



ICAR-AICRPS Varieties



भारत अनुप-अखिल भारतीय समन्वित मसाला अनुसंधान परियोजना ए आई सी आर पी एस
ICAR-All India Coordinated Research Project on Spices



ICAR-Indian Institute of Spices Research
Marikunnu P. O., Kozhikode- 673 012, Kerala, India



ICAR- AICRPS VARIETIES



ICAR-ALL INDIA COORDINATED RESEARCH PROJECT ON SPICES (ICAR-AICRPS)

INDIAN INSTITUTE OF SPICES RESEARCH

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PREFACE

ICAR-All India Coordinated Research Project on Spices (ICAR-AICRPS) is the largest spices research network in the country through which a nationwide collaborative and interdisciplinary research is being carried out, linking ICAR system with the State Agricultural Universities and central institutions. AICRPS was started in 1971 as All India Spices and Cashew nut Improvement Project (AISCIP). In 1986 it became a full-fledged coordinating unit for spices (major spices and seed spices) with its headquarters at ICAR-Indian Institute of Spices Research, Kozhikode, Kerala. In VII plan (1986) it had 12 centres and subsequently grew into 19 regular centres by the end of VIII Plan. Presently, ICAR- AICRPS has 38 centres (19 regular, 11 co-opting and 8 voluntary centres) spreading over 14 agro climatic zones in 25 states of the country. It coordinates the research activities on spice crops like black pepper, large cardamom, small cardamom, ginger, turmeric, mango ginger, cinnamon, nutmeg, clove, coriander, cumin, fennel, fenugreek, ajwain, nigella, saffron and kalazeera.

Crop improvement programmes utilizing the indigenous and exotic germplasm conserved in different AICRPS centres are in progress for the last three decades. This has led to the development of about 175 improved varieties of spices which are capable of doubling the farmer's income. Some of the major attributes of these varieties are provided in this book. The attributes include high yield, high quality, resistant/ tolerant to major pests and diseases. High yielding varieties enhance the income of the farmers as compared to the local cultivars. Industry demands high quality spice varieties for export as well as for value addition and by growing such varieties, the farmers get premium price. Varieties suitable for mixed cropping system ensure more income from an unit area, which also results helps to earn more profit. Development of pest and disease resistant/ tolerant varieties minimizes the pesticide residues, reduces the operational expenses and ensures food safe spice production and also enhances the yield as yield losses due to pests and diseases are minimised.

ICAR-AICRP on Spices is the first institution in the world to develop and popularize hybrids in black pepper and to demonstrate the concept of hybrid vigour in black pepper. Cultivar diversity is one of the principal components of diversity in black pepper, which is exploited in crop improvement programmes. ICAR-Indian Institute of Spices Research (Headquarters of ICAR-AICRPS) is the first in the world to exploit the concept of seed development in turmeric. IISR Prabha and IISR Prathibha are the first ever seed derived varieties of turmeric characterized by high yield and high curcumin and are gaining popularity throughout the country. AICRPS is first in the country to develop inter varietal hybrid of small cardamom ICRI- 5, an early flowering variety with dark green bold capsules which is a preferable character in market. It has also developed bisexual high yielding nutmeg variety, Konkana Sugandha, which eliminates the requirement of male trees in the plantation. Variability is very low in seed spices germplasm. Hence, AICRPS started mutation breeding in seed spices (Jobner centre) to increase the spectrum of variation and many variant lines were developed. This book provides a glimpse of varieties developed by AICRP on Spices in various spice crops which is more useful to farmers to select variety for their region.


1. BLACK PEPPER

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PANNIYUR 1	
Year of release	1967
Pedigree	Hybrid of <i>Uthirankotta</i> x <i>Cheriyakaniyakadan</i>
Salient features	Long spikes (17 cm), bold berries, shoot tip pale yellow and young spikes greenish yellow in colour.
Yield	1242 kg ha ⁻¹
Quality attributes	Piperine 5.3%, essential oil 3.5%, oleoresin 11.8% and dry recovery 35.3%
Reaction to biotic and abiotic stresses	Susceptible to <i>Phytophthora</i> foot rot and nematodes. Does not tolerate heavy shade
Recommended area	All pepper growing regions of India



PANNIYUR 2	
Year of release	1991
Pedigree	Open pollinated progeny of <i>Balankotta</i>
Salient features	Shoot tip colour pale purple. Leaves show faint network of yellow and green patches, medium maturing
Yield	2570 kg ha ⁻¹
Quality attributes	Piperine 6.6 %, essential oil 3.4%, oleoresin 10.9 % and dry recovery 35.8%
Reaction to biotic and abiotic stresses	Shade tolerant, suitable for intercropping
Recommended area	All black pepper growing tracts of Kerala.



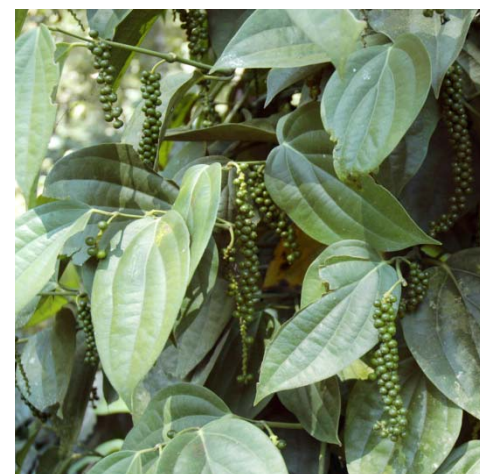
PANNIYUR 3	
Year of release	1991
Pedigree	Hybrid of <i>Uthirankotta</i> x <i>Cheriyakaniyakadan</i>
Salient features	Late maturing type, long spikes and bold berries
Yield	1953 kg ha ⁻¹
Quality attributes	Piperine 5.2%, oleoresin 12.7%, essential oil 3.1% and dry recovery 27.8%
Reaction to biotic and abiotic stresses	Performs well under open condition.
Recommended area	Kerala, Karnataka and Tamil Nadu



PANNIYUR 4	
Year of release	1991
Pedigree	Clonal selection from <i>Kuthiravally</i> type II
Salient features	Stable yielder and late maturing
Yield	1277 kg ha ⁻¹
Quality attributes	Piperine 4.4%, oleoresin 9.2%, essential oil 2.1% and dry recovery 34.7%
Reaction to biotic and abiotic stresses	Performs well under adverse conditions and shade tolerant
Recommended area	Kerala, Karnataka and Tamil Nadu



PANNIYUR 5	
Year of release	1996
Pedigree	Clonal selection from open pollinated progeny of <i>Perumkodi</i>
Salient features	Long spikes, suitable for both mono and mixed cropping in coconut/arecanut gardens, medium maturing
Yield	1110 kg ha ⁻¹
Quality attributes	Piperine 5.3%, oleoresin 12.33%, essential oil 3.8% and dry recovery 35.7%
Reaction to biotic and abiotic stresses	Shade tolerant and tolerant to nursery diseases
Recommended area	Kerala



PANNIYUR 6	
Year of release	2000
Pedigree	Clonal selection from <i>Karimunda</i> type III
Salient features	Stable and regular bearer and medium maturing. Short spikes, more number of spikes/unit area, close setting and attractive bold berries.
Yield	2127 kg ha ⁻¹
Quality attributes	Piperine 4.9%, oleoresin 8.27% essential oil 1.33% and dry recovery 33.0%
Reaction to biotic and abiotic stresses	A vigorous vine tolerant to drought and adverse climatic conditions. Suitable for open condition as well as partial shade.
Recommended area	Kerala



PANNIYUR 7	
Year of release	2000
Pedigree	Open pollinated progeny of <i>Kalluvally</i>
Salient features	Vines vigorous, regular bearer, hardy type and very long spikes (16-24cm).
Yield	1410 kg ha ⁻¹
Quality attributes	Piperine content 5.6%, oleoresin 10.6%, essential oil 1.5% and dry recovery 34.0%
Reaction to biotic and abiotic stresses	Tolerates adverse climatic conditions, suitable for open and shaded conditions.
Recommended area	Kerala, Karnataka and Tamil Nadu



PANNIYUR 8	
Year of release	2013
Pedigree	Hybrid of Panniyur 6 x Panniyur 5
Salient features	Early spiking, more sub-lateral branches producing more number of spikes with attractive dark glossy green colour and compact setting of berries.
Yield	3000 kg ha ⁻¹
Quality attributes	Piperine 5.68%, oleoresin 12.17% essential oil 1.17% and dry recovery 37.0%
Reaction to biotic and abiotic stresses	Field tolerant to drought situations and <i>Phytophthora</i> foot rot.
Recommended area	Kerala



PANNIYUR 9	
Year of release	2017
Gazette notification number	S.O. 261(E) dated 16.01.2018
Pedigree	Open pollinated progeny of Panniyur 3
Salient features	Spikes are medium long with compact setting and medium sized berries. Better performance in hilly tracts.
Yield	3150 kg ha ⁻¹
Quality attributes	Piperine 6.11%, oleoresin 12.71%, essential oil 5% and dry recovery 40.0%
Reaction to biotic and abiotic stresses	Field tolerant to <i>Phytophthora</i> foot rot & <i>Pollu</i> beetle. It is also tolerant to drought conditions.
Recommended area	Kerala, Karnataka and Andhra Pradesh.



