

Crop, Chr.no & Scientific Name	FAMILY	ORIGIN	SEEDRATE & SOWING	IMP POINTS	VARITIES
Cereals:					
Rice 2n=24 (<i>oryza sativa</i>) (<i>O. glaberrima</i>) present in Africa.	Graminae	Indo-burma	Dapog 4-6 seedlings/hill at 14 DAS. SRI 1 seedling /hill at 25X25 cm or 30X30 cm at 12 DAS 60 to 80 kg/ha For direct seeded and transplanted.	DEE-GEE-WOO-GEN is dwarf gene; Protein 6-7%; Short day plant; Kharif crop.	IRRI Rice varieties from IR 8 to IR 72. Spontaneous mutation: GEB 24, ADT 41 - Dwarf mutant of Basmati 370. Induced mutation: Parbhani, Jagannath. Rice Hybrids: APHR – 1 (IR 58025A X Vajram) APHR – 2 (IR 62829A X MTU9992) KRH1 (IR 58025A X IR 9761-10-IR) CORH – 2 (IR 58025A X C 20R); Co 31 (<i>O. perennis</i> x GEB 24) Drought resistance. Red rice Heera; HYVs: Swarna, Vijetha, MTU1000, Jaya. Blast: NLR-145, Somasila Swathi, Shravani; BPH: Vajram, Vijetha Deepti, Krishnaveni; Gall midge : Kavya, Surekha Jagtial sannalu; Short slender: Chittimutyalu, Kala namak Long slender: Pusa Basmati 1, Pusa 1121, Vasumati, Sumati
Wheat: 2n=6x=14 (<i>Triticum aestivum</i>) Emmer :2n=4x=28 (<i>T. dicoccum</i>) Macaroni 2n=4x=28 (<i>T. durum</i>) Einkorn 2n=2x=14 <i>T. monococum</i>	Graminae	South West -Asia	100 - 125 kg / ha (bold seed) 75- 100kg /ha (medium size) 25-140kg/ha (late sown)	NORIN-10- Dwarf gene. <i>King of cereals.</i> Protein 11-12% <i>Rabi</i> crop . Long day plant.	1⁰Introduction: Sonara 63, Sonara 64, Mayo 64, Lerma Roj 64 . 2⁰Introduction : Safed Lerma, Sharbati Sonara, Kalyansona, Rust resistant : Sonalika. <i>Note: the protein in pulses is higher in lysine and lower in sulphur amino acids, while cereal grains such as wheat or rice are lower in lysine and higher in sulphur amino acids.</i>
Maize 2n=20 (<i>Zea mays</i>)	Graminae	Mexico	Pure crop- 20-25 kg seed/ha. fodder maize --- 40-50 kg/ha	Protein- 10%, Zerm Oil – 4% Progenitese; Teosinte. Queen of cereals . Opaque genes	High lysine composites : Shakti man 1&2, Rattan, Protina ; Kisan, Jawahar, Vikram, Sona, Vijay, Amber ; CoBc 1 is latest variety of baby corn. Introduction: Sikkim primitive 1 and Sikkim primitive 2. Mass Selection: KT 1 - U. P. and RAS 1 - Rajasthan. Three way cross hybrids - Ganga -5, Trishulatha Double cross hybrids - CoH 3, Ganga 1, Ganga 101, Deccan, Ranjeeth, Double top cross hybrid - White kernel hybrid

					Ganga safed 2, Histarch, Ganga 3, Ganga 4, Ganga 5 etc.
Sorghum 2n= (<i>sorghum bicolor</i>)	Graminae	Ethiopia & sudan (Africa)	12-18kg/ha (broadcasting) 8-12kg/ha (drilling) 6kg/ha (dibbling)	Male sterility: combined kafir Protein : 7.4 – 14.2%	Introduction : Milo and kafir from USA. Use of CMS lines: CSH 5 2077 A x CS 3541. Mutation: X ray mutant from CSV 5 (148) AND Co 19 is a natural mutant from Co 2. Varieties: CSV ₁ CSV-2, CSV-4, M35-1, CSV-13 Hybrids: CSH-1(ratoon crop), CSH-2, 3 etc for <i>kharif</i> and CSH 7, 12, 13 for <i>Rabi</i> . Striga resistant varieties -N-13, SPV-462.
Bajra (<i>Pennisetum americanum</i>)	Graminae	Africa	4.0-5.0 kg/ ha (drilling) 2.5-3.0 kg/ha (dibbling)	Tift 23-A male sterile line 11.6% protien	HB-1 (PAU) :Tift 23-A X BIL -3B (first hybrid) HHB-67, Pusa moti, BJ-104 Varieties: PS B – 8, PSB 15, mukta.
Fingermillet 2n=36 (<i>Eleusine coracana</i>)	Graminae	Vavilov- Africa Decandole – India	4-6 kg/ha.	Rich in Calcium	Indaf 5 Ragi from Karnataka. Indaf 9: Indaf 5 cauvery x IE 929 Mutation :T20 - mutant from AKP - 7. Varieties: saroda, Kalyani, Simhadri, Padmavathi, Ratnagiri, Godavari, Gauthami.
Korra (<i>Setaria Italica</i>)	Graminae	China (or) Central Asia	5 kg /ha.	12.3% - protein italian millet, Fox tail millet German millet.	Chitra, Arjuna, Prasad, Lepakshi, Krishnadevaraya, Nallamala, Narasimharaya, Srilakshmi
Barley (<i>Hordeum vulgare</i> L.) 2n=14	Graminae	Ethiopia	Irrigated – 75-90 kg /ha Late sown- 80-100 kg/ha	Malt used for manufacture of beer and other liquors like brandy, whisky etc.	Ritambhara, Haritma ,Kedar, Azad , Kailash, Amber, Vijaya ,K-141*, Lakhan (K226) Jagarati (K287), BHS46*, VLB1, Manjula (K329) , BHS-169*, Geetanjali (K1149)*, K409 , Karan 16, , RD2508 , Pragati 226)*, Jagarati
Pulses:					

Redgram 2n = 22 (<i>Cajanus cajan</i>)	leguminasae	Africa	Kharif:12-15 kg/ha Rabi : 45 kg/ha	Protein 21-25%	Prabhat short duration variety from IARI. ICPL 85063 (Lakshmi) both for kharif and Rabi kharif: 170-180 days;ICPL 332 (Abhaya);ICPL 8719 (Asha)'Maruti(LRG-41): Rabi ICPL-87 ICRISAT varieties – ICPL 870, ICPH-8 (Hybrid variety) Vishakha, Sharada,
Green gram (<i>Vigna radiate</i>) 2n = 22	leguminasae	India	Sole Crop -- 12-15 Kg/ha Green manure -25-30 Kg/ha Summer Crop -25-30 Kg/ha Rice fallow - 30-35 Kg/ha	Protein 25%	Pusa Baisakhi and Co-4 Rice fallows --- LGG 410 Tolerant to high temp. --- Padma, Sunaina & Co-4 Early maturing (60-65 day) --- Pusa Baisakhi, k851,PS16, Padma, Sunaina & Co-4, Pusa Bold (Vishal),
Black gram 2n = 22 (<i>Vigna mungo L</i>)	leguminasae	India	Kharif – 15-18 kg/ha. Rabi - 18-20 kg/ha	Protein 24%	Kharif LBG-20, LBG-623, WBG-26, T -9 Rabi (rice follow) : Krishna, LBG-611, LBG-22, LBG-648, LBG-685, LBG-645 Varieties resistant to YMV :UG-218, Pant-U19, DPV-88-31 Varieties resistant to downymildew: LBG-17, LBG-402, LBG- 22, LBG-611.
Bengal gram/chana (<i>Cicer arietinum</i>) 2n = 16	leguminasae	Western Asia (Turkey)	Desi Type 65- 70 kg/ha Kabuli type 80-90 kg/ha	21% protein, Malic Acid (90- 96%); Oxalic Acid (4-10%)	Pusa 256-rainfed condition; Radhey ; Gaurav –resistant to ascochyta blight ; Avarodhi &JG-74 resistant to wilt ; Jaffa(1948) first variety medium size grain& early maturity
Cowpea (<i>Vigna unguiculata</i>)	leguminasae	Central Africa (or) India		Vegetable meat Protein 23.4%	Arka garima, Pusa barsati, Pusa dofsali, Pusa phalguni, Pusa komal, Pusa Ritu Raj.
Lentil	leguminasae	India	30-35 kg /ha	Protein 25%;	Pant L 234,NFL 92 (Narendra Masoor 1) , Bombay 18,IPL

