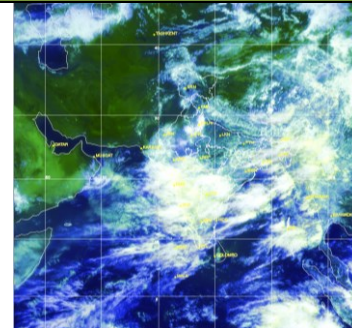




Monsoon Watch

Southwest monsoon was vigorous over Telangana and active over Bihar, west Madhya Pradesh, Gujarat, Rajasthan, Konkan & Goa, coastal Andhra Pradesh, Rayalaseema, north interior Karnataka and south interior Karnataka.



Satellite image 0600 UTC dated 12th 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:** Continue nursery sowing of *sali* rice, sowing of pigeon pea, sesame and *Olitorius* jute in **Assam**, continue transplanting *sali* rice, transplanting of WRC rice in **Arunachal Pradesh**, transplanting of *kharif* rice in **Manipur**, transplanting of *jhum* rice in **Mizoram**, 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 a one or two places during next 72 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 to very heavy rainfall at a one or two places during next 48 hours
- In Coastal Andhra Pradesh and Telanagana, postpone sowing of *kharif* crops, as rainfall is expected at most places with heavy to very heavy rainfall at one or two places over the region. Provide drainage in already sown maize, groundnut and pulses.
- **Raylaseema:** Continue sowing of groundnut, red gram, bajra and cotton with the help of realized rainfall.
- Continue transplanting of *Virippu* rice in Kerala, transplanting of *kharif* rice in Coastal Karnataka, continue transplanting of *Kuruvai* rice mainly in Thanjaur, 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**.
- **North Interior Karnataka:** Due to subdued rainfall activity during last 3 weeks of June, early sown *kharif* crops which were facing moisture stress, are recovering due to receipt of moderate to rather heavy rainfall at many places during last week. Farmers who have not undertaken sowing till date are advised to undertake sowing of bajra, groundnut (spreading type), red gram, sesame, niger, navane, castor and horse gram intercropping with green gram and black gram. Farmers in the North Transition Zone of Karnataka are advised to continue sowing of Bt. Cotton and soybean till 1st fortnight of July and maize and groundnut till the end of July.
- In North Transition Zone of Karnataka, continue the sowing of Bt. Cotton and soybean till 1st fortnight of July and maize and groundnut till the end of this month.
- In North East Dry Zone of Karnataka, continue sowing of groundnut, castor, red gram, bajra and with short duration green gram and black gram for intercropping.
- Complete sowing of cow pea, maize and groundnut in **South Interior Karnataka**.
- **West Region:** In **Maharashtra**, undertake transplanting of *kharif* rice in **Konkan**, also arrange adequate drainage to avoid stagnation of water in nursery beds of rice and finger millets as well as in mango, cashew and sapota orchards as rain would occur at most places along with heavy to very rainfall at one or two places during next 72 hours.
- As rain would occur at many places along with heavy rainfall at one or two places during next 72 hours in **Madhya Maharashtra**, postpone sowing of *kharif* jowar, bajra, groundnut, soybean and cotton and planting of banana.
- In Vidarbha, as rain would occur at many places along with heavy rainfall at one or two places during next 24 hours and heavy to very heavy rainfall would occur at one or two places thereafter, postpone sowing of jowar, soybean, red gram and undertake transplanting of 21 days old seedlings of rice in Gondia, Bhandara, Gadchiroli and Chandrapur districts.
- Postpone sowing of *kharif* jowar, soybean, cotton, red gram, green gram and black gram and planting of turmeric and ginger in **Marathwada**, as rain would occur at many places along with heavy rainfall at one or two places during next 24 hours.
- In Gujarat region, as rain would occur at many places along with heavy rainfall at one or two places during next 48 hours and heavy to very heavy rainfall would occur at one or two places thereafter, postpone sowing of cluster bean, sesame, bajra, pulses etc. Postpone irrigation, intercropping operations and application of fertilizers and plant protection measures in standing crops of groundnut, cotton, pulses, sesame, pearl millet, maize and vegetable nurseries. Also arrange for adequate drainage in already sown crops to avoid water stagnation in the fields. Undertake 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 many places along with heavy to very heavy rainfall at one or two places over Madhya Pradesh during next 24 hours and heavy to very rainfall would occur at one or two places thereafter, 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, continue 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



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India Meteorological Department, Shivajinagar, Pune.

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- **East Region** : As rain / thundershowers would occur at most places along with heavy rainfall at one or places during next 24 hours over **Sub-Himalayan West Bengal & Sikkim**, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- In New Alluvial Zone, Laterite and Red Soil Zone and Coastal Saline Zone of **Gangetic West Bengal**, complete nursery sowing and 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 over Odisha along with heavy rainfall at one or two places over Odisha during next 48 hours, postpone sowing of maize, arhar, groundnut, cotton, pulses, nursery sowing of rice and direct sowing of rice.
- 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 along with heavy rainfall at one or two places over Uttarakhand after 24 hours, farmers in the Hill Zone of Uttarakhand, are advised to postpone nursery sowing of rice, sowing of soybean, groundnut, millets, pigeon pea, horse gram and French bean. Provide adequate drainage in already sown crop fields. Continue transplanting of rice.
- **Himachal Pradesh**, continue transplanting of the rice crop, continue direct sowing of cucurbits viz. khira, bitter gourd, tori in main field. Also undertake planting of potato in Hill zone.
- **Uttar Pradesh**: As rain / thundershowers would occur at many places along with heavy rainfall at one or two places over **East Uttar Pradesh** during next 24 hours, postpone sowing of maize, jowar, groundnut arhar, moong, urad and nursery sowing of rice. Provide adequate drainage in already sown crop fields. Continue sowing of maize, jowar, groundnut arhar, moong, urad and nursery sowing of rice **in west Uttar Pradesh**.
- **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.
- In **East Rajasthan**, sowing of groundnut, maize, soybean, castor, pearl millet, sorghum, green gram, cow pea, cluster bean and sowing of rainy season cucurbits, as rain / thundershowers would occur at many places along with heavy rainfall at one or two places after 24 hours.
- In **West Rajasthan**, continue sowing of bajra utilizing realized rainfall.

Significant realized rainfall during last week

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

Distribution of rainfall of the country during week ending on 10.07.2013

State/Districts	Actual (mm)	% dep.
Arunachal Pradesh		
Anjaw		
Changlang	173.3	67
Dibang Valley	54.0	-21
East Kameng	141.7	74
East Siang	545.2	167
Kurung Kumey		
Lohit	199.3	57
Lower Dibang Valley		
Lower Subansari	2.4	-94
Papumpara	110.5	-35
Tawang	97.0	-44
Tirap	184.0	10
Upper Siang	153.0	-1
Upper Subansari	0.2	-99
West Kameng	61.3	-64
West Siang	141.1	41
Assam		
Baksa	78.5	-64
Barpeta	235.1	9
Bongaigaon	354.8	64
Cachar	84.1	-25
Chirang	316.7	46
Darrang	1.0	-99
Dhemaji	132.0	-8
Dhubri	120.9	1
Dibrugarh	164.4	41
Goalpara	108.6	-12
Golghat	32.0	-57
Hailakandi	60.4	-28
Jorhat	81.0	-10
Kamrup(Rural)	25.2	-72
Kamrup(Metro)	73.9	-17
Karbi Anglong	11.9	-80
Karimganj	88.3	-44
Kokrajhar	481.9	82
Lakhimpur	103.1	-28
Morigaon	105.6	15
N.C.Hills	51.2	16
Nowgong	25.1	-61

Nalbari	90.2	-27
Sonitpur	61.5	-30
Sibsagar	68.6	-23
Tinsukia	192.7	69
Udalgiri	72.1	-15
Meghalaya		
East Garo Hills	4.0	-95
East Khasi Hills	518.5	35
Jaintia Hills	109.0	-78
Ribhoi	40.4	-59
South Garo Hills	0.0	-100
West Garo Hills	22.4	-78
West Khasi Hills	37.0	-89
Mizoram		
Aizwal	22.3	-72
Champhai	51.0	-29
Chhaintuipui		
Kolasib	6.0	-91
Lawngtlai	78.0	-34
Lunglei	56.0	-61
Mamit	3.0	-96
Saiha	86.0	-4
Serchhip	27.0	-73
Manipur		
Bishnupur	**	**
Chandel	**	**
Churachandpur	11.0	-86
Imphal east	31.9	-62
Imphal west	**	**
Senapati	**	**
Tamenglong	**	**
Thoubal	46.0	36
Ukhrul	22.0	-69
Nagaland		
Dimapur	12.0	-78
Kephire	66.0	-34
Kohima	65.6	-19
Longleng	**	**
Mokokchung	7.0	-96
Mon	**	**
Para	**	**

Phek	92.1	14
Tuensang	**	**
Wokha	0.0	-100
Zunheboto	**	**
Tripura		
Dhalai	13.0	-84
North tripura	33.7	-62
South tripura	28.9	-77
West tripura	9.2	-90
Himachal Pradesh		
Bilaspur	38.3	-42
Chamba	36.2	-58
Hamirpur	154.6	136
Kangra	196.5	93
Kinnaur	9.8	-30
Kullu	67.4	99
Lahaul and Spiti	2.3	-93
Mandi	114.4	51
Shimla	25.1	-41
Sirmaur	77.8	-27
Solan	55.6	-27
Una	138.7	93
Punjab		
Amritsar	63.0	62
Barnala	25.5	-10
Bhatinda	50.0	182
Faridkot	11.0	-43
Fatehgarh Saheb	61.0	16
Ferozpur	26.6	0
Gurdaspur	93.5	74
Hoshiarpur	19.7	-64
Jalandhar	27.9	-40
Kapurthala	58.1	67
Ludhiana	48.7	8
Mansa	10.2	-50
Moga	21.0	-18
Muktesar	0.0	-100
Nawashahar	67.4	-11
Patiala	59.6	-1
Ropar	63.8	8
Sangrur	5.6	-82

