

(V) SMALL MILLETS**CROP IMPROVEMENT****I. SEASON AND VARIETIES**

Sl. No.	Agro ecological zones	Districts	Season	Crops	Varieties
1	North Eastern Zone	Vellore, Thiruvannamalai, Cuddalore, Villupuram, Thiruvallur and Kancheepuram	Feb-March (Masipattam) June-July (Adipattam) Sep-Oct (Puratassipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO (Samai) 4, Paiyur 2
				Varagu	CO 3, TNAU 86
				Panivaragu	CO (Pv) 5, TNAU 202
				Kudiraivali	CO (Kv) 2, MDU 1
2	North Western Zone	Salem, Namakkal, Dharmapuri and Krishnagiri	Feb-March (Masipattam) June-July (Adipattam) Sep-Oct (Puratassipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO (Samai) 4, Paiyur 2
				Varagu	CO 3, TNAU 86
				Panivaragu	CO (Pv) 5, TNAU 202
				Kudiraivali	CO (Kv) 2, MDU 1
3	Western Zone	Coimbatore, Erode, Karur, Tiruppur and Dindigul	Feb-March (Masipattam) June-July (Adipattam) Sep-Oct (Puratassipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO (Samai) 4, Paiyur 2
				Varagu	CO 3, TNAU 86
				Kudiraivali	CO (Kv) 2, MDU 1
				Panivaragu	CO (Pv) 5, TNAU 202
4	Cauvery Delta Zone	Tiruchy, Thanjavur, Thiruvarur, Nagapattinam, Pudukkottai, Perambalur and Ariyalur	Feb-March (Masipattam) June-July (Adipattam) Sep-Oct (Puratassipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO (Samai) 4, Paiyur 2
				Varagu	CO 3, TNAU 86
5	Southern Zone	Madurai, Theni, Pudukkottai,	Feb-March (Masipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO

		Sivagangai, Virudhunagar, Ramanathapuram, Tirunelveli and Thoothukudi	June-July (Adipattam) Sep-Oct (Puratassipattam)		(Samai) 4, Paiyur 2
				Varagu	CO 3,TNAU 86
				Panivaragu	CO (Pv) 5,TNAU 202
				Kudiraivali	CO (Kv) 2,MDU 1
6	Hilly and High Altitude Zone	Ooty	Feb-March (Masipattam) June-July (Adipattam) Sep-Oct (Puratassipattam)	Tenai	CO (Te) 7
				Samai	ATL 1, CO (Samai) 4, Paiyur 2
				Panivaragu	CO (Pv) 5,TNAU 202

II. PARTICULARS OF SMALL MILLET VARIETIES

TENAI

PARTICULARS	CO (Te) 7
Year of Release	2005
Year of Notification	SO.599(E)/25.04.2006
Parentage	CO 5 x ISE 248
Duration (days)	80-85
Pigmentation	Greenish purple
Tillering ability	High
Panicles	Long, Compact
Grain Character	Yellow
Grain Yield (kg/ha)	1855
Straw Yield (t/ha)	5.10
Special features	Non lodging and high yielding

SAMAI

PARTICULARS	Paiyur 2	CO(Samai) 4	ATL 1
Year of Release	2000	2006	2019
Year of Notification	SO.821(E)/ 13.09.2000	SO.1178(E)/ 20.07.2007	SO.3220(E)/ 05.09.2019
Parentage	Pure line selection from PM 295	CO 2 x MS 1684	Pedigree selection from the cross CO (Samai) 4 X TNAU 141

Duration (days)	85	75-80	85 – 90
Pigmentation	Green	Green	Dark Green
Tillering ability	Moderate	High	Moderate
Panicles	long, loose panicle	Open and Loose	semi-compact panicles
Grain Character	Brown	Grayish yellow	Golden Yellow
Grain Yield (kg/ha) Rainfed	850	1567	1587
Special features	Short duration, suitable for little millet – horse gram cropping sequence	Short duration, suitable for the existing double cropped rainfed situation of North, North Western and Western zones of Tamil Nadu	Drought tolerant, Non lodging and uniform maturity, Sturdy culm, Suitable for mechanical harvesting, Highly suitable for the districts in the Eastern Ghats such as Dharmapuri, Tiruvannamalai, Vellore, Salem and Krishnagiri. It is very much adaptive in the plains also under rainfed system.

VARAGU

PARTICULARS	CO 3	TNAU 86
Year of Release	1980	2012
Year of Notification	SO.19(E)/14.01.1982	SO. 2805(E) dt:25.08.2017
Parentage	Selection from Georgia variety	Pure line selection from IPs 85
Duration (days)	120	105 - 110
Pigmentation	Purple stem	Light purple at nodes
Tillering ability	High	Profuse tillering (8-12)
Panicles	Well exposed clusters and spikelets	Long panicles (7 - 10 cm) and grains are arranged in regular rows
Grain Character	Brown & Bold with hard seed Coat	Brown & Bold with oval shape

Grain Yield (kg/ha) Rainfed	1500 - 1800	2700 - 3200
Special features	Tolerant to smut, short duration	Tolerant to head smut, sheath blight and brown spot

