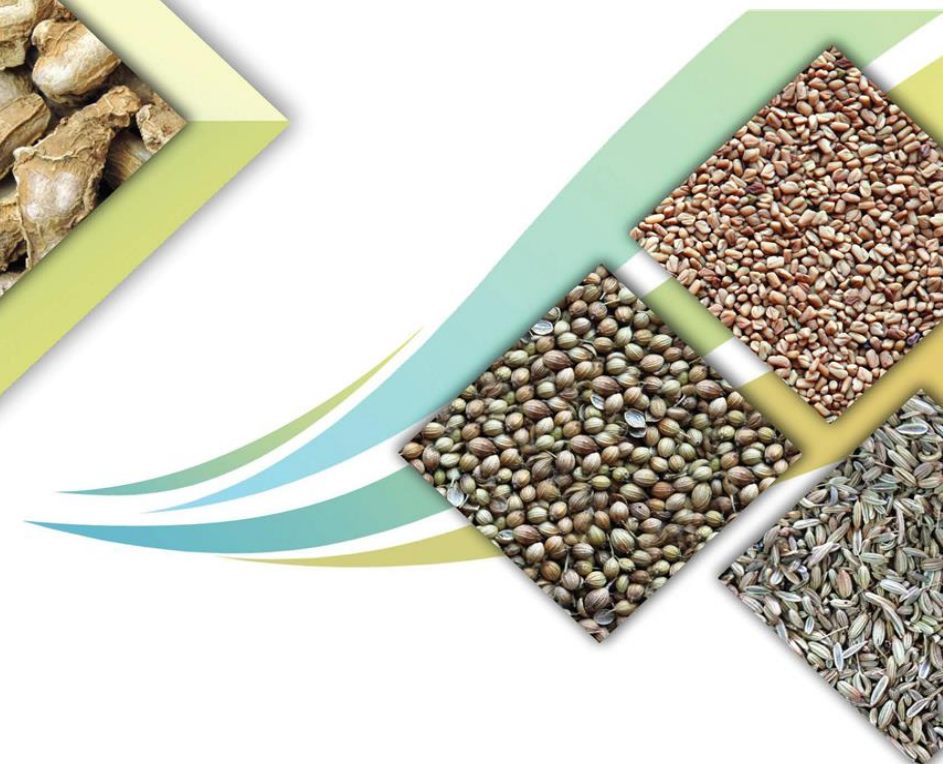




Technical Bulletin



SPICES VARIETIES & TECHNOLOGIES FOR FARMERS WELFARE (2025)

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Project Coordinator (Spices)
ICAR-All India
Coordinated Research
Project on Spices
Kozhikode – 673 012,
Kerala, India
Phone: 0495 2731954, Fax : 0495 2731954
email: aicrp.spices@icar.gov.in, aicrspices@gmail.com
Website : www.aicrps.res.in

