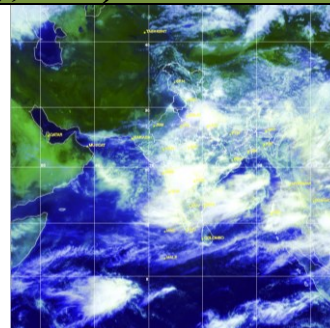




Monsoon Watch

Southwest monsoon was vigorous over Marathwada and active over SubHimalayan West Bengal & Sikkim, east Madhya Pradesh, Gujarat region, Konkan & Goa, Madhya Maharashtra, Vidarbha, Telangana and south interior Karnataka.



Satellite image 0600 UTC dated 19th July, 2013

Salient Advisories for the *kharif* Crops

Based on the realized and expected rainfall, following salient advisories for the crops have been prepared.

Northeast Region

- As rain / thundershowers would occur at many places along with heavy rainfall at one or two places during next 24 hours in **Arunachal Pradesh, Assam** and **Meghalaya**, undertake nursery sowing of *sali* rice, sowing of pigeon pea, sesame in **Assam** after current spells of rain. Farmers are also advised to continue transplanting of *sali* rice in **Assam**, WRC rice in **Arunachal Pradesh**, *kharif* rice in **Manipur** and *jhum* rice in **Mizoram** and complete transplanting of lowland rice in **Nagaland**.
- In Mild Tropical Plain Zone of **Tripura**, continue transplanting of *aman* rice and planting of banana.

South Region

- As rain / thundershowers would occur at most places over Kerala along with heavy rainfall at one or two places during next 24 hours, postpone planting of banana and sowing / transplanting of vegetables and to provide drainage in already planted banana and vegetable crop fields; farmers are also advised for propping in bunched banana. In Coastal Karnataka, postpone sowing of maize as rain / thundershowers would occur at most places along with heavy rainfall at a one or two places during the period.
- In **Coastal Andhra Pradesh**, continue sowing of direct seeded rice, nursery sowing of rice and *kharif* pulses and in **Telangana**, continue sowing of maize, groundnut and pulses.
- In **Raylaseema**, continue sowing of maize, castor, groundnut, red gram, bajra and cotton, nursery sowing of rice in Kurnool and Chittoor utilizing realized rainfall and continue sowing of groundnut, red gram and bajra in Anantapur and Cuddapah districts with assured irrigation facilities.
- Complete transplanting of *Virippu* rice in Kerala and continue transplanting of *kharif* rice in Coastal Karnataka. Farmers are also advised to transplant *Kuruvai* rice, mainly in Thanjavur, Trichy, Nagapattinam and Thiruvarur districts of Cauvery Delta Region of Tamil Nadu with irrigation facilities. Continue sowing of green gram and black gram with irrigation facilities in South Zone of **Tamil Nadu**.
- In **North Interior** Karnataka, continue sowing of groundnut, castor, red gram and bajra. In the Central Dry Zone of Karnataka, continue sowing of maize, cotton and groundnut till the end of July. In North East Dry Zone of Karnataka, continue sowing of groundnut, castor, red gram, bajra with short duration green gram and black gram for intercropping.
- Complete sowing of cow pea, maize and groundnut in **South Interior Karnataka**.

West Region

- Farmers are advised to postpone intercultural operations and application of fertilizers and plant protection measures in nurseries of rice and finger millet in **Konkan and Goa**, in already sown jowar, soybean and red gram in **Vidarbha** and groundnut, cotton, pulses, sesame, pearl millet, maize and vegetable nurseries in **Gujarat region** in view of occurrence of rainfall at most places.
- Farmers in **Konkan** are advised to arrange adequate drainage to avoid stagnation of water in nurseries of rice and finger millet as well as in mango, cashew and sapota orchards as rain would occur at most places along with heavy rainfall at one or two places during the period. Farmers are also advised to complete transplanting of *kharif* rice and to continue transplanting of 30 days old finger millet seedlings.
- In **Madhya Maharashtra**, farmers are advised to complete sowing of *kharif* jowar, bajra, red gram and also undertake planting of *adsali* sugarcane and in Vidarbha, farmers are advised to continue sowing of jowar, soybean and red gram. Farmers in Gondia, Bhandara, Gadchiroli and Chandrapur districts are also advised to continue transplanting of rice.
- In **Marathwada**, farmers are advised to complete sowing of *kharif* jowar and red gram under *vapsa* condition and undertake planting of *adsali* sugarcane under *vapsa* condition.
- Farmers are advised to continue transplanting of rice in Middle Gujarat and South Gujarat Heavy Rainfall Zone.
- In **Saurashtra & Kutch**, continue sowing of guar, groundnut, cotton, pulses and pearl millet.

Central Region

- As rain/thundershowers would occur at most places along with heavy to very heavy rainfall at one or two places over **Madhya Pradesh** during the period, postpone sowing of *kharif* crops like soybean, til, groundnut, urad, moong, sorghum, maize and pigeon pea. Provide adequate drainage in already sown *kharif* crop fields. Undertake transplanting of rice.
- In **Chhattisgarh**, as rain / thundershowers would occur at most places along with heavy rainfall at one or two places on 19th and 20th, postpone sowing of soybean, maize, jowar, arhar and groundnut, sowing of *kharif* vegetables and nursery raising of tomato, brinjal, chilli. Undertake transplanting of rice.

Continued.. Page 2



Issued by

National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.

The bulletin is also displayed in the website (<http://www.imdagrimet.gov.in>) of the Division

East Region

- In **Sub-Himalayan West Bengal**, as rain / thundershowers would occur at most places along with heavy to very heavy rainfall at one or two places on 19th July, postpone intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also provide adequate drainage in already sown crop fields. In **Gangetic West Bengal**, undertake transplanting of *aman* rice, continue sowing of maize and pigeon pea.
- In **Bihar**, continue sowing of maize, urad and small millets, vegetable crops like bottle gourd, sponge gourd, bitter gourd, ridge gourd, cucumber, cowpea and okra in upland and continue transplanting of rice in lowland.
- As rain / thundershowers would occur at many places along with heavy rainfall at one or two places during the period, postpone sowing of maize, arhar, groundnut, cotton, pulses, green gram, black gram, cowpea, sesame, ragi, castor, soybean and vegetables in **Odisha**. Also provide adequate drainage in already sown crop fields. Undertake transplanting of rice in East and South Eastern Coastal Plain Zone of Odisha.
- Continue nursery sowing of rice, direct sowing of rice and sowing of soybean, maize, urad, arhar, *kharif* vegetables viz. bhindi, bean, French bean and nursery sowing of tomato, cauliflower, cabbage in **Jharkhand**.

North Region

- As rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy to very heavy rainfall at one or two places over **Uttarakhand** during the period, farmers are advised to postpone nursery sowing of rice, sowing of soybean, groundnut, millets, pigeon pea, horse gram and French bean, sowing of maize in Hill Zone. Provide adequate drainage in already sown crop fields. Continue transplanting of rice.
- In **Himachal Pradesh**, as rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy rainfall at one or two places on 20th, 21st, farmers are advised to postpone direct sowing of cucurbits viz. khira, bitter gourd, tori in main field and planting of potato in Hill zone. Continue transplanting of rice.
- In **Uttar Pradesh**, as rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy to very heavy rainfall at one or two places over West Uttar Pradesh on 19th and 20th July and heavy rainfall over East Uttar Pradesh on 19th July, farmers are advised to postpone sowing of maize, jowar, groundnut, arhar, moong, urad, nursery sowing of early cauliflower, brinjal, chilli, tomato and transplanting of brinjal and chilli and provide adequate drainage in already sown crop fields. Also advised to undertake transplanting of rice.
- **Complete** transplanting of basmati rice and sowing of cowpea in **Punjab**. Continue transplanting of rice with irrigation facilities, sowing of cotton, guar and bajra in Western Zone of **Haryana**. Undertake transplanting of rice and continue nursery sowing of rice, sowing of guar, bajra, maize, cluster bean, pigeon pea, spinach, *Amaranthus* and lady's finger in **Delhi**.
- In **Jammu & Kashmir**, continue sowing of maize, sowing of direct seeded rice and transplanting of brinjal, chilli and cauliflower in Sub Tropical Zone. continue sowing of maize, bajra and nursery raising of rice in Intermediate Zone, continue transplanting of rice in Valley Temperate Zone.
- Continue sowing of groundnut, maize, soybean, castor, pearl millet, sorghum, green gram, cow pea, cluster bean and sowing of rainy season cucurbits in **East Rajasthan** and continue sowing of bajra in **West Rajasthan** utilizing realized rainfall.

Significant realized rainfall during last week

Significant rainfall received in all the districts of Uttarakhand, Gujarat, Saurashtra & Kutch, Maharashtra, Odisha, Coastal Karnataka, Kerala, Coastal Andhra Pradesh, Telengana; Most of the districts of Mizoram, Madhya Pradesh, Chhattisgarh, East Rajasthan; Many districts of Arunachal Pradesh, Assam, Tripura, Himachal Pradesh, East Uttar Pradesh, Sub-Himalayan West Bengal, North Interior Karnataka; in few districts of Meghalaya, Manipur, Nagaland, Haryana, West Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, South Interior Karnataka, Rayalaseema and one or two places in Punjab, Jammu & Kashmir, West Rajasthan, Tamil Nadu.

Distribution of rainfall of the country during week ending on 17.07.2013

State/Districts	Actual (mm)	% dep.
Arunachal Pradesh		
Anjaw	**	**
Changlang	94.6	-12
Dibang Valley	7.0	-86
East Kameng	25.5	-74
East Siang	177.6	-33
Kurung Kumey	**	**
Lohit	107.1	-28
Lower Dibang Valley	**	**
Lower Subansari	1.8	-98
Papumpara	116.1	-1
Tawang	81.0	-62
Tirap	242.6	21
Upper Siang	31.2	-77
Upper Subansari	96.4	79
West Kameng	91.0	-57
West Siang	86.4	-46
Assam		
Baksa	56.0	-61
Barpeta	7.9	-95
Bongaigaon	1.0	-99
Cachar	178.9	48
Chirang	12.1	-92
Darrang	0.0	-100
Dhemaji	130.0	-15
Dhubri	1.7	-99
Dibrugarh	96.4	-20
Goalpara	7.9	-92
Golghat	72.0	-7
Hailakandi	116.8	27
Jorhat	120.2	23
Kamrup(Rural)	38.8	-49
Kamrup(Metro)	30.7	-60
Karbi Anglong	118.6	149
Karimganj	98.2	-34
Kokrajhar	26.5	-79
Lakhimpur	171.3	13
Morigaon	127.8	47

N.C.Hills	119.4	89
Nowgong	117.4	30
Nalbari	5.1	-96
Sonitpur	127.3	41
Sibsagar	87.2	1
Tinsukia	93.6	-18
Udalgiri	121.5	42
Meghalaya		
East Garo Hills	**	**
East Khasi Hills	164.1	-58
Jaintia Hills	70.0	-78
Ribhoi	39.3	-51
South Garo Hills	13.0	-89
West Garo Hills	24.6	-78
West Khasi Hills	18.0	-86
Mizoram		
Aizwal	98.9	-12
Champhai	128.0	64
Chhimtuipui	**	**
Kolasib	3.0	-97
Lawngtlai	42.0	-65
Lunglei	51.0	-59
Mamit	50.0	-55
Saiha	115.0	14
Serchhip	43.0	-58
Manipur		
Bishnupur	**	**
Chandel	**	**
Churachandpur	117.0	17
Imphal east	156.0	98
Imphal west	**	**
Senapati	**	**
Tamenglong	**	**
Thoubal	71.0	32
Ukhrul	0.0	-100
Nagaland		
Dimapur	191.5	352
Kephere	67.0	-50
Kohima	118.1	49
Longleng	**	**

Mokokchung	3.0	-97
Mon	**	**
Paren	**	**
Phek	43.3	-45
Tuensang	**	**
Wokha	0.0	-100
Zunheboto	**	**
Tripura		
Dhalai	74.0	-2
North tripura	113.8	20
South tripura	36.8	-70
West tripura	24.7	-75
Himachal Pradesh		
Bilaspur	99.2	44
Chamba	26.4	-81
Hamirpur	34.5	-61
Kangra	92.8	-34
Kinnaur	0.7	-96
Kullu	7.0	-84
Lahaul and Spiti	1.3	-96
Mandi	79.9	-13
Shimla	9.5	-83
Sirmaur	95.2	-19
Solan	35.2	-59
Una	85.9	15
Punjab		
Amritsar	14.0	-71
Barnala	0.0	-100
Bhatinda	0.0	-100
Faridkot	5.0	-83
Fatehgarh Saheb	5.5	-91
Ferozpur	1.0	-97
Gurdaspur	24.0	-69
Hoshiarpur	34.7	-45
Jalandhar	2.9	-94
Kapurthala	4.3	-89
Ludhiana	5.2	-91
Mansa	0.0	-100
Moga	0.0	-100
Muktesar	0.0	-100