Mohali	48.0	-17
TarnTaran	48.5	84
Haryana		
Ambala	58.8	-20
Bhiwani	25.1	12
Chandigarh	39.5	-46
Faridabad	2.3	-93
Fatehabad	11.5	-33
Gurgaon	19.3	-36
Hissar	29.7	52
Jhajar	7.7	-68
Jind	27.7	14
Katihah	21.1	-12
Karnal	33.1	-33
Kurukshetra	9.0	-81
Mahendragarh	21.9	8
Mewat	12.5	-58
Palwal	27.2	-19
Panchkkula	31.7	-54
Panipat	7.6	-80
Rewari	21.5	0
Rohtak	4.8	-83
Sirsa	21.2	63
Sonepat	29.1	-10
Yamunanagar	94.6	84
Delhi	26.9	-41
Jammu & Kashmir		
Anantnag	19.7	20
Badgam	13.6	84
Bandipore	**	**
Baramula	14.8	-21
Doda	21.0	-6
Ganderwal	13.6	25
Jammu	111.4	103
Kargil	0.0	-100
Kathua	154.9	98
Kistwar	**	**
Kulgam	27.5	68
Kupwara	5.9	-63
Ladakh(Leh)	0.0	-100
Poonch	**	**
Pulwama	13.4	5
Rajouri	69.3	28
Ramban	29.5	32
Reasi	323.7	311
Samba	117.2	114
Shopian	8.0	-38
Srinagar	30.2	177
Udhampur	93.5	19
East Madhya Pradesh		
Anuppur	47.4	-52

Balaghat	60.6	-43
Chhatarpur	16.7	-75
Chindwara	60.1	-16
Damoh	34.1	-51
Dindori	36.2	-66
Jabalpur	60.0	-27
Katni	79.0	6
Mandla	57.4	-43
Narsingpur	18.6	-78
Panna	6.0	-92
Rewa	22.9	-61
Sagar	33.0	-53
Satna	42.0	-33
Seoni	72.4	-14
Shahdol	4.0	-95
Sidhi	6.8	-91
Singrauli	130.0	178
Tikamgarh	23.5	-59
Umaria	26.7	-65
West Madhya Pradesh		
Alirajpur	148.4	133
Asoknagar	29.3	-46
Badwani	78.8	81
Betul	51.3	-22
Bhind	53.7	15
Bhopal	28.4	-62
Burhanpur	71.6	55
Datia	20.9	-60
Dewas	137.2	115
Dhar	125.6	127
Guna	68.2	1
Gwalior	42.1	-24
Harda	268.2	272
Hosangabad	64.7	-30
Indore	226.0	296
Jhabua	157.9	174
Khandwa	188.3	237
Khargone	152.6	244
Mandsaur	56.1	9
Morena	45.0	7
Neemuch	64.9	31
Raisen	40.3	-50
Rajgarh	62.9	-3
Ratlam	129.2	134
Sehore	59.4	-17
Shajapur	36.1	-41
Sheopur Kalani	20.0	-64
Shivpuri	29.1	-46
Ujjain	102.6	64
Vidisha	59.0	-24
Chattisgarh		

Bastar	62.2	-17
Bijapur	22.1	-78
Bilaspur	51.6	-36
Dantewara	37.3	-60
Dhamtari	70.4	-6
Durg	38.1	-52
Janjgir	62.7	-30
Jashpurnagar	60.0	-43
Kanker	6.4	-92
Korba	10.7	-89
Koriya	58.6	-33
Kawardha	55.0	-16
Mahasumund	6.8	-92
Narayanpur	13.8	-83
Raigarh	31.8	-65
Raipur	16.0	-81
Rajandgaon	69.9	-9
Surguja	8.3	-90
East Uttar Pradesh		
Allahabad	14.6	-73
Ambedkar Nagar	154.2	151
Azamgarh	21.5	-72
Bahraich	107.9	67
Ballia	46.0	-30
Balrampur	49.3	-26
Banda	13.2	-76
Barabanki	77.0	23
Basti	64.6	-4
Chandauli	73.6	23
Deoria	69.0	5
Faizabad	33.3	-49
Farrukhabad	34.9	-31
Fatehpur	31.6	-45
Gazipur	59.4	0
Gonda	84.3	32
Gorakhpur	83.9	13
Hardoi	32.9	-39
Jaunpur	23.4	-66
Kannauj	51.0	2
Kanpur City	19.5	-55
Kanpur Dehat	27.3	-30
Kaushambi	15.1	-73
Kheri	59.5	-21
Kushi nagar	57.3	-25
Lucknow	33.0	-40
Maharajganj	58.4	-31
Mau	22.5	-66
Mirzapur	42.9	-31
Pratapgarh	34.0	-45
RaiBareilly	28.8	-51
Sahuji Maharajnagar	31.3	-51

Sant Kabirnagar	43.0	-41
Sant Ravidas Nagar	69.0	15
Shrawasti	161.4	149
Sidharthnagar	71.3	1
Sitapur	73.3	25
Sonbhadra	35.9	-45
Sultanpur	28.5	-62
Unnao	45.2	-15
Varanasi	64.0	-2
West Uttar Pradesh		
Agra	55.7	26
Aligarh	30.1	-35
Auraiya	49.7	3
Badaun	32.2	-41
Baghpat	14.6	-67
Bareilly	122.4	99
Bijnor	17.1	-74
Bulandsahar	17.1	-63
Etah	22.7	-52
Etawah	47.5	7
Firozabad	33.6	-17
GBNagar	17.0	-52
Ghaziabad	9.5	-79
Hamirpur	2.2	-96
Jalaun	8.8	-83
Jhansi	33.6	-46
Jotirba Phule Nagar	44.5	-38
Kanshiramnagar	11.0	-77
Lalitpur	8.5	-86
Mahamaya Nagar	13.0	-69
Mahoba	18.2	-64
Mainpuri	25.5	-44
Mathura	23.0	-38
Meerut	4.3	-93
Moradabad	128.1	94
Muzzaffarnagar	0.0	-100
Pilibhit	52.0	-27
Rampur	76.2	-5
Saharanpur	53.0	-3
Shahjahanpur	138.4	115
Uttarakhand		
Almora	72.7	15
Bageshwar	143.2	127
Chamoli	158.5	187
Champawat	85.5	-20
Dehradun	135.2	5
Garhwal Pauri	36.7	-60
Garhwal Tehri	38.7	-42
Haridwar	26.9	-63
Nainital	106.9	-3
Pithoragarh	111.0	-4

Rudraprayag	81.4	-21
Udham Sing Nagar	69.8	-21
Uttarkashi	61.1	-23
Bihar		
Araria	285.4	214
Arwal	46.4	-9
Aurangabad	25.1	-61
Banka	12.8	-79
Begusarai	72.0	8
Bhabua	28.5	-57
Bhagalpur	56.2	-22
Bhojpur	39.3	-47
Buxar	61.8	1
Darbhanga	31.1	-49
East Champaran	60.8	-13
Gaya	53.2	-19
Gopalganj	25.7	-65
Jahanabad	56.2	-6
Jamui	41.0	-44
Kathihar	65.9	-20
Khagadia	81.2	8
Kishanganj	580.9	350
Lakhisarai	43.0	-41
Madhepura	55.8	-42
Madhubani	17.5	-80
Monghyar	67.0	-8
Muzaffarpur	30.6	-55
Nalanda	24.3	-60
Nawada	12.9	-82
Patna	21.5	-70
Purnea	122.8	25
Rohtas	82.3	53
Saharsha	136.3	19
Samstipur	63.3	9
Saran	42.8	-49
Sheikpura	42.7	-33
Sheohar	44.0	-46
Sitamarhi	51.9	-37
Siwan	56.7	-21
Supaul	102.2	21
Vaishali	17.8	-79
West Champaran	214.8	134
Jharkhand		
Bokaro	1.5	-98
Chatra	30.7	-64
Deoghar	9.0	-86
Dhanbad	3.3	-96
Dumka	12.5	-83
East Singbhum	21.5	-67
Garhwa	25.0	-52
Giridih	8.2	-89

Godda	66.1	-9
Gumla	37.9	-54
Hazaribagh	23.0	-66
Jamtara	7.9	-91
Khunti	0.0	-100
Kodernma	33.3	-44
Latehar	84.1	20
Lohardagga	41.1	-31
Pakur	54.0	-36
Palamau	82.6	28
Ramgarh	11.6	-83
Ranchi	16.2	-81
Sahebganj	0.0	-100
Saraikela	0.0	-100
Simdega	24.0	-75
West Singbhum	0.0	-100
East Rajasthan		
Ajmer	29.7	14
Alwar	75.1	142
Banswara	171.4	176
Baran	58.7	18
Bharatpur	45.7	39
Bhilwara	79.4	106
Bundi	77.2	75
Chittorgarh	92.4	99
Dausa	56.6	59
Dholpur	38.5	-8
Dungarpur	96.9	69
Jaipur	50.8	86
Jhalawar	82.4	55
Jhunjhunu	44.1	107
Karauli	61.7	97
Kota	52.0	23
Pratapgarh	130.2	117
Rajsamand	50.7	60
Sawai Madhopur	86.6	120
Sikar	28.3	19
Sirohi	45.3	-42
Tonk	56.7	70
Udaipur	42.7	-5
West Rajasthan		
Barmer	26.1	42
Bikaner	23.8	58
Churu	21.5	-1
Hanumangarh	18.3	-1
Jaisalmer	4.9	-55
Jalore	24.4	-35
Jodhpur	4.1	-80
Nagaur	14.7	-24
Pali	15.4	-54
Sri Ganganagar	0.8	-94