PANIVARAGU

PARTICULARS	CO(PV) 5	TNAU 202
Year of Release	2007	2011
Year of Notification	SO. 449(E) / 11.02.2009	SO. 2805(E) dt: 25.08.2017
Parentage	PV 1403 x GPUP 21	PV 1453 x GPUP 16
Duration (days)	70	70 - 75
Pigmentation	Green	Green
Tillering ability	High	High
Panicles	Compact, dense with bold grains	Semi-Compact with bold grains
Grain character	Golden yellow	Yellow
Grain yield (kg/ha) Rainfed	2400	2000
Special features	High tillering, short duration ,fits well in the double cropped rainfed situation	Short duration, no incidence of pest and diseases and nutritive grains suitable for value addition

KUDIRAIVALI

PARTICULARS	CO(KV) 2	MDU 1
Year of Release	2009	2017
Year of Notification	SO.2137(E)/31.08.2010	SO.1379(E)/ 27.03.2018
Parentage	Pure line selection from EF 79	Pure line selection from Arupukkottailocal
Duration (days)	95	95-100
Pigmentation	Green	Green
Tillering ability	High	High (4-9)
Panicles	Compact, Pyramidal	Compact, Pyramidal Shape
Grain Character	Brownish grey	Yellowish grey
Grain Yield (kg/ha)		

Irrigated	-	2200 – 2500
Rainfed	2650	1500 – 1700
Special features	Good grain quality	High milling per cent (70%) and iron content (16 mg/ 100g of grain). Good quality and taste.

CROP MANAGEMENT

Package of practices for Tenai Seeds and sowing

- For line planting : 10kg/ha
- For sowing : 12.5 kg/ha for use of Gorru or seed drill is recommended.
- Seed treatment : Treat 1 kg of seeds with 2 g Thiram or Carbendazim.
- Field preparation : Plough the field thoroughly using a small iron plough or country plough to fine tilth. Apply basally FYM/Compost 12.5 t/ha
- Fertilizer application : Nitrogen 44 kg/ha
Phosphorus 22 kg/ha
- Spacing : For line planting 22.5 cm x 10 cm (10 cm in between plants)
- Weeding : First weeding on 15th DAS and the second on 40th DAS
- Thinning : Before 20 DAS
- Plant protection : Generally no major problem of pests and diseases

Package of practices for Samai

- Seeds and sowing : For line planting 10 kg/ha
For broad casting 12.5 kg/ha
use of Gorru or seed drill is recommended.
- Seed treatment : Treat 1 kg of seeds with 2 g Thiram or Carbendazim.
- Field preparation : Plough the field thoroughly 2 or 3 times using a small iron plough or country plough to fine tilth.
- Fertilizer application : Apply basally FYM/COMPOST : 12.5 t/ha
Nitrogen : 44 kg/ha, Phosphours : 22 kg/ha

Soil test crop response based integrated plant nutrition system (STCR- IPNS) recommendation may be adopted for prescribing fertilizer doses for specified yieldtargets. (ready reckoners are furnished)

Samai

Soil : Red sandy loam (Irugur FN = 8.83 T - 0.41 SN - 0.55 ON

Target: 1.5 – 2.0 t ha⁻¹ FP₂O₅ = 3.75 T - 1.10 SP - 0.62 OP

FK₂O = 4.57 T - 0.15SK - 0.48 OK

Initial soil test values (kg ha ⁻¹)			Yield target – 1.5 t ha ⁻¹			Yield target – 2.0 t ha ⁻¹		
			NPK (kg ha ⁻¹) + FYM @ 12.5 t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹			NPK (kg ha ⁻¹) + FYM @ 12.5 t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹		
SN	SP	SK	FN	FP ₂ O ₅	FK ₂ O	FN	FP ₂ O ₅	FK ₂ O
160	12	160	22*	14	20	64	33	42
180	14	180	22*	12	17	56	31	39
200	16	200	22*	11*	14	48	28	36
220	18	220	22*	11*	11	39	26	33
240	20	240	22*	11*	8	31	24	30

* Maintenance dose

Note: FN, FP₂O₅ and K₂O are fertilizer N, P₂O₅ and K₂O in kg ha⁻¹, respectively; T is the yield target in q ha⁻¹; SN, SP and SK respectively are available N, P and K in kg ha⁻¹ and ON, OP and OK are the quantities of N, P and K supplied through organic manure in kg ha⁻¹.

- Spacing : For line planting 25 x 10 cm (10 cm in between plants)
- Weeding : First weeding is done on the 15th DAS and the second weeding on 40th DAS
- Thinning : Thinning is done soon after weeding or before 20 DAS
- Protection : Usually no major problem of pests and diseases

Package of practices for Varagu

- Seeds and sowing : For line planting 10 kg/ha; For sowing 12.5 kg/ha
Use of Gorru or seed drill is recommended.
- Seed treatment : Treat 1 kg of seeds with 2 g Thiram or Carbendazim.
- Field preparation : Plough the field thoroughly using a small iron plough or country plough to fine tilth.

Fertilizer application	:	Apply basally FYM/COMPOST : 12.5 t/ha Nitrogen : 44 kg/ha, Phosphours : 22 kg/ha
Spacing	:	For line planting 45 x 10 cm (10 cm in between plants)
Weeding	:	First weeding is done on the 15 th DAS and the second weeding on 40 th DAS
Thinning	:	Thinning is done soon after weeding or before 20 DAS
Plant protection	:	Generally no major problem of pests and diseases