Compiled and Edited by

S. Mukesh Sankar
Sharon Aravind
Maneesha S.R.
D. Prasath

Cover Design

A. Sudhakaran

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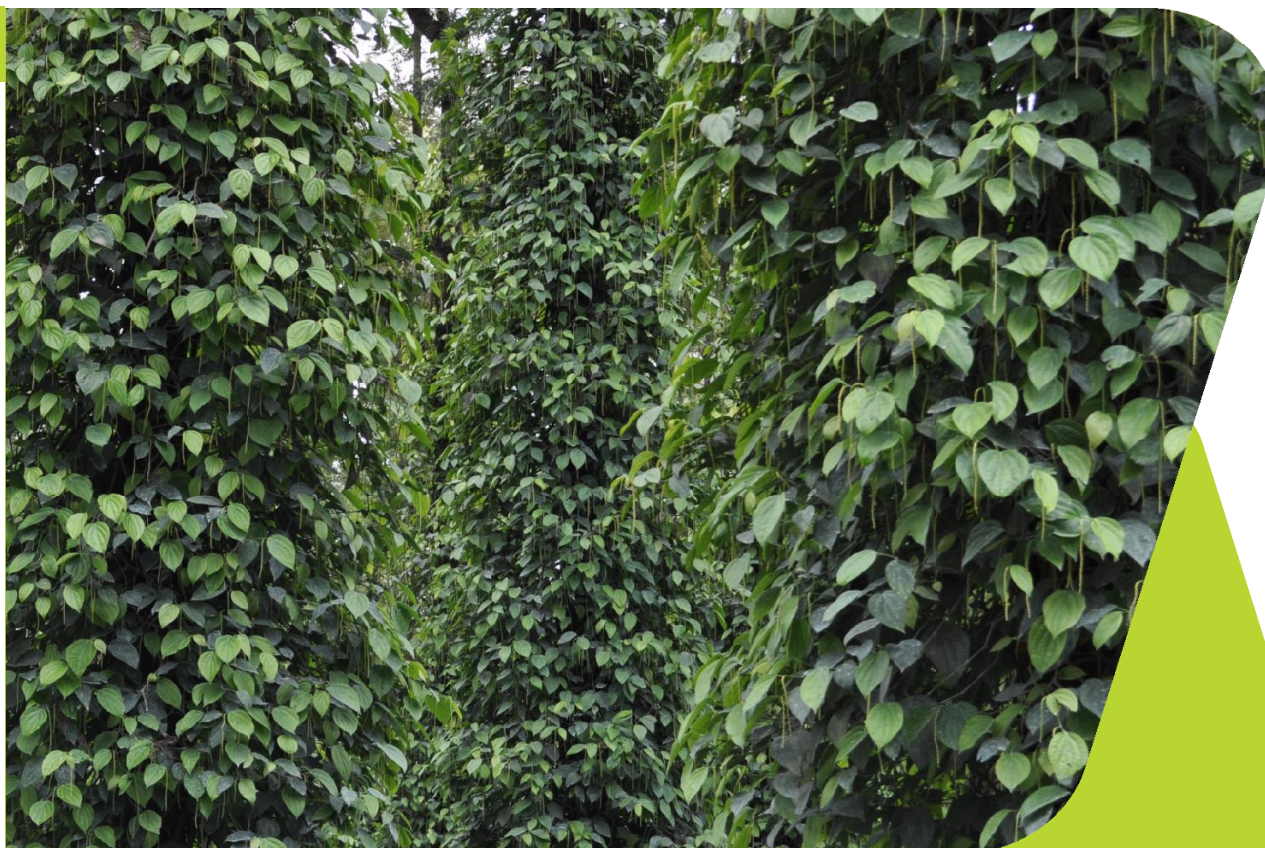
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**SPICES
VARIETIES & TECHNOLOGIES
FOR FARMERS WELFARE
(2025)**



SPICES **VARIETIES** 2025





GINGER

SAS-KEVÜ

Quality attributes

Essential oil (%)	1.8
Dry recovery (%)	22.4
Oleoresin (%)	5.4
Fiber (%)	4.3

Morphological characters

Plant height (cm)	Short (27.5-71.75)
Leaf length/breadth (cm)	18.2/1.9
Number of tillers per clump	14.2
Number of leaves per tiller	15.6
Colour of rhizome core	Milky yellow core
Colour of scale	Brown

Reactions to biotic/abiotic factors

Rhizome rot	Moderately resistant
Bacterial wilt	Resistant
Shoot borer	Moderately resistant

Special characteristics

Plumpy cylindrical rhizome having medium bold fingers and dark glazy skin, milky yellow core colour. Can be used as vegetable ginger.

Specific recommendations

Use only disease-free clonal planting material. Recommended POPs of SAU are to be followed.

Breeding centre	AICRPS, School of Agricultural Sciences, Nagaland University, Medziphema, Nagaland
Pedigree	Clonal Selection from local genotype, Nadia
Areas of adoption	Both rainfed & irrigated regions of Nagaland, Mizoram, West Bengal & A.P.
Crop duration	270-300 days
Average yield (per ha)	12.2 tonnes fresh rhizomes
Potential yield (per ha)	17.2 tonnes fresh rhizomes



GINGER

IISR-SURASA (Acc.833 / Johns Ginger)

Quality attributes

Essential oil (%)	1.4
Dry recovery (%)	21.97
Oleoresin (%)	4.5
Zingiberene (%)	26.18
Fiber (%)	5.5

Morphological characters

Plant height (cm)	Short (71.5)
Leaf length/breadth (cm)	24.56/3.00
Number of tillers per clump	8.0
Number of leaves per tiller	15.0
Colour of rhizome core	Slight whitish yellow
Colour of scale	Brown

Reactions to biotic/abiotic factors

Rhizome rot	Not observed
Bacterial wilt	Not observed
Shoot borer	Not observed

Special characteristics

Plumpy rhizome with medium bold fingers and yellow white core colour used as vegetable ginger. Suitable to grow under open / multicropping garden/ Ideal for growing in poly bags

Specific recommendations

Use only disease-free clonal planting material. Recommended POPs of IISR are to be followed.

