



# Sree Kaveri

A High Yielding CMD Resistant Drought Tolerant Industrial Variety of Cassava



## Introduction

Cassava (*Manihot esculenta* Crantz) is a tropical root crop belonging to the family Euphorbiaceae and is widely cultivated for its starchy tuberous roots, which serve as a major source of carbohydrates in many developing countries. It is characterized by its adaptability to a wide range of agro-ecological conditions, including poor soils and drought-prone environments. Cassava exhibits a C3 photosynthetic pathway and has a high harvest index, making it a highly efficient biomass producer. However, its productivity is often limited by biotic stresses such as cassava mosaic disease (CMD) and abiotic stresses like drought and nutrient deficiencies. Ongoing genetic improvement programs aim to enhance its resistance to these stresses while improving yield, nutritional quality and industrial utility.

Despite its adaptability to marginal environments, cassava production faces significant challenges from biotic and abiotic stresses-most notably cassava mosaic disease (CMD) and drought. CMD, caused by multiple species of geminiviruses and transmitted by the whitefly (*Bemisia tabaci*) leads to severe yield losses ranging from 20% to 95% in affected areas. In India and parts of Africa, CMD has become a major constraint to cassava productivity, threatening the livelihoods of smallholder farmers who rely on the crop for food and income. Simultaneously, climate change has intensified the frequency and severity of drought events, further impacting cassava yields, especially in rainfed systems. Although cassava is relatively drought-tolerant compared to other crops, prolonged water stress during the critical growth stages can reduce tuber formation, starch accumulation and overall plant health.

ICAR-CTCRI had focused for releasing dual-purpose variety by integrating resistance breeding with physiological traits associated with drought tolerance and modern breeding programmes. Sree Kaveri (TCa 14-5, IC645980), is the recent CMD resistant cassava variety having drought tolerance. The variety was released by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Horticultural Crops meeting held on 2023 for States of Kerala, Andhra Pradesh and Tamil Nadu.



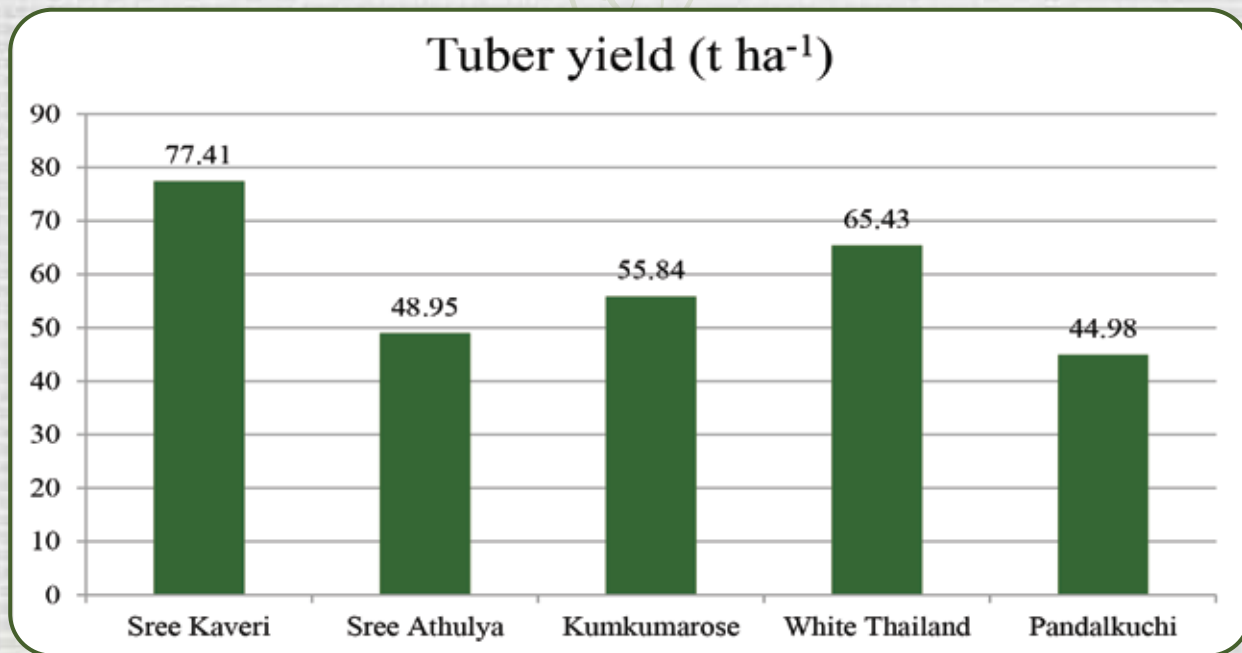
## Salient features of the variety

Sree Kaveri developed by inbreeding and clonal selection from MS-7 X99/10 and is resistant to both Indian Cassava Mosaic Virus and Sri Lankan Cassava Mosaic Virus, was released centrally for the states of Kerala, Tamil Nadu and Andhra Pradesh by Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Horticultural Crops Central Variety Release Committee (CVRC). Distinguishing morphological traits include nonbranching/top branching with silver grey stem, light green petiole, leaf lobe lanceolate with 5-7 lobes, conical to cylindrical tubers with cream skin, cream rind and white flesh colour. Stem girth is 8-11 cm, tuber girth is 16-20 cm and tuber length 25-33 cm. There are 8-10 tubers in a plant. The maturity period is 270-300 days .