Gujarat Region		
Ahmedabad	111.0	101
Anand	151.2	135
Banaskantha	24.9	-57
Baroda	141.0	79
Broach	57.4	-21
DNH	98.6	-50
Dahod	154.7	135
Daman	121.0	-38
Dangs	100.5	-37
Gandhinagar	173.3	139
Kheda	149.7	126
Mehsana	119.6	81
Narmada	111.8	11
Navsari	92.0	-44
Panchmahal	173.3	145
Patan	114.4	139
Sabarkantha	120.4	68
Surat	99.4	-17
Tapi	96.0	-26
Valsad	145.2	-12
S K & Diu region		
Amreli	12.2	-70
Bhavnagar	40.6	-5
Diu	28.0	-65
Jamnagar	45.9	25
Junagarh	36.8	-48
Kutch	35.8	26
Porbandar	33.2	-48
Rajkot	44.6	4
Surendranagar	49.5	43
Maharashtra		
Konkan & Goa		
Goa	313.9	43
Mumbai	105.6	-43
Raigad	198.1	-28
Ratnagiri	319.6	18
Sindhudurg	379.2	68
Thane	145.1	-35
Madhya Maharashtra		
Ahmednagar	15.0	-33
Dhule	46.3	17
Jalgaon	38.6	-7
Kolhapur	91.1	-46
Nandurbar	100.4	45
Nasik	64.6	-8
Pune	56.2	-26
Sangli	19.1	-48
Satara	37.7	-36
Solapur	30.3	74
Marathwada		

Aurangabad	19.2	-37
Beed	25.1	-15
Hingoli	75.0	52
Jalna	27.6	-22
Latur	32.6	-29
Nanded	81.8	69
Usmanabad	48.6	55
Parbhani	65.8	56
Vidarbha		
Akola	48.9	11
Amraoti	66.8	29
Bhandara	80.6	-2
Buldhana	59.2	51
Chandrapur	50.6	-40
Gadchiroli	66.6	-31
Gondia	72.7	-27
Nagpur	58.7	-19
Wardha	59.4	5
Washim	39.1	-19
Yeotmal	54.3	-6
Orissa		
Angul	21.7	-71
Balasore	0.6	-99
Bargarh	19.6	-76
Bhadrak	13.4	-75
Bolangir	99.3	20
Boudh	35.2	-54
Cuttack	11.8	-83
Deogarh	19.4	-81
Dhenkanal	50.1	-17
Gajapati	64.5	70
Ganjam	37.3	17
Jagatsingpur	7.6	-83
Jajpur	14.2	-70
Jharsuguda	11.9	-88
Kalahandi	72.4	-6
Kandhamal	82.7	8
Kendrapara	22.4	-58
Keonjhar	22.0	-59
Khurda	30.9	-45
Koraput	51.5	-35
Malkangiri	91.3	3
Mayurbhanj	18.0	-72
Nawapara	20.5	-77
Nawarangpur	51.2	-48
Nayagarh	40.9	-41
Puri	6.3	-89
Rayagada	37.9	-27
Sambalpur	6.5	-94
Sonepur	37.3	-52
Sundargarh	15.6	-81

West Bengal		
GWB		
Bankura	29.9	-59
Birbhum	11.8	-83
Burdwan	1.6	-97
East Midnapore	4.0	-95
Hooghly	11.4	-84
Howrah	4.1	-94
Kolkata	0.0	-100
Murshidabad	15.3	-79
Nadia	15.7	-76
24 Pargana (N)	30.4	-60
Purulia	4.2	-95
24 Pargana (S)	14.5	-87
West Midnapore	2.0	-97
SHWB		
Cooch Behar	621.2	161
Darjeeling	221.9	50
East Sikkim	139.4	29
Jalpaiguri	608.5	154
Malda	17.4	-77
North Dinajpur	138.1	54
North Sikkim	299.8	227
South Dinajpur	16.1	-81
South Sikkim	94.6	-13
West Sikkim	308.0	236
Karnataka		
Coastal Karnataka		
Dakshin Kannada	386.6	47
Udupi	405.8	34
Uttar Kannada	279.8	23
N I Karnataka		
Bagalkote	13.4	-9
Belgaum	19.5	-61
Bidar	48.9	27
Bijapur	32.0	84
Dharwad	5.5	-84
Gadag	2.8	-80
Gulbarga	36.7	26
Haveri	17.3	-54
Koppal	24.8	129
Raichur	35.3	71
Yadgir	23.1	-16
S I Karnataka		
Bangalore Rural	9.0	-42
Bangalore Urban	17.5	-5
Bellary	14.6	8
Chamarajnar	15.2	-10
Chichballapur	8.3	-52
Chickmagalur	207.5	25
Chitradurga	8.4	-25

Davangere	23.1	14
Hassan	50.4	0
Kodagu	260.4	20
Kolar	3.4	-77
Mandya	4.5	-57
Mysore	16.4	-28
Ramnagara	28.1	58
Shimoga	232.5	62
Tumkur	5.5	-60
Kerala		
Alappuzha	161.4	14
Kannur	230.9	-14
Ernakulam	268.2	67
Idukki	272.5	44
Kasaragod	124.3	-51
Kollam	108.5	6
Kottayam	278.7	86
Kozhikode	257.6	14
Malappuram	278.6	43
Palakkad	213.0	50
Pathanamthitta	179.8	35
Thiruvananthapuram	63.1	10
Thrissur	195.2	-2
Wyanad	269.5	-2
Tamil Nadu		
Ariyalur	6.3	-52
Chennai	44.4	128
Coimbatore	46.4	296
Cuddalore	14.6	3

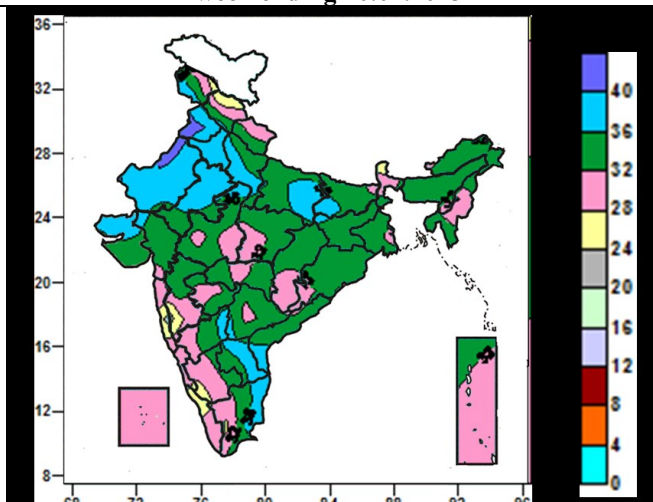
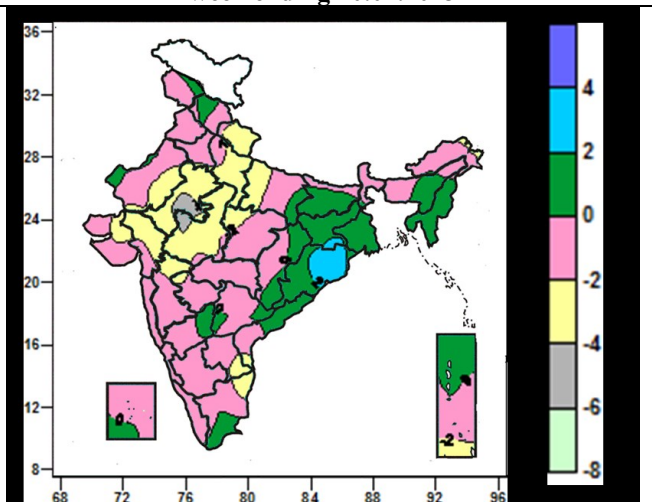
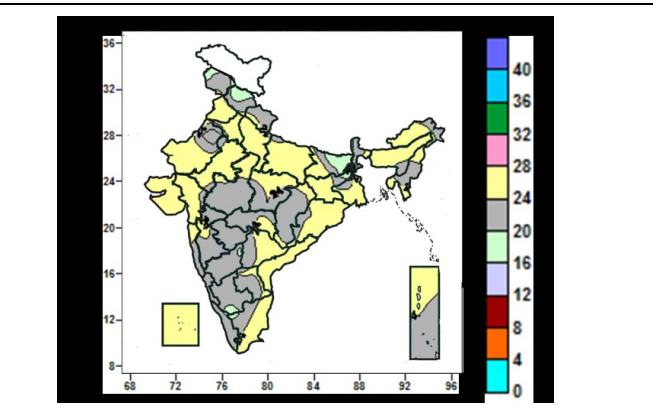
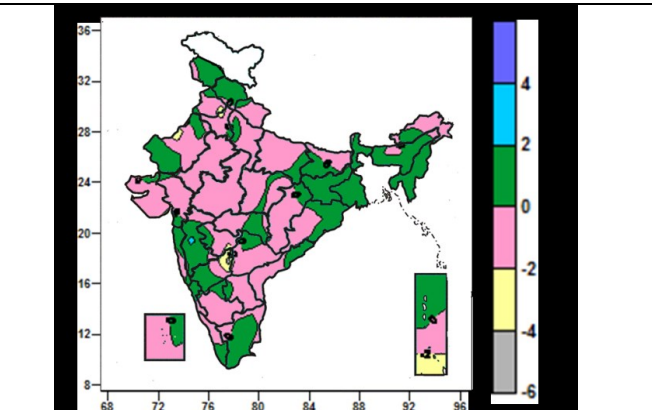
Dharmapuri	5.2	-71
Dindigul	1.7	-88
Erode	0.3	-97
Kanchipuram	22.4	24
Kanyakumari	22.7	-26
Karikal	33.1	285
Karur	0.0	-100
Krishnagiri	6.6	-63
Madurai	3.9	-71
Nagapattinam	14.7	34
Namakkal	8.0	-47
Nilgiris	55.9	-12
Perambalur	0.5	-94
Puducherry	27.4	117
Pudukottai	2.0	-89
Ramanathapuram	6.3	51
Salem	4.4	-80
Sivaganga	18.1	6
Thanjavur	8.8	-50
Theni	15.4	93
Tirunelveli	9.4	-12
Tirupur	0.0	-100
Tiruvallur	16.4	-17
Tiruvannamalai	15.8	-10
Tiruvarur	20.5	44
Toothukudi	0.0	-100
Trichy	1.3	-91
Vellore	16.7	-20
Villupuram	18.0	37