(<i>Lens culinaris</i> Medik) 2n=14				<i>Rabi</i> crop.	81(Noori) ,K 75 (Malika) , Pusa 4076 (Shivalik), Pusa 1, Pusa 4,Pusa 6 ,PL 77-12 (Arun) ,LH 82-6 (Garima) ,Ranjan ,Asha , L 4147 (Pusa Vaibhav) .
Oilseeds: Groundnut (<i>Arachis hypogaea</i>) 2n = 40	leguminosae	Brazil.	In kg/ha Kharif:120(B) 150(S); Rabi: 150(B),180(S), Summer150(B) 180(S) Note: B-Bunch type S-Spreading	47-53% oil and 26% protein; Ca- def. popping B- deficiency Hollow heart.	JL – 24 (Phule pragathi), TAG -24, Greeshma, Prasuna, Abhaya,Apoorva,ICGV-86590,K – 134, TPT-2, TPT -3, ICGV 86325, DRG 12, Kadiri 4,5,6, Jcc-88, ICGS 11,ICGS - 44 ICGS – 76, Kalahasti, Narayani, TG 26, TMV 2, J-11, Gaug – 1.
Sesame 2n=26 (<i>Sesamum indicum</i>)	Pedaliaceae	Ethiopia	Row seeding :5kg (rainfed) :4kg (irrigated) Broadcasting: :6kg (rainfed) :5kg (irrigated)	Oil 18-20%	AP:-Gauri, Madhavi,YLM-11, YLM-17, Chandana(ICS-94) Brown seeded varieties à Grown in Coastal areas. Gauri, Madhavi, YLM-11, YLM-17,Varada,Usha,TMV6 ; White seeded varieties à Grown in Telangana area Rajeswari, Swetha, Pratap, RT-125, Mrug-1, TG-22, T-12, T-78 etc., Black seeded varieties à Krishna, Soma,
Sunflower 2n=34 (<i>Helianthus annus</i>)	Asteraceae	Southern USA (Peru) & Mexico	Varieties: 8-10(rainfed) 6-7(irrigated) Hybrids: 5-6 (Rainfed) 4-5(irrigated)	Oil 48-53%	Maruti, KBSH 44, Pro Sun 09, NDSH – 1, DRSH – 1, MSFH – 8, APSH – 11, Jwalamukhi, Sungene 85 Hybrids : TNAUSUF 7, DRSF 108, EC 69874, EC 68413, EC 68414 (Russian) Sunrise selection (Canadian)
Rapeseed&Mustard Four diploids are : 1. <i>B.nigra</i> - Black mustard 2n=16 2. <i>B.oleracea</i> -Cabbage 3. <i>B.campestris</i> -	Brassicaceae	India and Afganistan, pakistan	Major <i>rabi</i> oilseed crop. 5-6 kg/ ha should be sown in rows at a depth of	Refined oil is called colza is used in Europe. Allopolyploids 1. <i>B.napus</i> - Rape seed of Europe	Rapeseed: a) Toria : Agrani, Bhawani, Parbati, Anuradha ,Sangam and T-22(Punjab selection) b)Brown sarson: Pusa kalyani,Supla,M-18. c)Yellow sarson: Benoy,YST-151,Type-42,M-3.

Rape seed. 4. <i>B.tournefortii</i> - Wild turnip			2.5 to 3.0 cm in case of a pure crop. 1.5-2.0 kg /ha for mixed cropping	2n=38 2. <i>B.juncea</i> – 2n=36 Indian mustard 3. <i>B.carinata-</i> sthipplammustard (veg /oil seed)	Mustard : Pusa Agrani, Pusa bold, Geeta, Kranti, Jagannadh, Jawahar Mustard 2,Vasundhara,Varuna, Vardhan, M-27, RLM 198, Krishna, Rohini ,Prakash, Pusa Jaikisan(bio-902)developed by V.L. Chopra.
Safflower 2n=24 <i>Carthamus tinctorius</i>	Asteraceae		8-10 kg/ha pure crop. 4-6 kg/ha- Mixed crop/ Border crop.	oil is used in the preparation of “roghan” in Europe. Oil is	Varieties – Manjira, Sgaramuthyalu (APRR – 3), Parbhani Kusum, Phule Kusum,A-1 (National Check) Hybrids - DSH – 129, NH – 1 (Firdt non-spiny hybrid in the world), NARI – 15,NARI – 38, Bhima, Girna, Sharda and Swetha.
Soybean 2n = 40 (<i>Glycine max</i>)	Leguminosae	central China	75-80 kg/ha; Late sown: 100-120 kg/ha	20% Oil and 40% protien	JS- 93 – 05, JS – 335, PK – 1029, MACS – 450, LSB – 1, LSB – 3.
Niger (<i>Guizotia abyssinica</i>)	Compositae	Ethiopia	Broadcasting : 8 kg/ha Line sowing : 5 kg/ha Spacing : 30 x 10 cm	35-40% oil, Linoleic acid is major FA.	Ootacamand, GA 10, Phulbani, GAZ, GA 10, CHH4, RCR 317, TN 5.
Linseed/ common flax (<i>Linum</i> <i>usitatissimum</i>) 2n=	Linaceae	Eastern - Mediterran ean to India	rained : Broad casting @ 40 kg/ha Drilling @ 30kg /ha	Oil is high in omega-3 fatty acid, 20-24 % protein, 37-42% oil.	Dual purpose varieties including Gaurav, Shikha, Jeevan and Parwati; Surabhi, Janki, Himalini, Surabhi ,Janki, Nagarkol, R-552 Kiran, Sheetal Jawahar -23 , Punjab LC-54, Himalini LC-54, Swetha, Shubra, Garima and Neelam