Breeding centre	ICAR-Indian Institute of Spices Research, Kozhikode, Kerala
Pedigree	Clonal Selection for bold rhizome lines, Acc.833 from Pala regions, Kerala
Areas of adoption	Both hills and plains under open/partial shade condition of Kerala
Crop duration	210-240 days (180 days for vegetable use)
Average yield (per ha)	14.5 tonnes fresh rhizomes
Potential yield (per ha)	24.3 tonnes fresh rhizomes

TURMERIC

IISR Surya



Quality attributes

Essential oil (%)	6.0
Dry recovery (%)	28
Curcumin (%)	2.8
Oleoresin (%)	8.1

Morphological characters

Plant height (cm)	98.7
Number of tillers per clump	2.6
Number of leaves per clump	23.6
Yield of rhizomes/clump (g)	388
Number of mother rhizomes	1
Weight of mother rhizome (g)	36.4
Number of primaries	24
Weight of primaries (g)	182
Number of secondaries	36
Weight of secondaries (g)	94
Rhizome colour	Light yellow colour

Reactions to biotic/abiotic factors

Rhizome rot	Resistant
Leaf blotch	Resistant
Shoot borer	Moderately resistant

Special characteristics

High yielding variety, performs well under early and late planting conditions. Produces light-yellow powder, suitable for powdering industries

Specific recommendations

Recommended POPs of IISR are to be followed.

Breeding centre	ICAR-Indian Institute of Spices Research, Kozhikode, Kerala
Pedigree	Clonal Selection from Acc. 849 (IC 654362)
Areas of adoption	Kerala, Telangana, Odisha, Jharkhand and Arunachal Pradesh
Crop duration	240 days
Average yield (per ha)	29 tonnes fresh rhizomes
Potential yield (per ha)	41 tonnes fresh rhizomes



TURMERIC

Narendra Haldi 5 (NDH-98)

Quality attributes

Essential oil (%)	7.0
Dry recovery (%)	21
Curcumin (%)	5.2
Oleoresin (%)	12.97

Morphological characters

Plant height (cm)	126
Number of tillers per clump	2.21
Number of leaves per clump	7.22
Yield of rhizomes/clump (g)	325
Number of mother rhizomes	1
Weight of mother rhizome (g)	35.7
Number of primaries	6-7
Weight of primaries (g)	184
Rhizome colour	Deep orange yellow

Reactions to biotic/abiotic factors

Rhizome rot	Moderately resistant
Leaf spot & blotch	Moderately resistant
Shoot borer	Moderately resistant

Special characteristics

High yielding, bold variety, performs well under rainfed and irrigated conditions. Produces orange-yellow powder, with wider adaptability

Specific recommendations

Recommended POPs of SAU are to be followed.

Breeding centre	AICRP on Spices, A.N.D. University of Agrl. & Tech., Kumarganj, Uttar Pradesh
Pedigree	Clonal selection from local collection from Saharanpur region of Uttar Pradesh
Areas of adoption	Both rainfed & Irrigated areas of U.P.
Crop duration	230-240 days
Average yield (per ha)	38.4 tonnes fresh rhizomes
Potential yield (per ha)	41.4 tonnes fresh rhizomes



TURMERIC

Amruta (GNT-4) / NVST-87)

Quality attributes

Essential oil (%)	0.66
Dry recovery (%)	16.92
Curcumin (%)	4.08
Oleoresin (%)	4.19

Morphological characters

Plant height (cm)	97.40
Number of tillers per clump	5.13
Number of leaves per clump	6.37
Yield of rhizomes/clump (g)	1009.75
Number of mother rhizomes	4.91
Weight of mother rhizome (g)	40
Number of primaries	23.81
Weight of primaries (g)	182.4
Rhizome colour	Medium-red yellow

Reactions to biotic/abiotic factors

Rhizome rot	Resistant
Leaf blotch	Moderately resistant
Shoot borer	Resistant

Special characteristics

early duration variety with moderate curcumin content, resistant to rhizome rot and moderately resistant against leaf blotch diseases in natural field conditions

Specific recommendations

Recommended POPs of SAU are to be followed.