Virudhunagar	0.0	-100
Andhra Pradesh		
Coastal Andhra Pradesh		
East Godavari	89.1	97
Guntur	25.4	-22
Krishna	72.5	49
Nellore	50.0	203
Prakasam	25.8	25
Sirkakulam	16.4	-48
Visakhapatnam	27.5	-16
Vizianagram	37.3	5
West Godavari	94.9	77
Telangana		
Adilabad	72.4	10
Hyderabad	12.8	-63
Karimnagar	43.1	-23
Khammam	74.1	23
Mehabubnagar	27.7	-14
Medak	43.7	-4
Nalgonda	26.4	-11
Nizamabad	66.5	12
Rangareddy	24.2	-40
Warangal	94.8	64
Rayalaseema		
Anantapur	10.8	-20
Chittoor	11.9	-37
Cuddapah	41.4	126
Kurnool	52.7	117

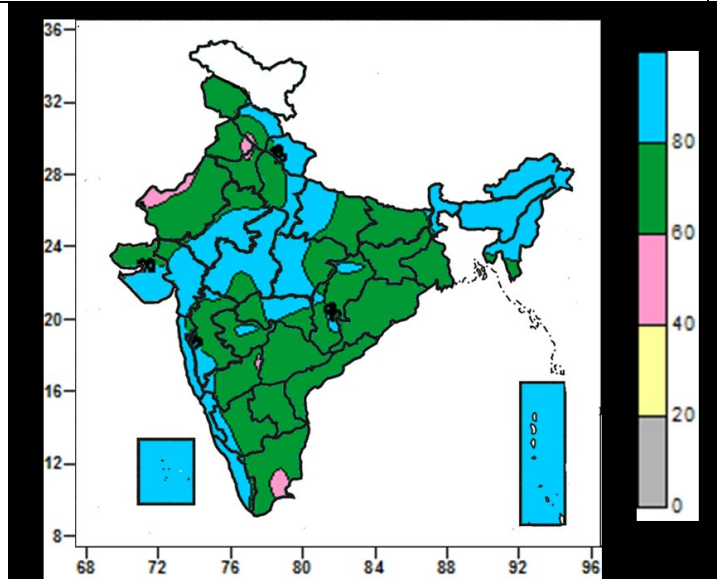
Legends

	(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

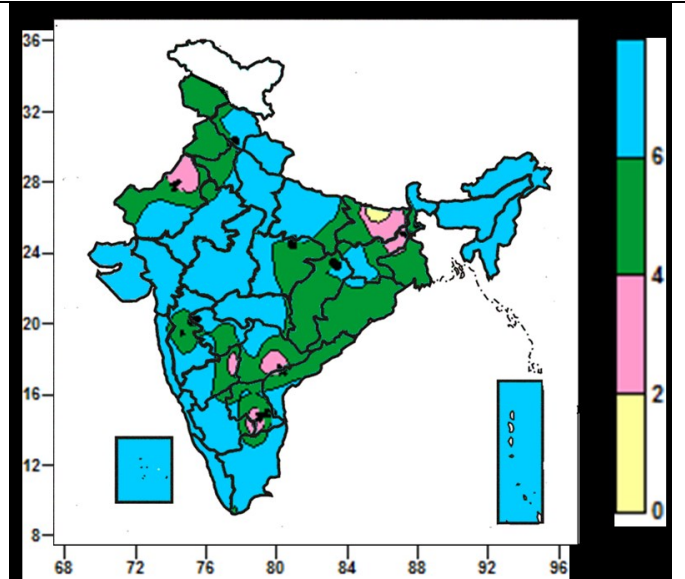
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 10.07.2013

Actual Mean Maximum Temperature (°C) in India for the week ending 10.07.2013	Mean Maximum Temperature (°C) Anomaly in India for the week ending 10.07.2013
 <ul style="list-style-type: none"> • 40 to 44°C over some parts of West Punjab, West Rajasthan. • 36 to 40°C over many parts of Punjab, Haryana, Delhi, Rajasthan, West Uttar Pradesh, Kutch, Rayalaseema, Coastal Tamil Nadu, some parts of Jammu & Kashmir, East Uttar Pradesh, Bihar, Jharkhand, Gujarat, Coastal Andhra Pradesh, Telangana, North Interior Karnataka. • 28 to 36°C over many parts of the country (except many Parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Kutch, Sikkim, Rayalaseema, Coastal Tamil Nadu, some parts of Jammu & Kashmir, Himachal Pradesh, Konkan & Goa, Madhya Maharashtra, Coastal & South Interior Karnataka, Kerala). • 24 to 28°C over many Parts of Sikkim, some parts of Jammu & Kashmir, Himachal Pradesh, Konkan & Goa, Madhya Maharashtra, Coastal & South Interior Karnataka, Kerala. 	 <ul style="list-style-type: none"> • 2 to 4°C over many parts of Orissa, some parts Jharkhand. • 0 to 2°C over many parts of Nagaland, Manipur, Mizoram, Tripura, Gangetic West Bengal, Bihar, Jharkhand, Chattisgarh, Odisha, some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, East Uttar Pradesh, Coastal Andhra Pradesh, Telangana, North Interior Karnataka, Tamil Nadu, Lakshadweep and Andaman & Nicobar Islands • -4 to 0°C over many parts of Northwest India, Sub-Himalyan West Bengal, Sikkim, Arunachal Pradesh, Central India (except eastern Chhattisgarh), West India, Karnataka, Telangana, Rayalaseema, South Coastal Andhra Pradesh, North Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands) • -6 to -4°C over many parts of some parts of East Rajasthan, West Madhya Pradesh
Actual Mean Minimum Temperature (°C) in India for the week ending 10.07.2013	Mean Minimum Temperature (°C) Anomaly in India for the week ending 10.07.2013
 <ul style="list-style-type: none"> • 24 to 28°C over many parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Jharkhand, Gangetic West Bengal, Assam & Meghalaya, Arunachal Pradesh, Nagaland, Odisha, Coastal Andhra Pradesh, Telangana, Gujarat, Saurashtra & Kutch, Tamil Nadu, Lakshadweep Islands, some parts of Bihar, Mizoram, Tripura, Central India, Konkan, Madhya Maharashtra, Rayalaseema, Andaman & Nicobar Islands. • 20 to 24°C over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sub-Himalyan West Bengal & Sikkim, Manipur, Mizoram, Central India, Maharashtra, Karnataka, Kerala, Andaman & Nicobar Islands, some parts of Rajasthan, Bihar, Jharkhand, Assam, Arunachal Pradesh, Gangetic West Bengal, Odisha, Tamil Nadu. • 16 to 20°C over some parts of Jammu & Kashmir, Himachal Pradesh, Bihar, Jharkhand, South Interior Karnataka, Tamil Nadu. 	 <ul style="list-style-type: none"> • 0 to 2°C over many parts of Northeast India (except Arunachal Pradesh), Jammu & Kashmir, Himachal Pradesh, Bihar, Jharkhand, West Bengal & Sikkim, Konkan & Goa, Madhya Maharashtra, Coastal & North Interior Karnataka, Tamil Nadu, Andaman & Nicobar Islands, some parts of Uttarakhand, Punjab, Haryana, West Rajasthan, Uttar Pradesh, Arunachal Pradesh, Marathwada, Vidarbha, Odisha, Chattisgarh, Andhra Pradesh, South Interior Karnataka, Kerala, Lakshadweep Islands. • -2 to 0°C over many parts of Northwest India (except Jammu & Kashmir, Himachal Pradesh, Arunachal Pradesh, Central India, Gujarat, Saurashtra & Kutch, Marathwada, Andhra Pradesh, South Interior Karnataka, North Kerala, Lakshadweep Islands, some parts of Bihar, Konkan, Tamil Nadu, Andaman & Nicobar Islands. • -4 to -2°C over some parts of Punjab, Haryana, Marathwada, North Interior Karnataka, Andaman & Nicobar Islands.

Relative Humidity (%) over India for the week ending 10.07.2013



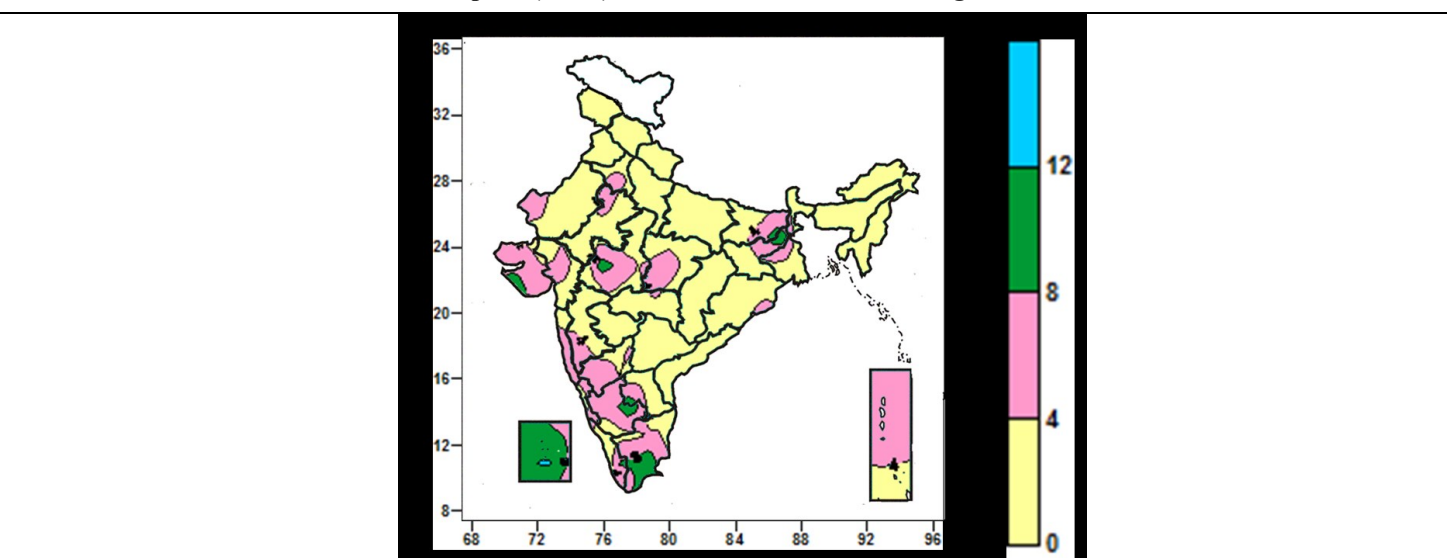
Cloud amount (okta) over India for the week ending 10.07.2013