Castor 2n=20 (<i>Ricinus communis</i>)	Euphorbiaceae	Ethiopia	Rainfed crop : 12 - 15 kg/ha : 55,000 plants / ha Irrigated crop : 5 - 6 kg/ha : 18,500 plants/ha	Oil is used as lubricant contains ricinoleic acid. Oil is 40-45%, 12- 16% proteins, 23- 27% fibre.	Kranthi, Haritha, Kiran released by PJTSAU, HYD. Jyothi, Jwala, DCH-177, DCH-519 released by IOR Hyd. Bhagya and Sowbhagya are the oldest varieties. Aruna is a mutant variety.
Fibre crops:					
Cotton (<i>Gossypium hirsutum</i>) 2n = 4x = 52	Malvaceae	India	HYV-10 to 15 kg/ha, Hybrids – 2.5 to 3.0kg/ha. <i>Depth of</i> <i>Sowing:</i> 4 to 6cm	King of Fibres; White Gold. 14.5- 22.5% (desi cotton), 17.5-22.5% (American cotton) 1 Bale =170Kg Fibre strength: Stelometer; Fibre fineness: micronair Colour of fibre: Nickerson –hunter Fibre maturity: Sherly analyser	Introduction : Cambodia cotton in South India, MCU- 1 Varieties: MCU – 5, MCU – 10, K9, K10 Hybrids: Interspecific hybrids - HB 224, Varalakshmi (Laxmi x SB 289E), Intraspecific hybrids - Dhanalaxmi, H6, H4 <i>shankar</i> (Gujarat 67 x American nectariless). Desi cotton - DH 7, DH9 Male sterility based hybrids - Suguna, PKVHY3, ARDH- 7 Mutation : MCU 7- Xray irradiated mutant of L 1143 MCU 10 - Gamma irradiated mutant of MCU 4 Indore – 2,MCU – 5 and Rasmi etc.
Jute 2n=14 <i>i(Corchorus capsularis)</i> <i>ii(Corchorus olitorius)</i>	Tiliaceae	i)Indo- Burma ii)Africa	i) 10- 11 Kg/ha. ii) 6 to 7 Kg/ha	Golden Fibre, 1 Bale =180Kg.	<i>capsularis</i> – JRC 212, JRC 321, JRC 7447 <i>olitorius</i> – JRO 524, JRO 878, JRO 835 Mutation breeding : Using x rays JRC 7447 and Rupali
Mesta <i>i(Hibiscus Cannabinus)</i> 2n=36 <i>ii(Hibiscus sabdariffa)</i> 2n= 72	Malvaceae	i)Africa ii)India	Drilling – (line sowing) - 6Kg/ha Broad casting -12 Kg/ha	i)Single reed method - Good Quality fibre. ii) Beat-Break Jerk Method - Poor quality fibre,	i)Bimili 1; AMC-108 HC- 583 ii)HS 4288; HS 7910 AMV 1; AMV 2; AMV 3(surya), AMV – 4 (Kalinga), AMV – 5 (Durga)

				Dry Retting - poor quality ; Wet Retting - Give good quality fibre.	
Agave / sisal (<i>Agave sisalina</i>) (<i>A. Americana</i>)	Amaryllidaceae / Agavaceae	Mexico	1. Suckers 2. Bulbils	Flowering (Polling) Hecogenin- (Cortico steroids)	-----
Sugarcrops: Sugarcane (<i>Saccharum officinarum</i>) 2n= ii)Polarimeter & Seurolyser-sucrose %.	Graminae Flowering - arrowing	Indo china Myanmar border and New Guinea	30,000 setts of 3 budded setts or 70-75q/ha; 80,000 setts of 2 buds. Earthing up, Detrashing and Propping	62% of world sugar; i)Hand Refractometer: Brix reading (Total Solids present in the juice in %); 18-20 %	Early varieties [Co- 8336 Co -8341 Co -T 64] Drought resistant varieties like Co -740, Co- 235, Co -997, Co -6304 jaggery preparation: Co7706 Late maturing varieties (12 -13 months): Co 7219, Co7706, Co8011, CoR8001. Saline / Alkaline Soils : 81V48, 81A99, CoT8201, 93A145
Sugarbeet (<i>Beeta vulgaris</i>)	Chenapodiaceae	Silesia (mediterranean sea)	Seed rate = 10 kg / ha. Depth of sowing 2-3 cm	Bolting; Multigerm (4 seedlings glomerule) BRIX- 23-24 %	Erotype E - West Germany. Romoskava -U.S.S.R. U.S. 35 %U.S. 75 - U.S.A. Maribo Anglo Poly ,Maribo Magna Poly ,Maribo Resista Polydenmark. Triplex & Bush E - U.K.
Tobacco (<i>Nicotiana tabacum</i>) (<i>Nicotiana rustica</i>)	Solanaceae	Central America	Avg. wt. of the seed is 0.08 to 0.09 mg & 11,000 - 12,000seeds/g. Seed rate is 3 kg/ha for <i>N.</i> <i>tabacum</i> and 6 kg/ha for <i>N.</i>	Bidi tobacco (Anand) 9.7% Orobanche full root parasite. Priming: (harvesting mature leaves) Curing: drying process.	FCV: Chatam, Delcrest, Kanaka parbha, Dhanadayi, Jayasri, hema, bhavya, gauthami, trupti, ratna, kanti and hemadri. Bidi: keliu 20, anand 2,3,23,119, GT-4,5 and bhavyasree. Chewing: Chama, Podali, Gandak, Bahar, Sona, Vairam, Thangam, Bhagyalakshmi, Maragadham, Prabha, Meenakshi, Vaishali Special, Abirami, Dharla and Lichchavi (PS-14). Rustica: Sonar Motihari. Natu: Prabhat, Vishwanath, Natu Special, Pyruvithanm and Bhairavi (NG73).

Crop, Chr.no & Scientific Name	FAMILY	ORIGIN	Propagation method	IMP POINTS	VARITIES
			<i>rustica</i> . optimum seed rate is 3-5 kg/ha.	First transgenic plant in the world.	Cheroot: DR 1, Bhavani Special, Lanka Special and Sendarapatty Special. Cigar-wrapper: Krishna Burley: Sweta (BSRB 2) and Banket A1
Fruit crops: Mango 2n=40 (<i>Mangifera indica</i>) Kurukkan : Salt resistant and Polyembryonic. Olour : Vigorous rootstock Rumani,Kalepad& Vellaikolamban : Dwarfing. Moovandan and Nekkare : Salt tolerant. Pulima : Prolific rootstock Kalaypad -dwarfing stock,	anacardiaceae	Indo burma region	Veneer grafting Or inorching Some Poly emgryonic root stocks: Bappakai, Chandrakaran Bellary, Goa, Pahutan, Salem, Mazagoaon, Mylepalium and vellaikolumban.	King of fruits* “ National fruit of India ”, Only 0.1% flowers develops into fruits. Pollinator <i>house fly</i> . Alphonso variety is very susceptible to this spongy tissue. Storage temp. is 8- 9 °C	Neeleshan: Neelum X Baneshan. Late maturing ; Neelgoa: Neelum X Yerra Mulgoa Regular bearing, high yield; Swarna Jahangir: Chinna suvarnarekha X Jahangir. AU Rumani: Mulgoa X Rumani. Heavy and regular bearer with KMH-1(Kodurmango hybrid -1): Cheruku rasam X Khader Manjeera Rumani X Neelum Arka Aruna :Banganapalli X Alphonso Dwarf, regular, prolific Arka Puneet: Alphonso X Banganapalli Regular and prolific Arka Anmol :Alphonso X Janardhanpasand Arka Neelkiran: Alphonso X Neelum Ideal for HDP. Amrapali :Dashehari X Nelum Ideal for HDP. Mallika :Neelum X Dashehari Regular bearer, Ratna(Neelphonso): Neelum X Alphonso Sindhu :(RatnaX Alphonso) Back cross progeny of Ratna Prabhasankar :Bombay X kalaepad Mahamudbahar: Bombay X kalaepad Jawahar: Gulabkhas x Mahamooda Bahar PKM-1: Chinna suvarnarekha x Neelum , long distance trans. PKM-2: Neelum X Alphonso Table varieties: Baneshan, Neelum, Bangalora, Rumani, Alphonso, Mahamooda and Goa bunder. Juicy varieties: Chinna rasam, Pedda rasam, Cheruku rasam, Kothapalli kobbari, Panchadara kalasa. Panakalu, Phirangiladdu. Table and juicy varieties: Chinna suvarnarekha , Peter. Off-season Varieties: Neelum, Bangalora, Baramasi, Rumani ,

