Suitable Crop Varieties for Limited Irrigated Conditions in Different Agro-climatic Zones of India

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INTRODUCTION

Water is perhaps principal factor limiting crop yield and about 2/3 of total cultivated land in India comprise of dry land agriculture primarily under rainfed conditions with no or limited water supply system. Choice of crop are important but selection of right varieties is utmost important because varieties which have proven excellent in irrigated or high rainfall areas may or may not be suited under limited irrigated conditions.

Agro-climatic zonal crop planning has been considered to be the most effective approach for the scientific and sustainable agricultural development. An attempt has been made to screen out crops and their varieties which can perform better with limited irrigation in different agro climatic condition. Selection of particular crops in general and their varieties in particular were discussed here in the light of agro climatic conditions.

SELECTION OF CROP/SPECIES

Selection of crop/species based on their tolerance to dry spell/condition, temperature salinity etc. Fallowing crops mentioned in Table1 and 2 may be selected as per their tolerance power (degree of tolerance) to environmental abiotic stress and off course requirement.

CROP AND VARIETY SELECTION

Choice of crops and their varieties is important. Varieties which have proven excellent in irrigated or high rainfall areas may not be suitable for dry land conditions. Several attempts at dry land farming have failed, largely due to lack of recognition of the requirements for the correct variety selection. The main varietals requirements for limited irrigation conditions are short-stemmed varieties with limited leaf surface minimize transpiration. Deep, prolific root systems enhance moisture utilization. Quick-maturing varieties are important in order to the crop may develop and prior to the hottest and driest part of the year and mature before moisture supplies are completely exhausted. Suitable crops and respective varieties for limited irrigation conditions under different agro-climatic regions/zones in India are given below.

Western Himalayan Region

This agro-climatic region/zone consists of three sub zones of Jammu & Kashmir, Himachal Pradesh an U.P. hills composed of skeletal soils of cold regior podslic soils, mountain meadow soils and hilly brow soils mostly silty loam in nature. Erosion slides an slips are quite common problems. The highe cropping intensity has been observed in H.P. where lowest is in Jammu & Kashmir. The average crop yiel are lower than that of national average productivity all the crops. Suitable crops/varieties under limit irrigation conditions for this agro-climatic zone are under.

Eastern Himalayan Region

This agro-climatic region/zone consists of Sikkim Dmjeeling Hills, Arunachal Pradesh, Meghala Nagaland, Manipur, Tripura, Mizoram, Assam a Jalpaiguri and Coochbehar district of West Ben characterised with high rainfall and high forest cov Widespread shifting cultivation (Jhum) in arounc per cent of the area is of greatest concern as it ca denudation and degradation of soils with he runoff, massive soil erosion associated with flooc the lower reaches and basins. Crops/varieties suit under this agro-climatic region/zone in lim irrigation conditions in as under.

Lower Gangetic Plains

This agro-climatic region/zone consists of four regions viz. Basind plains, central alluvial pl

* (ICAR Research Complex for Eastern Region Patna-800 014).

Table 1
Crops for Limited Water Supply Condition

	Scientific Name	*Common Name*	*Degree of Tolerance**
CEREAL GRAINS	*Zea mays*	Maize	1.0
	Sorghum bicolor	Sorghum	1.5
	Pennesitum americanum	Pearl Millet	2.5
GRAIN LEGUMES	*Vigna unguiculata*	Cowpea	1.5
	Cajanus cajan	Pigeon Pea	2.0
	Vigna radiata	Mung Bean	2.0
	Vigna aconitifolius	Mat Bean	2.5
	Tylosema esculentum	Marama Bean	3.0
ROOT CROPS	*Dioscorea rotundata*	White Yam	1.0
	Manihot esculenta	Cassava	2.0
	Sphenostylis stenocarpa	African Yam Bean	2.0
FEED LEGUMES	*Prosopsis sps.*	Mesquite	2.0
	Leucaena leucacephala	Leucaena	2.0
FEED GRASSES	*Digitaria decumbens*	Pangola Grass	1.0
	Sorghum	*sudanense* Sudan	1.0
FIBER PLANTS	*Gossypium barbadense*	Sea Island Cotton	1.0
	Agave fourcroydes	Henequen	2.0
	Agave sisalana		2.0

Rated from 0 (no tolerance) to 3 (high tolerance).