Nawashahar	52.0	-33
Patiala	51.0	-20
Ropar	52.8	-23
Sangrur	0.7	-99
Mohali	27.0	-53
TarnTaran	0.0	-100
Haryana		
Ambala	106.1	42
Bhiwani	3.6	-89
Chandigarh	62.5	-6
Faridabad	36.5	-42
Fatehabad	0.8	-97
Gurgaon	6.5	-87
Hissar	6.8	-77
Jhajar	17.5	-63
Jind	10.8	-76
Katihai	6.9	-83
Karnal	43.0	-29
Kurukshetra	0.2	-99
Mahendragarh	3.3	-93
Mewat	0.0	-100
Palwal	32.0	-19
Panchkkula	45.2	-40
Panipat	2.3	-96
Rewari	11.9	-71
Rohtak	13.2	-77
Sirsa	1.8	-94
Sonepat	19.7	-64
Yamunanagar	5.6	-91
Delhi		
Jammu & Kashmir		
Anantnag	6.1	-67
Badgam	3.2	-79
Bandipore		**
Baramula	3.2	-85
Doda	4.2	-86
Ganderwal	2.1	-85
Jammu	38.9	-53
Kargil	0.0	-100
Kathua	78.7	21
Kistwar	**	**
Kulgam	3.6	-80
Kupwara	0.0	-100
Ladakh(Leh)	0.0	-100
Poonch		**
Pulwama	2.6	-85
Rajouri	11.5	-77
Ramban	2.8	-91
Reasi	32.7	-71
Samba	16.6	-80
Shopian	4.0	-77

Srinagar	2.9	-79
Udhampur	23.7	-79
East Madhya Pradesh		
Anuppur	8.3	-91
Balaghat	234.5	94
Chhatarpur	56.0	-12
Chindwara	92.8	44
Damoh	112.4	39
Dindori	46.0	-57
Jabalpur	107.4	34
Katni	30.3	-65
Mandla	124.4	19
Narsingpur	132.2	67
Panna	18.3	-77
Rewa	113.5	50
Sagar	115.6	40
Satna	61.1	-2
Seoni	232.6	168
Shahdol	19.6	-75
Sidhi	44.4	-47
Singrauli	41.5	-37
Tikamgarh	86.5	38
Umaria	68.2	-23
West Madhya Pradesh		
Alirajpur	63.2	14
Asoknagar	78.3	26
Badwani	56.0	25
Betul	199.7	227
Bhind	24.1	-50
Bhopal	40.2	-39
Burhanpur	113.4	144
Datia	40.5	-23
Dewas	86.0	23
Dhar	73.0	19
Guna	131.0	113
Gwalior	44.2	-22
Harda	64.7	-17
Hosangabad	177.3	86
Indore	112.5	90
Jhabua	55.4	7
Khandwa	85.3	50
Khargone	35.5	-33
Mandsaur	160.4	172
Morena	46.0	-2
Neemuch	133.4	134
Raisen	51.0	-37
Rajgarh	123.7	96
Ratlam	144.1	120
Sehore	68.4	-13
Shajapur	116.8	88
Sheopur Kalani	39.0	-42

Shivpuri	107.8	108
Ujjain	107.2	88
Vidisha	144.7	106
Chattisgarh		
Bastar	50.0	-34
Bijapur	408.2	381
Bilaspur	53.5	-35
Dantewara	100.5	13
Dhamtari	46.8	-44
Durg	70.5	2
Janjgir	39.8	-58
Jashpurnagar	23.5	-75
Kanker	5.8	-93
Korba	60.9	-39
Koriya	100.5	2
Kawardha	116.0	73
Mahasumund	67.6	0
Narayanpur	81.3	-4
Raigarh	67.0	-24
Raipur	68.6	-21
Rajandgaon	138.5	79
Surguja	42.4	-58
East Uttar Pradesh		
Allahabad	38.9	-46
Ambedkar Nagar	3.0	-96
Azamgarh	5.0	-94
Bahraich	65.2	-30
Ballia	22.5	-71
Balrampur	23.1	-79
Banda	68.8	4
Barabanki	44.9	-48
Basti	36.9	-54
Chandauli	60.4	-34
Deoria	2.0	-98
Faizabad	12.3	-88
Farrukhabad	39.1	-46
Fatehpur	70.3	-3
Gazipur	24.3	-66
Gonda	7.5	-92
Gorakhpur	30.9	-69
Hardoi	38.2	-47
Jaunpur	32.2	-62
Kannauj	66.0	-7
Kanpur City	24.9	-54
Kanpur Dehat	39.6	-29
Kaushambi	2.1	-97
Kheri	46.5	-35
Kushi nagar	14.5	-85
Lucknow	19.3	-73
Maharajganj	25.7	-76
Mau	16.0	-83

Mirzapur	27.7	-65
Pratapgarh	22.0	-71
RaiBareilly	18.8	-73
Sahuji Maharajnagar	54.3	-13
Sant Kabirnnagar	23.0	-76
Sant Ravidas Nagar	12.0	-87
Shrawasti	85.4	-8
Sidharthnagar	50.2	-47
Sitapur	44.5	-37
Sonbhadra	39.8	-47
Sultanpur	62.7	-18
Unnao	23.8	-65
Varanasi	52.3	-43
West Uttar Pradesh		
Agra	26.3	-52
Aligarh	25.5	-51
Auraiya	86.9	53
Badaun	43.6	-22
Baghpat	5.5	-90
Bareilly	62.9	-9
Bijnor	20.3	-74
Bulandsahar	5.8	-89
Etah	20.3	-59
Etawah	79.5	62
Firozabad	37.9	-33
GBNagar	7.0	-86
Ghaziabad	19.7	-67
Hamirpur	29.7	-47
Jalaun	24.6	-57
Jhansi	83.2	51
Jotirba Phule Nagar	2.5	-96
Kanshiramnagar	0.0	-100
Lalitpur	131.0	104
Mahamaya Nagar	18.5	-69
Mahoba	13.8	-72
Mainpuri	70.0	31
Mathura	24.5	-46
Meerut	53.3	-19
Moradabad	21.5	-65
Muzzaffarnagar	12.5	-82
Pilibhit	22.9	-69
Rampur	28.6	-57
Saharanpur	32.0	-59
Shahjahanpur	53.5	-21
Uttarakhand		
Almora	48.6	-29
Bageshwar	37.6	-45
Chamoli	128.4	96
Champawat	84.5	-27

Dehradun	143.2	-9
Garhwal Pauri	30.5	-73
Garhwal Tehri	43.6	-54
Haridwar	42.6	-44
Nainital	125.3	-5
Pithorgarh	173.9	49
Rudraprayag	62.0	-51
Udham Sing Nagar	62.3	-40
Uttarkashi	77.6	-12
Bihar		
Araria	116.3	7
Arwal	8.3	-89
Aurangabad	4.8	-94
Banka	19.4	-75
Begusarai	65.3	-17
Bhabua	68.7	-23
Bhagalpur	31.8	-54
Bhojpur	8.3	-91
Buxar	1.0	-99
Darbhanga	62.8	-14
East Champaran	74.4	-7
Gaya	2.0	-97
Gopalganj	10.3	-87
Jahanabad	8.3	-90
Jamui	42.4	-47
Kathihar	29.3	-69
Khagadia	15.9	-82
Kishanganj	202.1	39
Lakhisarai	2.0	-97
Madhepura	24.2	-76
Madhubani	65.0	-15
Monghyar	41.3	-47
Muzaffarpur	16.9	-79
Nalanda	10.4	-87
Nawada	3.2	-96
Patna	14.2	-85
Purnea	20.7	-84
Rohtas	22.2	-71
Saharsha	9.4	-92
Samstipur	25.0	-74
Saran	7.3	-91
Sheikpura	10.8	-88
Sheohar	8.0	-89
Sitamarhi	8.8	-87
Siwan	6.8	-92
Supaul	42.6	-55
Vaishali	19.3	-81
West Champaran	38.1	-62
Jharkhand		
Bokaro	74.3	-2
Chatra	6.5	-92

Deoghar	45.5	-35
Dhanbad	18.8	-74
Dumka	30.2	-67
East Singbhum	50.8	-25
Garhwa	15.5	-77
Giridih	32.7	-60
Godda	12.7	-83
Gumla	70.9	-15
Hazaribagh	14.5	-81
Jamtara	27.9	-66
Khunti	43.8	-47
Kodernna	1.2	-98
Latehar	55.6	-25
Lohardagga	72.9	17
Pakur	10.8	-89
Palamau	24.4	-67
Ramgarh	52.3	-26
Ranchi	25.2	-69
Sahebganj	28.2	-70
Saraikeela	11.6	-83
Simdega	108.8	1
West Singbhum	35.4	-46
East Rajasthan		
Ajmer	12.6	-74
Alwar	33.4	-36
Banswara	76.1	21
Baran	107.2	75
Bharatpur	45.3	-4
Bhilwara	35.1	-32
Bundi	80.4	44
Chittorgarh	62.2	11
Dausa	67.9	-2
Dholpur	41.0	-18
Dungarpur	108.3	104
Jaipur	44.1	-26
Jhalawar	155.2	175
Jhunjhunu	28.7	-33
Karauli	69.8	26
Kota	60.5	4
Pratapgarh	134.6	113
Rajsamand	65.6	39
Sawai Madhopur	106.8	79
Sikar	50.9	18
Sirohi	45.3	-34
Tonk	55.8	-5
Udaipur	53.8	11
West Rajasthan		
Barmer	21.9	-7
Bikaner	7.3	-67
Churu	39.0	20
Hanumangarh	9.6	-59

Jaisalmer	3.3	-79
Jalore	8.9	-77
Jodhpur	10.7	-64
Nagaur	15.1	-67
Pali	10.8	-76
Sri Ganganagar	12.5	-36
Gujarat Region		
Ahmedabad	82.5	68
Anand	93.9	48
Banaskantha	150.6	220
Baroda	124.8	68
Broach	168.3	193
DNH	556.9	191
Dahod	45.3	-25
Daman	459.0	140
Dangs	170.2	5
Gandhinagar	120.8	105
Kheda	78.4	24
Mehsana	169.2	184
Narmada	66.3	-24
Navsari	267.3	64
Panchmahal	80.8	11
Patan	88.6	77
Sabarkantha	111.8	65
Surat	206.9	88
Tapi	151.5	24
Valsad	456.8	152
S K & Diu region		
Amreli	79.6	73
Bhavnagar	98.4	156
Diu	50.8	-15
Jamnagar	123.5	156
Junagarh	86.0	21
Kutch	41.1	0
Porbandar	84.7	23
Rajkot	72.7	41
Surendranagar	39.7	5
Maharashtra		
Konkan & Goa		
Goa	276.6	11
Mumbai	227.2	32
Raigad	450.6	74
Ratnagiri	354.9	41
Sindhudurg	339.8	43
Thane	387.1	61
Madhya Maharashtra		
Ahmednagar	45.4	111
Dhule	72.2	92
Jalgaon	61.5	46
Kolhapur	158.3	3
Nandurbar	47.0	-31

Nasik	113.0	61
Pune	93.5	36
Sangli	46.5	41
Satara	70.7	27
Solapur	54.3	165
Marathwada		
Aurangabad	62.2	88
Beed	50.7	99
Hingoli	117.2	131
Jalna	65.5	97
Latur	90.4	132
Nanded	115.2	130
Usmanabad	68.1	152
Parbhani	92.8	123
Vidarbha		
Akola	110.3	105
Amraoti	118.2	93
Bhandara	153.2	64
Buldhana	57.7	40
Chandrapur	204.8	126
Gadchiroli	193.7	81
Gondia	318.8	223
Nagpur	140.3	83
Wardha	205.9	194
Washim	103.4	65
Yeotmal	185.0	191
Odisha		
Angul	116.7	68
Balasore	76.0	45
Bargarh	57.3	-30
Bhadrak	62.6	-8
Bolangir	35.2	-64
Boudh	33.0	-54
Cuttack	97.9	36
Deogarh	137.8	61
Dhenkanal	102.2	50
Gajapati	52.0	-1
Ganjam	67.7	26
Jagatsingpur	65.9	7
Jajpur	36.2	-47
Jharsuguda	90.5	-7
Kalahandi	43.3	-50
Kandhamal	48.1	-33
Kendrapara	43.4	-26
Keonjhar	65.6	10
Khurda	111.5	47
Koraput	135.0	57
Malkangiri	116.6	36
Mayurbhanj	74.5	7
Nawapara	59.8	-22
Nawarangpur	75.3	-4