					Royal special. Pickle varieties: Achar pasand, Tellagulabi of Nuzivid, Alipasand, Guddemar(Hamlet) Varieties for preservation: Baneshan and Bangalora.
Banana 2n=33 (<i>Musa paradisiaca</i>) (<i>Musa acuminata</i>) edible sps.(triploid) Storage temp. is 12-13 °C	Musaceae	South East Asia	<i>Sword suckers</i> Cut rhizomes called Bits and Peepers.	Desuckering, propping and mettocking are imp. Practices. Riped banana contains 26% sugar. Apple of Paradise and Tree of paradise,	Varieties: Dwarf Cavendish, Robusta, Grand nine, lal velchi (red skin), poovan: Rastali, Amrit pani, Mortman; Poovan mysore, Nendran (banana chips), Monthan (culinary purpose), Ney Poovan, safed velchi, lady finger (diploid varieties). Hybrids: FHIA-1(gold finger), bodles altafort, rajapuri, moongli, CO-1: kellar laden x m. balbasiana x kadali Hill Bananas: Virupakhi
Papaya 2n=18 (<i>Carica papaya</i>) Storage temp. is 9-10 °C	Caricaceae	Tropical America	Seed rate is 250-300g/ha (gyno dioecious); 400-500 g/ha (Dioecious) 1g=20 seeds	Papain(enzyme) contains 72.2% protein. Yellow pigment in papaya – <i>caricaxanthin</i> .	Gynodioecious varieties: <i>pusa delicious, pusa majesty, coorg honey dew(selection from honey dew), sunrise solo, Taiwan, surya</i> etc. Dioecious varieties: pusa gaint, pusa dwarf, pusa nahna-(extremely dwarf), <i>CO-1, CO-2, CO-3, CO-5(Papain extraction), pink flesh sweet (TSS-12-14BRIX).HYBRIDS: CO-3: CO-2X sunrise solo, CO-4:CO-2 X Washington:</i>
Guava 2n= (<i>Pidium guajava L.</i>) Storage temp. is 9-10 °C	Myrtaceae	Tropical America (from Mexico to Peru)	Seed and Air layering or ground layering.	Ambe-bahar: Feb to March Mrig-bahar: Nov to January. Hasth-bahar: October	Seeded varieties- Allahabad safeda, Lucknow-49, Arka Mridula , Red fleshed and Allahabad Surkha; Seedless: Nagapur seedless, Saharanpur seedless Hybrids: Saefd jam: Allahabad Safeda x Kohir, Kohir Safeda: Kohir x Allahabad safeda, Nasik, Apple colour, Banarasi, Hafsi, Dharwar, Anakapalli, Harijha and chiitdar etc.
Amla /Aonla 2n= (<i>Emblica orfincialis</i>)	euphorbiaceae	South East Asia			
Sapota (<i>Achrus zapota</i>) (<i>Manilkara achras,</i>	Sapotaceae	Tropical America	Seed, inarching and soft wood	Gutta parcha - chewing gum (Chicle).	Varieteis: Cricket ball, kalipatti, Kirthibatti, Pala, Guthi, CO2, PKM-1 Baramasi, Chhatri, Jonna valasa, vavivalasa, Bangalore, Thagarampudi,etc.

<i>Manilkara zapotilla</i>)			grafting.		Hybrids: CO-3: Cricket ball and Vavivalasa. PKM-2: Guthi and Kirthibarhi. PKM-3: Guthi and Cricket ball.
Pomegranate (<i>Punica granatum</i>)	Punicaceae	Iran (Persia)	stem cuttings	Edible part is aril . <i>Fruit cracking</i> due to B deficiency . Storage temp. is 0-2 °C	varieties : Bhagwa, Bedhana, Jodpur, RedDholka, Ganesh, Alandhi, Musket Red, Jalore seedless, jyothi, Papershell, Spanish Ruby, Vellodu, Kabul, Khandhari, and Arakta etc. Hybrids: Mridula: Ganesh X Gul-e-sha Red. Ruby: Ganesh x Kabul x Yercaud x Gul-e-sha Rose pink.
Pine Apple <i>Ananas comosus</i> <i>Ananas sativus</i>	Bromiliaceae	Brazil	Shoot suckers, ground suckers, slips, crown, and stem bits.	Queen of fruit crops. Enzyme called " Bromelin. "	varieties : Giant Kew, Kew, Queen, Mauritius, Jaldhup , Lakhat, Charlotte Rothschild etc. Storage temp. is 11-13 °C
Ber Indian Ber : <i>Zizyphus mauritiana</i> Chinese ber: <i>Zizyphus jujuba</i>	Rhamnaceae	Indo-China region	Mainly Seeds superior varieties by budding .	Poor mans fruit.	Varieties: Umran, Kaithli, Banarasi karaka, Gola, Seb Dandan, Meharun, Sanur-2, Meharun, Dandan etc.
Custard apple <i>Annona squamosa</i>	Annonaceae	Tropical America.	Seeds; cuttings, grafting and budding.	Stone fruits.	Lalsithapal, Mammoth, Balanagar, British Guinea, Pinks Mammoth, Islandgem, Washington, Arka Sahan, Atemoya
Jack fruit <i>Artocarpus heterophyllus</i>	Moraceae	India	seeds.	Vivipary is common and Cauliflorous. monoecious	Rudrakshi and Ceylon NJT1, NJT2, NJT3 and NJT4 NJC1, NJC2, NJC3 and NJC4
FIG (Anjur) <i>Ficus carica</i>	Moraceae	Southern Arabia	hard woodcutting.	i)Capri fig: wasp Blastophaga psenes. ii)Adriatic fig or	i)Stanford, Crosic, Samson, Roe ding etc. ii) Black Ischia, Turkish white, Marseilles, Kadota, Mission, Adriatic, Brown turkey, Celeste, Conardia etc. iii) Zide, Taranimt.Calimyrna.

