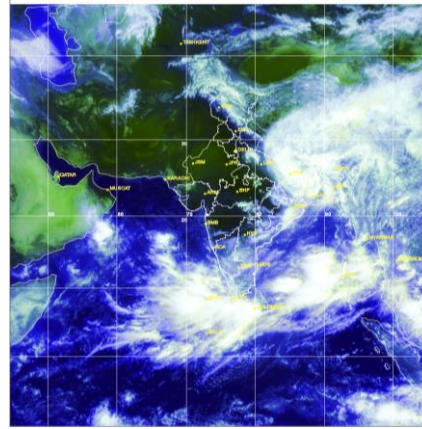
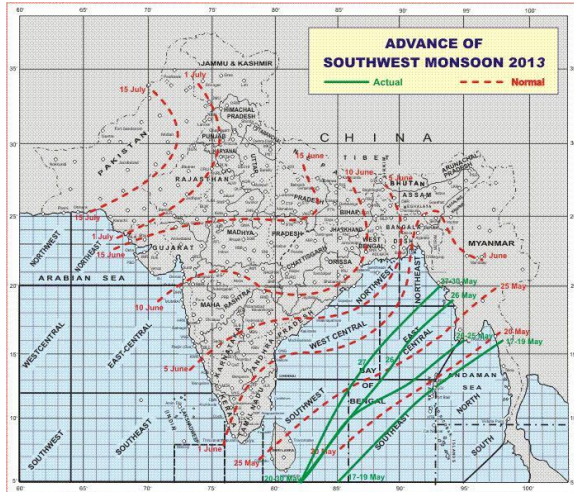


Monsoon Watch

- The northern limit of monsoon (NLM) continues to pass through Lat 5.0°N/Long 82.0°E, Lat. 11.0°N/ Long. 85.0°E, Lat. 15.0°N/Long. 88.0°E, Lat. 18.0°N/Long. 91.0°E and Lat. 20.0°N/Long. 91.0°E.
- Conditions are becoming favourable for onset of monsoon over Kerala during next 3-4 days.
- Conditions are also favourable for the further advance of southwest Monsoon into some parts of south Arabian Sea, Maldives Comorin areas and some more parts of Bay of Bengal during next 48 hours.



Satellite image 0600 UTC dated 31st May, 2013

Salient Advisories for the Early Kharif Crops

Following advisories are issued to the farmers based on the likely onset of Southwest Monsoon and realized rainfall due to the pre-monsoon thundershowers.

- **Assam:** Land preparation and nursery sowing of *Sali* rice.
- **Arunachal Pradesh:** Nursery sowing of WRC (Wet land Rice Cultivation) rice.
- **Meghalaya:** Nursery sowing of *sali* rice.
- **Mizoram:** Nursery sowing of *jhum* rice, sowing of maize, groundnut.
- **Manipur:** Nursery sowing of rice and sowing of cucurbitaceous vegetables, maize, and groundnut.
- **Tripura:** Nursery bed preparation of *Aman* rice
- **West Bengal:** Land preparation for sowing of *Aman* rice in Gangetic West Bengal and nursery sowing of vegetables in Sub-Himalayan West Bengal.
- **Odisha:** Sowing of maize, land preparation for sowing of rice.
- **Kerala:** Land preparation and nursery sowing of *virippu* rice, sowing of direct seeded rice.
- **Coastal Andhra Pradesh:** Nursery sowing of rice, sowing of groundnut.
- **Raylaseema:** Sowing of groundnut.
- **Telangana:** Land preparation for sowing of groundnut, millet.
- **Karnataka:** Land preparation for sowing of *kharif* rice in Coastal Karnataka. Land preparation for sowing of black gram, green gram, ground nut and jowar in Interior Karnataka.
- **Tamil Nadu:** Land preparation and nursery sowing of *Kuruvai* rice.
- **Maharashtra:** In North Konkan and South Madhya Maharashtra preparatory tillage for sowing of *kharif* crops viz. jowar, groundnut, soybean, rice and finger millet. South Konkan preparatory tillage and nursery sowing of *kharif* rice and finger millet