Nayagarh	94.5	26
Puri	80.1	44
Rayagada	77.7	3
Sambalpur	97.3	14
Sonepur	81.9	3
Sundargarh	127.4	42
West Bengal		
GWB		
Bankura	19.8	-70
Birbhum	18.1	-78
Burdwan	9.6	-87
East Midnapore	39.6	-19
Hooghly	21.2	-66
Howrah	16.7	-77
Kolkata	68.8	-11
Murshidabad	7.9	-90
Nadia	21.6	-64
24 Pargana (N)	46.5	-34
Purulia	19.4	-72
24 Pargana (S)	74.1	-18
West Midnapore	21.8	-68
SHWB		
Cooch Behar	29.6	-85
Darjeeling	159.6	-10
East Sikkim	68.5	-38
Jalpaiguri	154.0	-24
Malda	27.2	-64
North Dinajpur	50.4	-46
North Sikkim	86.1	-10
South Dinajpur	28.0	-69
South Sikkim	39.9	-64
West Sikkim	34.0	-65
Karnataka		
Coastal Karnataka		
Dakshin Kannada	267.9	-2
Udupi	273.7	-11
Uttar Kannada	206.8	-14
N I Karnataka		
Bagalkote	30.5	96
Belgaum	44.7	-1
Bidar	96.5	135
Bijapur	44.2	154
Dharwad	22.0	-38
Gadag	12.6	-27
Gulbarga	69.7	128
Haveri	23.2	-43
Koppal	43.9	145
Raichur	63.1	158
Yadgir	45.8	44
S I Karnataka		
Bangalore Rural	27.8	29

Bangalore Urban	20.7	5
Bellary	36.1	105
Chamarajnapur	14.1	10
Chichballapur	14.8	-31
Chickmagalur	130.6	-8
Chitradurga	14.7	10
Davangere	24.1	2
Hassan	33.1	-26
Kodagu	176.6	-6
Kolar	29.3	70
Mandya	4.7	-58
Mysore	29.6	53
Ramnagara	3.2	-80
Shimoga	149.5	7
Tumkur	8.5	-48
Kerala		
Alappuzha	139.0	119.8
Kannur	243.4	229.6
Ernakulam	158.8	155.1
Idukki	173.6	167.3
Kasaragod	206.2	254.8
Kollam	96.2	85.8
Kottayam	143.0	138.2
Kozhikode	232.8	217.8
Malappuram	141.0	178.4
Palakkad	129.1	133
Pathanamthitta	92.5	128.6
Thiruvananthapuram	47.4	51
Thrissur	152.4	171
Wyanad	150.1	230.9
Tamil Nadu		

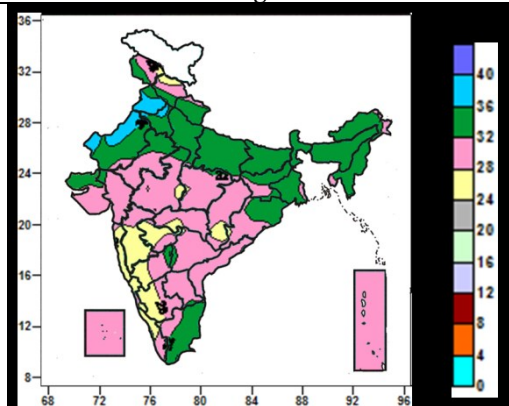
Ariyalur	0.0	-100
Chennai	48.0	64
Coimbatore	22.8	132
Cuddalore	2.6	-83
Dharmapuri	4.8	-73
Dindigul	2.6	-78
Erode	0.8	-91
Kanchipuram	57.3	105
Kanyakumari	9.3	-60
Karikal	0.0	-100
Karur	0.0	-100
Krishnagiri	5.7	-67
Madurai	0.1	-99
Nagapattinam	0.0	-100
Namakkal	3.6	-74
Nilgiris	45.0	-16
Perambalur	0.0	-100
Puducherry	2.0	-81
Pudukottai	6.7	-70
Ramanathapuram	0.4	-93
Salem	13.7	-38
Sivaganga	0.7	-95
Thanjavur	1.8	-86
Theni	20.2	236
Tirunelveli	8.2	-1
Tirupur	0.5	-91
Tiruvallur	54.5	97
Tiruvannamalai	14.6	-36
Tiruvarur	0.0	-100
Toothukudi	0.0	-100
Trichy	0.0	-100

Vellore	19.2	-18
Villupuram	18.8	15
Virudhunagar	0.5	-94
Andhra Pradesh		
Coastal Andhra Pradesh		
East Godavari	37.6	-14
Guntur	70.0	138
Krishna	118.4	189
Nellore	38.8	81
Prakasam	53.2	184
Sirkakulam	65.7	44
Visakhapatnam	39.8	7
Vizianagram	65.6	85
West Godavari	73.1	43
Telangana		
Adilabad	114.1	66
Hyderabad	124.5	258
Karimnagar	91.7	70
Khammam	150.2	162
Mehabubnagar	62.9	98
Medak	104.9	117
Nalgonda	81.4	152
Nizamabad	158.5	166
Rangareddy	96.1	140
Warangal	124.1	124
Rayalaseema		
Anantapur	10.6	-32
Chittoor	38.1	54
Cuddapah	23.8	1
Kurnool	42.7	74

Legends			
	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

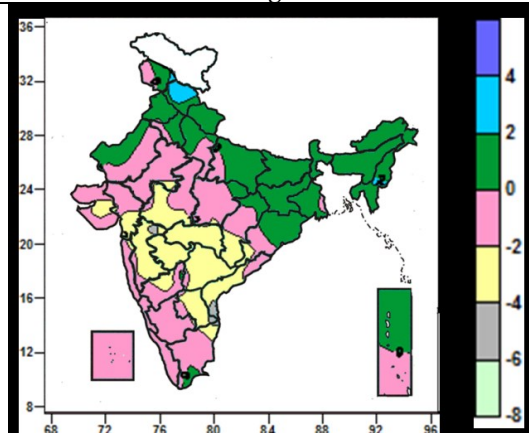
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 17.07.2013

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 17.07.2013



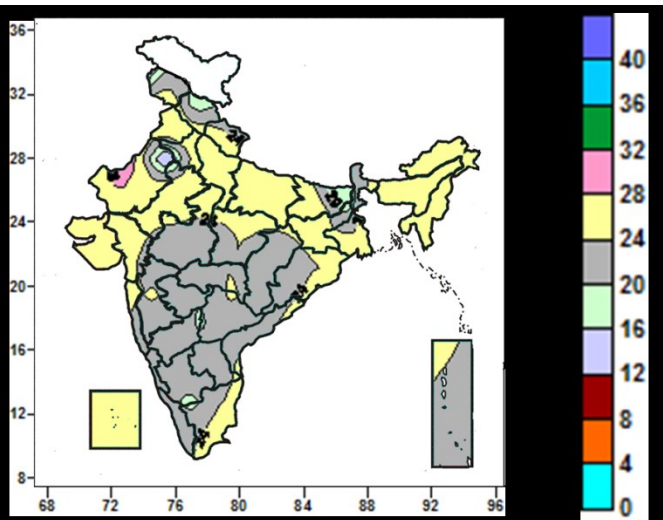
- 36 to 40 $^{\circ}\text{C}$ over many parts of Punjab, some parts of Haryana, West Rajasthan.
- 28 to 36 $^{\circ}\text{C}$ over many parts of the country (except many Parts of Punjab, Konkan & Goa, Madhya Maharashtra, Marathwada, Coastal Karnataka, Western part of Interior Karnataka, some parts of West Rajasthan, Haryana, Madhya Pradesh, Chattisgarh, Vidarbha, Kerala).
- 24 to 28 $^{\circ}\text{C}$ over many Parts of Punjab, Konkan & Goa, Madhya Maharashtra, Marathwada, Karnataka, North Kerala, some parts of Jammu & Kashmir, Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Vidarbha)

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 17.07.2013



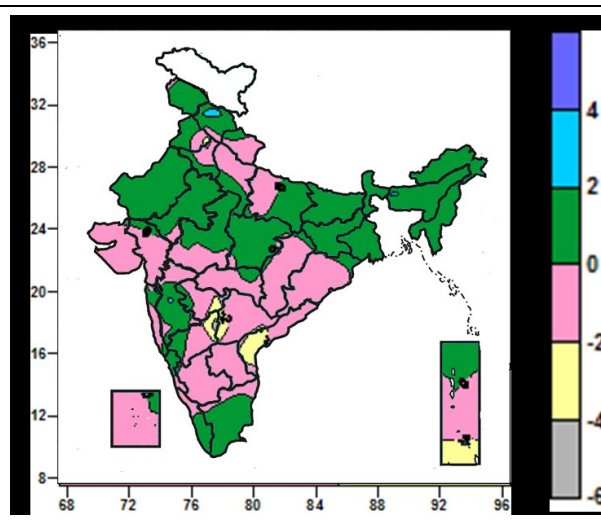
- 2 to 4 $^{\circ}\text{C}$ over many parts of Himachal Pradesh, some parts of Manipur.
- 0 to 2 $^{\circ}\text{C}$ over many parts of North East India, East India, Jammu & Kashmir, Uttarakhand, Uttar Pradesh, Punjab, Haryana, Delhi, and Andaman & Nicobar Islands, some parts of Himachal Pradesh, West Rajasthan, Chattisgarh, Tamil Nadu.
- -4 to 0 $^{\circ}\text{C}$ over many parts of Rajasthan, Central India (except some part of East Madhya Pradesh, Chhattisgarh), West India (except some part of North Madhya Maharashtra), South India (except many parts of Andaman & Nicobar Islands, some parts of Coastal Andhra Pradesh, Tamil Nadu)
- -6 to -4 $^{\circ}\text{C}$ over some parts of North Madhya Maharashtra, Coastal Andhra Pradesh, Rayalaseema.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 17.07.2013



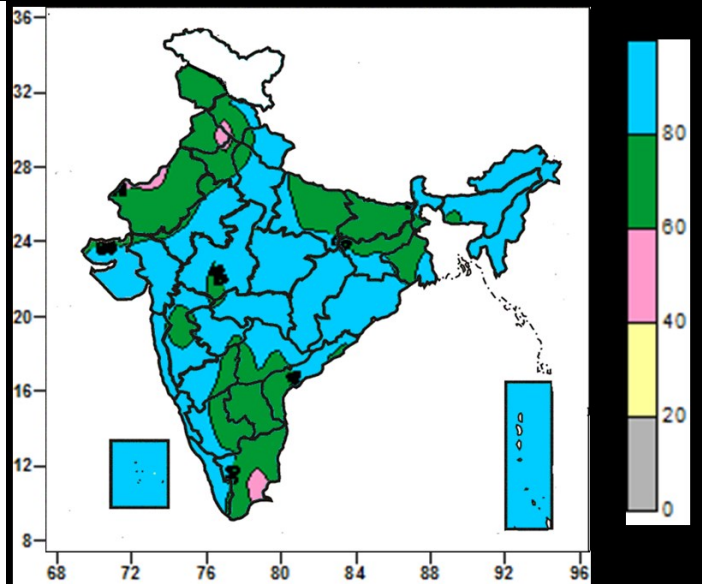
- 28 to 32 over some parts of West Rajasthan.
- 24 to 28 $^{\circ}\text{C}$ over many parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, North East India, Gujarat, Saurashtra & Kutch, Lakshadweep Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Central India, Odisha, Konkan, Madhya Maharashtra, Coastal Andhra Pradesh, Telangana, Tamil Nadu, Andaman & Nicobar Islands.
- 20 to 24 $^{\circ}\text{C}$ over many parts of Jammu & Kashmir, Himachal Pradesh, Sub-Himalyan West Bengal & Sikkim, Central India, Odisha, Maharashtra, Karnataka, Kerala, Tamil Nadu, Andaman & Nicobar Islands, some parts of Punjab, Haryana, Rajasthan, Bihar, Jharkhand, Gangetic West Bengal.
- 16 to 20 $^{\circ}\text{C}$ over some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Haryana, Bihar, Jharkhand, Interior Karnataka, Tamil Nadu.
- 12 to 16 $^{\circ}\text{C}$ over some parts of West Rajasthan.

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 17.07.2013

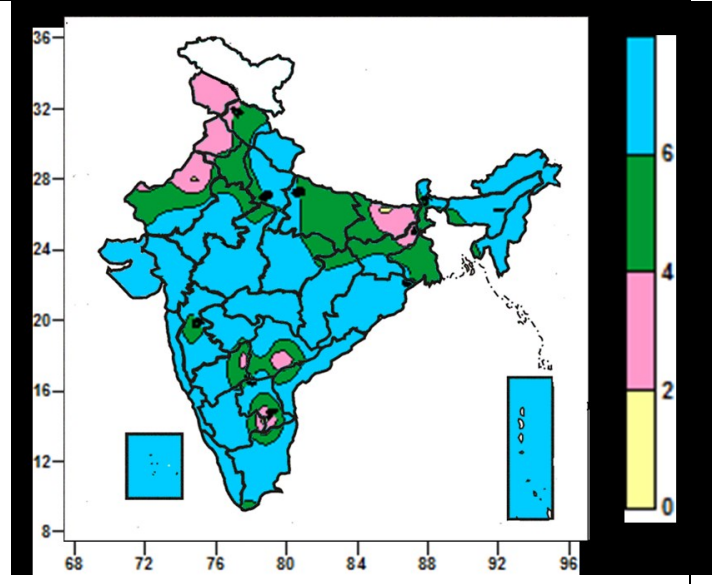


- 2 to 4 $^{\circ}\text{C}$ over some parts of Himachal Pradesh.
- 0 to 2 $^{\circ}\text{C}$ over many parts of Northeast India, East India(except many parts of Odisha), North India(except many parts of Uttarakhand, Uttar Pradesh, Haryana, Delhi, some parts of Punjab), Madhya Pradesh, Madhya Maharashtra, Tamil Nadu, Kerala, some parts of Konkan, Vidarbha, Coastal Karnataka, North Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands.
- -2 to 0 $^{\circ}\text{C}$ over many parts of Uttarakhand, Haryana, Delhi, West Uttar Pradesh, Gujarat, Saurashtra & Kutch, Chhattisgarh, Odisha, Maharashtra (except Madhya Maharashtra), Andhra Pradesh, Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, some parts of Himachal Pradesh, Punjab, East Uttar Pradesh, East Rajasthan, Madhya Pradesh, Coastal Karnataka, Kerala, Tamil Nadu.
- -4 to -2 $^{\circ}\text{C}$ over some parts of Punjab, Marathwada, North Interior Karnataka, Coastal Andhra Pradesh, Telangana, Andaman & Nicobar Islands.