				Common fig; iii) Smyrna fig; iv) White Sanpedro.	iv) San Pedro, dauphine, Gentile, Blanguette, king and Lampeira etc.
Grape 2n= European grapes: (<i>Vitis vinifera</i>) American grapes- <i>vitis labrusca</i> and <i>vitis rotundifolia</i>	Vitaceae	Armenia near Caspian Sea	Resistant root stocks: i) Phylloxera (Aphid) - St. George and Riparia. ii) Nematode & soil salinity- Salt creek iii) Nematode --Harmony and Dog ridge	TRAINING: i) Head System: Simple & cheap; ii) Pandal System/ Arbour/ Pergola/ Mandwa/ Over head/ Bower system. iii) Telephone system/ Over head trellis / Telephone trellis system. iv) Kniffin/ espalier System: PRUNING: i) Summer: (March-April) also back/ growth pruning. ii) Winter/forward: (Oct –Nov)	Variteis: Bangalore blue, Gulabi, Anab-e-Shahi, Dilkush, Patcha Draksha, Puas seedless, Thompson seedless, Beauty seedless and Perlette. Hybrids: Arkavati: Black champa X Thompson Seedless, Arka Kanchan: Anab-E-Shahi X Queen of Vineyard, Arka Hans: Bangalore Blue X Anab-e-Shahi, Arka Shyam : Bangalore Blue X Black Champa, Arka Neelmani: Black champa X Thompson Seedless, Arka Shweta: Anab-e-Shahi X Thompson Seedless, <i>Arka majestic:</i> Anab-e-Shahi X Black Champa (Table purpose) <i>Arka Chitra :</i> Angoor Kalan X Anab-e-Shahi Table purpose <i>Arka Soma:</i> Anab-e-Shahi X Queen of Vine Yard <i>Arka Trishna :</i> Bangalore Blue X Queen of Vineyard (wine) <i>Arka Krishna:</i> Bangalore Blue X Convent large Black (juice) <i>Arka Urvashi:</i> Hur X Beauty seedless (juice & wine resistant to Anthracnose) Pusa Navarang: Madeleine Angavine X Ruby Red. Storage temp. is 0-2 °C
Litchi <i>Litchi chinensis</i>	Sapindaceae	Southern China	Seeds and air layering or gootee.	edible portion is aril. Storage temp. is 0-2 °C	Saharanpur Early bedana, Dehra doon, Culkattia, Muzzafarpur, Late bedana, Swaran roopa (selection).
Bush Phalsa: <i>Grewia subinaequalis</i> Tree Phalsa:	Tiliaceae	India	seeds		Sharbathi only.

<i>Grewia asiatica</i>					
<p>Citrus Group: Sweet orange - <i>Citrus sinensis</i> Mandarin Orange- <i>Citrus reticulata</i> Acid lime – <i>Citrus aurantifolia</i> Lemon- C. limon Grape fruit- Citrus <i>paradisi</i> Pummelo -<i>C. grandis</i> Citron-<i>Citrus medica</i> Sweet lime – <i>Citrus limettoides</i> Gaganimma -Citrus <i>pennivesiculata</i> Sour Orange- <i>Citrus aurantium</i> Rough lemon – <i>Citrus jamberi</i> Rangapur Lime - <i>Citrus limonia</i></p>	Rutaceae	South East Asia.	<p>Seeds exhibit 45-90% poly embryony.</p> <p>Shield or T-budding.</p>	<p>Root stock: i)Jamberi, ii)Gajanimma, iii)Trifoliolate Orange, iv)Karnakhatta v)Sathgudi seedling, vi) Rangpur lime, vii)Acid lime, viii)Kichili, ix)Pummelo, x)Wood apple, xi) Sweet Lime. Bahar Treatment Jan-Feb (Ambe bahar or Angam), June (Mrig bahar or Edagam), Oct (Hastha bahar or Gairangam).</p>	<p>Sweet Orange: Sathgudi, Mosambi and Batavian, Malta, Malta Blood Red, Jaffa, Hamlin, Washington Navel Orange and Pineapple. Mandarin: Nagapur Mandarin, Coorg Mandarin, Khasi Orange, Kinnow Mandarin(King Mandarin x willow leaf Mandarin) Mandarin, Ponkan, Satsuma Mandarin, Dancy Tangarin, Darjeeling, Sikkim Orange and Cleopatra Mandarin. Acid lime: Vikram, Pramalini, Chakradhar, Balaji; Lemons: Seed Varieties-Lisbon, Villa Franca, Eureka, Nepali Round, Nepali Oblong and Rajhamundry. Seedless Varieties- Malta, Lucknow and Italian.</p>
<p>Apple <i>Malus pumila</i> / <i>Malus sylvestris</i></p> <p>Storage temp. is 0-2 °C</p>	Rosaceae	South West Asia	<p>Malling IX root stock. Crab apple <i>Malusbaccata</i> used in india.</p> <p>Budding or grafting methods.</p>	<p>King of temperate fruits fruit is a false fruit (Pome). Ambri is Indigenous and extensively grown in the Kashmir.</p>	<p>Variteis:Diploids- Reddelicious, Yellowdelicious, Jonathan,Triploids- Baldwin, Beauty, RomeBeauty, Ambri, Sunheri, Ambstarking, Ambroyal, Ambrich, Chaubattia Princess , tropical beauty, Chaubattia Anupam, Ambred Red. Hybrids: Lal Ambri: Red Delicious X Ambri Sunehri (Ambri X Golden delicious), Ambstarking (Starking delicious X Ambri 81), Ambroyal (Starking delicious X Ambri 84), Ambrich (RicharedXAmbri 15),</p>

					Chaubattia Princess (Delicious X Early Shanburry), Chaubattia Anupam (Delicious X Early Shanburry), Ambredred (Delicious X Ambri 57)
Peach <i>Prunus persica</i> L.	Rosaceae	China	grafting and budding (T or shield budding).	Peach is generally self fruitful except the variety J.H Hale, peach is a drupe.	Table cultivars: Alexander, Elberta, J.H.Hale, Cardinal etc. Canning cultivars: Certex, Halford, Fortuna, Crawfords early, Golden bush etc. Nectarine cultivars: Nectared, Sun grand, Sunlite, Sun red, Sun rise and sun ripe.
Pear French / European / Soft pear: - <i>Pyrus communis</i> Oriental/Japanese Pear- <i>Pyrus pyrifolia</i>	Rosaceae	South-West Asia	Shield (T) budding.	Pear trees are usually trained to Modified leader method.	Baghu Gosha, Conference, Early china, Bartlett, Favourite, Hardy, Nashpati and Kieffer etc. Storage temp. is 0-1 °C
Plum <i>Prunus domestica</i> (European plum) <i>Prunus salicina</i> (Japanese plum)	Rosaceae	i)Caspian Sea ii)China	Tongue grafting, Chip budding and T budding.		Santa Rosa, Beauty, Grand duke, Plum red, Kelsey, wickson, Bur Bank, Victoria etc. Beauty, Santarosa and Mariposa are self fruitful cultivars and used as pollenizers for plum. Kelsey, Eldorado, Wickson, Larado and Famosa are self unfruitful cultivars
Cherry Sweet Cherry: <i>Prunus avium</i> Sour Cherry: <i>Prunus cerasus</i>	Rosaceae	South Central Europe and Asia Minor	T budding or Inverted T Budding.	Trained on modified leader system.	Sweet cherry: Emperor Francis, EarlypurpleBlackheart, Compact Lambert, Jubilee, Sam, Summit, Sue, Sunbrust e, English morello etc. Sour cherry: Mont morency, North Star, English morello
Vegetable crops: Tomato:2n = 24 Cultivated tomato - <i>Lycopersicon esculentum</i>	Solanaceae	Peru, Ecuador – Bolivia	400 to 500 g/ha.	love of apple ’ or ‘love apple’ . poor mans orange ’. Alkaloid- tamatin	Hilly areas& plains : Pusa rubi, Pusa early dwarf, Marutham, Arka vital, Pusa 120, HS-10, sweet 72, S-12, Co -1, Sioux (American var), Best of all, Pusa early dwarf processing: Roma and Punjab chuharra IIHR: Arka Abha, Arka Abhizit, Arka Ahuthi, Arka