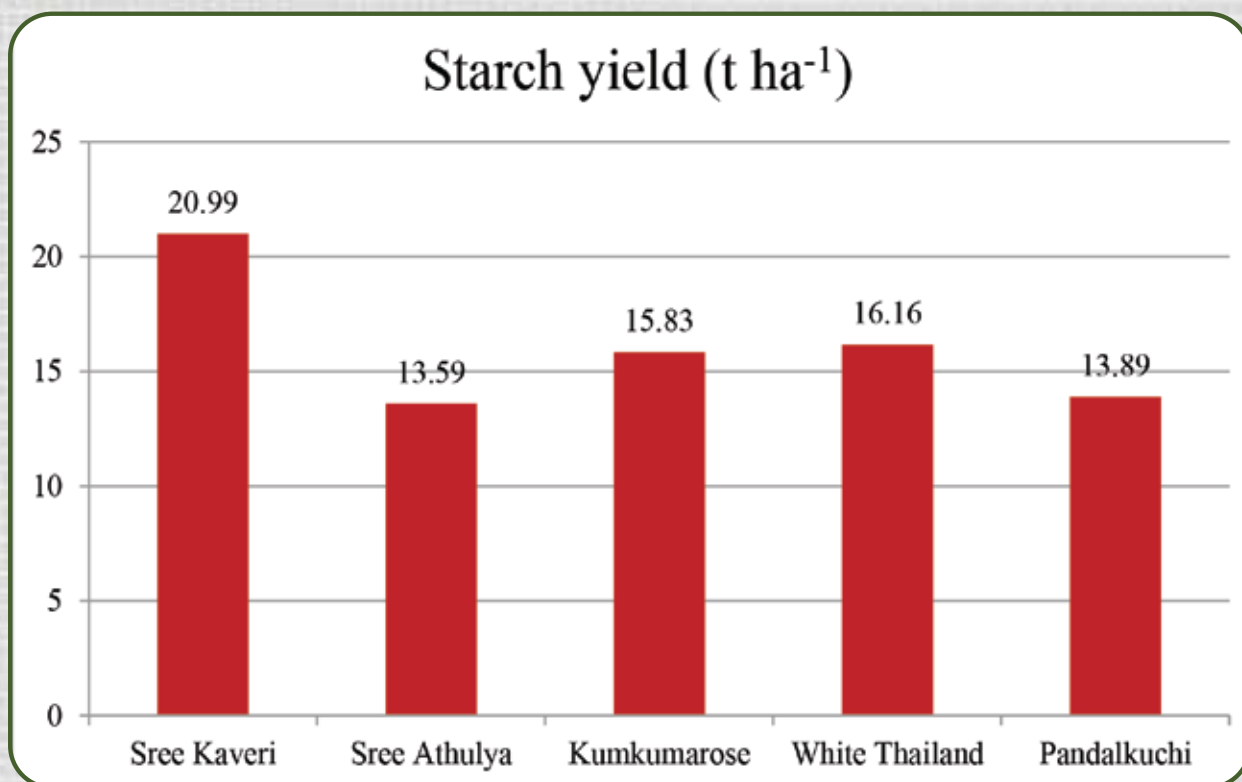
Sree Kaveri has a Drought Tolerance Index value (1.54) under water deficit stress conditions and it has high dry matter content (25.98%) under water deficit stress conditions when compared to the triploid check Sree Athulya (23.13%). The starch content is 26-30%, dry matter content is 35-40% and fibre content is 3.3-4.5%. This is the first Indian cassava genotype subjected to whole genome sequencing.

The variety has an average tuber yield of 51.00 t ha<sup>-1</sup> with an increase of 27.50% over local check. Due to its high starch content, it is good for industrial purpose. Additional income of ₹30,000 ha<sup>-1</sup> (replacement of CMD susceptible variety) can be realised from this variety and also is an N (13.31 kg tuber/kg N uptake) and K (47.81 kg tuber/kg N uptake) efficient variety. Morphologically, the variety is similar to H-226 the popular cassava variety cultivated in Tamil Nadu i.e. non branching, green petiole and good tuber shape.





Tuber yield comparison of Sree Kaveri with the other varieties and landraces in Tamil Nadu



Starch yield comparison of Sree Kaveri with the other varieties and landraces in Tamil Nadu

## Package of Practices for Sree Kaveri

- 1 **Planting season:** March-April
- 2 **Planting material:** Setts of 15-20 cm length with 10-12 buds
- 3 **Method of Planting:** Mounds
- 4 **Spacing:** 90 x 90 cm
- 5 **Planting material requirement:** 2500 stems ha<sup>-1</sup> (12345 setts ha<sup>-1</sup>)
- 6 **Fertilizer requirement:** FYM@12.5 t ha<sup>-1</sup> NPK@75:50:75 kg ha<sup>-1</sup>
- 7 **Intercultural operations:** Keep the field free of weeds during the initial 3-4 months. Earthing up should be done along with weeding.
- 8 **Duration:** 9-10 months
- 9 **Average tuber yield:** 50-60 t ha<sup>-1</sup>
- 10 **Potential tuber yield:** 75-100 t ha<sup>-1</sup> (even up to 144 t ha<sup>-1</sup>)

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**Sree Kaveri**

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