Relative Humidity (%) over India for the week ending 17.07.2013



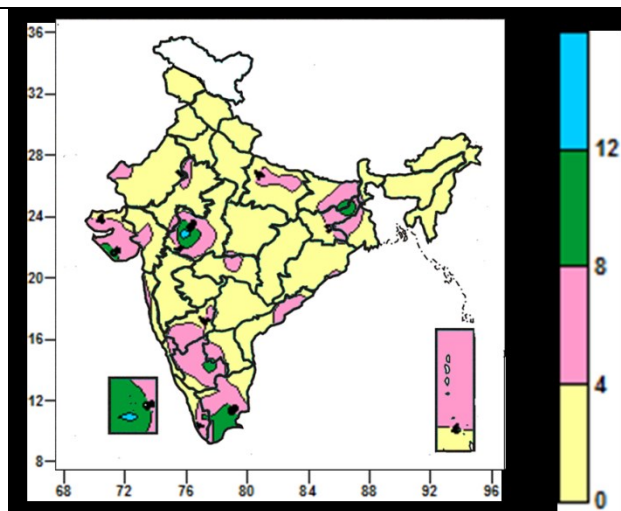
Cloud amount (okta) over India for the week ending 17.07.2013



- 80 to 100% over many parts of North East India, Sub-Himalayan West Bengal & Sikkim, Uttarakhand, West Uttar Pradesh, East Rajasthan, Odisha, Central India, Gujarat, Maharashtra, Telangana, Karnataka, West Coast from Saurashtra to Kerala, Lakshadweep & Andaman & Nicobar Islands, some parts of Himachal Pradesh, East Uttar Pradesh, Gangetic West Bengal, Coastal Andhra Pradesh, Tamil Nadu.
- 60 to 80 % over many parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, East Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, West Rajasthan, Andhra Pradesh, North & South Interior Karnataka, Tamil Nadu, some parts of Uttarakhand, West Uttar Pradesh, Madhya Maharashtra, Kerala.
- 40 to 60% over some parts of Punjab, Haryana, Himachal Pradesh, West Rajasthan and Tamil Nadu.

- 6 to 8 okta over many parts of the country except parts of Jammu & Kashmir, Punjab, Haryana, West Rajasthan, Bihar, Jharkhand, Interior Karnataka, Andhra Pradesh.
- 4 to 6 okta over many parts of Himachal Pradesh, Haryana, Delhi, West Rajasthan, East Uttar Pradesh, West Bengal, some parts of West Uttar Pradesh, East Rajasthan, Bihar, Jharkhand, Tripura, Madhya Pradesh, Chattisgarh, Andhra Pradesh, Madhya Maharashtra, Marathwada, North & South Interior Karnataka, Tamil Nadu.
- 2 to 4 okta over many parts of Jammu & Kashmir, Punjab, Bihar, some parts of Himachal Pradesh, West Rajasthan, Bihar, Jharkhand, North & South Interior Karnataka, Telangana, Rayalaseema.
- 0 to 2 okta over some parts of West Rajasthan, Bihar, Rayalaseema, South Coastal Karnataka.

Wind speed (knots) over India for the week ending 17.07.2013



- 12 to 16 knots over some parts of West Madhya Pradesh, Lakshadweep Islands.
- 8 to 12 knots over many parts of Lakshadweep Islands and some parts of Bihar, Jharkhand, West Madhya Pradesh, Saurashtra, South Interior Karnataka, Tamil Nadu.
- 4 to 8 knots over many parts of West Madhya Pradesh, Saurashtra & Kutch, Karnataka, Tamil Nadu, Andaman & Nicobar Islands, some parts of Rajasthan, East Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, Gujarat, Konkan, Vidarbha, Coastal Andhra Pradesh, Rayalaseema, Kerala, Lakshadweep Islands.
- 0 to 4 knots over many parts of Northwest India (except some parts of Rajasthan), Northeast India, East India (except some parts of Bihar, Jharkhand, Central part of West Bengal, Coastal Odisha), Gujarat, Chhattisgarh, Vidarbha, Marathwada, Madhya Maharashtra, Andhra Pradesh, North Kerala, Madhya Pradesh, some parts of Karnataka, Tamil Nadu, Andaman & Nicobar Islands.

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 22nd July, 2013)

- Rain/thundershowers would occur at most places along west coast and over central India and Sub-Himalayan west Bengal & Sikkim.
- Rain/thundershowers would occur at many places over Himachal Pradesh, Uttarakhand and Uttar Pradesh during next 24 hours and at most places thereafter.
- Rain/thundershowers would occur at many places over Gujarat region, Jharkhand, Gangetic West Bengal, northeastern states, Odisha, north Andhra Pradesh, Lakshadweep and Andaman & Nicobar Islands.
- Rain/thundershowers would occur at a few places over Punjab, Haryana and Bihar during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over Jammu & Kashmir, east Rajasthan, Madhya Maharashtra and Marathwada.
- Rain/thundershowers would occur at one or two places over rest parts of the country.

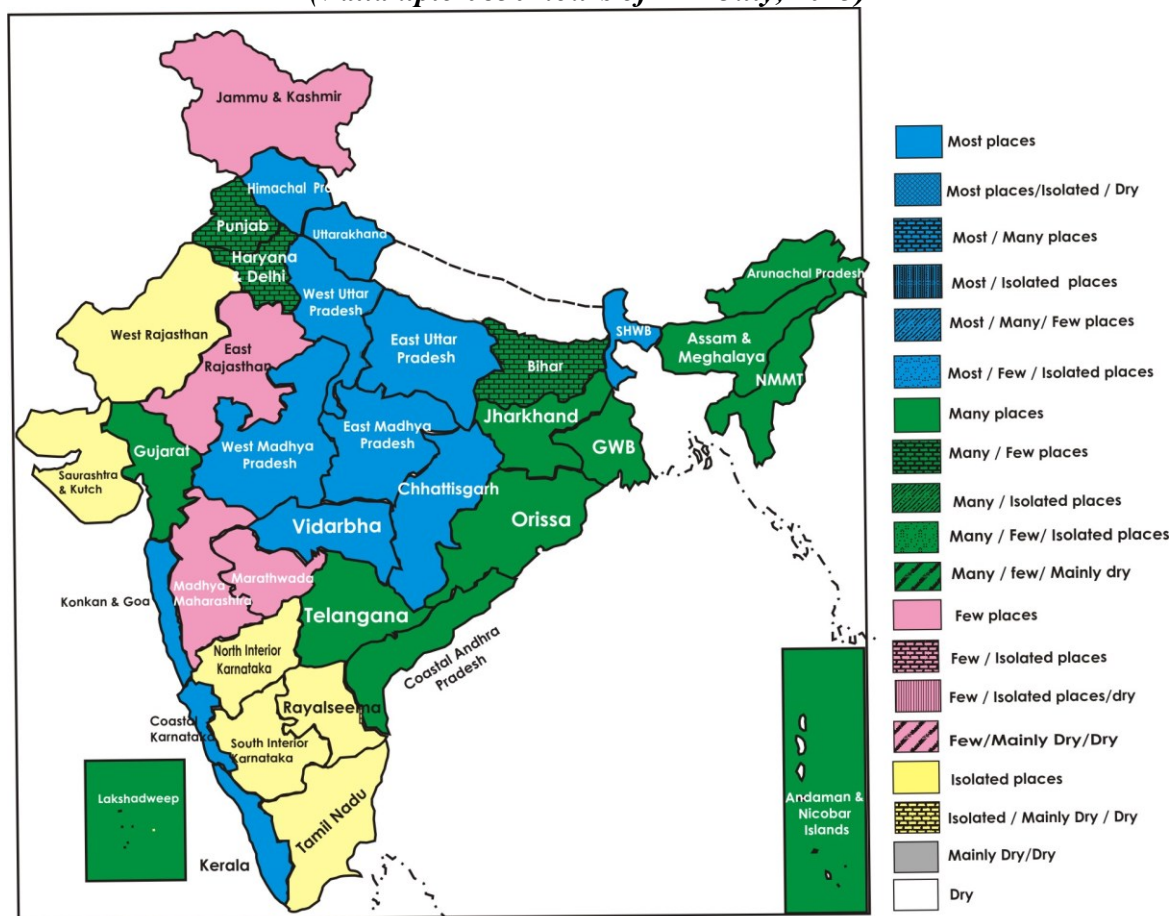
Weather Warning during next 3 days

- **19 July:** Heavy to very heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim, west Uttar Pradesh and Uttarakhand. Heavy rainfall would occur at one or two places over Arunachal Pradesh, Assam & Meghalaya, Odisha, east Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Konkan & Goa, coastal Karnataka and Kerala.
- **20 July:** Heavy to very heavy rainfall would occur at one or two places over west Uttar Pradesh, Uttarakhand and east Madhya Pradesh. Heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim, Odisha, Himachal Pradesh, west Madhya Pradesh, Chhattisgarh, Konkan & Goa, coastal Karnataka and Andaman & Nicobar Islands.
- **21 July:** Heavy to very heavy rainfall would occur at one or two places over east Madhya Pradesh. Heavy rainfall would occur at one or two places over Odisha, Uttarakhand, Himachal Pradesh, west Madhya Pradesh, Konkan & Goa, coastal Karnataka and Andaman & Nicobar Islands.

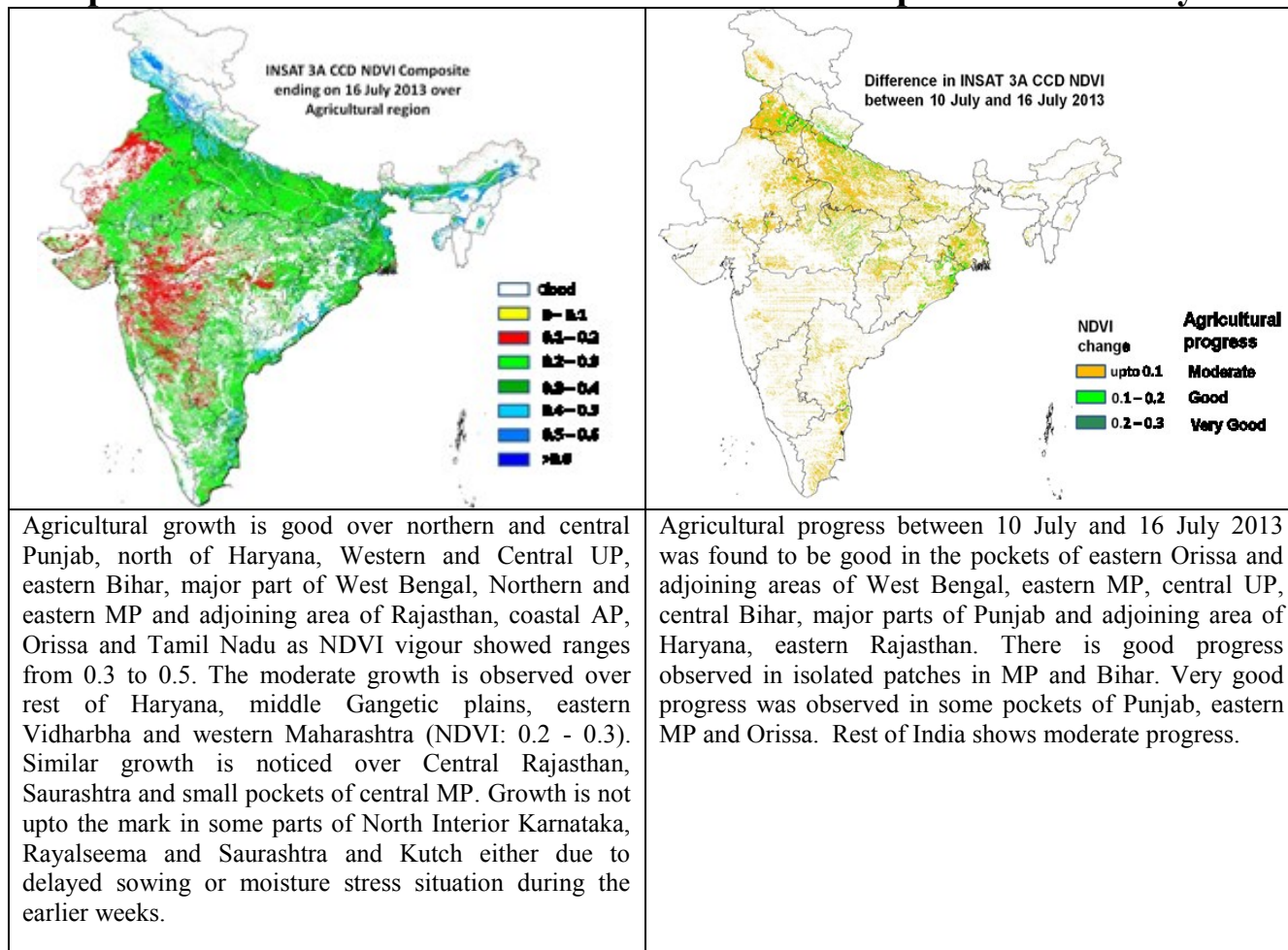
Weather Outlook for subsequent 4 days from 22nd to 26th July, 2013

- Rainfall would occur at many places along west coast and over western Himalayan region, Gangetic plains, west Madhya Pradesh, east Rajasthan, Gujarat region, Sub-Himalayan West Bengal & Sikkim and northeastern states.
- Rainfall would occur at a few places over remaining parts of the country outside south interior peninsular India where it would be subdued.