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SREEKARA	
Year of release	1990
Pedigree	Clonal selection from <i>Karimunda</i>
Salient features	Medium maturity, high essential oil content
Yield	2677 kg ha ⁻¹
Quality attributes	Piperine 5.1%, oleoresin 13%, essential oil 7% and dry recovery 35.0%
Reaction to biotic and abiotic stresses	Adaptable to various climatic conditions in all the pepper growing tracts including high elevations as well as for intercropping
Recommended area	Kerala, South Karnataka & Tamil Nadu



SUBHAKARA	
Year of release	1990
Pedigree	Clonal selection from <i>Karimunda</i>
Salient features	A selection with high quality pepper. Suitable for intercropping and high elevations and medium maturing type
Yield	2352 kg ha ⁻¹
Quality attributes	Piperine 3.4%, oleoresin 12.4%, essential oil 6% and dry recovery 35.0%
Reaction to biotic and abiotic stresses	Wider adaptability to all pepper growing tracts
Recommended area	Kerala, South Karnataka & Tamil Nadu



PLD -2	
Year of release	1996
Pedigree	Clonal selection from <i>Kottanadan</i>
Salient features	Late maturing, high quality cultivar with high oleoresin content.
Yield	2475 kg ha ⁻¹
Quality attributes	Piperine 3.0%, oleoresin 15.45%, essential oil 4.8% and dry recovery 31.13%
Reaction to biotic and abiotic stresses	Suitable for plains and high elevations
Recommended area	Kerala



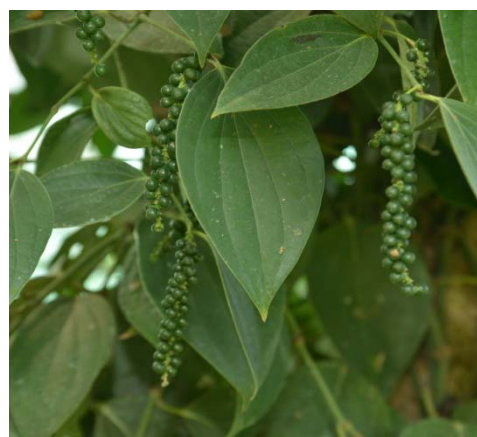
PANCHAMI	
Year of release	2001
Pedigree	Clonal selection from <i>Aimpiriyan</i>
Salient features	A high yielding variety with excellent fruit set. Spike twisted in appearance due to high fruit set. Late maturing.
Yield	2828 kg ha ⁻¹
Quality attributes	Piperine 4.7%, oleoresin 12.5%, essential oil 3.4% and dry recovery 34.0%
Reaction to biotic and abiotic stresses	Suitable for higher elevations.
Recommended area	Kerala & Southern Karnataka



POURNAMI	
Year of release	2001
Pedigree	Clonal selection from germplasm
Salient features	A moderately high yielding vine with high oleoresin content. Shade tolerant & suitable for intercropping with arecanut and banana. Medium maturing type.
Yield	2333 kg ha ⁻¹
Quality attributes	Piperine 5.3%, oleoresin 11.18%, essential oil 3.5% and dry recovery 35.3%
Reaction to biotic and abiotic stresses	Tolerant to root knot nematode (<i>Meloidogyne incognita</i>)
Recommended area	Kerala & Southern Karnataka



IISR SHAKTHI	
Year of release	2004
Pedigree	Open pollinated progeny of <i>Perambramundi</i>
Salient features	Has high dry recovery and oleoresin
Yield	2352 kg ha ⁻¹
Quality attributes	Piperine 3.3%, oleoresin 10.2%, essential oil 3.7% and dry recovery 43%
Reaction to biotic and abiotic stresses	Resistant to <i>Phytophthora</i> foot rot
Recommended area	Kerala & Karnataka



IISR THEVAM	
Year of release	2004
Pedigree	Clonal selection from germplasm of <i>Thevanmundi</i>
Salient features	Stable yielder, suitable for high altitude areas of South India up to 3000ft. Suitable for intercropping in coffee and tea plantations of South India.
Yield	2481 kg ha ⁻¹
Quality attributes	Piperine 1.6%, oleoresin 8.15%, essential oil 3.1% and dry recovery 32.5%
Reaction to biotic and abiotic stresses	Field tolerant to <i>Phytophthora</i> foot rot
Recommended area	Kerala, Karnataka and Tamil Nadu



IISR GIRIMUNDA	
Year of release	2004
Pedigree	Hybrid of <i>Narayakodi</i> x <i>Neelamundi</i>
Salient features	Medium maturing type. High yielding ability and better stability.
Yield	2880 kg ha ⁻¹
Quality attributes	Piperine 2.2%, oleoresin 9.65%, essential oil 3.4% and dry recovery 32.0%
Reaction to biotic and abiotic stresses	Suited for coffee and tea plantations in high altitude areas.
Recommended area	Kerala, Karnataka and Tamil Nadu



IISR MALABAR EXCEL	
Year of release	2004
Pedigree	Hybrid of <i>Cholamundi</i> X <i>Panniyur 1</i>
Salient features	Suitable for higher elevation, plains and coffee & tea estates.
Yield	1440 kg ha ⁻¹
Quality attributes	Piperine 5.1%, oleoresin 13%, essential oil 7% and 35.0% dry recovery
Reaction to biotic and abiotic stresses	Suitable for higher elevation, plains and coffee and tea plantations.
Recommended area	Kerala, Karnataka and Tamil Nadu



2. SMALL CARDAMOM


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MUDIGERE 1	
Year of release	1984
Pedigree	Clonal selection from Malabar type
Salient features	Erect and compact plant, short panicle, pale green, oval bold capsules, pubescent leaves
Yield	275 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 8.0% essential oil, 36.0% 1, 8 cineole, 42.0% α -terpenyl acetate and 20.0% dry recovery
Reaction to biotic and abiotic stresses	Moderately tolerant to thrips, hairy caterpillar and white grubs
Recommended area	Cardamom growing tracts of Karnataka




MUDIGERE 2	
Year of release	1996
Pedigree	Clonal selection from open pollinated progenies of Malabar type
Salient features	Early maturing, round/oval and bold capsules
Yield	475 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 8.0% essential oil, 45.0% 1, 8 cineole, 38.0% α -terpenyl acetate
Reaction to biotic and abiotic stresses	Suitable for high density planting
Recommended area	Hill zone of Karnataka




MUDIGERE 3	
Year of release	2010
Pedigree	Clonal selection from Clone- 692
Salient features	Capsules are oval/ oblong in shape which is light green, turning pale yellow on ripening.
Yield	400 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 8.6% essential oil
Reaction to biotic and abiotic stresses	Tolerant to thrips and borer
Recommended area	Karnataka




PV 1	
Year of release	1991
Pedigree	A selection from Walayar collection, a Malabar type
Salient features	An early maturing type, short panicle, elongated slightly ribbed light green capsules
Yield	260 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 6.8% essential oil, 33.0% 1, 8 cineole, 46.0% α -terpenyl acetate and 19.9% dry recovery
Reaction to biotic and abiotic stresses	Tolerant to thrips and capsule borer
Recommended area	Cardamom growing tracts of Kerala



PV 2	
Year of release	2001
Pedigree	A selection from OP seedlings of PV-1, a Malabar type.
Salient features	Early maturing, unbranched lengthy panicle, long bold capsules. Suitable for elevation range of 1000-1200 m above MSL
Yield	982 kg ha ⁻¹ (dry capsule)
Quality attributes	High dry recovery (23.8%), 10.45% essential oil
Reaction to biotic and abiotic stresses	Field tolerant to stem borer and thrips.
Recommended area	Idukki area of Kerala



PV 3	
Year of release	2014
Pedigree	Clonal Selection
Salient features	Parrot green bold capsules Cured capsules ellipsoid and maintain attractive green colour
Yield	611.0 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 7.2% essential oil and 18.5% dry recovery
Reaction to biotic and abiotic stresses	Moderately tolerant to thrips and capsule borer
Recommended area	Cardamom Hill Reserves of Kerala




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ICRI 1	
Year of release	1992
Pedigree	Selection from Chakkupallam collection, a Malabar type
Salient features	An early maturing variety, medium sized panicle with globose, round and extra bold dark green capsules
Yield	325 kg ha ⁻¹ (dry capsule) (656 kg ha ⁻¹ under irrigated condition)
Quality attributes	Contains 8.7% essential oil, 29.0% 1,8 cineole, 38.0% α -terpenyl acetate and 22.9% dry recovery
Reaction to biotic and abiotic stresses	Susceptible to thrips and virus
Recommended area	South Idukki zone of Kerala



ICRI 2	
Year of release	1992
Pedigree	Clonal selection from germplasm collection, a Mysore type
Salient features	Performs well under high altitude and irrigated condition, medium long panicles, oblong bold and parrot green capsules
Yield	375 kg ha ⁻¹ (dry capsule) (766 kg ha ⁻¹ under irrigated condition)
Quality attributes	Contains 9% essential oil, 29.3% 1,8 cineole, 36.0% α -terpenyl acetate and dry recovery 22.5%.
Reaction to biotic and abiotic stresses	Tolerant to <i>Azhukal</i> disease
Recommended area	Kerala & Tamil Nadu