- 80% and above over many parts of North East India, Sub-Himalayan West Bengal & Sikkim, Uttarakhand, Central Uttar Pradesh, East Rajasthan, Madhya Pradesh, West Coast from Saurashtra to Kerala, Lakshadweep & Andamn & Nicobar Islands, some parts of Himachal Pradesh, Chattisgarh, Madhya Maharashtra, Marathwda, Vidarbha, North & South Interior Karnataka.
- 60 to 80 % over many parts of country (except North East India, Sub-Himalayan West Bengal & Sikkim, Uttarakhand, Central Uttar Pradesh, East Rajasthan, Madhya Pradesh, West Coast from Saurashtra to Kerala, Lakshadweep & Andamn & Nicobar Islands, some parts of Himachal Pradesh, Chattisgarh, Madhya Maharashtra, Marathwda, Vidarbha, North & South Interior Karnataka).
- 40 to 60% over some parts of Punjab, Haryana, Himachal Pradesh, West Rajasthan, North Interior Karnataka and Tamil Nadu.

- 6 okta and above many parts of the country (except Jammu & Kashmir, Punjab, Haryana, Delhi, West Rajasthan, West Bengal, Chattisgarh, Odisha, Andhra Pradesh, Madhya Maharashtra, Marathwada, East Madhya Pradesh, some parts of North & South Interior Karnataka Bihar, Jharkhand, Vidarbha, Tamil Nadu).
- 4 to 6 okta over many parts of Jammu & Kashmir, Punjab, Haryana, Delhi, West Rajasthan, West Bengal, Madhya Maharashtra, Marathwada, Andhra Pradesh, North Interior Karnataka, some parts of East Rajasthan, Bihar, Jharkhand, Vidarbha, South Interior Karnataka, Tamil Nadu.
- 2 to 4 okta over some parts of West Rajasthan, Bihar, Jharkhand, North & South Interior Karnataka, Telengana, Rayalaseema.
- 0 to 2 okta over some parts of Bihar.

Wind speed (knots) over India for the week ending 10.07.2013



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

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 15th July, 2013)

- Rain/thundershowers would occur at most places along west coast and over Sub-Himalayan West Bengal & Sikkim.
- Rain/thundershowers would occur at most places over north Andhra Pradesh & many places over Interior Maharashtra during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at many places over Madhya Pradesh, Chhattisgarh & Gujarat region during next 24 hours and at most places thereafter.
- Rain/thundershowers would occur at many places over Uttarakhand, Uttar Pradesh, east Rajasthan, Bihar, Odisha, Jharkhand, Gangetic West Bengal, northeastern states, rest Andhra Pradesh, Andaman & Nicobar Islands and Lakshadweep.
- Rain/thundershowers would occur at a few places over rest parts of the country outside Jammu & Kashmir, Punjab, Haryana, West Rajasthan & Tamilnadu, where it would be at one or two places.

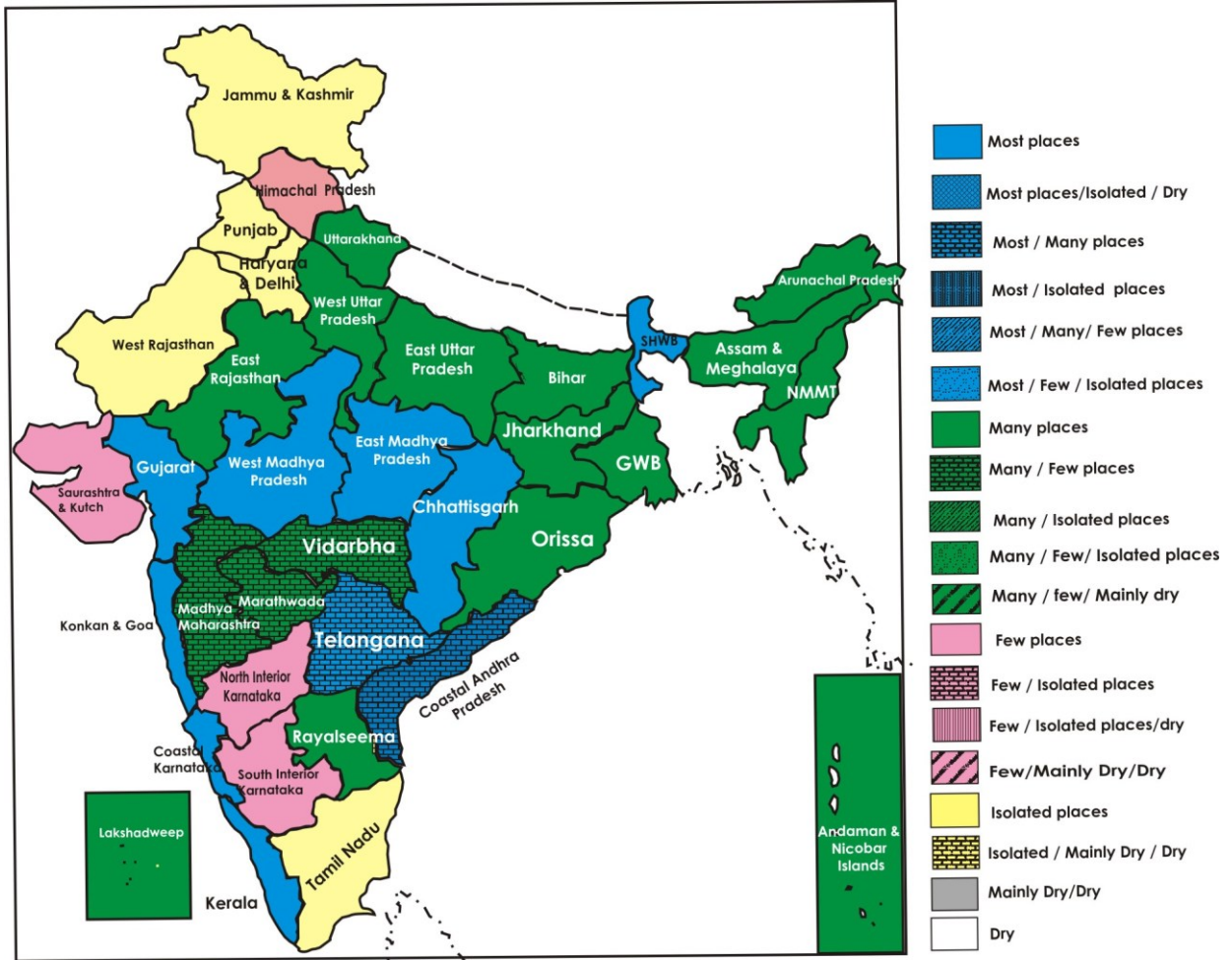
Weather Warning during next 3 days

- Heavy to very heavy rainfall would occur at one or two places over Konkan & Goa & coastal Karnataka during next 72 hours and over coastal Andhra Pradesh & Telangana during next 48 hours; heavy rainfall would occur at one or two places over Madhya Pradesh & Vidarbha during next 24 hours and heavy to very heavy rainfall would occur at one or two places thereafter. Heavy rainfall would occur at one or two places over Gujarat region during next 48 hours and heavy to very heavy rainfall would occur at one or two places thereafter.
- Heavy rainfall would occur at one or two places over Madhya Maharashtra, Kerala, Andaman & Nicobar Islands and Lakshadweep during next 72 hours. Heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim and east Uttar Pradesh during next 24 hours and over Odisha during next 48 hours.
- Heavy rainfall would occur at one or two places over Uttarakhand & east Rajasthan after 24 hours; over Marathwada & north interior Karnataka after 24 hours for subsequent 24 hours and over Saurashtra & Kutch after 48 hours.

Weather Outlook for subsequent 4 days from 15th to 19th July, 2013

- Rainfall would occur at most places along west coast and over Madhya Pradesh, Chhattisgarh and Vidarbha.
- Rainfall would occur at many places over Himachal Pradesh, Uttarakhand, Uttar Pradesh, east Rajasthan, Gujarat, Chhattisgarh, Sub-Himalayan West Bengal & Sikkim, northeastern states, Odisha, Lakshadweep and Andaman & Nicobar Islands.
- Rainfall would occur at a few places over Haryana, Bihar, Jharkhand and Gangetic West Bengal.
- Rainfall would occur at one or two places over rest parts of the country.