Table 2

Crops	*Varieties*
Barley	Ratna, Jyoti, Sonu Local, Pl-56,P-142, P-133
Maize	Ganga -2, Ganga -5, Vikram
Mustard	RLM-514, RLM-619, Pusa Bahar
Pigeon pea	Prabhat, T-21, Pant A-3
Rice	RP79-5, DR-92, CR-142-3-2
Soybean	Bragg, PB-I, Semmi
Wheat	PBW-396, PBW-175, Raj 3077 HD-1981, HD2009, HD2021

Crops	*Varieties*
Barley	Cv. K-125, BR-1, BR-23, Ratna, K-125
Black gram	T-9UPU01, B-12-1, Madhu, BR-10,
Cowpea	C-20, C170, FS-68.
Green gram	Kopargoan, K851, PS-16. Sunita
Ground nut	M-13, Polchi-1, NG-308, AK-12-24
Horse gram	DS-1-2, DS-7, DS-2-2
Jute	JRO-632, JRC-212.
Lentil	Pant l 209, BR-25 PL8, PL 406
Linseed	T-397, LC-267
Maize	A-51-54,Jawahar,Diara, Ganga Safed-2
Mesta	AS-7,CPEL,DPLL
Mustard	BR-37, Assam selection
Niger	Phulbani local, Ootakmund no-5, N-5,
Pigeon pea	R-60, Kanke -9, T-21, PR707, Sodangi,-6, A-2-3-4 A104, PR202 (Godawari), IE-723, T-27, A-B-4. BR-65, Kuxmi, BR-183
Rice	Subhadra, Parijat, CRM13-3241, Bala, Brown Gora,23-19, Kiran
Sawan	RAU-2, RAU-3
Sesame	Kanke white,
Sorghum	CSH 5, CSH 6
Wheat	C-306, Kalyan Sona

alluvial coastal plains and Rarh plains. This zone is famous for rice cultivations and accounts for 12 per cent of the country's total rice production, although the rice yields have been below the national average (15 quintals/ha). Floods and inundation of fields in basin and Central plains often destroy standing crops. Mustard, winter maize and potato are the relatively newly introduced crops of this zone. Crops and their varieties suitable under limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Barley	BR-1, BR-23, Ratna, K-125
Black gram	T-9UPU01, B-12-1 Madhu, BR-10,
chickpea	Pant G-114, BG-256, H-208, C-2
Cowpea	C-20, C170, FS-68.
Green gram	Kopargoan, K851, PS-16.
Ground nut	M-13, Polchi-1,NG-308
Jute	JRO-632, JRC-212.
Lentil	Pant l 209, BR-25 PL8. BR-25, PL-406, PL-63
Linseed	T-397,LC-267
Maize	A-51-54, Jawahar, Diara, Ganga Safed-2
Mesta	AS-7, CPEL, DPLL
mustard	BR-23, BR-40, Pusa Bold
Niger	Phulbani local, Ootakmund no-5.
Pigeon pea	R-60, Kanke -9, T-21
Ragi	PR707, Sodangi,-6, A-2-3-4
Rice	Subhadra, Parijat, CRM13-3241, Bala, Bgown Gora, 23-19, Kiran
Sawan	RAU-2, RAU-3
Sorghum	CSH 5, CSH 6
Wheat	C-306, Kalyan Sona, K-8027, HDR-77, K-8962, GW-173, DL-788-2

Middle Gangetic Plains

This zone consists of 12 districts of eastern U.P. and 27 districts of Bihar plains. Depending upon heterogeneity in soil, land use, topography and climatic factors it has been sub-divided into several smaller sub zones. The area is characterized with high rainfall and frequent floods. About 39 per cent area is irrigated having a cropping intensity of 142 per cent. Bihar plains consist of 17 lakh hectares as flood prone and 10 lakh hectares as Chaur, Tal and Diara. Main crop of the zone is rice although the average productivity is very low. The strategies consist of supply of quality seeds of high yielding varieties along with an efficient transfer of technology for adoption of modern crop production techniques. Poultry, dairying and inland riverine fisheries have to get priority. Crops and varieties suitable under limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Barley	DI-3, K-125, Ratna, Jyoti
Black gram	T-9 H-10, B-76
Castor	Aruna
Chickpea	Pusa-256, Awarodhi, T-1, T-3, T-6, BG-1, BG-2, BG-200
Green gram	Varsa, K8501, PS-16, Madhira, T-44.
Ground nut	TMV-2, Kadiri-1, Kadri-3
lentil	L-406, Pant L-639, L-4076, K-75, T 36, Pant-509, BR-25.
linseed	T-397, Neelum , Mukta, Garima, Neelam
Maize	Ganga safed-2, Ganga safed-5
mustard	R-59, T5909, Varuna, Vardhan, Sanjukta, Kranti
Pearl millet	BJ-104, Jaunpuri, NHB-3-4, BJ-104
Pigeon pea	T21, UPAS-120, PDM-01
Rice	Akashi, Cauvary, Ratna
Safflower	N62-2 IC 11842,
Sesamum	T-13 , T-4, T-12
Setaria	Sel. 377
Sorghum	CSH 5, SPV-104
Wheat	HUW-533, K-8027, C-306, K65, Malviaya-12