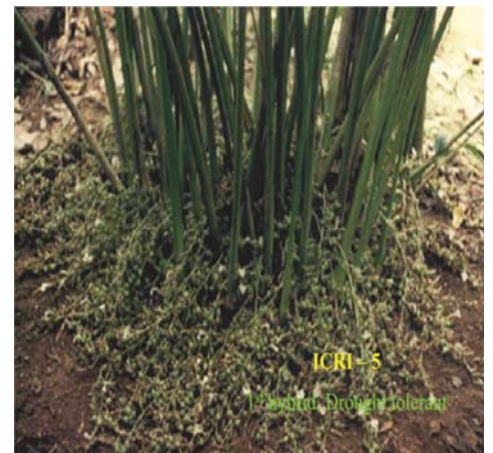
ICRI 3	
Year of release	1993
Pedigree	Selection from Malabar type
Salient features	Early maturing, non-pubescent leaves, oblong, bold parrot green capsules
Yield	440 kg ha ⁻¹ (dry capsule) (790 kg ha ⁻¹ under irrigation)
Quality attributes	Contains 6.6% essential oil, 54.0% 1, 8 cineole, 24.0% α -terpenyl acetate and 22.0% dry recovery
Reaction to biotic and abiotic stresses	Moderately tolerant to <i>Azhukal</i> , thrips and shoot borer
Recommended area	Cardamom growing tracts of Karnataka



ICRI 4	
Year of release	1997
Pedigree	Clonal selection from Vadagaraparai area of lower Pulney hills, Malabar type
Salient features	Early maturity, medium sized panicle, globose bold capsules and suitable for low rainfall areas
Yield	455 kg ha ⁻¹ (dry capsule) (960 kg ha ⁻¹ under irrigation)
Quality attributes	Contains 6.4% essential oil, 49.8% 1,8 cineole, 22.6% α -terpenyl acetate and 17.0% dry recovery
Reaction to biotic and abiotic stresses	Relatively tolerant to rhizome rot and capsule borer
Recommended area	Lower Pulney hills of Tamil Nadu & Wayanad of Kerala



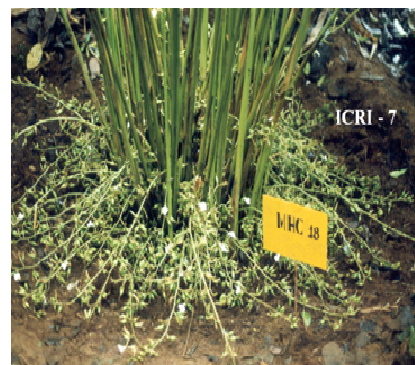
ICRI 5	
Year of release	2006
Pedigree	Hybrid between MCC-260 x MCC-49
Salient features	First hybrid variety; early maturity, moderately tolerant to drought, high yield under intensive management, 68% bold capsules (> 7 mm)
Yield	1543 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 7.13% essential oil, 29.1% 1,8 cineole, 44.4% α -terpenyl acetate and 23.15% dry recovery
Reaction to biotic and abiotic stresses	Moderately tolerant to virus and rhizome rot
Recommended area	Kerala and Tamil Nadu



ICRI 6	
Year of release	2006
Pedigree	Selection from local germplasm (Anavilasam in Idukki district of Kerala)
Salient features	High yield, medium maturity, relatively tolerant to drought, high percentage of bold capsules and volatile oil content, 71% bold capsules (> 7 mm)
Yield	1200 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 7.33% essential oil, 28.5% 1,8 cineole, 48.5% α -terpenyl acetate and 19% dry recovery
Reaction to biotic and abiotic stresses	Moderately tolerant to thrips
Recommended area	Kerala and Tamil Nadu



ICRI 7	
Year of release	2010
Pedigree	Hybrid (MCC-12 X MCC-35)
Salient features	Semi-erect panicles, angular bold pale green capsules
Yield	1000 kg ha ⁻¹ (dry capsule)
Quality attributes	Contains 8.84% essential oil, 29.3% 1,8 cineole, 46.2% α -terpenyl acetate and 22.24% dry recovery
Reaction to biotic and abiotic stresses	Susceptible to thrips and virus
Recommended area	Kerala and Tamil Nadu



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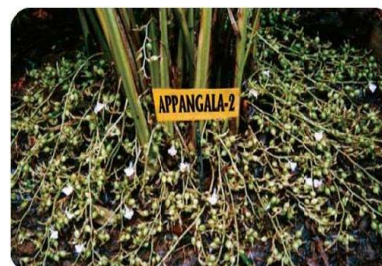
APPANGALA 1	
Year of release	1993
Pedigree	A selection from open pollinated progeny of CL-37
Salient features	Early maturing, suitable for high density planting, long panicles. Highly adapted and produces 89% bold (7.2 mm and above) capsules. Responds well to nutritional inputs
Yield	745 kg ha ⁻¹ (dry capsule) potential yield (dry) 1322 kg ha ⁻¹
Quality attributes	Contains 8.7% essential oil, 42.0% 1,8 cineole 37.0% α -terpenyl acetate and 22.0% dry recovery
Reaction to biotic and abiotic stresses	Tolerant to thrips & shoot borer
Recommended area	Karnataka, Kerala & Tamil Nadu



IISR AVINASH	
Year of release	1999
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	A selection from open pollinated progeny of Appangala 1
Salient features	Has extended flowering period. Dark green capsules and retains its colour even after processing
Yield	847 kg ha ⁻¹ (dry capsule) potential yield (dry) of 1483 kg ha ⁻¹
Quality attributes	High essential oil (6.7%), 30.4% 1,8 cineole and 34.6 % α terpinyl acetate content
Reaction to biotic and abiotic stresses	Resistant to rhizome rot / clump rot
Recommended area	Kodagu, Hassan and Chikkamagaluru in Karnataka and Wayanad in Kerala



APPANGALA 2	
Year of release	2018
Gazette notification number	S.O. 261(E) dated 16 January 2018
Pedigree	Hybrid of Appangala 1 × NKE 19
Salient features	First <i>Katte</i> (Cardamom mosaic virus) resistant hybrid, Malabar type, has high oil and high α -terpenyl acetate
Yield	927.3 kg ha ⁻¹ (dry capsule)
Quality attributes	Suitable for Western Ghats forests with filtered shade at an altitude of 600-1000 m above MSL with an annual rainfall of about 1500-3500 mm
Reaction to biotic and abiotic stresses	Contains 6.3% essential oil, 40.3% α -terpenyl acetate and 21.10% dry recovery
Recommended area	Kodagu, Karnataka and Wayanad, Kerala




3. GINGER

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SUPRABHA	
Year of release	1988
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Clonal selection from <i>Kunduli</i> Local
Salient features	Plumpy flat rhizomes with bright glazy skin and light brown scale leaves, wide adaptability, suitable for both early and late sowing
Yield	16.6 t ha ⁻¹
Quality attributes	Contains less fibre 4.4%, essential oil 1.9%, oleoresin 6.8% and dry recovery 20.5%
Reaction to biotic and abiotic stresses	Moderately resistant to soft rot and leaf spot
Recommended area	Odisha, Chhattisgarh, Andhra Pradesh and Madhya Pradesh



SURAVI	
Year of release	1991
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Induced mutant of <i>Rudrapur</i> Local
Salient features	Plumpy rhizome, dark skinned yellow fleshed, duration 225 days, suitable for both irrigated and rainfed conditions
Yield	17.5 t ha ⁻¹
Quality attributes	Contains essential oil 2.1%, oleoresin 10.2%, crude fibre 4.0%, dry recovery 23.6%.
Reaction to biotic and abiotic stresses	Moderately resistant to soft rot and leaf spot
Recommended area	Odisha, West Bengal, Chhattisgarh, Andhra Pradesh and Madhya Pradesh



SURUCHI	
Year of release	1992
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	A clonal selection (PGS-19) from <i>Kunduli Local</i>
Salient features	Slender, cylindrical and nobby rhizomes with round tip, greenish yellow fresh rhizome core, nodes covered with reddish brown scale leaves, duration 215-220 days.
Yield	12 t ha ⁻¹
Quality attributes	Contains essential oil 1.5%, oleoresin 7%, crude fibre 3.5%, dry recovery 23.0%
Reaction to biotic and abiotic stresses	Moderately resistant to soft rot and leaf spot
Recommended area	Odisha and Chhattisgarh



SOURABH	
Year of release	2016
Pedigree	Clonal selection
Salient features	Plumpy cylindrical rhizome with short internodes
Yield	14 t ha ⁻¹
Quality attributes	Contains essential oil 1.62%, oleoresin 4.8%, and dry recovery 21.7%
Reaction to biotic and abiotic stresses	Moderately tolerant to leaf spot, bacterial wilt, shoot borer and scales
Recommended area	Eastern plateau and hill regions



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IISR VARADA	
Year of release	1995
Pedigree	Clonal selection
Salient features	Good quality, high yielding variety with plumpy rhizomes having flattened fingers and medium sized reddish brown scales. Low fibre content.
Yield	22.6 t ha ⁻¹
Quality attributes	Contains essential oil 1.75% , oleoresin 6.3%, dry recovery 20.7%, fibre content 3.29-4.5%
Reaction to biotic and abiotic stresses	Dry ginger is less prone to storage insect damage. Tolerant to diseases
Recommended area	All ginger growing regions



IISR MAHIMA	
Year of release	1995
Pedigree	Clonal selection
Salient features	Good quality, high yielding variety with plumpy rhizomes having flattened fingers and medium sized reddish brown scales. Low fibre content.
Yield	22.6 t ha ⁻¹
Quality attributes	Contains essential oil 1.75% , oleoresin 6.3%, dry recovery 20.7%, fibre content 3.29-4.5%
Reaction to biotic and abiotic stresses	Dry ginger is less prone to storage insect damage. Tolerant to diseases
Recommended area	All ginger growing regions



