



## Package of Practices for Arrowroot Varieties

- 01 **Planting season:** May end to early June
- 02 **Planting material:** Small rhizome pieces known as 'bits' having 4-7 cm length and 20-25 g weight with 2-4 actively growing buds
- 03 **Method of Planting:** Raised beds
- 04 **Spacing:** 30 x 15 cm (2.22 lakh plants ha<sup>-1</sup>) Depth of planting: 5-10 cm
- 05 **Planting material requirement:** 5.5 t ha<sup>-1</sup>
- 06 **Fertilizer requirement:** FYM: 10 t ha<sup>-1</sup> NPK: 50:25:75 kg ha<sup>-1</sup>
- 07 **Intercultural operations:** Keep the field free of weeds during the initial 3-4 months. Earthing up should be done along with weeding. Mulching with green/dried leaves significantly influence rhizome yield
- 08 **Duration:** 270-300 days (9-10 months)

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## ARROWROOT VARIETIES

### Sree Aadya, Sree Nakshathra, Sree Karti

#### Introduction

Arrowroot or West Indian arrowroot (*Maranta arundinacea* L.) is an emerging starch reserve crop indigenous to tropical America. It is a high value starch crop for processing preferred by the food, pharmaceutical and cosmetic industries. It is an erect, herbaceous annual crop with 60-180 cm height with green ovate-lanceolate leaves. It is widely cultivated in tropical climate in countries like India, Sri Lanka, Indonesia, Philippines, Australia and West Indies. In India, it is grown as a rainfed crop in Kerala, Tamil Nadu, Uttar Pradesh, Bihar, Odisha, West Bengal, Chhattisgarh, Jharkhand, Manipur and Assam. White flowers are produced at 3-6 months, but are sterile and hence do not produce seeds. The rhizomes are about 20-40 cm long and 2-5 cm in diameter with 80-200 g weight, are white, fleshy, cylindrical, obovoid and are covered with scales. Rhizomes are used for the extraction of high value, fine and easily digestible starch, which has medicinal properties.

Arrowroot is a highly adaptable plant that grows well in shaded environments making it an ideal inter-crop for coconut and arecanut plantations with a potential yield of 35-40 t ha<sup>-1</sup>. It exhibits remarkable resilience to pests and diseases due to the presence of peroxides that reduces the need for extensive pest control measures. Moreover, extraction of starch from arrowroot rhizomes can be easily carried out in households, offering an appealing opportunity for cottage industries, particularly in rural regions. As genetic variability is very less in the crop, development of variety is a challenging task. Recently, ICAR-CTCRI has released three high yielding arrowroot varieties after conducting a decade long research and trials.

# Sree Aadya

Sree Aadya is the first high yielding variety of arrowroot recommended for release for the State of Kerala by the 29<sup>th</sup> State Seed Sub-Committee for Varietal Release meeting held on 12 November 2024. Sree Aadya, (M-3; IC650781; MNS/2010) is a clonal selection from the germplasm collection maintained at ICAR-CTCRI. M-3 was selected as the best arrowroot genotype after yield evaluation trials conducted for 7 years including the multi-location trials in ten different districts of Kerala. It recorded an average rhizome yield of 30.04 t ha<sup>-1</sup>, potential yield of 49.0 t ha<sup>-1</sup> and starch yield of 5.95 t ha<sup>-1</sup>.

Average yield	: 30.04 t ha <sup>-1</sup>
Potential yield	: 49.00 t ha <sup>-1</sup>
Starch yield	: 5.95 t ha <sup>-1</sup>



Morphological Characters	
Average plant height (cm)	100.36-136.70
Number of tillers plant <sup>-1</sup>	8-11
Number of rhizomes plant <sup>-1</sup>	18
Pest and diseases	No major pest and diseases
Biochemical Characters	
Starch (%)	19.82
Dry matter (%)	36.84
Fibre (%)	0.84
Fat (%)	0.04
Crude protein (%)	1.87



# Sree Nakshathra

Sree Nakshathra is the first high yielding arrowroot variety recommended for central release for the states of Chhattisgarh and Jharkhand by the 31<sup>st</sup> meeting of the Central Sub-Committee on Crop Standards, Notification and Release of varieties for Horticultural Crops held on 19 July 2024. Sree Nakshathra (TAr 18-12; IC650786) with an average yield of 32.25 t ha<sup>-1</sup>, potential yield of 39.55 t ha<sup>-1</sup> and starch yield of 8.59 t ha<sup>-1</sup> was recommended by the 24<sup>th</sup> AGM held at Navsari, Gujarat as the best arrowroot genotype after yield evaluation trials conducted in 7 AICRP on Tuber Crops centers for 7 years.

Average yield	: 32.25 t ha <sup>-1</sup>
Potential yield	: 39.55 t ha <sup>-1</sup>
Starch yield	: 8.59 t ha <sup>-1</sup>



# Sree Nakshathra



Morphological Characters	
Average plant height (cm)	95.36-146.44
Number of tillers plant <sup>-1</sup>	6-18
Number of rhizomes plant <sup>-1</sup>	14
Pest and diseases	No major pest and diseases
Biochemical Characters	
Starch (%)	26.63
Dry matter (%)	30.30
Fibre (%)	0.97
Fat (%)	0.3
Crude protein (%)	2.93



# Sree Karti

Sree Karti is the first high yielding arrowroot variety recommended for central release for the states of Kerala, Tamil Nadu and Manipur by the 31<sup>st</sup> meeting of the Central Sub-Committee on Crop Standards, Notification and Release of varieties for Horticultural Crops held on 19 July 2024. Sree Karti (TAr 18-14; IC650789) with an average yield of 23.57 t ha<sup>-1</sup>, potential yield of 41.46 t ha<sup>-1</sup> and starch yield of 5.07 t ha<sup>-1</sup> was recommended by the 24<sup>th</sup> AGM held at Navsari, Gujarat as the best arrowroot genotype after yield evaluation trials conducted in 7 AICRP on Tuber Crops centers for 7 years.

Average yield	: 23.57 t ha <sup>-1</sup>
Potential yield	: 41.46 t ha <sup>-1</sup>
Starch yield	: 5.07 t ha <sup>-1</sup>



Morphological Characters	
Average plant height (cm)	84.66-130.27
Number of tillers plant <sup>-1</sup>	7-16
Number of rhizomes plant <sup>-1</sup>	13
Pest and diseases	No major pest and diseases
Biochemical Characters	
Starch (%)	21.52
Dry matter (%)	28.31
Fibre (%)	0.81
Fat (%)	0.25
Crude protein (%)	1.81