Upper Gangetic Plains

This zone consists of 32 districts of U.P. divided into three sub-zones viz. Central, south-western and northern-western U.P. The soil is mostly canal or tube-well irrigated and has about 144 per cent cropping intensity. Rice and wheat are major crops. The average fertilizer consumption ranges around 100 kg./ha. as against >175 kg. Nutrients/ha in Punjab. About 9 lakh hectares area is saline-alkali or problem soils. Suitable crops and respective varieties for limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Barley	Azad, K-144, Lakhan, K-603 Geetanjali. DI-3, K-125, Ratna
Black gram	T-9 H-10, B-76
Castor	Aruna
Cluster bean	DP, SAFED, B 19-1-55
Cow pea	FS68, HFC421
Gram	T-1, T-3, T-6, BG-1 BG-2, BG-200, H-208
Green gram	Kopergoan, Varsa, K8501, PS-16, Madhira, T-44.
Ground nut	TMV-2, Kadiri-1, Kadri-3 HYB 01, Chandra
Lentil	T36, Pant 509, BR-25.
Linseed	T-397, Neelum, Mukta
Maize	Sathia Diara, Ganga safed-2, Ganga safed-5
Mustard	R-59, T5909, Kranti, Vaibhav, Rohini, Varuna, Krishna and Vardan.
Pea:	Rachna, Sapna, Pant-5 and Jai
Pearl millet	Jaunpuri, NHB-3-4, BJ-104
Pigeon pea	T21, UPAS -120, PDM-01, Pusa ageti
Rice	Akashi, Cauvary, Ratna
Safflower	N62-2, IC 11842,
Sesame	T-13, T-4, T-12
Setaria	Sel. 377
Sorghum	CSH 5, SPV-104
Sorghum (f)	MP CHARI , PUSA CHARI
Sorghum (g)	CSH 5, CSH 6, SPV 224, SPV370
Soybean	ANKUR, J 231 PB 1S
Wheat	C 306, K65, Malviaya-12

Trans-Genetic Plains

This zone consists of Punjab, Haryana, Union Territories of Delhi and Chandigarh and Sriganganagar district of Rajasthan which is divided into three sub-zones viz. foothills or Shiwalik and Himalayas; Semi-arid and arid plains bordering Thar desert. The zone is characterised with highest net sown area and highest irrigated area, least poverty level, high cropping intensity and high ground water utilization. The area has got highest productivity in the country and efforts are on to formulate programmes and policies to achieve productivity levels comparable to those of advanced countries for which high quality research and most efficient ways for quick and effective transfer of technology are being provided. Suitable crops and their varieties under scare water supply is given as:

Eastern Plateau and Hills

This region consists of following sub-regions : (i) Sub-region of Wainganga, M.P. eastern hills and Orissa inland; (Ii) Orissa northern and M.P. eastern hills and plateau; (iii) Chhotanagpur north and eastern hills and plateau; (iv) Chhotanagpur south and West Bengal hills and plateau, and (v) Chhattisgarh and