Small fruited tomato- <i>Lycopersicon pimpinellifolium</i>				Pigment Lycopene Blossom End Rot: Calcium deficiency; Fruit cracking: Boron deficiency <i>Flavrsavr</i> is Bt. tomato variety.	Aloukik, Arka Meghali, Arka Sourab, Arka Sourab, Arka Srasika, Arka vartnan, Arkavikas, Arka visal, S-12, Pusa Sheetal (cold resistant), Best of all, IVRI -2 Floradade: brought from Florida, SL-120 (nematode rest) Hybrids: <i>Pusa rubi:</i> Sioux X Improved meeruti (Indeterminate) <i>Pusa Early Dwarf:</i> Improved meeruti X Red cloud (determ) <i>Pusa Red Plum:</i> L. esculentum X L. Pimpinellifolium Co 1, Co -2, Co -3, Gulmohar (MTH 6), Punjab chuharra, Ox heart, Punjab kesari, Pusa sada bahar, Sweet – 72, Roma, Yasvanth, ARKA RAKSHAK latest hybrid of IIHR
Brinjal / egg plant 2n = 24 <i>Solanum melongena</i>	Solanaceae	Indo-Burma	375 to 500 g per hectare.	<i>S. auriculatum</i> is immune to little leaf. Fruit type is berry.	Long fruit varieties: Pusa purple long: . Pusa purple cluster long: Long green varieties: arka kusumakar, arka shirish, Krishna nagar, green long. Round purple: Pusa purple round: is resistant to fruit borer and little leaf of brinjal. Selection-6, suphala, arka navaneet, krihsnanagar, purple round, pant ritu raj, vijaya hybrid, shyamala. Round green: banarasi gaint, round striped. Roundish white: Manjeri, Visali. Oval fruited varieties: Junagad oblong, Bhagyamati, H4., Cluster fruited varieties: pusa purple cluster, arka kusumakar, Bhagyamathi (APAU variety). Spiny varieties: H-4, Manjeri. Hybrids: <i>Pusa anmol</i> : pusa purple long x hyderpur; <i>Arka Navaneet</i> : IIHR22-1 X Supreme.
Chilli <i>Capsicum annum</i> Bell pepper <i>Capsicum fruitiscens</i> –	Solanaceae	Chilli - Peru ; Bell pepper -South America	1 to 2 kg seed/ ha	Green chillies are rich in Rutin ; Pungency due to capsaicin. Pigment due to	Varities: Bhagya laxmi (G4), Sindhuri, Baskar/ CA -235, Prakash (LCA 206), Hissar sakthi, N.P46 A, Arka lohit, Hybrid: <i>Pusa Jwala:</i> Pusa Red X N.P 46A; <i>Pusa sadabahar</i> : Pusa jwala X IC 31339; <i>Punjab lal</i> : Perennial X long red;

				capsanthin.	<i>Kiran (x235): G4 X anther mutant.</i> Bell pepper Varieties: Arka basant, Arka gourav, Arka mohini, California wonder, Yolo wonder, Pusa deepthi (suitable for both kharif and rabi)
Okra/ bhendi <i>Abelmoschus esculentus</i> 2n = 72 to 144 (poly ploidy)	Malvaceae	South Africa	20- 25 kg /ha (summer); 12 - 15 kg / ha (rainy season)	Fruit is capsule , used as clarifier in jaggery manufacture	Arka Abhaya, DUR – 1 (seetla jyothi), DVR – 2 (seetla uphar): EMS – 8 (mutant derived from pusa sawani), Harbajan, Pusa makhmali, Perkins long green: Pusa sawani: CIC 1542 x Pusa mukhmali P-7: pusa sawani x <i>A. manihot</i> sp <i>manihot</i> . Arka Anamika: <i>A. esculentus</i> x <i>A. manihot</i> sp <i>tetraphyllus</i> . Parbani kranthi: <i>A. esculentus</i> sp <i>pusa sawani</i> x <i>A. manihot</i> .
Cucumber: 2n = 24 <i>Cucumis sativus</i>	Cucurbitaceae	India	3 to 5 kg per ha	cucurbitacins, - tetra cyclic triterpenes bitter pollen fertilizer is called metaxenia	Vars: Japanese long green, KTCH – 11, Straight – 8, Gemini, Poinsettia (Resistant to angular leaf spot, downy mildew). Hybs: KTCH – 8: poinsettia x LC – 3. Pusa samyog: <i>Japanese gynoeocious line x green long naples</i> Cucumber can be trained in bower system .
Ridge gourd 2n = 26 <i>Luffa acutangula</i> - Sponge gourd- <i>Luffa cylindrical</i> -	Cucurbitaceae	spain	5 to 7 kg per ha.	delightous compound - Luffein	Sponge gourd vars: Kalyanpur chikni, Pusa chikni, Pusa sneha & Pusa supriya. Ridge gourd vars: Arka swathi, Arka sumeeth, Pusa nasadar, Punjab sadabahar, Satputia (hermaphroditic flowers).
Bottle gourd - <i>Lagenaria sicerarea</i>	Cucurbitaceae	Malabar region of India	3 to 6 kg per ha.	Bottle gourd is strictly cross pollinated.	Pusa manjari: pusa summer prolific round X selection 11. Pusa meghdoot: pusa summer prolific long X selection – 2 Pusa summer prolific long: summer crop.
Snake gourd- <i>Trihcosanthes anguina</i> 2n = 22	Cucurbitaceae	china	3 to 6 kg per ha.	Ratio of male and female ranges from 31 : 1 - 22 : 1	Light green – with white stripes Dark green – with palegreen stripes
Bitter gourd <i>Momordica charantia</i>	Cucurbitaceae	Indo – Burma region	4 to 6 kg per ha	1 st rank among the cucurbits in Fe, vit- C.	Arka harith, Coimbatore long, Pusa do mausami, Pusa vishesh (picking and dehydration.) Alkaloid momordicasoides .