Weather Forecast Map
(Valid upto 0830 hours of 22nd July, 2013)



Crop condition based on INSAT 3A CCD NDVI composite on 16th July 2013



INSAT 3A CCD NDVI composite showed that the overall agricultural situation of the country is quite satisfactory, except some pockets, due to receipt of well distributed rainfall. Most of the districts of the regions like North Interior Karnataka, Rayalseema and Saurashtra and Kutch, which showed less growth in NDVI image, received good rainfall during last couple of weeks and is expected to show good progress.

Zonewise Agromet Advisories

NORTH INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- **Realised Rainfall:** Significant rainfall has occurred in Uttarakhand; Himachal Pradesh (except Chamba, Kinnaur, Kullu, Lahaul & Spiti, Shimla districts); East Rajasthan except Ajmer, Jhunjhunu districts; Churu district of West Rajasthan; Jammu, Kathua, Reasi districts of Jammu & Kashmir; Hoshiarpur, Nawashahar, Patiala, Ropar districts of Punjab; Ambala, Chandigarh, Faridabad, Karnal, Palwal, Panchkula districts of Haryana; Allahabad, Bahraich, Banda, Barabanki, Basti, Chandauli, Farrukhabad, Fatehpur, Gorakhpur, Hardoi, Jaunpur, Kannauj, Kanpur Dehat, Kheri, Sahuji Maharaj Nagar, Shrawasti, Sidharthnagar, Sitapur, Sonbhadra, Sultanpur, Varanasi districts of East Uttar Pradesh, Auraiya, Badaun, Bareilly, Etawah, Firozabad, Jhansi, Lalitpur, Meerut, Saharanpur, Shahjahanpur districts of West Uttar Pradesh.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Himachal Pradesh, Uttarakhand and Uttar Pradesh during next 24 hours and at most places thereafter; at a few places over Punjab, Haryana during next 24 hours and increase thereafter; at a few places over Jammu & Kashmir, east Rajasthan and at one or two places over rest parts of the region.
- **Weather Warning:** Heavy to very heavy rainfall would occur at one or two places over Uttarakhand, West Uttar Pradesh on 19th, 20th. Heavy rainfall would occur at one or two places over East Uttar Pradesh on 19th, over Himachal Pradesh on 20th, 21st and over Uttarakhand on 21st.
- **Advisory :**
 - As rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy to very heavy rainfall at one or two places over Uttarakhand on 19th, 20th, heavy rainfall at one or two places on 21st, farmers are advised to postpone nursery sowing of rice, sowing of soybean, groundnut, millets, pigeon pea, horse gram and French bean, sowing of maize in Hill Zone. Provide

adequate drainage in already sown crop fields. Provide adequate drainage in already sown crop fields. Continue transplanting of rice.

- In Himachal Pradesh, as rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy rainfall at one or two places on 20th, 21st, farmers are advised to postpone direct sowing of cucurbits viz. khira, bitter gourd, tori in main field and planting of potato in Hill zone. Continue transplanting of rice.
- In Mild Hills Sub Humid Zone & Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised to complete transplanting of rice.
- In Uttar Pradesh, as rain / thundershowers would occur at many places during next 24 hours and at most places thereafter along with heavy to very heavy rainfall at one or two places over West Uttar Pradesh on 19th and 20th July and heavy rainfall over East Uttar Pradesh on 19th July, farmers are advised to postpone sowing of maize, jowar, groundnut, arhar, moong, urad, nursery sowing of early cauliflower, brinjal, chilli, tomato and transplanting of brinjal and chilli and provide adequate drainage in already sown crop fields. Also advised to undertake transplanting of rice.
- In Sub-Tropical Zone of Jammu & Kashmir, farmers are advised to continue sowing of maize, nursery sowing of Basmati rice, direct sowing of rice and transplanting of rice, early varieties of brinjal, chillies, cauliflower and complete sowing of late sown maize, pulses, groundnut, soybean.
- In Intermediate Zone of Jammu & Kashmir, farmers are advised to continue sowing of groundnut, maize and transplanting of rice. Also advised to continue nursery sowing of cabbage, carrot and transplanting of knol-khol and cabbage. Also, in Valley Temperate Zone of Jammu & Kashmir, farmers are advised to continue transplanting of rice, Kale, knol khol, cauliflower and cabbage and sowing of moong bean.
- Farmers in Delhi are advised to continue transplanting of rice, sowing of soyabean, guar, bajra, maize, cluster bean, pigeon pea, spinach, *Amaranthus* and lady's finger.
- In Undulating zone of Punjab, farmers are advised for transplanting basmati rice, undertake sowing of mash, sesamum.
- In Central Plain zone of Punjab, farmers are advised to undertake sowing of okra, radish, bottle gourd, sponge gourd, bitter gourd, Ash gourd, tinda and wanga, long melon and cucumber.
- Farmers in Haryana are advised to continue transplanting of rice, sowing of pearl millet and Guar.
- In East Rajasthan, farmers are advised to complete sowing of groundnut, maize, soybean, castor, pearl millet, sorghum, green gram, cow pea, cluster bean and sowing of rainy season cucurbits and continue new planting of fruit trees and transplanting of chilli. In West Rajasthan, it is advised to continue sowing of bajra utilizing realized rainfall.
- Due to cloudy sky in Semi Arid Eastern Plain Zone of Rajasthan, there are chances of leaf spot disease in groundnut, farmers are advised to spray Bavistin @ 0.5 gm or Mencozeb @ 2 gm per litre water after current spells of rain.
- Farmers in Delhi are advised for constant monitoring of cotton crops against sucking pests and Mealy bug, if the insect population cross above ETL, farmers are advised to spray Imidacloprid 0.5 ml./litre of water on a non-rainy day. Use of Pheromone traps and light traps are recommended for monitoring and control of other insect of cotton crop.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure II
- **Animal Husbandry**
 - In Mild Hills Sub Humid Zone & Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, due to high humidity and heavy rain it is advised to replace the poultry houses with fresh litter to avoid wetting and keep the houses clean and provide clean drinking water to the birds.
 - In East Uttar Pradesh due to rainy season, farmers are advised to vaccinate animals to control the epidemic diseases.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in all districts of Madhya Pradesh except Anuppur, Shadol, Panna and Bhind and in all the districts of Chhattisgarh except Jashpurnagar and Kanker during the week.
- **Weather forecast:** Rain/thundershowers would occur at most places over the region.
- **Weather Warning:** Heavy to very heavy rainfall would occur at one or two places over east Madhya Pradesh on 20th, 21st, heavy rainfall would occur at one or two places over Madhya Pradesh on 19th, over West Madhya Pradesh on 20th, 21st, over Chattisgarh on 19th and 20th.
- **Advisories:**
 - As rain/thundershowers would occur at most places over along with heavy to very heavy rainfall at one or two places over east Madhya Pradesh on 20th, 21st July, heavy rainfall at one or two places over Madhya Pradesh on 19th July, over West Madhya Pradesh on 20th, 21st July, farmers are advised to postpone sowing

of *kharif* crops like soybean, til, groundnut, urad, moong, sorghum, maize and pigeon pea. Provide adequate drainage channels in already sown *kharif* crop fields. Undertake transplanting of rice.

- In Chhattisgarh, as rain/thundershowers would occur at most places along with heavy rainfall at one or two places on 19th and 20th, farmers are advised to postpone sowing of soybean, maize, jowar, arhar and groundnut, sowing of *kharif* vegetables and nursery raising of tomato, brinjal, chilli. Undertake transplanting of rice.
- In Chhattisgarh Plain Zone and North Hill Plain Zone, farmers are advised to continue transplanting of rice.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure II

• ANIMAL HUSBANDRY & POULTRY

- Farmers in Bundelkhand Zone of Madhya Pradesh are advised that there is possibility of cloudy condition (6-8 okta) during next five days, hence provide bulb light (four to five hours) in poultry houses during day time.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- **Realised Rainfall:** Significant rainfall occurred in all districts of Orissa and Sikkim; in East Midnapore, Kolkata, North 24 Parganas and South 24 Parganas districts of Gangetic West Bengal; in most of the districts of Sub Himalayan West Bengal except South Dinajpur and Malda; in Araria, Begusarai, Bhabua, Bhagalpur, Darbhanga, East Champaran, Jamui, Kishanganj, Madhubani, Monghyar, Supaul and West Champaran districts of Bihar; in Bokaro, Deoghar, Dumka, East Singbhum, Giridih, Gumla, Khunti, Latehar, Lohardagga, Ramgarh, Simdega districts of Jharkhand.
- **Weather Forecast:** Rain/thundershowers would occur at most places over Sub-Himalayan West Bengal & Sikkim, at many places over Gangetic West Bengal, Odisha, Jharkhand and at a few places over Bihar during the period.
- **Weather Warning:** Heavy to very heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim on 19th, heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim on 20th, over Odisha during next 3 days.
- **Advisories:**
 - As rain / thundershowers would occur at most places along with heavy to very heavy rainfall at one or two places over Sub-Himalayan West Bengal & Sikkim on 19th, heavy rainfall at one or two places on 20th, farmers are advised to postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also provide adequate drainage in already sown crop fields.
 - As rain / thundershowers would occur at many places along with heavy rainfall at one or two places during next 3 days over Odisha, farmers are advised to postpone sowing of maize, arhar, groundnut, cotton, pulses, green gram, black gram, cowpea, sesame, ragi, castor, soybean and vegetables. Also provide adequate drainage in already sown crop fields. Undertake transplanting of rice in East and South Eastern Coastal Plain Zone of Odisha.
 - In North West Alluvial Plain Zone of Bihar, farmers are advised to undertake transplanting of rice in low and medium land areas and continue transplanting of vegetables.
 - In North West Alluvial Plain Zone of Bihar, farmers are advised to continue sowing of urad, arhar and kulthi in upland areas.
 - In South Bihar Alluvial Zone, farmers are advised to continue sowing of maize and small millets, vegetable crops and *kharif* fodder. Undertake planting of banana, papaya and *kharif* onion. Prepare the wet nursery bed for sowing of short duration and medium duration varieties of rice and scented rice.
 - In South Eastern Plateau Zone and Western Plateau Zone of Jharkhand, farmers are advised to undertake transplanting of rice and finger millet.
 - In Western Plateau Zone of Jharkhand, farmers are advised to complete sowing of soybean, maize, urad, arhar and sowing/transplanting of *kharif* vegetables viz. bhindi, bean, French bean, tomato, cauliflower, cabbage etc. and planting of ginger and turmeric.
 - Farmers in Laterite and Red soil Zone, New Alluvial Zone, Terai Zone and Old Alluvial Zone of West Bengal are advised to continue transplanting of *Aman* rice and planting of banana suckers in New Alluvial Zone of West Bengal. Drain out excess water from vegetables field.
 - Farmers in Coastal Saline Zone of West Bengal are advised to undertake transplanting of wet seeded *Aman* rice.
 - Weather is conducive for attack of fruit and shoot borer in brinjal and okra, fruit fly in cucurbits in South Eastern Plateau Zone of Jharkhand, spraying of Malathion @ 2 ml per liter of water is advised for fruit and shoot borer, Bait trap for fruit fly after current spells of rain.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure II

- **Animal Husbandry**

- Farmers in South Bihar Alluvial Zone are advised to give vaccination to the animals against foot and mouth, black quarter and anthrax disease.