Crops	*Varieties*
Barley	RD-297, DRD31, RDB-1, RD-56, C-138, PL-419
Bengal gram	H-208, C-214, C-235
Black gram	T-9
Castor	Aruna
Cowpea	FS-68, C-152, C235
Gram	C-235, Dohad, BG-203
Green gram	S-9, Pusa Baishakhi, K851
Linseed	Chambal, T-397, R-157
Maize	Ganga-5 & Ganga 2
Moth	T-2
Mustard	Durgamani,T-59, Prakash, Varuna, RH-30, RH-891, RH-781
Pea	Rachna, Sapna, Pant-5 and Jai
Pearl millet	BJ-104
Pigeon pea	Gwaliyar-3, Hyderabad-1 & Hyderabad-1
Safflower	EC35737, EC27250, EC38478, JSF-2, JSF-5 (spineless).
Sorghum	CSH 1, CSH 5, SPV 245
Wheat	WH-157, WH-711, C-306, PBW-396, PBW-299, PBW-175, durum wheat-PDW-274, PDW-233

south-western Orissa hills. The soils are undulating with shallow to medium depths. Tank irrigation is very common in sub-zone (ii) and (v) while tube well irrigation is significant in sub-zone (i) and parts of sub-zone (ii) and (v) Kharif season consists of 82% rice, 6% oilseeds and 6% pulses whereas Rabi has 28% cereals, 53% pulses and 12% oilseeds. Suitable crops and their varieties under scare water supply is given under.

Crops	*Varieties*
Barley	DL3, Jyoti, K-125
Gram	Pant G-114, BG-256, H-208, C-235 Pusa-256, Awarodhi Radhe,
Green gram	ML-5, Jawahar-45
Ground nut	Jawahr, Jyoti, Exotic1-1, J-11, M-13, AK 12-24, Smruti, JL-24
Horse gram	PBW-396, PBW-299Urmi, DS-1-2, DS-2-2. Sesame Prachi, Nirmala, Kanak, Kalika, Vinayak, Uma and Ush
lentil	BR-25, PL-406, PL-639 ,Pant L-639,L-4076, K-75
Linseed	T-397, R-157,Garima, Neelam
Maize	Birsa makai, Kanchan
Mustard	BR-23, BR-40, Pusa Bold
pea	Arkel, Rachna, BR-12
Pigeon pea	T21, BS-1, Prabhat, Ja-17
Rice (lowland)	Ratna, Jaya
Rice (upland)	DR-92,IR28,JR-15-55-2,Cauvery
Safflower	EB-7JSF-1
Sesamum	N-62-34, KN-96-1
Sorghum	CSH 1, CSH 5, 604, Swarna
Soybean	J-231, JS-17,JS-4, Black Soybean
Wheat	C 306, Narmada-4, Narmada-112, Swati, Lok-1, Sujata K-8027, Hdr-77, K-8962, Gw-173, Dl-788-2

Central Plateau and Hills

It comprises 46 districts of Uttar Pradesh, Madhya Pradesh and Rajasthan having soils of variable topography with predominance of ravines and hills. Hardly 30% of the total land is under cultivation with very poor irrigation and very low cropping intensity, literacy is very low and poverty ratio is very high. Low value crops are to be replaced by high value crops having advanced technological backup and crop diversification. Varieties of respective crops suited under this agro climatic condition with low moisture condition is as under.

Crops	*Varieties*
Amrantha	HI-1500, Harshita (HI-1531), Sujata JWS-17 And C-306
Black gram	T 9
Chickpea	JG-412, JG-218 And Visha
Cluster bean	DP Safed, B 19-1-55
Cow pea	FS68, HFC421
Gram	BG-200,H-208, Pink-2, Narsingh Pur Bold
Green gram	Kopergaon,Ml-5, Jawahar-45
Ground nut	Hyb 01, Chandra,Jawahr, Jyoti, Exotic1-1 J-11, M-13
Linseed	T-397, R-157
Pearl millet	BJ, 104
Pigeon pea	T21, Bs-1, Prabhat, JA-17, NPWR-15
Rice (upland)	DR-92, IR28, JR-15-55-2 Cauvery
Safflower	EB-7JSF-1
Sesame	T 13
Sesame	N-62-34, KN-96-1
Sorghum (f)	MP CHARI, PUSA CHARI
Sorghum (g)	CSH 5, CSH 6, SPV 224, SPV370, Swarna
Soybean	ANKUR, J 231 PB 1S J-231, JS-17, JS-4, Black Soybean
Wheat	C 306, Narmada-4, Narmada-112, Swati, Lokj-1, Sujata, Amar (HW2004)

Western Plateau and Hills

It comprises the major part of Maharashtra, parts of M.P. and one district of Rajasthan forming a major part of peninsular India and receives 904 mm annual rainfall. About 65% of the area is under crops and 11% under forests. 12.4%, area is irrigated by canals. Cotton and sorghum are grown in more than 50% of the area of the zone. About 50% of the country's sorghum production and 20% of the country's cotton production are obtained from this zone. This zone is famous for best quality oranges, grapes and bananas though the area under these crops is hardly one lakh hectares, which needs to be increased. Suitable crops and their varieties under scare water supply is given under.