Water melon- 2n = 22 <i>Citrullus lanatus</i>	Cucurbitaceae	South Africa	3 to 5 kg per ha.	richest iron, lycopene and anthocyanin pigments.	Arka jyothi, Arka manik, Asahi yamato, sugar baby, Pusa bedana: tetra – 2 (4x) x Pusa rasard (2x).
Musk melon 2n= 22 <i>Cucumis melo</i>	Cucurbitaceae	China	4 to 6 kg per ha	slip stage.	Arka jeet, Arka rajahans, Har madhu, Pusa madhuras, Pusa ras raj, Pusa sharbati.
Cole crops: Cabbage <i>Brassica oleracea var capitata</i>	Cruciferae		375 g /ha.	Pickle is called as Sauerkraut. Flavor-glucoside called sinigrin.	Golden acre, Pusa Drum Head, chief drum head savoy, Conical head group (Jersey wake field). Red cabbage: red rock, red Danish. edible parts called head.
Cauliflower <i>Brassica oleracea var botrytis</i>	Cruciferae	Mediterranean region	375 g /ha.	Edible part is CURD. Browning-B def Whiptail: Mo def	Early Kunwari, Pusa Deepali, Pusa Himjyoti, Pusa Shubhra, Dania, Pusa snowball K-1:
Knol – khol <i>Brassica caularapa</i>	Cruciferae	Northern Europe		Edible part: Knobs (swollen portion above the ground)	Late varieties: wiser snscor, wiser tribe, king of north; Early varieties: <i>White Vienna, Purple Vienna.</i>
Onion <i>Allium cepa</i>	Amaryllidaceae	North West India	flowering shoot known as Scape. bulbs 1000 to 1200 / ha	Plant part : Bulbs flavor: Allyl propyl disulphide, red pigment is “Quercetin”.	Pusa Red: yellow colour and mild pungency. resistant to onion thrips. Bellary Big, Bellary Red, Poona Red, Nasik Red, Patna Red, Arka Kalyan, Arka Niketan and Arka Pragati
Garlic <i>Allium sativum</i>	Amaryllidaceae		clove or bulbils or aerial bulbils.	flavor is due to Allecin(AA) and Diallyl disulphide. Plant part: Cloves	MH @ 2500 to 5000 ppm when sprayed 2 weeks before harvest inhibited sprouted in storage
French bean <i>Phaseolus vulgaris</i> 2n =22	Leguminosae	Central America	Bush type 95 kg/ha Pole type - 25 to 30 kg/ha	Also called as : Kidney bean or snap bean	arka komal, bountiful, contender, Kentucky wonder: Pant anupama, Pusa parvathi (X ray radiation)

Cluster bean 2n =24 <i>Cyamopsis tetragonolobus</i>	Leguminosae	India	30 to 40 kg per ha	Guar gum (galactomannan).	Durga bahar, IC 11521, Pusa mausami, Pusa nav bahar, Pusa sada bahar,
Garden pea 2n =14- <i>Pisum sativum</i>	Leguminosae	Ethiopia	100 to 120 kg per ha.	deficient in s containing amino acids methionine, cysteine.	Alderman, Arkel, Asauji, Bonneville, Early badger:
Dolichos bean <i>Dolichos lablab</i>	Leguminosae				Arka jay, Arka vijay, Pusa early prolific, DL.1428(Arthanari)
Colocasia 2n =28 <i>Colocasia esculenta</i>	Araceae	South Central Asia	amylase (17 – 25%). Cormels or daughter corms	Corm paste:fufu in Africa, taro, Gaint taro, Alocasia.	Panchamukhi, Sahasramukhi, Sathamukhi Deshi, Bunda, Benda, fisabad, bunsu, lathara, gyano no. 12, gyano no.22, gyano no 36, gyano no 40, vane no. 1,2, 3 and S 11.
Elephant foot yam <i>Amorphophallus campenulatus</i>	Araceae	India	Corm	acridity and irritate - crystals of calcium oxalates.	-----
YAM <i>Dioscorea alata</i>	Araceae	South East Asia	Tubers, tuber pieces and vine cuttings	yam contains sapogenins (base of steroidal drug) and alkaloid	Dioscorea alata: Srikisthi, Sri rupa, Srilatha Dioscorea rotundata: Srisubra, Sripriya. sapogenin is diosgenin.
sweet potato <i>Ipomoea batatas</i> 2n =6x=90	Convolvulaceae	South America	Tuber and vine cuttings.	highest solar energy fixing efficiency. rabi season crop.	Kiran, and Samrat; Pusa safed, pusa lal, rajendra sakarkand, kemhangad local, srinandini, sreevardhini.
Potato <i>Solanum tuberosum</i>	Solanaceae	Peru	Seeds and stem tuber.	Botanically modified <i>Stem tuber</i> . late blight is most danger disease of potato.	Early mature: kufri chandramukhi, kufri lavkar, kufri ashoka, kufri jawahar. Late : kufri deva, kufri megha, Mid: kufri sindhuri, kufri jyoti, kufri lalima, kufri swarna, kufri badshah, kufri giriraj, kufri Sulej. Clonao selection: kufri red, Kufri safed,

Tapioca 2n =36 <i>Manihot esculenta</i> short day plant.	Euphorbiaceae	Brazil		Roots/tubers contains poison HCN . Cynogenic glucosides: Linamarin and Lotaustralin	Sago is an important food product derived from cassava starch.
Carrot <i>Daucus carota</i>	Umbelliferae	Central Asia	5 to 6 kg per ha	beverage called kanji , rich in carotin a precursor of vitamin A	Nantes (The core is tender sweet self orange coloured) Chanteney (core sweet and deep reddish orange) Pusa kesar IARI: local red x nantes half long. pusa meghali (temperate type) half long:
Radish <i>Raphanus sativus</i>	Cruciferae	Europe or Asia		edible portion is fleshy root	Pusa himani, Pusa desi, Pusa chetki, Pusa reshmi, Hill queen.
Turnip 2n = 18 <i>Brassica rapa</i>	Cruciferae	Russia and Siberia	500 seeds weight /g. 2-3 kg/ha.	Root formation is called knob formation.	pusa kanchan, Pusa swethi, Cranford, Pusa swarnima: golden ball X Japanese white MH spray to the crop before harvest to prevent <i>sprouting</i> .
Flower crops: Rose <i>Rose sinensis</i>	Rosaceae	Oregon and Colorado of USA	Shield or T-Budding	Queen of the flower; Rose water; Rose gulkand ☺ 1:1 sugar & rose petals	1. Hybrid Teas: Abhisarika, Akashsundari, Anupama, Anuraag, Arjun, Ganga, Dr. B.P. Pal, Golden afternoon, Haseena, Mridula, Nurjehan, Poornima, Rakta gandha, President Radhakrishnan 2. Floribundas: Akash nartaki, Arunima, Delhi Princess, Himangini, Madhura, Mohini, Sindhur 3. Polyanthas: Anjani, Nartaki, Swati, 4. Miniatures: Chandrika, Pushkala, 5. Climbers: Akash pradip, Delhi white pearl
Jasmin <i>J.sambac,</i> <i>J.auriculatum,</i> <i>J.grandiflorum</i>	Oleaceae	India	cuttings		Varieties: Gundu Malli, Single Mohra, Double Mohra, Madanban, Ramabanam, Kasthuri malli. High-yielding varieties: CO ₁ Mullai, CO ₂ Mullai, Pari Mullai, Long point, Long round, Medium point, Short round