Breeding centre	AICRP on Spices, N. M. College of Agriculture, NAU, Navsari, Gujarat
Pedigree	Clonal selection from Chikhli area of Navsari
Areas of adoption	Turmeric growing areas of Gujarat state
Crop duration	176 days
Average yield (per ha)	40.8 tonnes fresh rhizomes
Potential yield (per ha)	47.8 tonnes fresh rhizomes



TURMERIC

Pitambari (GNT-3 / NVST-84)

Quality attributes

Essential oil (%)	0.56
Dry recovery (%)	18.60
Curcumin (%)	3.29
Oleoresin (%)	4.56

Morphological characters

Plant height (cm)	140
Number of tillers per clump	5.65
Number of leaves per clump	6.47
Yield of rhizomes/clump (g)	674
Number of mother rhizomes	4.95
Weight of mother rhizome (g)	38
Number of primaries	30.47
Weight of primaries (g)	188
Rhizome colour	Reddish yellow

Reactions to biotic/abiotic factors

Rhizome rot	Resistant
Leaf blotch	Moderately susceptible
Shoot borer	Resistant

Special characteristics

High yielding, Late duration variety with moderate curcumin content, resistant to rhizome rot suitable for high rainfall areas

Specific recommendations

Recommended POPs of SAU are to be followed.

Breeding centre	AICRP on Spices, N. M. College of Agriculture, NAU, Navsari, Gujarat
Pedigree	Clonal selection from local germplasm (12NT07) from Waghai (Dangs) district
Areas of adoption	Suitable for South Gujarat zone.
Crop duration	220 days
Average yield (per ha)	32.9 tonnes fresh rhizomes
Potential yield (per ha)	36.4 tonnes fresh rhizomes

MANGO GINGER

IISR Amrit



Quality attributes

Essential oil (%)	0.32
Dry recovery (%)	20.7
Myrcene (%)	55.54
β pinene (%)	14.53

Morphological characters

Colour of aerial shoot	Green
Plant height (cm)	110-120
Leaf length/breadth (cm)	53.13/12.33
Number of tillers per clump	3.6
Number of leaves per tiller	7-8
Colour of rhizome core	Light yellow
Shape of rhizome	Straight
Colour of scale	Brown

Special characteristics

High yielding, bold and plumpy rhizomes having high essential oil, desirable mango flavour owing to its high myrcene (55.54%) and β pinene content (14.53%). Rhizome bold with light yellow core.

Specific recommendations

Recommended package of practices of ICAR-IISR/SAUs are to be followed.

Breeding centre	ICAR-Indian Institute of Spices Research, Kozhikode, Kerala
Pedigree	Clonal selection from Acc. 347 (IC 348622)
Areas of adoption	Kerala, Bihar, Odisha, West Bengal, Chhattisgarh and Gujarat
Crop duration	220-240 days
Average yield (per ha)	31 tonnes fresh rhizomes
Potential yield (per ha)	45 tonnes fresh rhizomes

MANGO GINGER

Amravanti (GNMG-1 / NVMG-3)



Quality attributes

Essential oil (%)	7.15
Dry recovery (%)	29.32
Myrcene (%)	62.80
β pinene (%)	16.93

Morphological characters

Colour of aerial shoot	Light green
Plant height (cm)	59.45
Leaf length/breadth (cm)	32.26/9.75
Number of tillers per clump	9.27
Number of leaves per tiller	6.33
Colour of rhizome core	Pale yellow
Shape of rhizome	Straight
Colour of scale	Brown

Special characteristics

Dwarf and high yielding, bold and plumpy rhizomes having high essential oil, desirable mango flavour. Rhizome bold with pale yellow core. Resistant against rhizome rot and moderate resistance against leaf blight disease.

Specific recommendations

Recommended package of practices of SAUs are to be followed.