Crops	*Varieties*
Black gram	G104, T 9
Castor	SA-1 Giriraj, Aruna
Chickpea	Vikas, N-59, Chaffa, Vijay, Vishal (all are wilt resistant) Phule G-12 CHAFA, N59, Ujjain 21, Ujjin 24
Cotton	Laxmi, Armda, Digvijay, Sujata
Green gram	S8, J781
Ground nut	M13, TMV 10, SB 11, AK12-24, JYOTI
Horse gram	K42, D40-1
Maize	Ganga-5, Satha
Pearl millet	BJ 104, BK 560 Rahuri Composite, MBH 118
Pigeon pea	NO 148 T21, Khargone 2, HY-4
Safflower	Tara, N628, Bhima (S-4), SF-1
Setaria	Arjun IS 279
Sorghum	M35-1, SPV86, CSH 8R CSH 5, CSH 6
Soybean	Bragg, PB-1 (S), JS-72-44, Ankur
sunflower	Morden, LS-11 EC69874, EC68414, JSN-1
Wheat	Narmada-4, Narmada-112, Swati

Southern Plateau and Hills

This zone comprises 35 districts of A.P., Karnataka and Tamil Nadu which are semi-arid in nature. Nearly 81% area is rainfed having 111% cropping intensity consisting of mainly low value cereals and minor millets. Crops and varieties suited under this agro climatic condition with low moisture condition is as under.

Crops	*Varieties*
Black gram	K-3
Chilies	Guntur-3, Culter-13, Culter-25
Cotton	Suyodhra (herbaceaum)
Cowpea	C-152, TVX994, S488, Culter-1
Green gram	PS-16
Ground nut	Hb-8,-18, RS-114, Dh-3-30
Horse gram	IC 11095, Bailhangal, T-3, PHG-9, VZM-1
Maize	Deccan Hyb101
Pigeon pea	Hy-36, TTB-7, C-11, C-28, PE-221
Ragi	PR-202, Indaf-2, Indaf-5, Indaf -8
Rice	Swathi, Sravani
Safflower	Manjira, DSH-129, Sagara Muthyalu 5-4-1, A-1
Sorghum	M-35-1
Sunflower	BSH-1EC68415

East Coast Plains and Hills

This consists of six zones: (i) Orissa Coast, (ii) North Coastal and Ganjam, (iii) South Coastal Andhra, (iv) North Coastal Tamil Nadu, (v) Thanjavur and (vi) South Coastal Tamil Nadu. This is main rice and groundnut producing area which accounts for about 21% of country's rice and 18% of country's groundnut productions. Saline and alkaline soils are found in coastal areas to the extent of 4.9 lakh hectares. About 70% area is rainfed and needs better watershed management. Crops and their varieties suited under this agro climatic condition with low moisture condition is as under.

Crops	*Varieties*
Black gram	K-3
Cowpea	C-152
Green gram	PS-16
Ground nut	Hb-8,-18, RS-114, Dh-3-30
Horse gram	DS-1-2, DS-2-2
Lucerne	Anand-2, APL-3
Pigeon pea	C-28, PE-221
Rice	Erramallelu, IR-64, MTU-1010, RDR-763
Safflower	5-4-1, A-1
Sorghum	M-35-1
Sunflower	MSFH-8, MSFH-17, APSH-11, BSH-1, Morden, EC-68414 Morden, Sunrise, Surya and hybrids like KBSH-1, KBSH-3 and MSFH. Sesame Prachi, Nirmala, Kanak, Kalika, Vinayak, Uma and Usha.
Wheat	Sonalika, UP-262

West Coast Plains and Ghats

This includes western coast of Tamil Nadu, Kerala, Karnataka, Maharashtra and Goa which is famous for plantation crops and spices. The strategies include: rain water management, minor irrigation development, crop diversification, fisheries development especially prawn culture, reclamation of Pokhali levels and promoting spices production. Crop varieties suitable under limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Black gram	T 9
Chickpea	Vikas, N-59, Chaffa, Vijay, Vishal and Phule G-1
Cotton	DHY 286, SRT1 H4 AKH 4 AKH 5
Green gram	Gujarat 2
groundnut	JL 24, Konkan Tapora, TPG-41
Pigeon pea	C1 T 21
Safflower	N7
Sorghum (G)	CSH1, CSH5, CSH9 SPV102
Sunflower	EC68414, PKVSUN 72-37 (LATUR SALECTION)