Weather Forecast Map (Valid upto 0830 hours of 15th July, 2013)



Zonewise Agromet Advisories

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

- **Realised Rainfall:** Significant rainfall has occurred in Uttarakhand except Haridwar district; Himachal Pradesh except Kinnaur, Lahaul and spiti, Shimla districts; East Rajasthan (except Sikar district); East Uttar Pradesh except Azamgarh, Banda, Jaunpur, Kanpur City, Kanpur Dehat, Kaushambi, Mau, RaiBareilly, Sultanpur districts; Agra, Aligarh, Auraiya, Badaun, Bareilly, Etawah, Firozabad, Jhansi, Jotirba Phule Nagar, Moradabad, Pilibhit, Rampur, Saharanpur, Shahjahanpur districts of West Uttar Pradesh; Jammu, Kathua, Rajouri, Reasi, Srinagar, Udhampur, Samba districts of Jammu & Kashmir; Amritsar, Bhatinda, Fatehgarh Saheb, Gurdaspur, Kapurthala, Ludhiana, Nawashahar, Patiala, Ropar, Mohali, TarnTaran districts of Punjab and Ambala, Chandigarh, Karnal, Panchkkula, Yamunanagar districts of Haryana.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Uttar Pradesh, east Rajasthan, Uttarakhand, at a few places over Himachal Pradesh and at one or two places over Jammu & Kashmir, Punjab, Haryana, West Rajasthan.
- **Weather Warning:** Heavy rainfall would occur at one or two places over east Uttar Pradesh during next 24 hours and over Uttarakhand, east Rajasthan after 24 hours.
- **Advisory :**
 - As rain / thundershowers would occur at many places along with heavy rainfall at one or two places over Uttarakhand after 24 hours, farmers in the Hill Zone of Uttarakhand, are advised to postpone nursery sowing of rice, sowing of soybean, groundnut, millets, pigeon pea, horse gram and French bean. Provide adequate drainage in already sown crop fields. Continue transplanting of rice.
 - As rain / thundershowers would occur at many places along with heavy rainfall at one or two places over East Uttar Pradesh during next 24 hours, farmers are advised to postpone sowing of maize, jowar, groundnut arhar, moong, urad and nursery sowing of rice. Provide adequate drainage in already sown crop fields. Farmers are advised to continue sowing of maize, jowar, groundnut arhar, moong, urad and nursery sowing of rice in west Uttar Pradesh. In Central Plain Zone of Uttar Pradesh, farmers are advised to complete transplanting of medium and late maturing paddy varieties in first fortnight and early maturing in second fortnight of this month.
 - In Sub-Tropical Zone of Jammu & Kashmir, farmers are advised to continue sowing of maize, undertake nursery sowing of Basmati rice, direct sowing of rice and transplanting of rice, early varieties of brinjal, chillies, cauliflower. Also advised to drain out the excess water from field of maize and pulse crops.
 - In Intermediate Zone of Jammu & Kashmir, farmers are advised to undertake sowing of groundnut, continue sowing of maize and transplanting of rice. Also advised to undertake nursery sowing of cabbage, carrot and transplanting of knol-khol and cabbage. Advised to drain out excess water from crop fields. In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to continue transplanting of rice, sowing of moong bean.
 - In Mild Hills Sub Humid Zone & Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised to continue transplanting of the rice crop, continue direct sowing of cucurbits viz. khira, bitter gourd, tori in main field. Also advised to undertake sowing of potato in Hill zone.
 - In Bhabar and Tarai Zone of Uttarakhand, farmers are advised to continue transplanting of rice during this week. Farmers in Sub-humid and Sub-Tropic Zone of Uttarakand are advised to ensure proper bunding of field to conserve soil, water and nutrient from runoff loss and transplanting of 21 days old rice nursery. Also advised to ensure proper drainage in vegetable fields to facilitate better aeration in the root zone of vegetable crops.
 - Farmers in Delhi are advised to continue sowing of maize, fodder sorghum, bajra, moong and cucurbits and to undertake transplanting of brinjal, chilli and early cauliflower of ready seedlings. Also advised to transplant rice seedling in prepared fields. Avoid water logging by providing proper drainage in maize, pulses and vegetables crops.
 - Farmers in Western Zone of Punjab are advised to complete transplanting with irrigation facilities and apply second dose of urea at the rate of 33 kg per acre to desi cotton varieties and 65 kg per acre to Bt and non Bt hybrids cotton crop.
 - Farmers in Haryana are advised to continue transplanting of rice with irrigation facilities and continue sowing of bajra, guar in Western Zone.
 - In East Rajasthan, farmers are advised to postpone sowing of groundnut, maize, soybean, castor, peal millet, sorghum, green gram, cow pea, cluster bean and sowing of rainy season cucurbits, as rain / thundershowers would occur at many places along with heavy rainfall at one or two places after 24 hours. Continue new planting of fruit trees and transplanting of chilli. In West Rajasthan, it is advised to continue sowing of bajra utilizing realized rainfall.

- As the weather is congenial for spread of fruit rot in tomato, chilli and capsicum in Mild Hills Sub Humid Zone & Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised to apply Dithane M-45 @ 2-3 g per litre of water in 10-15 days interval on a non rainy day.
- 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. Normal feeding schedule should be continued and add mineral in the diet if stress is seen.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in many districts of Madhya Pradesh except Chhatrapur, Narsinpur, Panna, Rewa, Shahdol, Sidhi, Tikamgarh, Umaria, Ashoknagar, Bhopal, Datia and Shivpuri and in most districts of Chhattisgarh except Kanker, Bijapur, Korba, Mahasumund, Narayanpur, Raipur, Surguja during the week.
- **Weather forecast:** Rain/thundershowers would occur at many places over the region.
- **Weather Warning:** Heavy rainfall would occur at one or two places over Madhya Pradesh during next 24 hours and heavy to very heavy at one or two places thereafter.
- **Advisories:**
 - As rain/thundershowers would occur at many places with Heavy rainfall would occur at one or two places over Madhya Pradesh during next 24 hours and heavy to very heavy at one or two places thereafter, farmers in Madhya Pradesh 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, farmers are advised to continue sowing of soybean, maize, jowar, arhar and groundnut, sowing of *kharif* vegetables and nursery raising of tomato, brinjal, chilli.
 - In Chhattisgarh Plain Zone and North Hill Plain Zone, farmers are advised to continue transplanting of rice.
 - Farmers in Bastar Plateau Zone of Chhattisgarh farmers are advised to continue upland sowing of rice, ragi and kodomillet crops.
 - 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 present weather condition favorable for attack of mouth and jahari fever in cattle, therefore vaccinate them against this disease.

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

- **Realised Rainfall:** Significant rainfall occurred in all districts of Sikkim; in North 24 Parganas and Bankura districts of Gangetic West Bengal; in most of the districts of Sub Himalayan West Bengal except South Dinajpur and Malda; in many districts of Bihar except Aurangabad, Banka, Bhabua, Gopalganj, Madhubani, Nalanda, Nawada, Patna and Vaishali; in most of the districts of Odisha except Angul, Balasore, Bargarh, Bhadrak, Cuttack, Deogarh, Jagatsinghpur, Jajpur, Jharsuguda, Kendrapara, Keonjhar, Mayurbhanj, Nawapara, Puri, Sambalpur and Sundargarh; in Chatra, Godda, Gumla, Koderma, Latehar, Lohardaga, Pakur and Palamau districts of Jharkhand.
- **Weather Forecast:** Rain/thundershowers would occur at most places over Sub-Himalayan West Bengal & Sikkim, at many places over Bihar, Odisha, Jharkhand and Gangetic West Bengal.
- **Weather Warning:** Heavy rainfall would occur at one or two places over Sub-Himalayan West Bengal & Sikkim during next 24 hours and over Odisha during next 48 hours.
 - 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 during next 24 hours, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also provide adequate drainage in crop fields in these States.
 - As rain / thundershowers would occur at many places over Odisha along with heavy rainfall at one or two places during next 48 hours, farmers are advised to postpone sowing of maize, arhar, groundnut, cotton, pulses and fruit crops, nursery sowing of rice and direct sowing of rice.
 - 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 and kulthi.
 - In South Bihar Alluvial Zone, farmers are advised to continue nursery sowing of rice, sowing of maize and small millets, vegetable crops and *kharif* fodder. Undertake planting of banana and papaya and *kharif* onion.

Undertake sowing of hybrid napier in upland and para grass in lowland areas. Complete the sowing of ginger and turmeric if not sown earlier. Prepare the wet nursery bed for sowing of short duration and medium duration varieties of rice and scented rice. Napier grass can be sown on bund of the irrigation canal.

- In Jharkhand, farmers are advised to continue nursery sowing of rice and direct sowing of rice and 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. Undertake interculture operation on a non rainy day to control weeds in different *kharif* crops like rice, urad, groundnut, arhar, maize, mung etc. After weeding, broadcast urea as per their requirement on a non rainy day. Farmers are advised to provide adequate drainage system in all crops field except rice.
- Farmers in New Alluvial Zone Terai Zone and Old Alluvial Zone of West Bengal are advised to undertake transplanting of *Aman* rice and land preparation for planting of banana suckers in New Alluvial Zone of West Bengal.
- Farmers in Laterite and Red Soil Zone, Coastal Saline Zone of West Bengal are advised to complete the sowing of wet seeded *Aman* rice and prepare main field for transplanting of wet seeded *Aman* rice.
- Farmers in Laterite and Red Soil Zone of West Bengal are advised to continue sowing of maize and undertake land preparation for sowing of pigeon pea.
- 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 states of the region except Lower Subansari, Upper Subansari districts of Arunachal Pradesh, Darrang, Kamrup(Rural), Karbi Anglong, Nowgaon districts of Assam, East Garo Hills, West Khasi Hills and South Garo Hills districts of Meghalaya, Churachandpur, Ukhrul districts of Manipur; Aizwal, Kolasib, Mamit, Serchhip districts of Mizoram, Dimapur, Mokokchung and Wokha districts of Nagaland. Significant rainfall occurred in North Tripura district of Tripura.
- **Weather Forecast:** Rain/thundershowers would occur at many places over the northeastern states.
- **Advisories:**
 - Farmers are advised to continue nursery sowing of *sali* rice, sowing of pigeon pea, sesame and *Olitorius* jute in Assam. Farmers are also advised to arrange adequate drainage to avoid stagnation of water in the crop fields.
 - Farmers are advised to continue transplanting *sali* rice Assam, transplanting of WRC rice in Arunachal Pradesh, transplanting of *kharif* rice in Manipur, transplanting of *jhum* rice in Mizoram.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to continue transplanting of early sown *aman* rice and planting of banana.
 - Farmers in Barak Valley Zone and Upper Brahmaputra Valley Zone of Assam are advised to continue transplanting of *sali* rice seedling from nursery bed to the main field.
 - Farmers in North Bank Plain Zone 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.
 - Due to low rainfall (31% deficient from normal) in Central Brahmaputra Valley Zone in the month of June, medium duration (130-135 days) *sali* rice varieties are to be grown. Seeds of such varieties can be sown upto 20th July and 25-30 days old seedlings can be transplanted till 15-20 August.
 - Farmers in North Bank Plain Zone, Upper Brahmaputra Valley Zone and Barak Valley Zone of Assam are advised to harvest *ahu* rice in fair weather.
 - Farmers are advised to postpone the harvesting of mature cobs in Sub Tropical Hill Zone of Arunachal Pradesh as rain is expected at many places.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised to continue sowing of black gram.
 - Farmers in Mild Tropical Hill Zone of Nagaland are advised to complete transplanting of low land rice.
 - 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 sheath.
 - 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 31 @ 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.
 - Monsoon weather is conducive for Panama wilt in banana in Mild Tropical Plain Zone of Tripura. Farmers are advised to drench with Bavistin 1g 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, severe damage of cucurbits due to fruit fly in present weather is reported, farmers are advised to collect/deep bury (at least 4 feet deep) of infected fruit, installation of pheromone traps, if extreme damage is noticed spraying of Malathion @ 3ml per litre of water is advised. Also 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 on a clear day is advised.