Breeding centre	AICRP on Spices, N. M. College of Agriculture, NAU, Navsari, Gujarat
Pedigree	Clonal selection from germplasm collected from <i>Waghai (Dang)</i> , Gujarat
Areas of adoption	South Gujarat Heavy Rainfall Zone
Crop duration	190-195 days
Average yield (per ha)	14.08 tonnes fresh rhizomes
Potential yield (per ha)	23.70 tonnes fresh rhizomes

MANGO GINGER

Jyoti

(GNMG-2 / NVMG-13)



Quality attributes

Essential oil (%)	2.59
Dry recovery (%)	19.53
Myrcene (%)	59.26
β pinene (%)	13.37

Morphological characters

Colour of aerial shoot	Medium green
Plant height (cm)	119.22
Leaf length/breadth (cm)	57.34/14.43
Number of tillers per clump	5.12
Number of leaves per tiller	6.09
Colour of rhizome core	Light Yellow
Shape of rhizome	Curved
Colour of scale	Brown

Special characteristics

High yielding, erect growing habit with moderate tillering suitable for closer planting. Rhizome bold with light yellow core with desirable mango flavour. Resistant against rhizome rot and moderate resistance against leaf blight disease.

Specific recommendations

Recommended package of practices of SAUs are to be followed.

Breeding centre	AICRP on Spices, N. M. College of Agriculture, NAU, Navsari, Gujarat
Pedigree	Clonal selection from Kachuro (13NMG-08) collected from Gandevi, Gujarat
Areas of adoption	South Gujarat Heavy Rainfall Zone
Crop duration	200-210 days
Average yield (per ha)	31.17 tonnes fresh rhizomes
Potential yield (per ha)	35.07 tonnes fresh rhizomes



NUTMEG

Goa Jayphal-3 (NMF-6)

Quality attributes

Nut oil (%)	13.0
Mace oil (%)	9.0
Nut recovery (%)	71.2
Mace recovery (%)	34.8
Oleoresin in nut (%)	31.89
Oleoresin in mace (%)	16.56
Butter in nut (%)	37.55

Morphological characters

Flowering nature	Female-dominated monoecious flower.
Time taken for 1 st flowering	7 years
Average yield per tree	2270 fruits, 3 kg mace, 14 kg dry nut
Colour of mace	Dark Red
Colour of seed	Brown
Size of nut	Medium bold (6.28g)

Special characteristics

High yielding variety selected for its unique quality features like high oil, oleoresin content and nut butter yields.

Specific recommendations

Recommended package of practices of SAU are to be followed.

Breeding centre	ICAR-Central Coastal Agricultural Research Institute, Ela, Old Goa
Pedigree	Clonal selection from elite trees
Areas of adoption	All nutmeg-growing areas of Goa
Crop duration	7 years for first harvest
Average yield (per tree)	2.8-3.0 kg dry mace 13-14 kg dry nuts



KOKUM

Goa Kokum-1 (SDL 1/14)

Quality attributes

Rind TSS (°Brix)	11.6
Rind Acidity (%)	7.68
Pulp TSS (°Brix)	11.1
Pulp Acidity (%)	3.84
Rind weight (g)	28.90
Rind percentage (%)	55.76
Rind thickness (mm)	3.51

Morphological characters

Shape of fruit	Spherical
Shape of seed	Kidney
Colour of fruit	Reddish maroon
Colour of seed	Brown
Fruit & Rind weight	49.3g & 29.0g

Reactions to biotic/abiotic factors

Not noticed

Special characteristics

High yielding variety selected for its big fruit size, high rind weight and thickness

Specific recommendations

Recommended package of practices of SAU are to be followed.

Breeding centre	ICAR-Central Coastal Agricultural Research Institute, Ela, Old Goa
Pedigree	Clonal selection from elite trees
Areas of adoption	All kokum-growing areas of Goa
Crop duration	7 years for first harvest
Average yield (per tree)	1949 fruits; mean yield: 52.28 kg

KOKUM

Goa Kokum-2 (KAS11 104/16)

Quality attributes

Rind TSS (°Brix)	13.3
Rind Acidity (%)	3.41
Pulp TSS (°Brix)	12.63
Pulp Acidity (%)	2.13
Rind weight (g)	25.10
Rind percentage (%)	37.17
Rind thickness (mm)	2.40

Morphological characters

Shape of fruit	Spherical
Shape of seed	Kidney
Colour of fruit	Reddish maroon
Colour of seed	Brown
Fruit & Rind weight	51.1g & 25.1g

Reactions to biotic/abiotic factors

Not noticed

Special characteristics

Early bearing variety, with dwarf, bush-like stature, highly suitable for HDP, and prized for its big fruit size and good quality for processing

Specific recommendations

Recommended package of practices of SAU are to be followed.