IISR REJATHA	
Year of release	2004
Pedigree	Selection from germplasm
Salient features	High yielder, plumpy and bold rhizomes
Yield	22.4 t ha ⁻¹
Quality attributes	Contains essential oil 2.36%, oleoresin 6.3%, dry recovery 23.0%, fibre content 4%
Reaction to biotic and abiotic stresses	Relatively free from diseases
Recommended area	Kerala and Karnataka



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HIMGIRI	
Year of release	1996
Pedigree	Clonal selection from Himachal collection
Salient features	Best for fresh ginger, 230 days duration, suitable for rainfed condition
Yield	13.5 t ha ⁻¹
Quality attributes	Contains oleoresin 4.29%, essential oil 1.6%, crude fibre 6.05%, dry recovery 20.2%
Reaction to biotic and abiotic stresses	Less susceptible to rhizome rot disease
Recommended area	Himachal Pradesh



SOLAN GIRIGANGA	
Year of release	2018
Pedigree	Clonal selection from genotype GCP-49
Salient features	Plumpy and bold rhizomes with pink brown buds having high quality attributes and less incidence of rhizome rot.
Yield	20 t ha ⁻¹
Quality attributes	Contains essential oil -1.45%, oleoresin - 4.69%, crude fibre 4.47%
Reaction to biotic and abiotic stresses	< 10% incidence of rhizome rot.
Recommended area	Eastern and western Himalayas




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MOHINI	
Year of release	2018
Gazette notification number	S.O. 261(E) dated 16 January 2018
Pedigree	Clonal selection from genotype GCP-49
Salient features	Bold rhizomes, suitable for rainfed conditions
Yield	14 t ha ⁻¹
Quality attributes	Contains essential oil 1.3%, oleoresin 4.1%, dry recovery 21.7%, fibre content 5.3%
Recommended area	Kerala, Odisha, Himachal Pradesh and West Bengal




4. TURMERIC

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ROMA	
Year of release	1988
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Clonal selection from T. Sunder
Salient features	Suitable for both rainfed and irrigated condition. Duration 250 days. Suitable for hilly region and late season planting
Yield	20.7 t ha ⁻¹
Quality attributes	Curcumin 6.1%, oleoresin 13.2%, essential oil 4.2% and dry recovery 31.0%
Reaction to biotic and abiotic stresses	Moderately tolerant to rhizome rot and leaf blotch
Recommended area	Odisha, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Kerala




SUROMA	
Year of release	1989
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Clonal selection from T. Sunder by x-ray irradiation
Salient features	Round and plumpy rhizome, duration 253 days.
Yield	20 t ha ⁻¹
Quality attributes	Curcumin 6.1%, oleoresin 13.1%, essential oil 4.4% and dry recovery 26.0%
Reaction to biotic and abiotic stresses	Field tolerance to leaf blotch, leaf spot and rhizome scale
Recommended area	Odisha, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Kerala




RASHMI	
Year of release	1992
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Clonal selection from Rajapuri Local
Salient features	Bold rhizomes, Suitable for both rainfed and irrigated condition. Early and late season planting.
Yield	31.3 t ha ⁻¹
Quality attributes	Curcumin 6.4%, oleoresin 13.4%, essential oil 4.4% and dry recovery 23.0%, duration 240 days
Reaction to biotic and abiotic stresses	Resistance to leaf blotch and leaf spot
Recommended area	Odisha, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Kerala




SUGUNA	
Year of release	1991
Pedigree	Selection from germplasm collected from Assam
Salient features	Short duration type (190 days)
Yield	29.3 t ha ⁻¹
Quality attributes	Curcumin 4.9%, oleoresin 13.5%, essential oil 6.0% and dry recovery 20.4%
Reaction to biotic and abiotic stresses	Field tolerant to rhizome rot.
Recommended area	Odisha, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Kerala



SUDARSHANA	
Year of release	1991
Pedigree	Selection from germplasm, collected from Singhat, Manipur
Salient features	Early maturing (190 days)
Yield	28.8 t ha ⁻¹
Quality attributes	Curcumin 7.9%, oleoresin 15.0%, essential oil 7.0% and dry recovery 20.6%
Reaction to biotic and abiotic stresses	Field tolerant to rhizome rot.
Recommended area	Odisha, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Kerala



SUVARNA	
Year of release	1991
Pedigree	Selection from germplasm collected from Assam
Salient features	Bright orange coloured rhizome with slender fingers. Maturity 200 days
Yield	17.4 t ha ⁻¹
Quality attributes	Curcumin 4.3%, oleoresin 13.5%, essential oil 7.0% and dry recovery 20.0%.
Reaction to biotic and abiotic stresses	Field tolerant to rhizome rot, leaf blotch, leaf spot, rhizome scale and shoot borer
Recommended area	Kerala, Karnataka and Andhra Pradesh



IISR PRABHA	
Year of release	1996
Pedigree	Open pollinated progeny, selection
Salient features	High yielding variety, crop duration 205 days.
Yield	28.8 t ha ⁻¹
Quality attributes	Curcumin 6.5%, oleoresin 15.0%, essential oil 6.5% and dry recovery 19.5%
Reaction to biotic and abiotic stresses	Free from disease in farmers field
Recommended area	Kerala and Tamil Nadu



IISR PRATHIBA	
Year of release	1996
Pedigree	Open pollinated progeny selection
Salient features	High quality line, crop duration 225 days.
Yield	37.5 t ha ⁻¹
Quality attributes	Curcumin 6.2% , oleoresin 16.2%, essential oil 16.2% and dry recovery 18.5%
Reaction to biotic and abiotic stresses	Resistant to root knot nematode.
Recommended area	Kerala, Tamil Nadu and other states



IISR ALLEPPEY SUPREME	
Year of release	2004
Pedigree	A clonal selection from <i>Alleppey</i> turmeric
Salient features	Crop duration 210 days, suitable for rainfed and irrigated conditions
Yield	35.4 t ha ⁻¹
Quality attributes	Curcumin 5.55%, oleoresin 16.0% and dry recovery 19.0%
Reaction to biotic and abiotic stresses	Tolerant to leaf blotch disease
Recommended area	Kerala (rainfed), Maharashtra, Karnataka and North Bengal (irrigated)



IISR KEDARAM	
Year of release	2004
Pedigree	Clonal selection from germplasm
Salient features	Consistency in curcumin content
Yield	34.5 t ha ⁻¹
Quality attributes	Curcumin 5.5%, oleoresin 13.6%, maturity 210 days and dry recovery 18.9%
Reaction to biotic and abiotic stresses	Tolerant to leaf blotch disease
Recommended area	Kerala (rainfed) Maharashtra, Karnataka and N. Bengal (irrigated)



IISR PRAGATI	
Year of release	2016
Gazette notification number	S.O. 692(E) dated 16 January 2018
Pedigree	Clonal selection from germplasm collections
Salient features	High yield potential, short duration and curcumin content of 5%
Yield	33.19 t ha ⁻¹
Quality attributes	Curcumin 5.02%, oleoresin 15.29%, essential oil 6.3%
Reaction to biotic and abiotic stresses	Moderately tolerant to root-knot nematodes
Recommended area	Kerala, Karnataka, Andhra Pradesh, Chhattisgarh and Telangana



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BSR-2	
Year of release	1994
Pedigree	Induced mutant from Erode local
Salient features	High yielding short duration variety with bigger rhizomes
Yield	32.7 t ha ⁻¹
Quality attributes	Curcumin 3.8%
Reaction to biotic and abiotic stresses	Resistance to scale insects
Recommended area	Tamil Nadu



CL 34 (C03)	
Year of release	2017
Pedigree	Clonal selection from germplasm
Salient features	Foliar disease resistant variety of turmeric
Yield	32 t ha ⁻¹
Quality attributes	Curcumin 3.30%, oleoresin 8.33% and essential oil 6.0%
Reaction to biotic and abiotic stresses	Tolerance to leaf spot and leaf blotch diseases
Recommended area	Tamil Nadu, Uttar Pradesh and Chhattisgarh



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SURANJANA	
Year of release	2000
Pedigree	Clonal selection from local types of West Bengal
Salient features	Duration 235 days, suitable for open and shaded conditions, sole or intercrop, suitable for rainfed as well as high rainfall areas
Yield	29.0 t ha ⁻¹
Quality attributes	Curcumin 5.7%, oleoresin 10.9%, essential oil 4.1% and dry recovery 21.2%
Reaction to biotic and abiotic stresses	Tolerant to leaf blotch and rhizome rot. Resistant to rhizome scales and moderately resistant to shoot borer.
Recommended area	West Bengal



UTTAR RANGINI	
Year of release	2018
Pedigree	Clone from TCP 129 from Gayerkata of West Bengal
Salient features	High yielding, moderate curcumin variety
Yield	28.91 t ha ⁻¹
Quality attributes	Curcumin 5.10%, oleoresin 12.25%, essential oil 6.53%
Reaction to biotic and abiotic stresses	Tolerant to leaf spot and leaf blotch
Recommended area	West Bengal, Bihar and Tamil Nadu