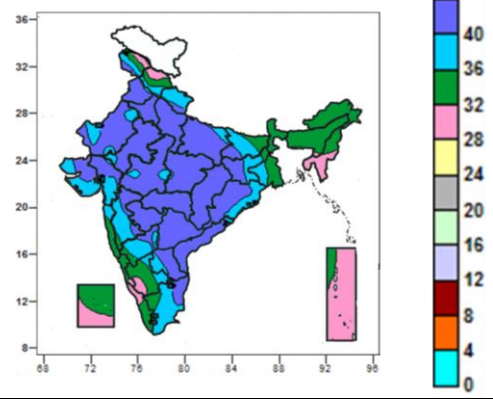
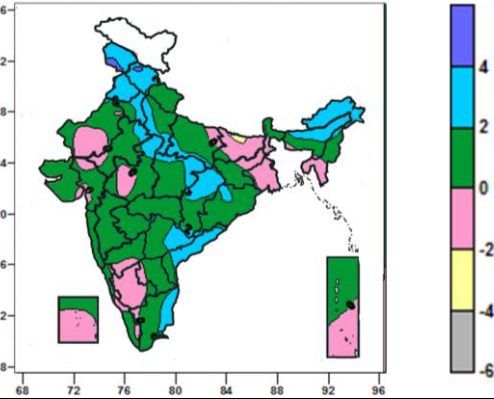
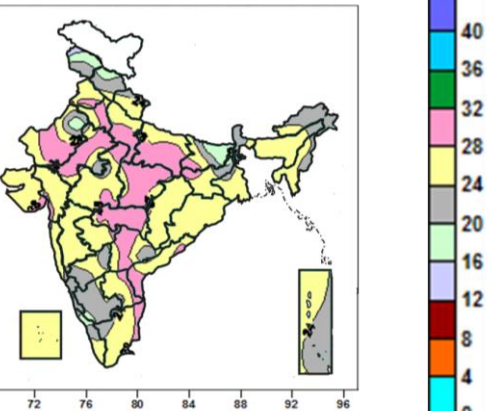
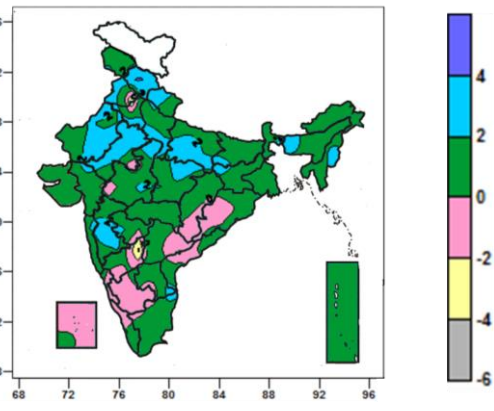


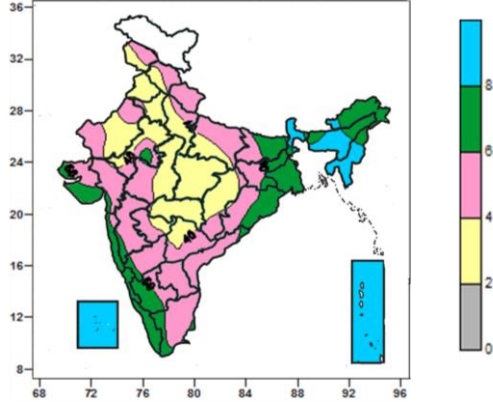
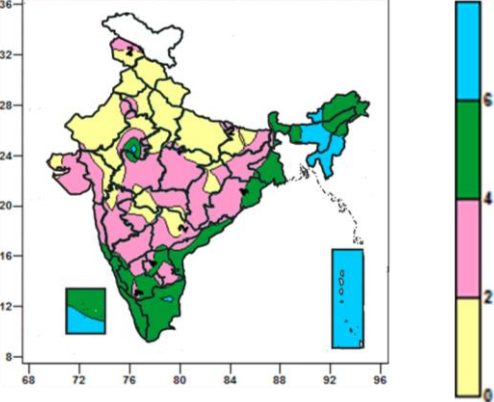
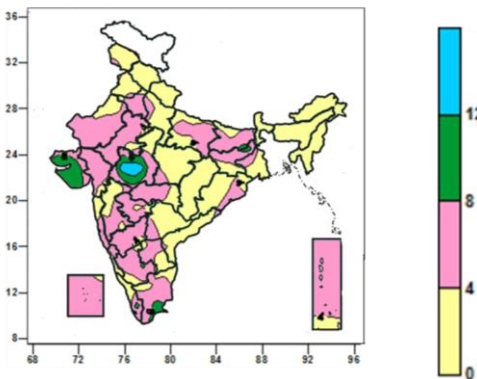
Issued by