Breeding centre	ICAR-Central Coastal Agricultural Research Institute, Ela, Old Goa
Pedigree	Clonal selection from elite trees
Areas of adoption	All kokum-growing areas of Goa
Crop duration	3 years for first harvest
Average yield (per tree)	449 fruits; mean yield: 11.50 kg

KOKUM

Goa Kokum-3 (PED 1/18)

Quality attributes

Rind TSS (°Brix)	13.7
Rind Acidity (%)	2.56
Pulp TSS (°Brix)	13.4
Pulp Acidity (%)	1.28
Rind weight (g)	16.29
Rind percentage (%)	--
Rind thickness (mm)	3.25

Morphological characters

Shape of fruit	Spindle
Shape of seed	Kidney
Colour of fruit	Reddish-Purple
Colour of seed	Brown
Fruit & Rind weight	20.5g & 16.29g

Reactions to biotic/abiotic factors

Not noticed

Special characteristics

Dwarf variety selected for its ornamental look, small spindle-shaped fruits with less acidity

Specific recommendations

Recommended package of practices of SAU are to be followed.



Breeding centre	ICAR-Central Coastal Agricultural Research Institute, Ela, Old Goa
Pedigree	Clonal selection from elite trees
Areas of adoption	All kokum-growing areas of Goa
Crop duration	4 years for first harvest
Average yield (per tree)	57 fruits; mean yield: 1.42 kg

FENNEL

Gujarat Fennel 13 (GF 13)



Crop duration	Medium, 183 days (166-213 days)
Average yield (per ha)	1814 kg
Potential yield (per ha)	2481 kg
Quality attributes	
Essential content (%)	2.88
Morphological characters	
Growth habit	Erect and medium stature
Plant height (cm)	148 cm (166-213 cm)
Number of primary branches	7.8
Number of secondary branches	19.4
Number of umbel per plant	42.7
Number of umbellet per umbel	28.1
Number of seeds per umbel	195.3
1000 seed weight (g)	6.52
Reactions to biotic/abiotic factors	
Leaf Blight	Resistant
Special characteristics	
GF-13 has high seed and oil yield potential, with erect and medium-tall plant stature. Express resistance to Ramularia blight disease	
Specific recommendations	
Recommended POPs of SAU are to be followed.	

Breeding centre	AICRP on Spices, Sardarkrushinagar Dantiwada Agricultural University, Gujarat
Pedigree	Mass selection from local germplasm (Acc-1315), maintained at Jagudan
Areas of adoption	Gujarat, Rajasthan, Haryana, Bihar, and Uttar Pradesh



FENNEL

Gujarat Fennel 3 (Sugandha)

Crop duration	Medium, 208 days (185 -219 days)
Average yield (per ha)	1250 kg
Potential yield (per ha)	2958 kg
Quality attributes	
Essential content (%)	1.67
Morphological characters	
Growth habit	Erect and medium stature
Plant height (cm)	146 cm (120-189 cm)
Number of primary branches	7.8
Number of secondary branches	19.4
Number of umbel per plant	38.4
Number of umbellate per umbel	34.7
Number of seeds per umbel	205
1000 seed weight (g)	6.84
Reactions to biotic/abiotic factors	
Leaf Blight	Resistant
Special characteristics	
GF-3 has bold seed and oil yield potential, with compact seed arrangement in umbel. Express moderate resistance to Ramularia blight disease	
Specific recommendations	
Recommended POPs of SAU are to be followed.	