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NARENDRA HALDI -1	
Year of release	2007
Pedigree	Selection from germplasm (NDH 18)
Salient features	High yield potential, good size and colour of rhizomes
Yield	30-35 t ha ⁻¹
Quality attributes	Curcumin 5-6%, oleoresin 9.8% and essential oil 2-3%
Recommended area	Uttar Pradesh




NARENDRA HALDI - 2	
Year of release	2012
Pedigree	Selection from germplasm (NDH 14)
Salient features	High yield potential, good size finger
Yield	35-40 t ha ⁻¹
Quality attributes	Curcumin 5-7%, oleoresin 12 % and essential oil 2-3%
Recommended area	Uttar Pradesh




NARENDRA HALDI - 3	
Year of release	2014
Pedigree	Selection from germplasm (NDH 9)
Salient features	High yielding with good size fingers
Yield	32.5-35 t ha ⁻¹
Quality attributes	Curcumin 4-6%, oleoresin 10-12 % and essential oil 2.9-3.5%
Reaction to biotic and abiotic stresses	Moderate resistance against leaf spot and leaf blotch, resistant to root knot nematode
Recommended area	Uttar Pradesh



NDH-98	
Year of release	2016
Pedigree	Clonal selection of the local land race
Salient features	High yield potential, good for curcumin essential oil extraction
Yield	35-37 t ha ⁻¹
Quality attributes	Curcumin 4.3- 5.2%, oleoresin 11.09-12.97%, essential oil 6.8-7.0% and dry recovery 19-21%
Reaction to biotic and abiotic stresses	Moderately resistant to leaf blotch and tolerant to leaf spot
Recommended area	All the turmeric growing regions of the country



NDH 8 (NARENDRA SARAYU)	
Year of release	2017
Pedigree	Selection from a local landrace collected from Sonbhadra, Uttar Pradesh
Salient features	High curcumin content of 5-6%, more number of primary rhizomes and 10% higher yield over the national check. Suitable for powder industry
Yield	25 t ha ⁻¹
Quality attributes	Curcumin 5.6%, oleoresin 12-14%, essential oil 6.7%
Reaction to biotic and abiotic stresses	Moderately resistant to foliar disease
Recommended area	Uttar Pradesh




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DUGGIRALA RED	
Year of release	2013
Pedigree	Mass selection
Salient features	High yielding variety, Rhizomes are long, plumpy, strong and very deep orange in colour.
Yield	25 t ha ⁻¹
Quality attributes	Curcumin 3-4%
Recommended area	Andhra Pradesh




CINNAMON

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YCD-1	
Year of release	1996
Pedigree	Clonal selection from open pollinated seedling progenies of Sri Lankan type
Salient features	Good bark recovery, adapted to wide range of soil and rainfed conditions
Yield	Dry bark yield of 360 kg ha ⁻¹
Quality attributes	Bark oil 2.8%, leaf oil 3.0% and bark recovery 35.3%.
Recommended area	Hilly areas (500-1000 m above MSL)




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PPI (C)-1	
Year of release	2003
Pedigree	Selection from OP seedlings progeny introduced from Sri Lanka
Salient features	Suitable for cultivation in high rainfall zones and hill regions of Tamil Nadu
Yield	Fresh bark yield of 980 kg ha ⁻¹
Quality attributes	High bark oil (2.9%), leaf oil (3.3%) and bark recovery 34.22%.
Recommended area	Hill regions of Tamil Nadu (100-500 m MSL)



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KONKAN TEJ		
Year of release	1993	
Pedigree	Seedling selection from progenies of Sri Lankan type	
Salient features	Superior quality type suitable for Konkan region of Maharashtra	
Yield	Fresh bark yield of 334 g plant ⁻¹	
Quality attributes	Bark oil 3.2 %, leaf oil 2.28 % and bark recovery 29.16%.	
Recommended area	Hilly areas (500-1000 m above MSL)	

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IISR NAVASHREE		
Year of release	1995	
Pedigree	Seedling selection from Sri Lankan collection	
Salient features	A selection with high shoot regeneration capacity. Higher cinnamaldehyde and oleoresin in bark.	
Yield	200 kg dry quills ha ⁻¹	
Quality attributes	Bark oil 2.7% , leaf oil 2.8% , bark oleoresin 8.0% , bark recovery 40.6%, cinnamaldehyde in bark oil 73%, cinnamaldehyde in leaf oil 15% , eugenol in bark oil 6.0% , eugenol in leaf oil 62%	
Reaction to biotic and abiotic stress	No major pest or disease attack was noticed.	
Recommended area	All cinnamon growing areas of India	

IISR NITHYASHREE		
Year of release	1995	
Pedigree	Clonal selection	
Salient features	Higher shoot regeneration	
Yield	200 kg dry quills ha ⁻¹	
Quality attributes	High quality quills with bark oil 2.7% , leaf oil 3.0% , bark oleoresin 10.0% , bark recovery 30.7%, cinnamaldehyde in bark oil 58% , cinnamaldehyde in leaf oil 14%, eugenol in bark oil 5.0%, eugenol in leaf oil 78%	
Reaction to biotic and abiotic stress	No major pest or disease attack was noticed.	
Recommended area	All cinnamon growing areas of India	


CLOVE

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PPI (CL) 1	
Year of release	2012
Pedigree	Selection
Salient features	First clove variety with high essential oil
Yield	5.2 kg dry flower bud tree ⁻¹
Quality attributes	Essential oil content 6% and bark recovery 34.2%
Recommended area	Tamil Nadu




CASSIA

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IISR CASSIA (D1)	
Year of release	2017
Pedigree	Clonal selection from elite trees
Salient features	First cassia variety with low coumarin content
Yield	262.94 kg ha ⁻¹ dry bark yield
Quality attributes	Coumarin content 19.9 mg kg ⁻¹ , oil content in bark 24 %.
Recommended area	Suitable for Cassia growing regions of the country




NUTMEG

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KONKAN SUGANDHA	
Year of release	1998
Pedigree	Single plant selection from local seedling population
Salient features	Bisexual type. Tree canopy is conical and compact
Yield	200-526 fruits tree ⁻¹
Quality attributes	Nut oil 27.6%, mace oil 18.03%
Recommended area	Adaptable in Konkan region




KONKAN SWAD	
Year of release	2003
Pedigree	Selection from nutmeg seedlings from Ratnagiri district
Salient features	Adapted to warm, humid conditions as well as shade provision. Canopy erect, conical in shape.
Yield	760 fruits tree ⁻¹
Quality attributes	Contains 39.8% essential oil in nut and 10.9% in mace.
Recommended area	Konkan region of Maharashtra





KONKAN SHRIMANTI	
Year of release	2003
Pedigree	Selection from nutmeg seedlings from Ratnagiri district
Salient features	Adapted to warm, humid conditions as well as shade provision. Canopy erect, conical in shape.
Yield	760 fruits tree ⁻¹
Quality attributes	Contains 39.8% essential oil in nut and 10.9% in mace.
Recommended area	Konkan region of Maharashtra





KONKAN SANYUKTA	
Year of release	2018
Pedigree	Seedling progeny of Acc No. A9/20
Salient features	Monoecious nutmeg bearing bold nuts (9.20 g), mace wt (1.07 g).
Yield	500 fruits plant ⁻¹
Quality attributes	High nut oil (27%) and mace oil (17.75%).
Reaction to biotic and abiotic stress	Low incidence of dieback, shot hole and fruit rot diseases and very low incidence of scale insects
Recommended area	Maharashtra



IISR VISHWASHREE	
Year of release	2002
Pedigree	Clonal selection from elite trees (Mannoor, Calicut)
Salient features	Bushy, compact canopy with high quality and low incidence of fruit rot
Yield	1000 fruits tree ⁻¹
Quality attributes	Nut oil 7.14% , mace oil 7.13%, nut recovery 70% , mace recovery 35%, oleoresin in nut 2.48%, oleoresin in mace 13.8%, butter in nut 30.9%, myristicin in nut oil 12.48%, myristicin in mace oil 22.0 % , elemicin in nut oil 13.65% , elemicin in mace oil 20.8%
Reaction to biotic and abiotic stress	Low incidence of fruit rot caused by <i>Diplodia</i> spp
Recommended area	All nutmeg growing areas of Kerala

IISR KERALASHREE	
Year of release	2012
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Seedling selection from Burliar. The first variety developed by farmer's Participatory Breeding
Salient features	High yield, high quality and extra bold fruit mace and nut
Yield	2000 fruits tree ⁻¹
Quality attributes	Nut oil 5.9%, mace oil 7.5% , nut recovery 70%, mace recovery 35%, oleoresin in nut 9.1%, butter in nut 24.9%, myristicin in nut oil 1.6%, myristicin in mace oil 9.4 % , elemicin in nut oil 1.4%, elemicin in mace oil 0.07%, α- pinene in nut oil 7.1%, α -pinene in mace oil 4.7%, sabinene in nut oil 35.4%, sabinene in mace oil 29.4%
Reaction to biotic and abiotic stress	Low incidence of fruit rot caused by <i>Diplodia</i> spp
Recommended area	All nutmeg growing areas of India