Gujarat Plains and Hills

This zone consists of 19 districts of Gujarat having arid climate. Only 22.5% area is irrigated and 50% area is used for production of crops although it is an important oilseed zone. The cropping intensity ranges to around 114% and 60% of the cropped area is drought prone. Crop varieties suitable under limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Black gram	T 9
Castor	Gauch-1 Gauch-3, Cgh 3
Cluster bean	Melosan, Kutch-8
Cotton	H-4, GAU Cot-10
Green gram	Gujrat-1, Gujrat-2
Groundnut	Konkan Tapora, TPG-41
Pearl millet	CJ-104, BJ-104, J1399
Sesame	Purva & Purva 1
Sorghum	CSH 5, CSH 6
Sunflower	EC68414
Tobacco	Gujarat-4, Anand-2

Western Dry Region

It consists of nine districts of Rajasthan and is characterized by hot sandy desert, erratic rainfall, high evaporation, no perennial river and scanty vegetation. Ground water is very deep and brackish. Frequent famine and drought force people and animal to migrate to other places in search of water, feed and feeder. Land/man ratio is high (1.73 ha/person). Average annual rainfall is 395 mm with high fluctuation from year to year. The forest area is only 1.2 and that of pasture is 4.3 (70. Cultivable waste and fallow lands are nearly 42% of geographical area and net irrigated area is only 6.3% of net sown area (44.4%). The cropping intensity is hardly 105%. Bajra, guar and moth are major crops in kharif and wheat and gram in rabi season, though the yields are very poor. Crop varieties suitable under limited irrigation conditions in this agro-climatic region/zone is as under.

Crops	*Varieties*
Barley	RD-297, DRD31, RDB-1
Black gram	T-9
Castor	Bhagya, Aruna, GAUCH–1
Chickpea	Vikas, N-59, Chaffa, Vijay, Vishal, C-235, Dohad, BG-203
Cluster bean	2470/12, FS-277, HFG-75, D Safed
Cowpea	FS-68, K-11, HFC-42-1
Green gram	S-9, Pusa Baishakhi, K851
Linseed	Chambal T-397, R-157
Maize	Ganga-5 & Ganga 2
Mustard	Durga mani, T-59, Prakash
Pigeon pea	Gwaliyar-3 , Hyderabad-1 & Hyderabad -1
Safflower	N-62-8, JSF-2, JSF-5 (spine less)
Sesamum	T-13, Var-4-2
Sorghum	CSH 1, CSH 5, SPV 245
Sunflower	EC68414, EC69874
Wheat	C-306, PBW-396, PBW-299cv. Lok-1, Raj-3077, Raj-4037, Raj-3765 & GW-273

Island Region

It covers the Island territories of the Andaman and Nicobar Islands and Lakshdweep having an annual rainfall of 3000 mm spread over 8 to 9 months. It is smallest zone and largely a forest zone having highest literacy and least poverty. Productivity of rice and other crops has to be boosted by developing suitable varieties, arranging inputs and adopting package of new practices.

Crops	*Varieties*
Black gram	CO-1, CO-4, KH-2
Cowpea	CO-1, CO-3CO 7, CO 8
Finger millet	Indaf-5, PR-202, GPU-28
Gram	A-1, N-52
Green gram	CO-1, CO-3
Pigeon pea	CP-1 , SA-1
Safflower	S-144,A300,7-13-0
Sorghum	SVP-86 M-35-1
Rice	Joythi, Rohini, Triveni

The Indian production systems are dominated by cereals, primarily rice maize, sorghum, pearl millet other coerces and fine cereals leguminous (urd, moong, peanut) and oil yielding crops during kharif and wheat barley chickpea, lentil and forage legumes in rabi season. The production systems are generally characterized by cereal/legume mixed-cropping dominated by maize, millet, sorghum, and wheat under limited water supply system, hence selection of crops and choice of their varieties plat a vital role in realizing production potential of crops and livelihood improvement of farming communities under any circumstances be it dryland–rainfed or under assured moisture regime.

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