined by inspectors within three days of shipment. Bags were sampled at random and the onions were examined on portable tables designed for grading. The most important standard was a maximum of 2 percent of onions with any signs of rot or incipient rot. At first nearly all onions failed the inspection test, since piece work in the field was not conducive to good grading. Later, largely through the efforts of Mr. O. Parris, Mr. Trotman, Mr. Blackman and other inspectors, good standards have been maintained and reports from Trinidad are favourable.

ARTIFICIAL DRYING AND CENTRAL GRADING

Due to problems in 1972 in drying and grading onions in the field, a small pilot plant was set up by the Agricultural Development Corporation at Codrington in 1973, to examine the feasibility of central drying and grading. The pilot plant handled 170 tons of untopped, ungraded onions in 1973. The capacity of Lister SR4 driers was determined and storage in ventilated bins was attempted to determine weight losses from drying and spoilage. It is hoped that artificial drying will lead to extended production in the wetter months and that increased production will be also encouraged by relieving farmers of the arduous task of grading.

BLAST INJURY

At present, a problem known as 'blast injury' threatens further expansion in onion production and many growers are turning instead to carrot production. The symptoms of 'blast' are necrotic lesions on the older leaves towards the windward side, and particularly on plants which are bulbing. The leaves collapse and yields are severely reduced. No primary pathogen can be found (Small 1973) and all fungicide applications have failed to give control. Outbreaks seem to accompany changes in weather, occurring particularly when cloudy weather gives way to hot sunshine. However, the symptoms occur in patches in fields and are not evenly distributed as would be expected if climatic factors were the cause. Trace element deficiency has been investigated as another possible cause with negative results. Blast injury has occurred in all parts of the island but seems worse in the wetter areas. It was first noted at Jordans in 1969 and then at Friendship, Mount Gay and Bourbon in 1971. In 1973 the loss of crop was worth ¼ million EC dollars.

Therefore, further progress in onion growing in Barbados largely depends on first solving this particular problem.

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