6. CORIANDER

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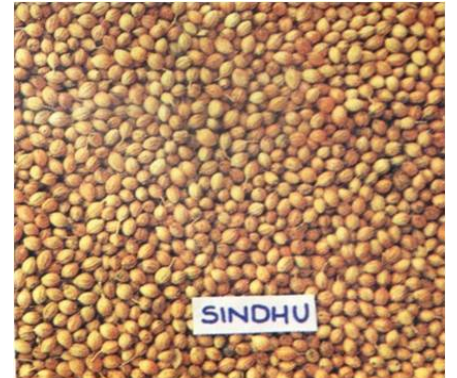
SADHANA	
Year of release	1989
Pedigree	Mass selection from local Alur collection
Salient features	Dual purpose, semi-erect variety; mid late variety (95-110 days duration). Responds well to input management under optimum moisture conditions.
Yield	10.25 q ha ⁻¹
Quality attributes	0.2% essential oil
Reaction to biotic and abiotic stress	Field tolerance to diseases and white fly, mites and aphids. Suitable for rainfed condition, withstands moisture stress.
Recommended area	Andhra Pradesh



SWATHI	
Year of release	1989
Pedigree	Mass selection from Nandyal germplasm
Salient features	Plants medium size semi erect type. Early maturing variety (80 -85 days), suitable for rainfed condition and late sowing, medium sized oval grains.
Yield	8.55 q ha ⁻¹
Quality attributes	0.30% essential oil
Reaction to biotic and abiotic stress	Field tolerant to white fly, moderately tolerant to powdery mildew disease. It suits well to the areas where the soil moisture retentiveness is less.
Recommended area	Rainfed areas in Andhra Pradesh



SINDHU	
Year of release	1991
Pedigree	Mass selection from germplasm Warangal local
Salient features	Oval medium breakable grains, medium duration (100-110 days), suitable for rainfed areas.
Yield	10.00 q ha ⁻¹
Quality attributes	0.4% essential oil
Reaction to biotic and abiotic stress	Tolerant to wilt, powdery mildew as well as drought condition
Recommended area	Andhra Pradesh



SUDHA (LCC-128)	
Year of release	2006
Pedigree	Mass selection from landrace collection (collected from <i>Koppolla</i> in <i>Ongole</i>)
Salient features	High seed yield, bold oblong shaped medium sized grains with attractive colour and medium duration under rainfed conditions (80-100 days), early in north Indian conditions.
Yield	Yield potential 16.9 q ha ⁻¹ ; 7.50-10.00 q ha ⁻¹ (rainfed) 12.00-15.00 q ha ⁻¹ (irrigated)
Quality attributes	0.40% essential oil
Reaction to biotic and abiotic stress	Less susceptible to pests and diseases
Recommended area	Andhra Pradesh (rainfed areas)




SUGUNA (LCC - 236)	
Year of release	2012
Gazette notification	S.O. 692(E) dated 05 February 2019
Pedigree	Mass selection from land race selected from Nagulapalem village of Prakasam district, Andhra Pradesh
Salient features	Climate resilient and widely adaptable across the country and suitable for cultivation both under rainfed and irrigated conditions.
Yield	7.5-13.5 q ha ⁻¹
Quality attributes	0.49% essential oil
Recommended area	Andhra Pradesh, Gujarat, Rajasthan, Tamil Nadu and Uttar Pradesh.



SUSTHIRA	
Year of release	2015
Gazette notification	S.O. 4272(E) dated 26 November 2019
Pedigree	Mass Selection
Salient features	Medium duration, suitable for both rainfed and irrigated conditions. Grains are small to medium sized, oval shape and brown colour
Yield	12-17.5 q ha ⁻¹
Quality attributes	0.59% essential oil
Recommended area	Andhra Pradesh, Telangana and Tamil Nadu



SURUCHI (LCC - 234)	
Year of release	2013
Pedigree	Mass selection from collections from Prakasam district. Suitable for off season production in Andhra Pradesh
Salient features	High yielding leaf variety
Yield	4.5 q ha ⁻¹
Recommended area	Andhra Pradesh , Rajasthan, Tamil Nadu




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CO. 3	
Year of release	1991
Pedigree	Reselection from Acc.695 of IARI, New Delhi
Salient features	A dual purpose variety, good yielder, medium sized grains. Suitable for rainfed & irrigated condition, rabi as well as kharif season.
Yield	6.50 q ha ⁻¹
Quality attributes	Seed oil ranges from 0.38 to 0.41%
Reaction to biotic and abiotic stress	Field tolerant to powdery mildew, wilt and grain mould.
Recommended area	Tamil Nadu, Gujarat and Andhra Pradesh




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HISAR ANAND	
Year of release	1993
Pedigree	Mass selection from Haryana collection
Salient features	A medium tall, dual purpose variety, oval medium size seeds, resistant to lodging due to spreading habit, wider adaptability to different soil conditions
Yield	14.00 q ha ⁻¹
Quality attributes	0.35% essential oil
Recommended area	Haryana




HISAR SUGANDH	
Year of release	2001
Pedigree	Mass selection from indigenous germplasm.
Salient features	Suitable for irrigated conditions.
Yield	14.00 q ha ⁻¹
Reaction to biotic and abiotic stress	Resistant to stem gall disease
Recommended area	Haryana and Rajasthan




HISAR SURABHI	
Year of release	2006
Pedigree	Mass selection from local germplasm
Salient features	Bushy erect plant type, medium size seed, oblong; medium duration (130-140 days), tolerant to frost.
Yield	18.00 q ha ⁻¹
Quality attributes	0.35% essential oil
Reaction to biotic and abiotic stress	Less susceptible to aphids
Recommended area	Haryana and other states




HISAR BHOOMIT	
Year of release	2007
Pedigree	Selection from local germplasm
Salient features	Small seeded. Has high green leaf yield potential
Yield	Green leaf 18.0 –20.0 q ha ⁻¹ Seed 14-15 q ha ⁻¹
Quality attributes	High oil content
Reaction to biotic and abiotic stress	Resistant to stem gall disease
Recommended area	All coriander growing areas of the country for green leaf production




DH 220	
Year of release	2012
Salient features	This variety has out yielded other varieties, Hisar Anand (National check) and Local checks under coordinated varietal trials of AICRPS
Yield	17 q ha ⁻¹
Reaction to biotic and abiotic stress	Resistant to powdery mildew
Recommended area	Haryana




RCR 20	
Year of release	1995
Pedigree	Recurrent half sib selection from Jaipur local
Salient features	Medium sized bush plant, bold grains, early duration (100-110 days). Suitable for rainfed crop or limited moisture conditions and heavy soils of south Rajasthan.
Yield	9.00 q ha ⁻¹
Quality attributes	0.25% essential oil
Reaction to biotic and abiotic stress	Moderately resistant to stem gall
Recommended area	Rajasthan



RCR 436	
Year of release	1995
Pedigree	Half sib selection from local germplasm from Kota
Salient features	Plants semi dwarf, bushy type with quick early growth and bold big seeds, early maturing (90-100 days). Suitable for limited moisture condition and heavy soils of south Rajasthan
Yield	11.00 q ha ⁻¹
Quality attributes	0.33 % essential oil
Reaction to biotic and abiotic stress	Resistant to root rot & root knot nematodes
Recommended area	Rajasthan



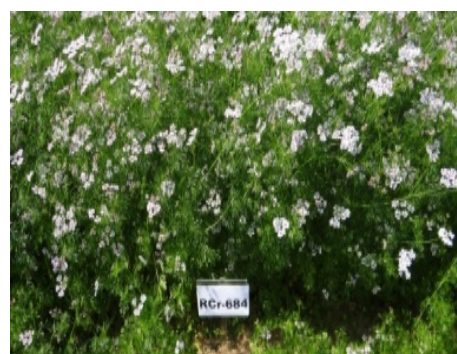
RCR 446	
Year of release	1997
Pedigree	Half sib selection from local type from Jaipur local.
Salient features	Plants are tall, leafy erect with higher number of seeds per umbel. Seeds are medium in size and medium duration (110-130 days). Suitable for rainfed, limited moisture or irrigated conditions.
Yield	12.00 q ha ⁻¹
Quality attributes	0.33% volatile oil content
Reaction to biotic and abiotic stress	Moderately resistant to stem gall and wilt
Recommended area	Rainfed areas in Rajasthan



RCR 435	
Year of release	1999
Pedigree	Half sib selection from local germplasm from Jalore.
Salient features	A dual purpose variety, good yielder, medium sized grains. Medium duration (110-130 days). Suitable for rainfed & irrigated condition, rabi as well as kharif season.
Yield	10.00 q ha ⁻¹
Quality attributes	0.33% essential oil, moderately resistant to root knot nematodes and powdery mildew.
Reaction to biotic and abiotic stress	Field tolerant to powdery mildew, wilt & grain mould.
Recommended area	Rajasthan



RCR 684	
Year of release	1999
Pedigree	Mutation breeding by gamma rays. Induced mutant of Rcr 20
Salient features	Seeds of the variety are bold. Plants are tall and erect with higher number of seeds/umbel. Medium duration (110-120 days). Adapted to medium heavy textured soil, and sandy loam soil under irrigations.
Yield	9.90 q ha ⁻¹
Quality attributes	0.32% essential oil
Reaction to biotic and abiotic stress	Resistant to stem gall and less susceptible to powdery mildew.
Recommended area	Rajasthan



RCR 480	
Year of release	2006
Pedigree	Mass selection from local germplasm
Salient features	High yield and volatile oil content, medium duration (130-140 days)
Yield	18.00 q ha ⁻¹
Quality attributes	0.425% essential oil
Reaction to biotic and abiotic stress	Less susceptible to aphid and powdery mildew, tolerant to frost.
Recommended area	All coriander growing areas of Haryana, Chhattisgarh and Bihar