➤ Stages of major crops are mentioned in Annexure I.

➤ Varieties are mentioned in Annexure II.

• **Animal Husbandry**

➤ In Sub Tropical Hill Zone of Arunachal Pradesh, in present weather conditions, farmers are advised to mix anticoccidiosis in the feed of poultry and do proper vaccination with Briben Plus at recommended dose.

➤ As the weather is warm and humid in Mild Tropical Hill Zone of Nagaland, farmers are advised to maintain good ventilation in poultry house and avoid overcrowding.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

• **Realised Rainfall:** Significant rainfall occurred in all the districts of Gujarat State except Banaskantha district in Gujarat region and Amreli district in Saurashtra and Kutch region, all the districts of Konkan, Madhya Maharashtra except Sangli and Ahmednagar, Marathwada except Aurangabad, Beed, Jalna and all districts of Vidarbha in Maharashtra during last week.

• **Weather Forecast:** Rain / thundershowers would occur at most places along Konkan & Goa; at many places over Interior Maharashtra during next 48 hours and decrease thereafter, at many places over Gujarat region during next 24 hours and at most places thereafter and at a few places over Saurashtra & Kutch.

• **Warning:** Heavy to very heavy rainfall would occur at one or two places over Konkan & Goa during next 72 hours and heavy subsequent 24 hours, heavy to very heavy rainfall at one or two places over Vidarbha during next 24 hours and heavy to very heavy would occur at one or two places thereafter; heavy rainfall at one or two places over Madhya Maharashtra during next 72 hours; over one or two places after 24 hours in Marathwada; one or heavy rainfall would occur at one or two places over Gujarat region during next 48 hours and heavy to very heavy rainfall at one or two places thereafter; heavy rainfall would occur over Saurashtra & Kutch after 48 hours.

• **Advisories:**

➤ In Maharashtra, farmers are advised to undertake transplanting of *kharif* rice in Konkan, Farmers are also advised to arrange adequate drainage to avoid stagnation of water in nursery beds of rice and finger millets as well as in mango, cashew and sapota orchards as rain would occur at most places along with heavy to very rainfall at one or two places during next 72 hours.

➤ As rain would occur at many places along with heavy rainfall at one or two places during next 72 hours in Madhya Maharashtra, postpone sowing of *kharif* jowar, bajra, groundnut, soybean and cotton and planting of banana.

➤ In Vidarbha, as rain would occur at many places along with heavy rainfall at one or two places during next 24 hours and heavy to very heavy rainfall would occur at one or two places thereafter, postpone sowing of jowar, soybean, red gram. Farmers are also advised to postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in already sown crops in these regions. Undertake transplanting of 21 days old seedlings of rice in Gondia, Bhandara, Gadchiroli and Chandrapur districts.

➤ Farmers are advised to postpone sowing of *kharif* jowar, soybean, cotton, red gram, green gram and black gram and planting of turmeric and ginger in Marathwada, as rain would occur at many places along with heavy rainfall at one or two places during next 24 hours.

➤ In Gujarat region, as rain would occur at many places along with heavy rainfall at one or two places during next 48 hours and heavy to very heavy rainfall would occur at one or two places thereafter, farmers are advised to postpone sowing of cluster bean, sesame, bajra, pulses etc. Farmers are also advised to postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops of groundnut, cotton, pulses, sesame, pearl millet, maize and vegetable nurseries. In view of occurrence of heavy to very heavy rainfall, also arrange for adequate drainage in already sown crops to avoid water stagnation in the fields.

➤ Undertake transplanting of rice in Middle Gujarat and South Gujarat Heavy Rainfall Zone.

➤ In Saurashtra & Kutch region, continue sowing of guar, groundnut, cotton, pulses and pearl millet.

➤ Farmers in Western Ghat region and Western Pune region are advised to continue transplanting of *kharif* rice seedlings in main rice field.

- Farmers in Kolhapur region are advised to prepare main rice field and continue the transplanting of 21-25 days old seedlings of early maturing rice, 23-27 days old seedlings of mid-late varieties and 25-30 days old seedlings of late maturing rice.
 - Taking the advantage of realized rainfall, farmers are advised to complete preparatory tillage for the planting of adsali sugarcane on a non rainy day.
 - In view of rainfall forecast in Middle Gujarat Zone, farmers are advised to continue transplanting of rice, and continue sowing of green gram. Postpone application of irrigation and fertilizers in standing vegetables.
 - Continue transplanting of kharif rice and vegetables in South Gujarat Heavy Rainfall Zone. Undertake planting of mango, sapota orchard and drain out excess water from low land areas.
 - Prevailing cloudy and rainy weather with minimum temperature 20-23°C and humidity above 70 % is congenial for the incidence of buck eye rot in tomato in Pune region; spray Metalaxin M.Z. @ 2 g per litre of water with sticker after current spells of rain.
 - Due to cloudy and rainy weather, there may be attack of apex and fruit borer in brinjal in Western Maharashtra Scarcity Zone; collect infested fruits and apex and destroy it and for control, spray 4 % Neemark or Profenophos @ 20 ml per 10 litres of water after current spells of rain.
 - Due to subdued rain during last 3-4 days in some parts of Sindhudurg district, there may be attack of army worm in rice nursery, spray 0.07 % Cypermethrin (3 ml/10 litres of water), after current spells of rain as heavy to very heavy rain is expected during next 3 days.
 - Cloudy weather in Middle Gujarat Zone is favourable for outbreak of sucking pests in kharif vegetables; spray Dimethoate (40%) or Methyl-o-Demonate (25%) @ 10 ml in 10 liters of water after current spells of rain.
 - Due to cloudy weather in South Gujarat Zone, there are chances of incidences of sucking pests in cotton; farmers are advised to spray Emidacloprid 4 ml (200 SL) per 10 liters of water, if noticed after current spells of rain.
 - Stages of the crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure II.
- **Animal Husbandry**
 - Farmers in Gujarat are advised to keep animals indoor during rain. Spray phenyl in the animal shed to avoid flies and mosquitoes.

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

- **Realised Rainfall:** Significant rainfall occurred in most of the districts of Coastal Karnataka; Bidar, Bijapur, Gulbarga and Raichur districts in North Interior Karnataka; Chickmagalur, Hassan, Kodagu and Shimoga districts in South Interior Karnataka; most of the districts in Kerala; Chennai, Coimbatore, Karaikal and Nilgiris districts in Tamil Nadu; East and West Godavari, Krishna, Vizianagaram districts in Coastal Andhra Pradesh; Cuddapah and Kurnool districts in Rayalaseema; Adilabad, Karimnagar, Khammam, Medak, Nizamabad and Warangal districts in Telangana. No significant rainfall occurred in the remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at most places along Coastal Karnataka and Kerala; at most places over north Andhra Pradesh during next 48 hours and decrease thereafter; at many places over rest Andhra Pradesh, Andaman & Nicobar Islands and Lakshadweep. Rain/thundershowers would occur at a few places over rest parts of the region outside Tamil Nadu where it would be at one or two places
- **Weather Warning:** Heavy to very heavy rainfall would occur at one or two places over Coastal Karnataka during next 72 hours, Coastal Andhra Pradesh and Telangana during next 48 hours. Heavy rainfall would occur at one or two places over Kerala during next 72 hours; over north interior Karnataka after 24 hours.
- **Advisories:**
 - In Kerala, farmers are advised to postpone planting of banana, sowing / transplanting of vegetables, as rainfall is expected at most places along with heavy rainfall at one or two places; also provide drainage in already planted banana and vegetable crop fields and arrange for mechanical support to bunched banana. Continue transplanting of Virippu rice.
 - Farmers in the Coastal Andhra Pradesh and Telangana are advised to postpone sowing of kharif crops and to provide propping up in sugarcane and staking of vegetables, to prevent the crops from lodging as rainfall is expected at most places with heavy to very heavy rainfall at one or two places over the region. Provide drainage in already sown maize, groundnut and pulses.
 - In the Coastal Zone of Karnataka, farmers are advised to continue transplanting of kharif rice.
 - Farmers in the Eastern Dry Zone of Karnataka are advised to continue sowing of direct seeding of rice and ragi.
 - Early sown *kharif* crops are recovering from moisture stress due to receipt of moderate to rather heavy rainfall at many places in the North Dry Zone of Karnataka during the past week. Farmers who have not

undertaken sowing till date are advised to undertake sowing of bajra, groundnut (spreading type), red gram, sesamum, niger, navane, castor, horse gram, onion, cucumber and ridge gourd.