Breeding centre	AICRP on Spices, Sardarkrushinagar Dantiwada Agricultural University, Gujarat
Pedigree	Pure line selection from local germplasm (Acc. No. 1252), maintained at Jagudan
Areas of adoption	Fennel growing areas of Gujarat

CUMIN

Jodhpur Jeera-1 (JJ-1 / MCU-105)

Quality attributes

Volatile oil content (%)	4.34
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Morphological characters

Growth habit	Erect
Plant height (cm)	37
Number of primary branches	6.7
Number of secondary branches	9.0
Number of umbel per plant	38
Number of umbellate per umbel	54
Number of seeds per umbel	21
1000 seed weight (g)	6-6.5

Reactions to biotic/abiotic factors

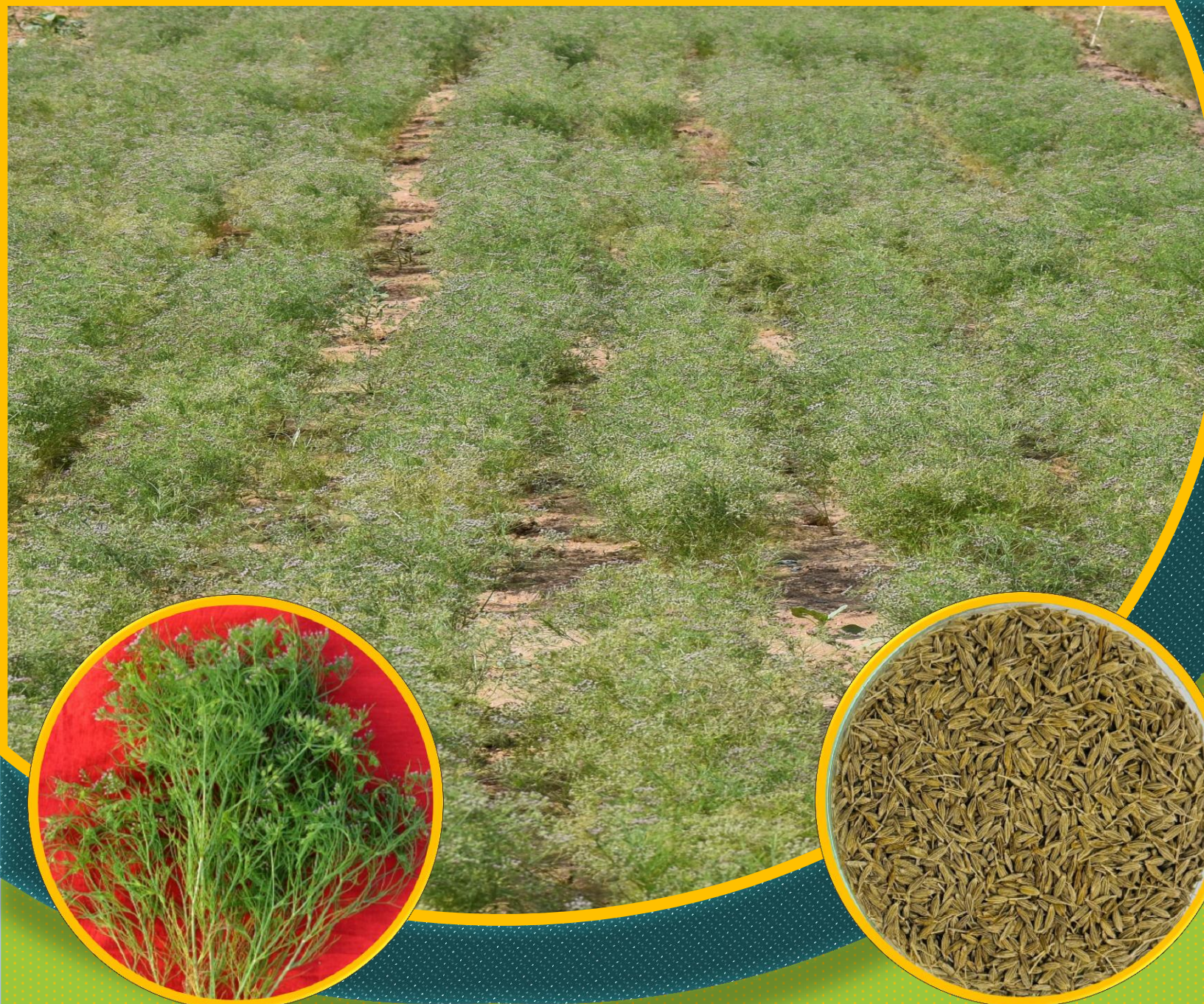
Wilt	Moderate resistant
Blight	Moderate resistant
Aphids	Moderate resistant

Special characteristics

A high yielding, medium maturing variety (120 days) having compact umbel and higher umbel per plant. This variety has moderate resistant against wilt, blight and aphid incidence (Under Natural Conditions).