RCR 475	
Year of release	2006
Pedigree	Mass selection from local germplasm
Salient features	High yield and volatile oil content, medium duration (130-140 days)
Yield	18.00 q ha ⁻¹
Recommended area	All coriander growing areas of Haryana, Chhattisgarh and Bihar




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NARENDRA DHANIA-2	
Year of release	2014
Pedigree	Selection
Salient features	Dual purpose variety
Yield	17-19 q ha ⁻¹
Recommended area	Uttar Pradesh, Rajasthan, Gujarat




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RD 385 (RPCAU DHANIA-1)	
Year of release	2016
Gazette notification number	S.O. 692 (E) dated 05 February 2019
Pedigree	Selection from germplasm
Salient features	High yield potential
Yield	17.6 q ha ⁻¹
Quality attributes	0.45% essential oil
Reaction to biotic and abiotic stress	Moderately resistant to stem gall disease and resistant to lodging
Recommended area	All the Coriander growing regions of the country



RAJENDRA DHANIA 3	
Year of release	2018
Pedigree	Selection from local germplasm
Salient features	Climatic resilient coriander variety
Yield	14.1 q ha ⁻¹
Quality attributes	0.52 % essential oil
Recommended area	All coriander growing regions of the country




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GUJARAT CORIANDER -3	
Year of release	2017
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Selection from local germplasm
Salient features	Medium duration, more branches and umbels per plant
Yield	15 q ha ⁻¹
Quality attributes	0.52 % essential oil and 72.16 % linalool
Recommended area	Gujarat




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AJMER CORIANDER 2	
Year of release	2017
Pedigree	Selection
Salient features	Early maturing type
Yield	12.9 q ha ⁻¹
Quality attributes	High linalool content (71.7%)
Reaction to biotic and abiotic stress	Stem gall resistant
Recommended area	All coriander growing regions of the country



AJMER CORIANDER 3	
Year of release	2018
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Selected from material collected from Mehsana, Gujarat
Salient features	Stable yielder
Yield	13.1 q ha ⁻¹
Quality attributes	High volatile oil (0.55 %), high linalool (75.42%)
Reaction to biotic and abiotic stress	Moderately resistant to powdery mildew
Recommended area	Rajasthan




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JD (SI)-1	
Year of release	2018
Pedigree	Mass selection from germplasm
Salient features	High yield potential
Yield	14.1 q ha ⁻¹
Quality attributes	High oil type coriander (0.67 %)
Reaction to biotic and abiotic stress	Moderately tolerant to powdery mildew
Recommended area	Madhya Pradesh




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CHHATTISGARH SRI CHANDRAHASINI DHANIA-2	
Year of release	2018
Gazette notification number	S.O. 692(E) dated 05 February 2019
Pedigree	Mass selection
Salient features	Climatic resilient coriander variety suitable for both leafy and seed purpose
Yield	18.4 q ha ⁻¹
Reaction to biotic and abiotic stress	Moderately resistant to powdery mildew and aphids
Recommended area	All coriander growing regions of the country




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GUJARAT CUMIN 2	
Year of release	1991
Pedigree	Pure line selection from M2 irradiated seeds of MC 43
Salient features	Bushy plant, good branching habit, grains bold, lustrous medium sized
Yield	6.20 q ha ⁻¹
Quality attributes	4.0% essential oil, 22.1% crude fibre
Reaction to biotic and abiotic stress	Tolerant to wilt, blight and powdery mildew
Recommended area	North Gujarat and Sourashtra region of Gujarat




GUJARAT CUMIN 3	
Year of release	1999
Pedigree	Recurrent selection derived from W. German entry EC-232689
Salient features	Bushy dwarf plant, fruit medium sized.
Yield	6.20 q ha ⁻¹
Quality attributes	Higher essential oil (4.4%) content.
Reaction to biotic and abiotic stress	Frost and wilt resistant variety suitable for winter season.
Recommended area	Gujarat and Rajasthan



GUJARAT CUMIN 4	
Year of release	2006
Pedigree	Natural crossing followed by selection
Salient features	The first wilt resistant variety, normal seed appearance and no seed splitting habit
Yield	12.50 q ha ⁻¹
Quality attributes	4.53% essential oil
Reaction to biotic and abiotic stress	Resistant to wilt
Recommended area	Cumin growing areas of the country



GUJARAT CUMIN 5	
Year of release	2018
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Selection from Acc-882 from Varana, Sami taluk, Patan district
Salient features	High yielding wilt resistant cumin with short duration and high yield (38% higher yield than GC 4), medium sized seeds
Yield	5.71 q ha ⁻¹
Quality attributes	3.55% volatile oil content
Reaction to biotic and abiotic stress	Lesser wilt incidence (by 15 %) than GC 4
Recommended area	Cumin growing areas of the country




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RZ-209	
Year of release	1995
Pedigree	Recurrent single plant progeny selection from Jalore
Salient features	Maturity 120-130 days
Yield	6.50 q ha ⁻¹
Reaction to biotic and abiotic stress	Resistant to wilt and blight diseases.
Recommended area	Rajasthan



RZ-223	
Year of release	2004
Pedigree	Mutation breeding in UC-216
Salient features	Wider adaptability, superior in yield and seed quality over RZ-19. Plants bushy, semi erect, long bold attractive seeds, with medium duration (120-130 days)
Yield	6.00 q ha ⁻¹
Quality attributes	3.0 to 3.5% volatile oil content
Reaction to biotic and abiotic stress	Resistant to wilt
Recommended area	Rajasthan



RZ-341 (UC-341)	
Year of release	2006
Pedigree	Selection from poly cross between high v/s low volatile oil content lines
Salient features	An early maturing variety, high yield, seeds long and bold, attractive, medium duration group (120-130 days)
Yield	4.05 q ha ⁻¹
Quality attributes	3.87% volatile oil content Volatile oil yield - 15.70 l ha ⁻¹
Recommended area	Rajasthan




8. FENNEL

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GUJARAT FENNEL - 2	
Year of release	1997
Pedigree	Selection from local germplasm
Salient features	Plants bushy, bold grains. Suitable for both rainfed and irrigated condition.
Yield	19.40 q ha ⁻¹
Quality attributes	Rich in essential oil (2.4%)
Recommended area	North Gujarat and Sourashtra region




GUJARAT FENNEL - 11	
Year of release	2004
Pedigree	Recurrent selection
Salient features	Seeds are medium bold
Yield	24.87 q ha ⁻¹
Quality attributes	1.80 % essential oil
Recommended area	Gujarat




JF 444-1	
Year of release	2010
Pedigree	Selection based on individual plant progeny performance from local germplasm
Salient features	Compact seeds in umbellate. Hard and flat stem, synchronised maturity, small umbellate at the centre of umbel.
Yield	25.88 q ha ⁻¹
Recommended area	All fennel growing regions




RF 101	
Year of release	1999
Pedigree	Recurrent half sib selection from local germplasm collection from Jobner
Salient features	Erect, medium tall nature, medium duration type (150-160 days) with long bold grains, most suitable for loamy and black cotton soil
Yield	15.50 q ha ⁻¹
Recommended area	Rajasthan




RF 143	
Year of release	2004
Pedigree	Recurrent selection from individual plant progeny
Salient features	Medium tall and recommended for loamy and black cotton soils
Yield	12.00 q ha ⁻¹
Recommended area	Rajasthan




RF 178 (UF-178)	
Year of release	2006
Pedigree	Recurrent selection from F ₂ generation (half-sib) cross between UF-125 and UF-133
Salient features	Seeds long bold and attractive
Yield	16.00 q ha ⁻¹
Quality attributes	2.13% essential oil, 29.75 l ha ⁻¹ essential oil yield
Recommended area	All fennel growing areas of Rajasthan




RF 205	
Year of release	2009
Gazette notification number	S.O. 1979(E) dated 12 August 2010
Pedigree	Recurrent selection based on individual plant progeny from F ₂ generation of a cross between JF- 25 and RF - 125.
Salient features	High yield potential. Better seed quality.
Yield	10-12 q ha ⁻¹
Quality attributes	2.48 % essential oil
Recommended area	All fennel growing regions




RF 281	
Year of release	2012
Pedigree	Recurrent selection
Salient features	Bold, attractive seeds. Matures in 130-140 days.
Yield	18.25 q ha ⁻¹
Quality attributes	2.58% essential oil
Recommended area	Rajasthan



RF-157	
Year of release	2015
Pedigree	Recurrent selection
Salient features	Long, attractive, bold seeds
Yield	21.67 q ha ⁻¹
Quality attributes	1.95 % essential oil
Recommended area	Rajasthan, Gujarat and Haryana.