- Farmers in the North Transition Zone of Karnataka are advised to continue the sowing activity of Bt. Cotton and soybean till 1st fortnight of July and maize and groundnut till the end of this month.
 - Farmers in the North East Dry Zone of Karnataka are advised to continue sowing of groundnut, castor, red gram, bajra and with short duration green gram and black gram for intercropping.
 - Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to continue transplanting of *Kuruvai* rice in Thanjaur, Trichy, Nagapattinam and Thiruvarur districts of Cauvery Delta Region with irrigation facilities.
 - In the Scarce Rainfall Zone of Andhra Pradesh, farmers are advised to undertake sowing of groundnut, red gram, bajra and cotton, since sufficient rainfall occurred for sowing of these rainfed crops.
 - Farmers in the Southern zone of Andhra Pradesh are advised to continue sowing of groundnut and nursery sowing of rice.
 - Since sorghum crop is at flowering stage and moderate rainfall is likely to occur in the Western Zone of Tamil Nadu, smut infestation may occur in sorghum ear heads. Farmers are advised to monitor the incidence and take plant protection measures.
 - The present weather is most conducive for the incidence of bud rot, rhinoceros beetle, red palm weevil and leaf rot diseases in coconut and leaf fall diseases in nutmeg in the Problem Area Zone of Kerala. Farmers are advised to undertake proper field surveillance, plant protection measures, provide adequate drainage to newly planted seedlings and postpone spraying of Bordeaux mixture with sticker to prevent leaf fall diseases after current spells of rain.
 - High humidity favours incidence of sigatoka leaf spot in banana in the Southern Zone of Kerala. Farmers are advised to undertake phytosanitation, postpone application of 1% Bordeaux mixture or tilt 1ml/l or contaf 2ml/l to control sigatoka leaf spot incidence, also take preventive measures against bud rot in coconut and pseudo stem borer in varieties other than Nendran banana after current spells of rain.
 - Due to cloudy weather prevailing in the Southern Zone of Andhra Pradesh, there is a chance of incidence of sucking pest in early sown crop of cotton. Farmers are advised to spray Acetomfried @ 0.2g or Imidachloripid @ 0.4 ml per litre of water after current spells of rain.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure II
- **Animal Husbandry:**
 - Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to undertake vaccination of animals against FMD, Brucellosis, Haemorrhagic Septicaemia, Anthrax and small ruminants against PPR and Sheep and Goat Pox.

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 (nursery sowing / transplanting), ginger (vegetative), autumn sugarcane (vegetative), oat (ear head emergence/pod maturity), moong, urad (pod maturity/harvesting), 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 and early cauliflower (transplanting), maize (sowing), rice(transplanting) 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), soybean / arhar (sowing/seedling) in Punjab.
- New sugarcane (vegetative), cotton (sowing/germination), rice (nursery raising/ transplanting) in Haryana.
- Rice (nursery / transplanting), groundnut (field preparation / sowing), cotton (field preparation / 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 (seedling / transplanting), 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, (nursery sowing / sowing), maize(sowing/germination), sugarcane (early vegetative / tillering), onion, urad (sowing), yam (vegetative) in Bihar.
- *Kharif* rice (nursery sowing), soybean, maize, urad, arhar, marua (sowing), onion (vegetative), ginger and turmeric (planting), *kharif* vegetables viz. bhindi, bean, French bean, tomato, cauliflower, cabbage etc. (sowing) in Jharkhand.
- Rice (direct sowing / nursery sowing), pigeon pea, groundnut, ragi, arhar, maize, cotton and *kharif* vegetables (sowing), turmeric, ginger, fruit crops (planting), Jute (active vegetative), turmeric, ginger, yam (planting / early vegetative), sugarcane (tillering), banana (vegetative), cowpea (pod maturity / harvesting), tomato (fruiting / harvesting), summer vegetables (fruiting / harvesting), vegetables (planting), sunflower (maturity/harvesting) in Odisha.
- *Aus rice* (flowering), *aman* rice (seedling/transplanting), maize (sowing), ginger, turmeric (planting), pigeon pea (transplanting), summer vegetables (fruiting / harvesting), jute (vegetative), tomato (fruiting / harvesting), brinjal, bitter gourd, pointed gourd, ladies finger (fruiting / harvesting), chilli (fruiting / harvesting), mango (fruiting / harvesting), litchi (fruiting / harvesting), banana(flowering/fruting) in West Bengal.
- Ginger (vegetative), large cardamom (secondary flowering), *kharif* vegetables (sowing/transplanting) 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), *Capsularis* jute (harvesting), *Olorius* jute (sowing/ early vegetative), pigeon pea (sowing), sesame (sowing), *kharif* vegetables (sowing / transplanting), maize (active vegetative), ginger, turmeric (early vegetative/vegetative), cucurbits (vegetative / fruiting) and banana (fruiting / maturity / harvesting) in Assam.
- *Jhum* rice (tillering), main WRC rice (transplanting), early WRC rice (tillering), maize (cob maturity / harvesting), green gram, black gram (pod formation/ harvesting), okra (fruiting / 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), maize (cob maturity / harvesting), groundnut and soybean (vegetative), turmeric, ginger (vegetative), black gram, rice bean (sowing/ early vegetative), banana (planting), cowpea, okra (sowing), cucurbits (fruiting / harvesting) in Manipur.
- *Kharif* maize (tasselling / cob formation), *ahu* rice (grain formation / maturity), *sali* rice (transplanting / tillering), turmeric, ginger (vegetative), pigeon pea (sowing), cucurbits (vegetative / fruiting) in Meghalaya.
- Maize (active vegetative), *jhum* rice (nursery sowing / transplanting), groundnut (sowing / early vegetative), banana (vegetative), summer okra (flowering / fruiting / harvesting), 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 (transplanting/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 South Konkan and seedling/transplanting in Kolhapur, Nasik (ghat), Pune(west) region and seedlings in East Vidarbha, jowar & cotton (sowing/ germination/early vegetative in Madhya Maharashtra, Marathwada, Vidarbha), bajra (sowing/germination/early vegetative in Madhya Maharashtra and Marathwada), soybean, groundnut(germination/early vegetative in Madhya Maharashtra, Marathwada, Vidarbha) green gram, black gram (germination/ early vegetative in Marathwada), Sugarcane adsali and pre seasonal (active tillering /elongation), suru (tillering), New adsali (plantation in Marathwada and land preparation in Madhya Maharashtra).
- *Kharif* rice (seedling / transplanting), pearl millet (sowing / germination / tillering), sesame (sowing / germination /early vegetative), groundnut, cotton (sowing / germination / 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 (seedling/vegetative), pigeon pea, Bt.cotton, bajra, castor, jowar (sowing), groundnut (sowing/seedling), red gram (sowing), sugarcane (tillering/ grand growth), rice (nursery sowing), rainfed sugarcane (land preparation/planting), and vegetables (sowing/early vegetative) in Andhra Pradesh.
- Summer crops: Black gram (harvest), pulses (maturity/harvest), cotton (harvest), sesame (maturity/harvest), maize (vegetative/flowering), sorghum (flowering/ grain formation), groundnut (pegging), *kharif* crops: *kuruvai* rice (transplanting), groundnut (sowing/germination), sugarcane (grand growth) and pulses (vegetative), irrigated cotton (boll maturity), irrigated groundnut (pod development) in Tamil Nadu.
- *Viruppu* rice (transplanting/early vegetative), arecanut (flowering/nut formation), sugarcane (tillering), rainfed banana (planting), rubber (tapping/planting), summer vegetables (fruiting/harvest), *Kharif* vegetables (sowing/transplanting), 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/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 sughanda 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.

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

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.

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: GPK-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, Hatikhoj, 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

Fruit Crops:

Mango- Banganpalli, Totapuri, Subarnnarekha, Nilam, Langrah, Dasheri, Amrapalli.

Banana- Kabuli, Robusta, Patakapura, Champa, Gaja bantala, Batisha bantala.

Guava- Allahabad Safed.

Lucknow –49, Banarasi Seedless.

Papaya- Kurg honeydew, Coimbatore-1& 2, Pusa Delicious, Pusa Majesty.

Coconut- Eastcoast Tall, Westcoast Tall, Andaman, Lakhyadeep, Java, Fiji.

Pine apple- Que, Queen, Simachalan and Maricius.

Cashew nut- Vengrulla 1.4, BPP-4, Bhubaneswar-1 and Hybrid-2-17.

Jackfruit- Kadua, Khajra and Singapore.

West Bengal

Arum: BCC-17, BCC-33, BCC-02, BCC-01, BCC09.

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.

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 GHB 558, Shraddha, Saburi and Pratibha for Marathwada.

Kharif groundnut: SD 11, Phule Pragati, Phule Vyas, Phule Unap, TPG 41, TG 26.

Red Gram: ICPL 87, Vipula, BSMR-853, BSMR-736, AKT 8811, 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.

Sunflower: EC-68414, SS-56 and Bhanu.

Soybean: JS-335, Phule Kalyani (DS-228) for North Madhya Maharashtra, MAUS 71, MAUS 158, JS-335 for Marathwada.

Kharif Rice: PKV HMT, PKV Khamang, PKV Makarand, PKV Ganesh, Sindewahi 2001 for East Vidarbha.

Kharif Cotton: Improved variety – AKA-5, AKA-7, AKA-8, American improved variety – AKH-081, PKV Rajat, AKH-8828 for Central Vidarbha Zone.

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.

Sesame: G.til-1, G.til-2.

Cluster bean: G.Guar-2.

Kerala

Bananas: Robusta, Poovan, Njalipoovan, Palayankodan

Karnataka:

Red gram: TTB-7, BRG-1, BRG-2 (For Eastern Dry Zone)
TS-3R (For North Dry Zone)

Maize: DMH-2 and Arjun

Groundnut: Bunch type of varieties – GPBD-4, JL-24 and TMV-2 (Use 125 kg seeds/ha (i.e 50 kg seeds per acre)

Spreading type of varieties – DSG-1 and JSP-39 (Use 75 kg seeds per hectare (i.e 30 kg seeds per acre)

Soybean: JS-335 (Use 75 kg seeds/ha)

Cotton: DHH-11, NCH-145, NHH-44, DHB-105 and Sahana.

Tur: (Medium to Long Duration) PT-221, GS-1, ICP-8863 (Maruti), ICPL-87119 (Asha), WRP-1 & Short Duration var: like ICPL-87 (Pragati), GCS-11-39 (Zone-2)

Andhra Pradesh:

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

Urad bean - LBG 752, Lbg 20, PU 31, T9, LBG 623

Redgram – 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.

Rice- Swarna, Sonamashuri, Sambamashuri and ragi with varieties Bharati, Srichaitanaya, Hima.