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- **Realised Rainfall:** Significant rainfall occurred in most of the districts of the states of the region except Dibang Valley, East Kameng and Lower Subansari districts of Arunachal Pradesh, Barpeta, Bongaigaon, Chirang, Darrang, Dhubri, Goalpara, Kokrajhar and Nalbari districts of Assam, South Garo Hills, West Garo Hills and West Khasi Hills districts of Meghalaya, Ukhrul district of Manipur, Kolasib district of Mizoram, Mokokchung and Wokha districts of Nagaland and West Tripura district of Tripura.
- **Weather Forecast:** Rain / thundershowers would occur at many places over the states of the region.
- **Weather Warning:** Heavy rainfall would occur at one or two places over Arunachal Pradesh and Assam and Meghalaya during next 24 hours.
- **Weather Outlook:** Rainfall would occur at many places over the states of the region.
- **Advisories:**
 - As rain / thundershowers would occur at many places during the period over the States of the region, farmers in these states are advised to postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in standing crops. As heavy rainfall is likely to occur at one or two places during next 24 hours in Arunachal Pradesh and Assam and Meghalaya, farmers are also advised to arrange adequate drainage to avoid stagnation of water in the crop fields in these States.
 - In view of occurrence of rainfall at many places along with heavy rainfall at one or two places during next 24 hours, farmers in Assam are advised to undertake nursery sowing of *sali* rice, sowing of pigeon pea and sesame after current spells of rain.
 - Farmers are advised to continue transplanting of *sali* rice in Assam, transplanting of WRC rice in Arunachal Pradesh, transplanting of *kharif* rice in Manipur and transplanting of *jhum* rice in Mizoram.
 - There is report of flood damages of *sali* rice in Jorhat and Sivasagar districts in Upper Brahmaputra Valley Zone of Assam. If there is total damage of seedlings in nurseries or newly transplanted *sali* rice, farmers are advised to drain out excess water from the fields and sow seeds of traditional varieties like Monohar Sali (130 days), Biraj (120 days), Andrew Sali (130 days) etc. in nursery beds within 1st week of August. Farmers in Lower Brahmaputra Valley Zone of Assam are advised to raise community nurseries in non-flood affected areas after current spells of rain to meet the seedling requirement of flood ravaged areas.
 - In North Bank Plain Zone of Assam, if there is total damage of seedlings of *sali* rice, farmers are advised to drain out excess water from the fields and sow seeds in nursery bed within 1st week of August for re-transplanting with medium to short duration varieties like Monohar Sali, Salpona, Prasadbhog, Gobind bhog etc. Initiative should be taken for raising community nursery after current spells of rain for late transplanting with old seedlings of the varieties like Profulla and Gitesh (If more than 50% damaged).
 - Farmers in North Bank Plain Zone of Assam are advised to transplant the long duration varieties of *sali* rice seedling from nursery bed to the main field and complete the transplanting within July for getting higher production.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to continue transplanting of early sown *aman* rice. Farmers are also advised for transplanting of banana after current spells of rain.
 - In view of occurrence of rainfall, farmers are advised to postpone the harvesting of mature maize cobs and potato in Sub Tropical Hill Zone of Arunachal Pradesh.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised for transplanting of cauliflower and planting of banana. Farmers are also advised to postpone harvesting of pre-*kharif* rice and summer maize.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to undertake sowing of groundnut. Also avoid water stagnation in the field of ginger and turmeric.
 - In Mild Tropical Hill Zone of Mizoram, due to fluctuation in temperature and high humidity, there is chance of incidence pseudo stem weevils in banana; farmers are advised to remove unwanted suckers, dried and infected leaves and sheaths.
 - Due to cloudy weather with occasional rain in Mild Tropical Plain Zone of Tripura, there is chance of attack of stem borer on *jhum* rice; farmers are advised to spray Validamycin @ 2.5 ml or Hexaconazole 5 EC @ 2.0 ml or Thifluzamide 24 SC @ 0.75 or Propiconazole 25 EC @ 1 ml per litre of water after current spells of rain to prevent the spread of the disease. Prevailing weather is also conducive for Panama wilt in banana. Farmers are advised to drench with Bavistin @ 1 g per liter of water. Drenching may continue at 15 days interval. Trichoderma viride and pseudomonas fluorescence may be incorporated in the soil after current spells of rain.

- In Sub Tropical Hill Zone of Arunachal Pradesh, due to high humid conditions followed by low night temperature, severe blight symptoms have been reported in tomato. Spraying of Carbendazim @ 2 g per litre of water after current spells of rain is advised.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure II.
- **Animal Husbandry**
 - In flood affected areas of Assam, farmers are advised to provide adequate pure & clean drinking water to cattle and poultry. Farmers are advised to protect the fisheries from intrusion of flood water and unwanted fishes by putting nylon net or bamboo net around the unit.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Significant rainfall occurred in all the districts of Maharashtra and Gujarat during last week.
- **Weather Forecast:** Rain/thundershowers would occur at most places over Konkan and Goa and Vidarbha, at many places over Gujarat region, at a few places over Madhya Maharashtra and Marathwada and at one or two places over Saurashtra and Kutch during the period.
- **Warning:** Heavy rainfall would occur at one or two places over Konkan & Goa during the period.
- **Weather Outlook:** Rainfall would occur at many places over Konkan and Goa and Gujarat region and at a few places over remaining parts of the region.
- **Advisories:**
 - As significant rainfall occurred in all the districts of Maharashtra and Gujarat during last week, farmers are advised to postpone irrigation to the standing crops in these States.
 - Farmers in Konkan are advised to postpone intercultural operations and application of fertilizers and plant protection measures and arrange adequate drainage to avoid stagnation of water in nurseries of rice and finger millet as well as in mango, cashew and sapota orchards as rain would occur at most places along with heavy rainfall at one or two places during the period. Farmers are also advised to complete transplanting of *kharif* rice and to continue transplanting of 30 days old finger millet seedlings by dibbling method.
 - In Madhya Maharashtra, farmers are advised to complete sowing of *kharif* jowar, bajra, red gram and also undertake planting of *adsali* sugarcane under *vapsa* condition.
 - Farmers in Western Ghat region, Western Pune region and Kolhapur region are advised to continue transplanting of *kharif* rice seedlings and finger millet in main fields with the help of realized rainfall.
 - In Marathwada, farmers are advised to complete sowing of *kharif* jowar and red gram under *vapsa* condition. Farmers are also advised to complete preparatory tillage and undertake planting of *adsali* sugarcane under *vapsa* condition.
 - In Vidarbha, farmers are advised to continue sowing of jowar, soybean and red gram. Farmers in Gondia, Bhandara, Gadchiroli and Chandrapur districts are also advised to continue transplanting of rice. Farmers are also advised to postpone intercultural operations and application of fertilizers and plant protection measures in already sown crops in view of occurrence of rainfall at most places.
 - In view of occurrence of rainfall at many places, farmers in Gujarat region are advised to postpone irrigation, intercultural operations and application of fertilizers and plant protection measures to the standing crops of groundnut, cotton, pulses, sesame, pearl millet, maize and vegetable nurseries.
 - Farmers are advised to continue transplanting of rice in Middle Gujarat and South Gujarat Heavy Rainfall Zone.
 - In North West Zone of Gujarat, farmers are advised to continue sowing of guar, groundnut, cotton, pulses and pearl millet and also undertake sowing of maize, sorghum, lucern-bajari and cowpea for green fodder after current spells of rain.
 - In Bhal and Coastal Zone of Gujarat, farmers are advised to carry out transplanting of vegetables and rice and planting of horticulture crops.
 - Farmers in North Gujarat Zone are advised to complete sowing of green gram, black gram, bajra, sesame, maize, castor, cluster bean and cow pea.
 - Farmers are advised to carry out intercultural operations in groundnut and cotton in South Saurashtra Zone and in groundnut, cotton, pulses and bajra in North Saurashtra Zone.
 - Prevailing cloudy and rainy weather with minimum temperature of 20-23⁰C and humidity above 70 % are congenial for the incidence of buck eye rot in tomato in Pune region; farmers are advised to spray Metalaxin M.Z. @ 2 g per litre of water with sticker on a non-rainy day.
 - Due to cloudy and high humid weather, there may be attack of leaf eating caterpillar in soybean in Marathwada region; farmers are advised to spray Quinolphos 25 % @ 20 ml or Chloropyriphos 20% @ 20 ml per 10 litres of water.
 - Stages of the crops are mentioned in Annexure I.

➤ Varieties are mentioned in Annexure II.

● **Animal Husbandry**

➤ In view of forecast of cloudy sky, farmers in South Gujarat Heavy Rainfall Zone are advised to make arrangement for artificial light in poultry sheds.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

● **Realised Rainfall:** Significant rainfall occurred in all the districts of Kerala; all the districts of Andhra Pradesh except Anantpur & Cuddepah; Coastal Karnataka; most of the districts in North Interior Karnataka except Dharwad, Gadag and Haveri; Bellary, Chickmagalur, Hassan, Kodagu and Shimoga districts in South Interior Karnataka; Kancheepuram and Thiruvallur districts in Tamil Nadu. No significant rainfall occurred in the remaining parts of the region.

● **Rainfall Forecast:** Rain / thundershowers would occur at most places over Coastal Karnataka and Kerala, at many places over north Andhra Pradesh, Lakshadweep, Andaman & Nicobar Islands and at one or two places over rest parts of the region.

● **Weather Warning:** Heavy rainfall would occur at one or two places over Coastal Karnataka during next 3 days and over Kerala on 19th.

● **Advisories:**

➤ As rain/thundershowers would occur at most places over Kerala along with heavy rainfall at one or two places on 19th, farmers are advised to undertake planting of banana and sowing/ transplanting of vegetables after current spells of rain and provide drainage in already planted banana and vegetable crop fields. Farmers are also advised to undertake propping in bunched banana. Complete transplanting of *Virippu* rice.

➤ Farmers in the North Coastal Zone of Andhra Pradesh are advised to continue sowing of direct seeded rice, nursery sowing of rice and *kharif* pulses.

➤ In Raylaseema, continue sowing of maize, castor, groundnut, red gram, bajra and cotton, nursery sowing of rice in Kurnool and Chittoor utilizing realized rainfall and continue sowing of groundnut, red gram and bajra in Anantapur and Cuddapah districts with assured irrigation facilities.

➤ Farmers in the High Altitude Zone of Andhra Pradesh are advised to undertake transplanting of rice and ragi to the main fields.

➤ Farmers in the Northern and Southern Telangana Zone of Andhra Pradesh are advised to continue sowing of rice nurseries, cotton, groundnut and maize utilizing the recent rainfall occurred during the week.

➤ Farmers in the South Coastal Andhra Pradesh are advised to undertake sowing of rice nurseries, cotton and *kharif* pulses utilizing the realised rainfall during the week.

➤ Farmers in the High Altitude zone of Kerala are advised to provide propping to standing banana crop to avoid damage due to high wind speed.

➤ Farmers in the Eastern Dry Zone of Karnataka are advised to continue sowing of direct seeded rice, red gram, groundnut and ragi utilizing the realized rainfall.

➤ Farmers in the North East Transition zone of Karnataka are advised to undertake intercultural operations in the crops.

➤ Farmers are advised to continue sowing of bajra, groundnut (spreading type), red gram, sesame, niger, navane, castor and horse gram intercropping with green gram and black gram in the North Dry Zone of Karnataka. If the early sown crops have dried up due to moisture shortage, farmers are advised to re-sow the *kharif* crops like bajra, groundnut (spreading type), red gram, sesamum, niger, navane, castor and horse gram utilizing the realized rainfall during the week.

➤ Farmers in the North Transition Zone of Karnataka are advised to complete sowing of maize, groundnut, soybean and cotton.

➤ Farmers in the Hill zone of Karnataka are advised to continue sowing of *kharif* crops and cotton utilizing the realized rainfall.

➤ Due to receipt of moderate rainfall during the week in North East Dry Zone of Karnataka farmers are advised to continue the sowing of groundnut, castor, red gram and bajra.

➤ Farmers in the Central Dry zone of Karnataka are advised to continue sowing of maize, cotton and prepare main land for transplanting of rice and arecanut.

➤ Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to complete transplanting of *Kuruvai* rice in Cauvery Delta Region with irrigation facilities and as dry weather likely to prevail during the coming five days, farmers are advised to give irrigation to the sugarcane crop.

➤ Weather is congenial for incidence of leaf folder in the transplanted rice in the Northern Zone of Kerala. Farmers are advised to undertake spraying of Carbaryl 85 MS @ 4 g per litre of water after current spells of rain.