RF-290	
Year of release	2019
Pedigree	Recurrent selection based on individual plant progeny (half-sib) from local collection of Rajasthan
Salient features	High yielding with long & bold seeds, more umbellets and seeds per umbel
Yield	20.65 q ha ⁻¹
Quality attributes	1.85 % essential oil
Recommended area	Rajasthan, Gujarat, Bihar, Haryana and Uttar Pradesh




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PANT MADHURIKA	
Year of release	2001
Pedigree	Pure line selection from local germplasm
Salient features	Tall robust erect plant with big umbels, bold sweet seeds with green fine ridges, medium duration
Yield	12-15 q ha ⁻¹
Quality attributes	Sweet in taste
Recommended area	Uttarakhand




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HISAR SWARUP	
Year of release	2004
Pedigree	Mass selection from indigenous germplasm of Haryana
Salient features	Plants grow upright, spreading, gives a bushy appearance. A late maturity type (175-185 days), grain long and bold, resistant to lodging, no shattering of grains
Yield	16.00 q ha ⁻¹
Quality attributes	1.6% essential oil
Recommended area	Haryana under irrigation condition




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AJMER FENNEL-2 (AF-2)	
Year of release	2015
Gazette notification number	S.O. 261(E) dated 16 January 2018
Pedigree	Recurrent selection
Salient features	Fennel variety with moderate resistance to <i>Ramularia</i> blight.
Yield	17.9 q ha ⁻¹
Quality attributes	1.9% essential oil
Recommended area	All fennel growing areas



AJMER FENNEL-3	
Year of release	2018
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Recurrent selection
Salient features	High yielding and high oil type fennel.
Yield	21.43 q ha ⁻¹
Quality attributes	1.9% essential oil
Reaction to biotic and abiotic stress	Resistant to <i>Ramularia</i> blight
Recommended area	All fennel growing areas




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HISAR SONALI	
Year of release	1994
Pedigree	Pure line selection from local germplasm
Salient features	Tall and bushy vigorous growing, dual purpose, late maturing (140-145 days) variety. Suitable for cultivation under irrigated condition.
Yield	17.00 q ha ⁻¹
Reaction biotic and abiotic stress	Moderately resistant to root rot and aphids.
Recommended area	Haryana and Rajasthan




HISAR SUVARNA	
Year of release	2001
Pedigree	Pure line selection from local germplasm
Salient features	A quick growing, erect and tall, dual purpose, medium duration (130-140 days)
Yield	16.00 q ha ⁻¹
Reaction biotic and abiotic stress	Moderately resistant to <i>Cercospora</i> and powdery mildew
Recommended area	Haryana and Rajasthan




HISAR MADHAVI	
Year of release	2001
Pedigree	Pure line selection from local germplasm of Uttar Pradesh
Salient features	A quick growing, erect and tall, dual purpose, medium maturity (130-140 days) variety
Yield	19.00 q ha ⁻¹
Reaction biotic and abiotic stress	Moderately resistant to powdery mildew and downy mildew.
Recommended area	Haryana and Rajasthan




HISAR MUKTA	
Year of release	2001
Pedigree	Pure line selection, natural green seed coated mutant line from Uttar Pradesh
Salient features	A quick growing seed type medium duration (135-140 days), erect tall plants.
Yield	20.00 q ha ⁻¹
Reaction biotic and abiotic stress	Moderately resistant to downy mildew and powdery mildew.
Recommended area	Haryana




HM 348	
Year of release	2013
Pedigree	Pure line selection
Salient features	Dual purpose, high yielding variety with wider adaptability
Yield	20-22 q ha ⁻¹
Reaction biotic and abiotic stress	Powdery mildew and downy mildew resistant fenugreek
Recommended area	Hisar, Uttarakhand and Coastal Andhra Pradesh




HISAR MANOHAR (HM 444)	
Year of release	
Pedigree	Single plant mutant of PEB -22-12 derived from Pusa, early bunching and advanced as pure line progeny.
Salient features	High yield potential and unique green seed colour
Yield	18-20 q ha ⁻¹
Recommended area	Haryana




HM 425	
Year of release	2018
Pedigree	Pure line selection from germplasm collected from village Kutana, Rohtak, Haryana
Salient features	Suitable for loamy to sandy loam soils having good drainage facilities. Dry cool and frost free environment favours this variety
Yield	20-22 q ha ⁻¹
Reaction biotic and abiotic stress	Powdery mildew and downy mildew resistant fenugreek
Recommended area	All fenugreek growing areas of the country




RMT-1	
Year of release	1988
Pedigree	Pure line selection from Naguar local
Salient features	Vigorous semi erect, medium size, moderately branched growth habit, medium duration (140-150 days), medium sized bold and attractive yellow grains.
Yield	14.00 q ha ⁻¹
Quality attributes	0.2% diosgenin, 21.0% seed protein.
Reaction to biotic and abiotic stress	Moderately resistant to root knot nematode, powdery mildew and aphids
Recommended area	Rajasthan




RMT-303	
Year of release	1999
Pedigree	Mutation breeding from variety RMT 1
Salient features	Medium duration (145-150 days), bold seeds
Yield	19.00 q ha ⁻¹
Reaction to biotic and abiotic stress	Less susceptible to powdery mildew
Recommended area	Rajasthan




RMT-305	
Year of release	2004
Pedigree	Mutation breeding from variety RMT-1
Salient features	First determinant type, multipoded, early maturing, wider adaptability, seeds bold, attractive and yellow, duration 120-125 days.
Yield	13.00 q ha ⁻¹
Quality attributes	21.7% protein
Reaction to biotic and abiotic stress	Resistant to powdery mildew and root knot nematodes
Recommended area	Rajasthan




RMt-351(UM-351)	
Year of release	2006
Pedigree	Selection from variety RMt-1 irradiated with γ -rays (20 kr)
Salient features	High yield, bold attractive seeds
Yield	18.40 q ha ⁻¹
Reaction to biotic and abiotic stress	Resistant to powdery mildew and root knot nematodes
Recommended area	All fenugreek growing areas of Rajasthan state



RMt-361(UM-361)	
Year of release	2009
Pedigree	Irradiation of RMt-1 with gamma rays
Salient features	High yield potential, medium tall
Yield	18.41 q ha ⁻¹
Reaction to biotic and abiotic stress	Resistant to diseases
Recommended area	All fenugreek growing areas of the country



RMt-354	
Year of release	2015
Pedigree	Pure line selection
Salient features	High yielding variety with disease resistance
Yield	15-16 q ha ⁻¹
Reaction to biotic and abiotic stress	Moderately resistant to powdery mildew and downy mildew
Recommended area	All fenugreek growing areas of the country




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GUJ. METHI-2 (GUJ. FENU.-244)	
Year of release	2006
Pedigree	Selection from local germplasm collection
Salient features	High yield, bold lustrous grains uniform in size, medium duration (116 days).
Yield	19.20 q ha ⁻¹
Reaction to biotic and abiotic stress	Tolerant to powdery mildew; resistant to root rot and downy mildew
Recommended area	All fenugreek growing regions




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LAM METHI 3 (LFC-103)	
Year of release	2014
Gazette notification number	S.O. 4272(E) dated 26 November 2019
Pedigree	Mass Selection
Salient features	Medium duration variety suitable for cultivation under rainfed and irrigated conditions. Grains are flat, rectangular shaped with attractive brown colour
Yield	12-26 q ha ⁻¹
Quality attributes	Medium diosgenin content (0.31%)
Reaction to biotic and abiotic stress	Tolerates dry root rot in field conditions
Recommended area	Andhra Pradesh and Telangana




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NARENDRA METHI 2 (NDM 69)	
Year of release	2015
Pedigree	Selection
Salient features	Fenugreek variety with salinity tolerance
Yield	13-15 q ha ⁻¹
Reaction to biotic and abiotic stress	Moderately resistant to <i>Cercospora</i> leaf spot and downy mildew
Recommended area	Uttar Pradesh



NARENDRA RICHA	
Year of release	2018
Pedigree	Selection from local land race of Uttar Pradesh
Salient features	Dual purpose alkaline tolerant fenugreek
Yield	12-15 q ha ⁻¹
Reaction to biotic and abiotic stress	Moderate resistance to powdery mildew with alkaline tolerance
Recommended area	Uttar Pradesh and Andhra Pradesh




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AJMER FENUGREEK 5	
Year of release	2017
Pedigree	Pure line selection from germplasm collected from Deoli, Una, Himachal Pradesh
Salient features	Suitable for green leaf production under shade net condition in summer season
Yield	13-14 q ha ⁻¹
Quality attributes	3.98% volatile oil and high antioxidant content (66.428 mg/ BHTE/ ppm)
Recommended area	All fenugreek growing areas of India




10. AJWAIN

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AJMER AJWAIN 73	
Year of release	2019
Pedigree	Mass selection from material collected from Bari Sadri, district Chittorgarh, Rajasthan
Salient features	Climatic resilient variety with high yield and high quality. Suitable for clay loam to sandy loam soils having good drainage facility in both kharif and rabi season
Yield	10.66 q ha ⁻¹
Quality attributes	High essential oil (6.38%)
Reaction to biotic and abiotic stress	Highly tolerance to root rot and <i>Sclerotium</i> rot
Recommended area	Rajasthan, Gujarat, Chhattisgarh, Haryana Andhra Pradesh and Uttar Pradesh




11. NIGELLA

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AJMER NIGELLA 1	
Year of release	2019
Pedigree	Mass selection from material collected from Rampura village, Teshil-Beawar, district Ajmer, Rajasthan
Salient features	High yielding and high quality variety with medium duration (145- 150 days).
Yield	9.09 q ha ⁻¹
Quality attributes	High essential oil (19.7%) and high oleic acid (3.32%) content
Reaction to biotic and abiotic stress	Tolerance to root rot
Recommended area	Rajasthan, Chhattisgarh, Haryana West Bengal, Uttarakhand and Uttar Pradesh



“Land of Spices”



C. longa

C. zedoaria

C. aromatica

C. caesia

Cumin

Fennel

Coriander

Fenugreek

Cardamom

Ginger

Turmeric

Large cardamom

Black Pepper

Cinnamon

Clove

Nutmeg

GC-4

RM-35



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