

A New Early Variety of Onion (*Allium cepa* L.) For Tamil Nadu - CO 2

By

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ABSTRACT

The early high yielding CO 2 onion strain is of economic significance particularly in gardenland farming. An yield of about 12 tonnes of wet bulb can be harvested in just over 2 months of cropping period. This variety has been found to retain its earliness both in summer and winter months. The per day production of this variety works out to 183 kg. The non-bolting nature of this variety is a favourable trait which promotes higher yielding ability. The merits in terms of agronomic and economic attributes compared with the existing improved onion variety CO 1 has been brought out.

INTRODUCTION

Tamil Nadu is one of the important onion growing States of India with an annual production of over 2 lakh tonnes of bulbs from an area of over 17,000 hectares. It is mainly grown in the Districts of Coimbatore, Tiruchirapalli, Madurai, Ramanathapuram and Tirunelveli as a pure crop and also as a mixed crop along with sugarcane, turmeric, banana, coconut, chillies and other vegetables. As a result of earlier research work done on varietal improvement in this crop, strain CO 1, a clonal selection from a variety from Manachanallur of Trichy District of 90 days duration, capable of yielding ten tonnes of bulbs per ha. was released during the year 1971. Further work on the

development of high yielding onion varieties led to the release of an early improved high yielding variety of onion CO 2 for the farmers of Tamil Nadu in 1974.

MATERIALS AND METHODS

As a first step in the intensified research programme on Onion, a large collection of indigenous types varying in bulb size, shape, colour, pungency and maturity period from different onion growing areas of the state, was built up. These varieties were grown and studied in detail with the object of screening for superior attributes like high yield, early maturity, pungency, attractive colour and shape. Seedling progeny selection and clonal selection techniques were adopted to isolate

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superior progeny and clonal lines. These superior lines were multiplied by clonal propagation and comparative yield trials were conducted along with the existing improved variety CO1 as check at the University research station for three seasons. 'On the farm testing' in the farmers' holdings was simultaneously organised in a number of locations with the best selection to test its comparative performance with the popular local variety of each location.

RESULTS AND DISCUSSION

As a result of systematic screening of the germplasm collections, a cultivar of Cuddalore with superior traits was spotted for further varietal improve-

ment. A large number of seedling progenies were grown and each progeny was studied in detail in respect of yield maturity period, non-bolting nature, pungency, bulb shape and colour. One of the lines, selection CS 911, possessed high yielding ability, earliness, non-bolting nature, medium sized bulbs with agreeable shape and attractive red colour. It was multiplied by clonal propagation and preliminary yield trial was conducted at the University research Station along with sister selections to confirm its superiority over others. Subsequently, regular comparative yield trials were conducted in monsoon 1973, winter 1973 and summer 1974 seasons with CO1 the existing improved onion variety as the check. (Table 1)

TABLE 1. Performance of CS 911 as compared to CO1 at the University Campus Coimbatore.

| Year | CS 911 | | CO 1 | |
|-----------------------------------|---------------------|----------------|---------------------|----------------|
| | Duration in days | Yield Kg/ha | Duration in days | Yield Kg/ha |
| Monsoon, 1973 | 66 | 13,300 | 90 | 9300 |
| Winter, 1973 | 65 | 13,937 | 92 | 11222 |
| Summer, 1974 | 69 | 8,620 | 88 | 7800 |
| Average | 67 | 11952 | 90 | 9441 |
| Percentage increase over CO. 1 | — | 26.6 | — | — |

Selection CS 911 gave on an average, 11.95 tonnes of wet bulbs per ha registering an increase of 26.6 per cent over the improved variety CO1. It was also found to be 23 days earlier in duration than CO 1.

'On the farm testing', was organised in 11 locations in the state and the variety was compared with the indigenous local varieties of the particular locations. (Table 2)

TABLE 2. Performance of CS 911 Onion in the District as Compared to the Local Variety

| S. No. | Place | CS 911 | | Local | |
|-----------------------------------|-----------------|------------------|----------------|------------------|----------------|
| | | Duration in days | Yield in kg/ha | Duration in days | Yield in kg/ha |
| 1 | Annur | 69 | 10500 | 84 | 7500 |
| 2 | Bhavanisagar | 65 | 7080 | 85 | 5400 |
| 3 | Vedapatti | 62 | 10867 | 70 | 8448 |
| 4 | Kurumbapalayam | 61 | 12772 | 71 | 6595 |
| 5 | Thambilipalayam | 65 | 11222 | 69 | 8500 |
| 6 | Avinashi | 65 | 10080 | 73 | 9120 |
| 7 | Singanallur | 67 | 23780 | 76 | 18720 |
| 8 | Coimbatore | 69 | 11080 | 80 | 3390 |
| 9 | Tenkasi | 63 | 7000 | 76 | 4600 |
| 10 | Kumarapalayam | 66 | 9600 | 83 | 8000 |
| 11 | S. N. Palayam | 65 | 8800 | 80 | 8200 |
| Average | | 65 | 11117 | 77 | 8043 |
| Percentage of increase over local | | — | 38.3 | — | — |

The selection CS 911 recorded very high yields upto 23.78 tonnes per ha with an average of 11.11 tonnes. On an average, an increased yield of 38.3 per cent and a reduction of 12 days in duration than the local varieties were observed. The consistent performance

of CS 911 both at the University research station and the farmers' holdings proved its superiority in yield not only over the existing strain CO 1 but also over all the local indigenous varieties with which it was compared. This selection CS 911 was released as CO 2

to the Local Variety

the Tamil Nadu Agricultural University for wider cultivation. The metric

traits of CO 2 onion is presented in Table 3.

TABLE 3. Metric traits of CO 2 onion

| S. No. | Characters | Co. 2. |
|--------|----------------------------|-------------|
| 1 | Height of the plants in cm | 38.1 |
| 2 | Number of leaves | 37 |
| 3 | Days to maturity in days | 67 |
| 4 | Number of branches/plant | 7.3 |
| 5 | Number of bulbs/plant | 10.1 |
| 6 | Weight of bulbs/plant in g | 53.1 |
| 7 | Total solids in percentage | 16.8 |
| 8 | Colour of bulb | Red |
| 9 | Flowering character | Non bolting |
| 10 | Per day productivity | 183 Kg. |
| 11 | Cost benefit ratio | 1 : 2.4 |

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