

### Co 3 A New Strain of Varagu (*Paspalum scrobiculatum* L.) For Rainfed Areas

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PS 175, a selection from a Georgeon variety recorded a mean yield increase of 62.7 per cent over Co. 2 registering a grain yield of 2610 kg/ha under research station conditions. In the district trials this selection excelled Co. 2 by 18.3 per cent recording a hectare yield of 1196 kg/ha. It matured in 120 days and was earlier to Co. 2 by 20 days. Unlike Co. 2 this was also found to be highly tolerant to head smut. By virtue of its early maturity, high yield potential and tolerance to smut, the selection PS 175 was released as a new strain Co. 3.

The minor millets occupy an area of 4.31 lakh hectares in Tamil Nadu with a total production of 3.15 lakh tonnes. The maximum area of minor millets is under Varagu (*Paspalum scrobiculatum* L.) to the tune of about two lakh hectares with a production of two lakh tonnes. Varagu is mainly grown in Tamil Nadu in the districts of Tiruchirapalli, South Arcot, Ramanathapuram, Salem and Dharmapuri. The present day cultivated varieties of Varagu including the ruling strain Co 2 are of longer duration taking not less than 140 days for maturity with an yield potential of only about 100 kg/ha. With the idea of reducing the duration of the crop at the same time increasing the yield potential, breeding work was undertaken at the Tamil Nadu Agricultural University and the results are presented hereunder.

#### MATERIAL AND METHODS

A total of 800 genotypes maintained in the germplasm bank at the Millets Breeding Station, Tamil Nadu Agricultural University, Coimbatore was evaluated for yield and duration. Among these, a Georgeon type was identified and it matured earlier than the other genotypes. From this, single plants were selected based on tillering capacity, yield and duration. This resulted in the isolation of a pureline PS 175 which matured in about 120 days with high yield. This selection was tested in preliminary and advance yield trials at Coimbatore from 1968 to 1972 in the Kharif season in comparison with Co. 2. From 1972 to 1978 this was tested in replicated yield trials in the research stations at Coimbatore, Kovilpatti,

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Table I The morphological description and yield potential of Co. 3 Varagu

| Habit   | Erect                                 |
|---|---------------------------------------|
| Plant height (cm)                                     | 80 — 100                              |
| Tillers/Plant   | 10 — 25                               |
| Branches/panicle                                      | 4 — 5                                 |
| Nature and position of panicles                       | well exposed with clustered spikelets |
| Duration in days                                      | 120                                   |
| Reaction to pests and diseases under field conditions | No major incidence                    |
| Adaptability  | Rainfed tracts of Tamil Nadu          |
| Average grain yield                                   | 1200 kg/ha                            |

Table II Performance of Varagu Co. 3 in yield trials

| Trials   | Mean yield kg/ha |               | Percentage on control | Reaction to Head smut in percentage |                   |                      |
|--|------------------|---------------|-----------------------|-------------------------------------|-------------------|----------------------|
|  | Co.3             | Control Co. 2 |                       | year                                | Co. 3             | Co. 2                |
| Research Station trials<br>(Mean of 29 Trials) | 2638             | 2026          | 130.2                 | 1977                                | 2.3               | 20.5                 |
| District trials (Mean of 28 Trials)            | 1196             | 1011          | 118.3                 | 1978                                | 0.0<br>(Tolerant) | 6.8<br>(Susceptible) |

Paiyur and Palur. This was also tested in the district trials in farmers' holdings in the districts of Dharmapuri, South Arcot, North Arcot, Ramanathapuram, Tiruchirapalli and Thanjavur during 1972-73 in comparison with Co.2. The disease reaction of this selection PS 175 to head smut was assessed under field conditions as well as under artificial epiphytotic conditions.

#### RESULTS AND DISCUSSION

In the replicated yield trials conducted in the research stations, during

1968 to 1978 the selection PS 175 recorded a mean grain yield of 2638 kg/ha as against 2026 kg/ha recorded by Co.2. The yield increase being 30.2 per cent. The results were confirmed during 1979 when this recorded 29.7 per cent increased yield over Co.2. The selection was also found to mature earlier than Co.2 by 15 to 20 days, with a mean duration of 120 days.

In the districts of Tamil Nadu, scattered block trials conducted in 28 centres distributed over six districts of

Tamil Nadu this selection recorded increased yields upto 43.4 per cent over Co.2. The overall performance in all these trials was encouraging with 18.3 per cent increase recording a mean grain yield of 1196 kg/ha as against 1011 kg/ha by Co. 2 (Table II).

The selection PS 175 was also tested for the diseases reactions against the common disease head smut under field conditions as well as under artificial epiphytotic conditions in comparison with the ruling strain Co. 2. During 1977 Kharif this selection recorded 23 per cent incidence as against 23.5 per cent recorded by Co.2. During Kharif 1978 it recorded nil

incidence as against 6.8 per cent recorded by Co.2 (Table II).

By virtue of its earliness in duration, high yield potential and tolerance to head smut, the selection PS 175 was released by the Tamil Nadu Agricultural University as a new strain Co.3. The morphological characters and yield potentialities of this variety are presented in Table I.

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