Specific recommendations

Recommended POPs of SAU are to be followed.



Breeding centre	AICRP on Spices, Dr. B. R. C. Agricultural Research Station, Mandor, Jodhpur
Pedigree	Pure line selection from GP-205, a local germplasm collection
Areas of adoption	Rajasthan
Crop duration	120 days (118-138 days)
Average yield (per ha)	566 kg
Potential yield (per ha)	899 kg

SPICES **TECHNOLOGIES** 2025



LARGE CARDAMOM

Leaf mould mulch application for sustainable productivity and soil health in large cardamom

Application of leaf mould mulch @ 10 t ha⁻¹ enhances dry capsule yield by 41.5%, improves benefit-cost ratio by 56.5%, increases soil moisture content by ~38%, and boosts soil health indicators, including pH (13%), soil organic carbon (SOC, 11.1%), available macronutrients (~21.9%), soil microbial biomass carbon (SMBC, 29%), and acid phosphatase activity (Acid-P, 24.2%), providing a sustainable solution for large cardamom cultivation in the Indian Himalayan region.

This technology is recommended for large cardamom growing regions of NEH viz., Sikkim, Arunachal Pradesh, Nagaland, Meghalaya, and parts of Manipur and Mizoram.

CARDAMOM

Management of leaf blight with foliar application of azole group of fungicides



Two rounds of foliar spray during pre-monsoon (June) and post-monsoon (September) using Hexaconazole (2 ml L^{-1}) or Tebuconazole (1 ml L^{-1}) significantly reduce leaf blight incidence by up to 35% above the recommended package of practices, enhance dry yield by up to 18% (339 g clump^{-1}), and improve the benefit-cost ratio (2.35) under Karnataka and Kerala conditions.

This technology is recommended for Kerala and Karnataka region

CARDAMOM

Management of Rhizome rot with spraying and drenching of azole group of fungicides



Pre- and post-monsoon spraying and drenching of Tebuconazole (1 mL L^{-1}) or Metalaxyl + Mancozeb (1.25 g L^{-1}) significantly reduce rhizome rot incidence by up to 30%, enhance yield by 51% (up to 569 kg/ha), and improve the benefit-cost ratio (3.34) in Karnataka.

Pre and post monsoon spraying and drenching fenamidone + mancozeb@ 2 g L^{-1} has reduced the disease incidence in Kerala conditions for managing rhizome rot in region.

This technology is recommended for Kerala and Karnataka region



GINGER

Application of Trichoprime @ 5% prior to storage to improve vigour of the buds during storage

Priming of ginger seed rhizomes with Trichoprime @ 5% prior to storage enhances bud vigour, improves sprouting, and protects rhizomes from fungal pathogens, resulting in a 7.52% yield increase compared to chemical treatments. This technology ensures uniform tiller emergence, protects the emerging crop from rhizome rot disease, and offers a benefit-cost ratio of 2.29, making it a promising solution for ginger cultivation

This technology is recommended for Kerala, Meghalaya, Andhra Pradesh, Telangana, Jharkhand, Nagaland, Arunachal Pradesh, Odisha, West Bengal, and Chhattisgarh



TURMERIC

Application of Trichoprime @ 5% prior to storage to improve vigour of the buds during storage

Priming turmeric seed rhizomes with Trichoprime @ 5% prior to storage is recommended for improving the vigour of rhizome buds, enhancing sprouting, and protecting seed rhizomes from fungal pathogens during storage, resulting in a yield increase of 5.51% compared to chemical treatment, and ensuring uniform tiller emergence while preventing the growth of storage rot pathogens.

This technology is recommended for Kerala, Tamil Nadu, Telangana, Mizoram, Arunachal Pradesh, Odisha, West Bengal, Himachal Pradesh, and Uttar Pradesh.



ICAR-All India Coordinated Research Project on Spices (AICRPS)

ICAR-Indian Institute of Spices Research

Post bag No. 1701, Marikunnu P.O.,
Kozhikode- 673 012, Kerala, India.

Phone: 0495-2731794/2731410, Fax: 0495-2731794,
e-mail: aicrspices@gmail.com; aicrp.spices@icar.gov.in
Web site: www.aicrps.res.in