- Due to prevailing cloudy weather in the Southern Zone of Andhra Pradesh, there is a chance of incidence of sucking pests in early sown crop of cotton. Farmers are advised to spray Acetomfried @ 0.2 g or Imidachloripid @ 0.4 ml per litre of water.
- Prevailing cloudy weather in the North Coastal Zone of Andhra Pradesh may favour incidence of top rot in early sown sugarcane (January). Farmers are advised to spray Carbandizm @ 1 g or Mancozeb @ 3 g per one litre of water after current spells of rain.
- Prevailing conditions are favourable for incidence of stem borer in rice nurseries in the Scarce Rainfall Zone of Andhra Pradesh. Farmers are advised to spray Carbofuran 3G@150 gm per every 40 sq.m area.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure II

Annexure I

Stages of Major Crops

NORTH INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- *Capsicum*, tomato, brinjal, chilli (transplanting/ early vegetative), cucurbits, French bean, okra (direct sowing/germination), rice (nursery sowing/transplanting), maize, soybean, mash (sowing), peas (flowering/ pod formation), cauliflower (nursery sowing), cucurbits viz. khira, bitter gourd, tori (direct sowing/germination), potato (planting / sprouting) in Himachal Pradesh.
- Rice (transplanting), ginger (vegetative), autumn sugarcane (vegetative), okra (active vegetative / flowering), sugarcane, cucurbits (planting / seedling), vegetables viz. tomato, Capsicum, chilli, brinjal, cabbage, cauliflower in mid and high hilly area (transplanting), vegetables viz. palak, fenugreek, coriander, bhindi, French bean and lobia (sowing/ germination), maize, finger millet, urad, moong, soybean, groundnut, pigeon pea, cowpea, horse gram, rice bean (sowing/seedling), sorghum, pearl millets(sowing/seedling), in Uttarakhand.
- Bajra, moong, til, sorghum (sowing), chilli, brinjal, tomato and early cauliflower (transplanting), maize, guar, soybean (sowing), rice(transplanting), radish, spinach, coriander, cluster bean, bean, okra (sowing) in Delhi.
- Vegetables (flowering / fruiting / picking), rice (nursery raising / transplanting), maize (sowing / germination), bajra, pole type beans (sowing/germination), cowpea (sowing / germination/ early vegetative), sunflower (vegetative/flowering), garlic, cucurbits, okra (vegetative/ flowering), radish, spinach (transplanting), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), oat, berseem (vegetative), fruit crops (planting), brinjal, chilli, tomato, (transplanting), potato (planting), *kharif* pulses (moong, mash) (sowing / germination), groundnut (sowing), radish, carrot, cucurbits (nursery sowing) in Jammu & Kashmir.
- Kharif maize, jowar (sowing), rice (transplanting), groundnut, arhar, moong and urad (sowing), tomato, brinjal (transplanting), and cucurbits (sowing), spring sugarcane (vegetative) in Uttar Pradesh.
- New sugarcane (tillering), cotton (germination), cucurbits, cowpea (sowing), rice (transplanting), pearl millet, black & green gram, soybean / arhar (sowing/germination), moong, mash, sesamum (sowing) in Punjab.
- New sugarcane (vegetative), cotton (sowing/germination), rice (nursery raising/ transplanting) in Haryana.
- Rice (nursery / transplanting), groundnut (sowing), cotton (sowing), chilli (nursery sowing / transplanting), shimla mirch (sowing/ germination), moong, early sown groundnut (early vegetative /vegetative), new sugarcane (planting / early vegetative), groundnut, bajra, sorghum, soybean, moong, guar, sesame, moth, maize, cowpea, cluster bean, castor (sowing), cucurbits (sowing) and ber, aonla, pomegranate, phalsa (new planting), kinnu (new planting) in Rajasthan.

CENTRAL INDIA [M.P., CHHATTISGARH]

- *Kharif* rice (seedling / transplanting), onion (transplanting / early vegetative), maize, jowar, arhar, soybean, sesame, groundnut (sowing / germination / early vegetative), sugarcane (elongation / grand growth), vegetables (transplanting / early vegetative) in Madhya Pradesh.
- Sugarcane (planting/early vegetative), *kharif* rice (nursery sowing/transplanting), maize, groundnut, green gram (sowing/germination) jowar, arhar, soybean (sowing/germination), ragi and kodomillet (sowing/germination), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (sowing/transplanting) in Chhattisgarh.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL &SIKKIM]

- *Kharif* rice, (transplanting), maize(sowing/germination), sugarcane (early vegetative / tillering), onion(transplanting), urad (sowing), yam (vegetative) in Bihar.
- *Kharif* rice (transplanting), soybean, maize, urad, arhar, marua (sowing), onion (vegetative), ginger and turmeric (planting), *kharif* vegetables viz. bhindi, bean, French bean (sowing), tomato, cauliflower, cabbage (transplanting) in Jharkhand.
- Rice (direct sowing /transplanting), pigeon pea, groundnut, arhar, maize, cotton and *kharif* vegetables (sowing), fruit crops (planting), green gram, black gram, cowpea, sesame, ragi, castor, soybean (sowing), Jute (active vegetative), turmeric, ginger, yam (planting / early vegetative), sugarcane (tillering), banana (vegetative), tomato (fruiting / harvesting), sunflower (maturity/harvesting) in Odisha.
- *Aus* rice (flowering), *aman* rice (seedling/transplanting), maize (vegetative), ginger, turmeric (vegetative), pigeon pea (early vegetative), *Kharif* vegetables (vegetative), jute (vegetative),, brinjal, bitter gourd, pointed gourd, ladies finger (vegetative), chilli (vegetative), pointed gourd (flowering/fruiting),banana(planting) in West Bengal.

- Ginger (vegetative), large cardamom (secondary flowering), *kharif* vegetables (vegetative) in Sikkim.

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- Sugarcane (active vegetative / elongation), transplanted *ahu* rice (maturity / harvesting), *sali* rice (nursery sowing / seedling / transplanting), *Olitorius* jute (vegetative), pigeon pea (sowing), sesame (sowing), *kharif* vegetables (sowing / transplanting), maize (active vegetative), ginger, turmeric (vegetative), cucurbits (vegetative / flowering / fruiting) in Assam.
- *Jhum* rice (tillering), main WRC rice (transplanting), early WRC rice (active tillering), maize (harvesting), okra (fruiting / harvesting), black gram / green gram (pod maturity / harvesting), cucurbits (maturity / harvesting), potato (tuber formation / harvesting), banana (fruiting / maturity / harvesting), tomato, brinjal (fruiting / maturity / harvesting) in Arunachal Pradesh.
- *Pre-kharif* rice (grain maturity / harvesting), *kharif* rice (nursery sowing / transplanting), maize (cob maturity / harvesting), groundnut and soybean (vegetative), turmeric, ginger (vegetative), black gram, rice bean (sowing / vegetative), cauliflower (transplanting), banana (planting), cowpea, okra (sowing), cucurbits (fruiting / harvesting), cucurbits-late sown (vegetative) in Manipur.
- *Kharif* maize (tasselling / cob formation), *ahu* rice (maturity / harvesting), *sali* rice (tillering), turmeric, ginger (vegetative), pigeon pea (sowing), cucurbits (vegetative / fruiting) in Meghalaya.
- Maize (active vegetative), *jhum* rice / upland rice (nursery sowing / transplanting), groundnut (sowing / early vegetative), banana (vegetative), okra (sowing / early vegetative), French bean (vegetative / flowering / pod formation), cucurbits (vegetative), ginger and turmeric (vegetative) in Mizoram.
- Upland rice (active tillering / panicle initiation), lowland rice (tillering), chilli (transplanting), okra, brinjal (fruiting / harvesting) and ginger (vegetative), cucurbits (vegetative) in Nagaland.
- *Jhum* rice (active tillering / panicle initiation), *aman* rice (transplanting), groundnut (vegetative / flowering), maize (active vegetative), banana (planting / vegetative) in Tripura.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- *kharif* rice (transplanting / early tillering in Konkan and seedling / transplanting in Kolhapur, Nasik (Ghat), Pune (West) region and East Vidarbha), jowar and red gram (sowing / germination / early vegetative in Madhya Maharashtra, Marathwada, Vidarbha), bajra (sowing / germination / early vegetative in Madhya Maharashtra and Marathwada), soybean, groundnut (early vegetative in Madhya Maharashtra, Marathwada and Vidarbha), green gram and black gram (early vegetative / branching in Madhya Maharashtra and Marathwada), sugarcane (*adsali* and pre-seasonal) (active tillering / elongation), sugarcane *suru* (tillering), new *adsali* (plantation in Marathwada and Madhya Maharashtra) in Maharashtra.
- *Kharif* rice (seedling / transplanting), pearl millet (sowing / germination / tillering), sesame (early vegetative / vegetative), groundnut, cotton (sowing / germination / early vegetative), pulses (sowing / germination / vegetative), *kharif* vegetables (seedling / transplanting), sugarcane (grand growth) in Gujarat.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- Summer groundnut (vegetative to flowering), summer cotton (vegetative/boll formation), *kharif* crops: maize (sowing /seedling/ early vegetative), pigeon pea, Bt.cotton, bajra, castor, jowar (sowing), groundnut (sowing/seedling/early vegetative), red gram (sowing/ seedling/ early vegetative), sugarcane (tillering/ grand growth), rice (nursery sowing), rainfed sugarcane (land preparation/planting), and vegetables (sowing/early vegetative) in Andhra Pradesh.
- Summer crops: irrigated cotton (boll maturity / harvest), sesame (maturity/harvest), maize (vegetative/flowering), sorghum (flowering/ grain formation), groundnut (pegging), *kharif* crops:sugarcane (grand growth) and pulses (vegetative/ flowering), irrigated groundnut (pod development) *kuruvai* rice (transplanting), groundnut (sowing/germination/early vegetative) in Tamil Nadu.
- *Viruppu* rice (transplanting/early vegetative), arecanut (flowering/nut formation), sugarcane (tillering/ grand growth), rainfed banana (planting/vegetative), rubber (tapping/planting), *Kharif* vegetables (sowing/transplanting/ early vegetative), pepper and cardamom (planting), ginger (vegetative) in Kerala.
- Sugarcane (grand growth), arecanut (nut formation/maturity), new arecanut (planting), *kharif* crops: sorghum, bajra, sesame, sunflower, navane, Bt.Cotton(sowing), ragi (sowing/transplanting), and cowpea (sowing), green gram, maize, red gram and groundnut (sowing/germination/ early vegetative), black gram and soybean (early vegetative), rice (nursery sowing/transplanting), vegetable crops (transplanting) in Karnataka.

Annexure II List of Varieties

Delhi

Rice: Hybrid varieties: Pant hybrid Dhan1, Narendra hybrid dhan 1, P R H 10.

High yielding varieties: Pusa 44, Pant Dhan 4, Pant Dhan 10, Pusa 834, Pusa basmati 1,

Pusa improved basmati: Pusa sugandha 5, Pusa sugandha 4 (Pusa 1121), Ranvir basmati and Taravadi basmati.

Maize: AH-421, AH-58 or Composites: Pusa composite-3, Pusa composite-4.

Bottle Gourd- Pusa Naveen, Pusa Samridhi.

Bitter Gourd- Pusa Visesh, Pusa-2 mosumi, Pumpkin- Pusa Visvash, Pusa Vikash.

Ridge Gourd- Pusa Chikni.

Moong : PAU 911, SL 818 and **Mash :** 338 , Mash 114

Sesamum : Pb Til 1, T C 289, RT 346

Jammu & Kashmir

Maize : GS-2, Mansar, Trikuta, C-5 and C-8, Super Composite (Mansar), C-6, Vijay, Him-123 and Local Tall

Rice : direct seeded rice - IET 1410, China-1039, K-39, Ratna, PC-19, Jaya, RR-8585(Ajay) (Subtropical Zone), China-1039, Samwal, K-39, K-84, K-343 & Giza-14 (in Intermediate lower zone)

Basmati-370, Ranbir Basmati and Local Basmati

Groundnut (var. Punjab No. 1, M-13 and JL-24) and **Til** (var. Punjab Til-1)

Okra: Varsha Uphar, Parbhani Kranti and A-4, Radish: Pusa Chetki, Pumpkin: Arka Suryamukhi & Arka Chandan, Bottle-gourd: Pusa Summer Prolific Round & Pusa Summer Prolific Long, Bitter-gourd: Pusa Domausmi, Coimbatore Long & Pusa Vishesh, Sponge-Gourd: Pusa Chikni & Pusa Nasadar, cauliflower: Pusa Deepali, cabbage: Golden Acre, Pride of India and Pusa Mukta, carrot: Nantes and turnip variety Purple Top White Globe, knol-khol : White Vienna & Purple Vienna

Brinjal : PPL, PPC & PPR

Chillies : NP-46A, Pusa jawala.

Punjab

Punjab

Rice: PR-121, PR-122, PR-118, PR-116, PR-114, PR-111, PR-113, PR-115 in Western Plain Zone, Basmati 3, Pusa Basmati 1121, Punjab Basmati 2 & Punjab Mehak 1.

Okra: Punjab-8, Punjab-7 and Punjab Padmani

Radish : Punjab Ageti & Pusa Chetki.