Chrysanthemum <i>Chrysanthemum indicum</i>	Compositae	Europe and Asia	Cuttings and Suckers.	Queen of East. symbol of Royalty in Japan	Large flowered cultivars i) white : snow ball, Beauty ii) yellow : Chandrama, Super Giant 2. Small flowered cultivars for pot culture i) white : Mercury ii) yellow : Aparajitha 3. Small flowered cultivars for cut flowers i) white : Birbal Sahani ii) yellow : Sujatha iii) mauve : Apsara, Neelima 4. Small flowered cultivars for garland i) white : Sharad shobha ii) yellow : Freedom
Marigold <i>Tagetes erecta</i> - African marigold <i>Tagetes Patula</i> - French marigold	Compositae	Central and South America	seed (0.8 – 1 kg/ac or 2-2.5 kg /ha) herbaceous cutting.	African marigold - “vulgar minds” French marigold is a symbol of “Jealousy”. Friendship flower in USA.	Important cultivars: yellow boy, Harmony boy, Red brocade, little devil bicolour, little devil yellow, Butterscotch, Royal Bengal, Queen Sophia, and Tangerene. African Marigold: Apollo, Aztee, Golden age, Spun gold, Spun yellow, Guys and Dolls, Happiness, Dolly, Pot –o- gold. French Marigold: Sparky, Spanish brocade, flame, flaming of fire, orange flame and star of India, triploid varieties are showboat; sever star (<i>T-erecta x T-patula</i>) Pusa narangi Gainda – Cracker Jack x Golden Jubilee Pusa basanti Gainda – Golden yellow x Sun giant
Tube rose <i>Hyacinthus indicus</i>	Amaryllidaceae	Mexico	Seeds & Bulbs		Rameswar, sharga
Spices: Ginger <i>Zingiber officinale</i>	Zingiberaceae	South East Asia	seed rhizomes. 1500 – 1800 kg per ha.	<i>Kerala</i> is the largest producer of ginger. Ginger oil and oleoresin.	Assam: Jorhat, Nadia, Maran, Thinladium, Thingpuri. Andhra Pradesh: Narsipatnam, Siddipet, Tuni. Kerala: Wynad local, Ernad, Kuruppamadi, Thoduphuza. W.Bengal: Burdwan Karnataka: Karakkal Sikkim: Bhaise, Gorubathane, Mazole: Suprabha, Suruchi, Surari;

					Exotic varieties: China from chin and Rio-de-janeiro from Brazil
Turmeric <i>Curcuma longa</i> and <i>Curcuma aromatica</i>	Zingiberaceae	South East Asia	Mother rhizomes 2000 – 2500 kg /ha, Primary fingers: 1500 to 2000 kg/ ha	Plant part: Rhizome <i>kasturi</i> used for the preparation of <i>kum kum</i> . <i>Curcumin</i>	Long duration: Duggirala, Tekurpeta, Armoor and Mydukur, CLL 324, 325, 326 and 327 Medium duration: Kothapet, Krishna, Kesari, CLL Short duration: Amalapuram, Dindigram, PCT – 13 (Suguna), PCT – 14 (Sudarshan).
Black Pepper <i>Piper nigrum</i> inflorescence is a <i>catkin</i> .	Piperaceae	western Ghats of South India (Malabar)	stem cuttings	Useful plant part: Fruits/ Berry. Fruiting branches (plagiotropics) <i>king of spices</i> .	Karimunda, Kalluvally, Kottandan, Narayakkodi, Aimpiriyan, Neelamundi, Kuthiravally, Balankottah, Malligesara and Uddagare. Panniyur 1, 2 (Krishna), 3 (Shima), 4 and 5
Cardamom Small or lesser Cardamom: <i>Elettaria cardamomum</i> Large Cardamom: <i>Amomum subulatum</i>	Zingiberaceae	Malabar cardamom native to Eastern Himalayas)	Seed and rhizomes.	plant part: Fruit (capsule)	Mysore type Malabar type Vazhukka type Coorg cardamom Malabar selection – 1 (CCS – 1)(Malabar type, Mudigere – 1(Malabar type),
Coriander <i>Coriandrum sativum</i>	Apiaceae	Mediterranean region	Seeds @ 12-15 kg per ha	Plant part: Leaves and Fruits (seeds)	Lam CS 2 – Sindhu , Lam CS 4 – Sadhana , Lam CS 6 – Swathi , Lam CS 7.
Fenugreek <i>Trigonella foenum graecum</i> Kasuri methi – <i>Trigonella coriculata</i>	Fabaceae	South East Europe	Seeds 30-35 kg -rain fed. 12- 15 kg-irrigated crop.		Pusa Early Bunching, Lam selection 1, Co 1, Rajendra Kranti, Rmt 1.
Cumin <i>Cuminum cyminum</i>	Apiaceae	Mediterranean region		Plant part: Fruits (dried seed)	Rajasthan zeera 19, Gujarat cumin 1 (GC -1), Gujarat cumin 2, RS – 1.
Plantation crops: Coconut (<i>Cocos nusifera</i>)	Palmae/arecaceae	Indo-Malayan	seed	<i>kalpa vriksha</i> ’.	Tall vars: East Coast Tall, West Coast Tall, Laccadevi Ordinary, Laccadivi Micro and Andaman Ordinary; Dwarf vars: Chowghat orange dwarf (COD), CGD, Malayan

		Region (South East Asia)			Green Dwarf (MGD), MYD, MOD, Ganga Bondam. ECT X G.B (Godavari Ganga) ; WCT X COD (Kera Sankara) COD X WCT (Chandra Sankara) LO X COD (Chnadra Laksha) L.O XG.B (Laksha Ganga) WCT X G.B (Kerala Ganga) A.O X G.B (Anantha Ganga) Double Century: clonal progeny selection.
Cashew 2n=42 (<i>Anacardium occidentale</i>)	anacardiaceae	Tropical South America (South East Brazil)	Seeds and soft wood grafting	Plant part: Kernel. Goa Feni (liquor) Nut is a <i>drupe</i> .	BPP 9 (H 3/28): it is a selection from a cross between T. No.56 x M 10/4. In Maharastra: improved varieties are Vengurla 1,2,3,4 and 5. In Tamil Nadu: improved varieties are Vridhachalam 1 and 2. In Karnataka: improved varieties are Ullal 1 and 2. In Kerala: improved varieties are Anakkayam 1, BLA 39-4, and K22 -1.
Tea 2n= 30 <i>Camelina sinensis</i>	Theaceae/ caramaliaceae		Leaf is edible part.	Darjiling is main area	Grown in west Bengal, assam and kerala .
Coffee i) <i>Coffe Arabica</i> ii) <i>Coffe robusta</i>	Rubiaceae	Ethiopia (South Africa)	Gleanings: Collection of dropped berries.	Processing: wet method: parchment coffe; Dry methid: cherry coffee	Kent's coffee: Vigorous – red fruits, Cauvery-- catura x Hybrido - de – Timor, Selection 5: Hybrid devamachy x S 881 – vigorous and rust free, S – 6: Robusta x Kent's Arabica Selection 1R(S-274): High yielder ii) Selection 3R HybridR: <i>C. congenesis</i> x <i>C. canephora</i>
Arecanut <i>Areca catechu</i>	Palmae/arecaceae	Islands of Indian Ocean	seeds	Economic Plant part: Kernel chali supari: Fully ripe, 9 month Kalipak supari: 6-7 months	Sree vardini : A. catechu x A. triandra; mangala, su mangala; sreemangala, moti nagar, smarudhi.
Cocoa <i>Theobroma cacao</i>	sterculiaceae	Tropical South America	Cauliflorus habit.	Criollo type is best quality. Economic Plant part: Beans	I)forestro ii) criollo; TRINITARION: criollo x forester Amazon, Amelonado,

Rubber			Tapping is done to extract latex.	Latex contain 32% dry matter.	RFU-112,600,605, 703, 513, 625.
Oil palm <i>Ealias guinensis</i>	Palmae/arecaceae	West Africa	Plant part: Nut and Mesocarp	Dura: shell is present; pisifera: Shell is absent ; tehera: cross of dura and pisifera.	Oli palm research station at pedavegi, andra Pradesh. Palm oil is used for prduction of margarine. Stripping is done in oil palm. Rich in palmatic acid