Rajasthan

Rice: P.R.106, B.K.190, Mahi Sugandha Basmati

Groundnut: G.G.-2, J.-38, Pratap Mungphali-1, Pratap Mungphali-2, R.S.-1, R.G.-141, M.13, T.G.37-A, T.B.G.-39, H.N.G.10, H.N.G.69, Mallika, Chandra,

Bikaneri Nerma: RST-9 and Hybrid-4

Chilli: Pusa Jwala, N.P.46-A, PantC-2, Pusa Sadabahar, G-3, G-5 and RCH-1

Shimla Mirch: yellow wonder, California wonder, Bulnose and Arka Mohini

Guar: RGC-936, 197, 986, 1002, 1003, HG-365, 563, HG-2-20, RGC 1066 (Lathi)

Bajra : Raj 171, HHB-67, HHB-67A, HHB-60, RHB-90, RHB-121, RHB-121A, RHB-90, RHB-177A, RHB-154A, GHB-538, ICMH-356, ICTP-8203A,

Sorghum: CSH-6 (90-100 days), CSV-10 (100-110 days), CSV-15 (104-140 days), CSV – 17, Pratap Jowar – 1430, CSH – 13, CSH – 14, Rajasthan chari-1, Rajasthan chari-2 MP chari, SSG 59-3 and JS 20, CSH 16, SPV-245, SPV-96.

Soybean : JS-335, MACS-13, PK – 472, MACS-58, PS – 16, JS – 71 – 05, Pratap Soya-1, NRC-7, NRC-12.

Maize: Bassi selected (80-85 days), Mahi Kanchan (75-80 days) & Ageti-76 (85-95 days), Him – 129, Aravali Makka, PEHM-1, PEHM- 2, Pratap Makka-1, Pratap Makka-3, Pratap Makka-5,

Sesamum: RT-46, Pratap, TC 25, RT 54, RT 103, RT 125 and T 13.

Moong: Ganga-1(Jamnotri), Ganga-8 (Gangotri), SML-668, MUM-2, SML-668, MUM-2, RMG-62, RMG-268, RMG-492 & RMG-344 and K-851

Moth- RMO-257, 225, 435, 423 and **RMO-40**

Cowpea: FS-68, RC-19 and RC-101

Castor: Aruna, Goch-1, Goch-4

Cucurbits: bottle guard : Pusa Naveen, Arka Bahar, pumpkin - Pusa Vishwas, Arka Chandan, Pusa Alankar, Arka Suryamukhi, **bitter guard** - Arka Harit Pusa Vishesh, Priya and **round gourd-** Arka tinda, Bikaneri green, Punjab-48.

Himachal Pradesh

Rice: Pant Dhan-10, Govind, Pant Dhan-12, Ratna, UPR-71-12, Pant Sankar Dhan-1, Narendra Sankar Dhan-2.

Finger millet as VL- Mandua-124 and VL-149 and short duration (95 to 100 days) varieties like VL- Mandua-204, Pant Mandua-3, PES-176, PES-110, VLMandua-146.

Cauliflower : Patna snowball and joint snowball.

Uttarakhand

Chote Dhan: VL-163, VL-221, Pant dhan-6, Pant Dhan-11, VL-62, VL-81

Rice - Saket-4, Govind, Narendra-80, Pusa 2-21 (short duration)

Jethi Dhan (unirrigated) : VL-154, V.L.221

Scented rice : Pant Sugandh-15, Tarawadi, Basmati, Pusa Basmati-1, Type-3, Basmati-370

Maize: Hima-129, Navin, Sartaj, VL16, Surya, Him, Ganga Makka-9, 11.

Urad: Pant Urad-19, Pant urad-30, Pant Urd-35, 40.

Soybean: Brag, PK-262, VL Soya-2, VL Soya 21, VL Soya-47, PRS-1, PS-1092.

French bean : VL Rajma-63, **Gahat:** VLG-1, 8

Pigeon pea : Jagrati, UPAS-120, Sagar, Manak, Type-21, Bahar, Pusa-855, Pusa-74 and hybrid varieties like ICPH-8 etc

Mandua- PRM-1,2, VL Mandua-324, 146, 149.

Rice bean – PRR-1, 2

Cow pea- PRA-1, 2, 3 and VL-44.

Grain sorghum : CSH-13 or CSH-15

Pearl millets: MH-179, HHB-60, HHB-67 or composite varieties like HC-4, ICMB-8440, WCC-75.

Uttar Pradesh

Jowar: Mauta-1, Mauta-2, Varsha, C.S.B.-15 and C.S.H.-5, C.S.H.-9, C.S.H.-14, C.S.H.-16.

Late sown varieties of rice: Sambha Masoori, Swarna sub-1, Jal-Lahari, Jal-Priya

Medium Late sown varieties of rice: Narendra- 359, Malviya-36, Pant Dhan-4, 10 Narendra Dhan-3112 , Narendra Dhan-2064, Swarna, Suraj-52, Pusa Basmati-1, Haryana Basmati

Early sown varieties of rice: Manhar Pant Dhan- 12, I.R- 50, Narendra- 118, Narendra Dhan- 2026.

Arhar: Paras, U.P.A.S-120, Pusa- 992

Groundnut- Moongfali-1, 13, Girnar-2, Ta-64, Kaushal guchedar, Chandra, Ta- 28

Til- Haryana Til-1, Punjab Til-2

Moong- Pusa Baishakhi

Urad- T-9.

Cabbage- Patgobhi-3, Early Kuwari, Pusa early synthetic, pusa deepali

Bhindi- Varsha Uphar, Arka Anamika, V.R.O-5, R.O-6

Tomato- pusa early, pusa ruby, H.S. 101

Kharif onion- N.- 53, agrifound darkred

Madhya Pradesh

Rice:

a. Medium: IR-36, IR-64, Pusa sugandha-5, MTU-1001

b. Late: Mahsuri, Safari-17, Syamla, Swarna

Maize:

a. Medium: navjot, Arun, H-216, Jm-13, Sartaj, Daccan 107

b. Late: Ganga-11, Prabhat, Trisulta, Daccan 103, Daccan 105

Jowar: JJ-741, JJ-938, JJ-1022, JJ-1041 and CSV-15

Arhar: Laxmi, Pragti, Asha, Jagrati, JKM-7 and JKM-189

Soybean: JS-95-60, JS-93-95, JS-97-52, JS-80-21, JS-335, NRC-37

Onion: Nashik 53, Agrifound dark red, Pusa kalyani

Chhattisgarh

Ragi: PR-202, HR-374, VR-708, RU-08, GPU-45, VC-149 etc.

Kodomillet: GPUK-03, RBK-155 etc.

Odisha

Ginger: Suprava, Suruchi, Surabhi.

Turmeric: Roma, Surama, Rang, Rashm.

Maize: Navjot, Shakti, Decan-107, Decan-109.

Yam: Local Yam: Shreekirti, Shreerupa, Hatikhaj, Shreeshilpi.

Small yam: Shreelata, Shreekala.

White Yam: Shreesubhra, Shreepriya, Shreedhanya.

Rice:

Early- Khandagiri, Bandana, Pathara, Parijat, Annada.

Medium-MTU- 1001, MTU-1010, Konark, Gajapati, Surendra, Lalat.

Late- CR-1009, CR-1018, Swarna (MTU-7029), Indravati, Mahanadi, Puja, Ramachandi, Kanchana, Sarala, Lunishree and Fine-CR-1014, BPT-5204.

Arhar: Early-duration- Prabhat, Upas-120, ICPL-86012., Medium duration- Asha, Visakha.

Cotton: Tulasi, Sigma, Chiruta, Diana, Bunny

Ragi: Divyasinha, AKP-2, AKP-3, AKP-7, Godavari, Neelachal, Bhairavi, Shubhra, and Chilika.

Groundnut: Smruti, AK12-24, TAG-38, Devi

Castor: Jyoti, Kranti, Aruna, Bhagya, and hybrids like GCH-4, . GCH- 5, GCH-177 and GCH-32.

Soyabean: Ankur, Gourav, P. K. 73-163 and T-49.

Sesame: Prachi, Kalika, Kanak, Vinayak.

Ragi: Divyasingh, AKP-2, AKP-3, AKP-7, Godavari, Neelachal, Bhairavi, Shubhra, and Chilika.

Greengram: K-851, PDM-11, PDM-54, OUM-11-5.

Blackgram: T-9, Pant U-11, Pant U-19, Pant U-30.

Cowpea: Cowpea-,SEB-2, Pusa Barsati.

West Bengal

Pigeon pea: Sweta, Chumi.

Aman rice : IET-4094, 2233, Ratna, Bikash, Kitish, Sasya-shree, IR-42, Swarna, Mashuri, IET-8002.

Banana : Mortoman, Chapa, Kathali, Singapuri,

Jharkhand

Rice(Upland): Birsa Dhan- 108, Birsa Vikas Dhan- 109, 110, Vandana etc.

Rice(Medium land): Anjali, Sahbhagi, Naveen, Lalat, Birsamati, Sugandha, BR-10, Pro-Agro 6444, IR-36, IR-64etc.

Rice(Low land): Swarna (MTU-7029), Rajshree, Sambha Mahsuri (BPT- 5204), Birsa Dhan- 202, Birsamati, Pro-Agro 6444, etc.

Arhar: Birsa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671.

Maize: Birsa Makka -1, Birsa Makka-2, Suwan-1 etc.

Ginger: Vardhaman, Nadia etc.

Turmeric: Rajendra Sona.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Varsa Uphar, Sonal and Sarika.

Marua: A-404, HR-374, Birsa Marua-1 and Birsa Marua-2.

Bihar

Rice: Rajshree, Rajendra Sweta, Rajendra Mansuri, Swarna, Satyam, Kishori, MTU 7029. Rajendra mehsoori-1, Rajendra bhagwati, MTU-1010, MTU-1001, Hybrid seed-PHB 71, A 6444, PRH 10.

Maize: Deok, Shaktiman 1, Shaktiman 2, Sunkar Makka 3 and Ganga 11

Arhar: Birsa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671.

Ginger: Vardhaman, Nadia etc.

Turmeric: Rajendra Sona.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Varsa Uphar, Sonal and Sarika.

Marua: A-404, HR-374, Birsa Marua-1 and Birsa Marua-2.

Urd: T-9, Pant U-19, Pant Urd 31, PDU-1

Assam

Sali rice:

Long duration high yielding varieties: Ranjit, Bahadur, Peoli, Moniram, Pankaj, Kushal.

Medium to short duration varieties: Satya, Basundhara, Mahsuri, Luit, Pioli, Moniram.

Flood tolerant varieties: Jalashri, Jalkuwari (for chronically low lying flood affected areas).

Sesame: AST-1, Gauri, Vinayak.

Pigeon pea : T-21

Tripura

Aman rice: Gomati, Ranjeet, Swarna, Samba Masuri.

Maharashtra

Kharif jowar: Hybrid- CSH5, CSH 9, CSH13, CSH14, CSH16, CSH17, CSH18, CSH2, Improved- SPV 462, CSV 13, CSV15, CSV17, PKV 801 for Pune region and CSH14, CSH16, CSH25 for Marathwada.

Kharif bajra: Hybrid variety Shraddha (RHRBH 8609), Saburi (RHRBH 8924), Phule Shanti (RHRBH 9808) and Improved variety – ICTP 8203, ICMV – 155 for Pune region and GHB558, Shraddha, Saburi, Pratibha for Marathwada.

Red Gram: ICPL 87, Vipula, BSMR-853, BSMR-736, AKT8811, Amol for Madhya Maharashtra, ICPL-87119 (Asha), C-11 for Central Vidarbha and BSMR 736, BSMR 853, BDN 711 (for rain shadow area) for Marathwada.

Adsali Sugarcane: CO-86032 (Neera), Phule-0265, CO-740, COM-88121 and COM-7714.

Gujarat

Rice: GR-11, Jaya, IR – 22, Gurjari and Dandi.

Pearl millet: GHB-528, GHB-577, GHB-316 and GHB-183.

GHB-744 (moderate duration) and GHB- 538, GHB-719 (early maturing).

Pigeon pea: GT-1, GT-100, GT-101, T-15-15, BDN-2, IPCL-87, Pusa Ageti, GTH-1.

Green gram: GM-3, GM-4 and K-851.

Black gram: T-9 and GU-1.

Cowpea: Gujarat cowpea-1, 2, 4, Pusa Falguni.

Cluster bean: G.Guar-2.

Andhra Pradesh

Green gram- LGG 407, Lgg 460, LGG 450, PDM 54, MGG 295, WGG 37, Pusa 105, MGG 348.

Black gram- LBG 752, Lbg 20, PU 31, T9, LBG 623

Red gram - LRG 30, LRG 41, LRG 38, ICPL 332, ICPL 8719,

ICP 8863, ICPL 85063, MRG 66, PRG 158, PRG

100

Soybean - S 335, PK 1029, JS 93-05, Bheema, Basara.

Karnataka

Redgram with suitable varieties of TTB-7, BRG-1 and Hyd-3c

Ragi (finger millet) varieties Indaf-9 , HR-911, G.P.U-28 &48, MR-6, PR-202

Groundnut varieties JL-24, TMV-2, G.P.B.D-4 and K-134

Paddy varieties Mas-26, Mas-946-1 and BI-33.