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

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 29.05.2013

Actual Mean Maximum Temperature (°C) in India for the week ending 29.05.2013	Mean Maximum Temperature (°C) Anomaly in India for the week ending 29.05.2013
	
<ul style="list-style-type: none"> • 36 to 40°C and above over many parts of the country (except Northeast, West Bengal & Sikkim, Jammu Kashmir, Himachal Pradesh West coast from Konkan to Kerala, South Interior Karnataka, Lakshadweep, Andaman Nicobar Islands, some parts of Bihar, Jharkhand, North Interior Karnataka, Tamil Nadu). • 28 to 36°C over many parts of Northeast, West Bengal & Sikkim, Jammu Kashmir, Himachal Pradesh West coast from Konkan to Kerala, South Interior Karnataka Lakshadweep, Andaman Nicobar Islands, some parts of Bihar, Jharkhand, North Interior Karnataka and Tamil Nadu 	<ul style="list-style-type: none"> • 2 to 4°C and above over many parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Arunachal Pradesh, Coastal Andhra Pradesh, some parts of West Uttar Pradesh, Assam, Orissa, Central India, East Rajasthan, Telanagana, Tamil Nadu. • -2 to 2°C and above over many parts of the country (except Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Arunachal Pradesh, Coastal Andhra Pradesh, some parts of West Uttar Pradesh, Assam, Orissa, Central India, East Rajasthan, Telanagana, Tamil Nadu).
Actual Mean Minimum Temperature (°C) in India for the week ending 29.05.2013	Mean Minimum Temperature (°C) Anomaly in India for the week ending 29.05.2013
	
<ul style="list-style-type: none"> • 24 to 28°C and above over many parts of the country (except Jammu Kashmir, Himachal Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Nagaland, Karnataka, Andaman & Nicobar Islands, some parts West Madhya Pradesh, Rajasthan, Assam, Manipur, Telanagana, Kerala, Tamil Nadu). • 20 to 24°C over many parts of Jammu Kashmir, Himachal Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Nagaland, Karnataka, Andaman & Nicobar Islands, some parts West Madhya Pradesh, Rajasthan, Assam, Manipur, Telanagana, Kerala, Tamil Nadu). 	<ul style="list-style-type: none"> • 0 to 2°C and above over most of the country (except Orissa, Coastal & South Interior Karnataka, Lakshadweep Islands and some parts of Punjab & Haryana, East Rajasthan, West Madhya Pradesh, Chattisgarh, Marathwada, North Interior Karnataka, Andhra Pradesh, Tamil Nadu and Kerala). • -2 to 0°C over many parts of Orissa, Coastal & South Interior Karnataka, Lakshadweep Islands and some parts of Punjab & Haryana, East Rajasthan, West Madhya Pradesh, Chattisgarh, Marathwada, North Interior Karnataka, Andhra Pradesh, Tamil Nadu and Kerala.

Relative Humidity (%) over India for the week ending 29.05.2013	Cloud amount (okta) over India for the week ending 29.05.2013
	
<ul style="list-style-type: none"> • 60 to 80% and above over many parts of Northeast India, East India, West coast from Saurashtra & Kutch to Kerala, South Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, some parts of Orissa, Coastal Andhra Pradesh, East Rajasthan, Madhya Maharashtra, North Interior Karnataka). • 20 to 60% over most parts of the country (except Northeast India, East India, Orissa, West coast from Saurashtra & Kutch to Kerala, South Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, some parts of Orissa, Coastal Andhra Pradesh, East Rajasthan, Madhya Maharashtra, North Interior Karnataka). 	<ul style="list-style-type: none"> • 4 to 6 okta and above over most parts of North East India, West Bengal & Sikkim, Coastal Andhra Pradesh, Tamil Nadu, Kerala, Coastal & South Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, some parts of Orissa, Raylaseema, Telanagana, North Interior Karnataka, East Rajasthan, West Madhya Pradesh. • 0 to 4 okta over many parts of country (except North East India, West Bengal & Sikkim, Coastal Andhra Pradesh, Tamil Nadu, Kerala, Coastal & South Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, some parts of Orissa, Raylaseema, Telanagana, North Interior Karnataka, East Rajasthan, West Madhya Pradesh).
Wind speed (knots) over India for the week ending 29.05.2013	
	
<ul style="list-style-type: none"> • 8 to 12 knots and above over many parts of Saurashtra & Kutch, West Madhya Pradesh, some parts of Bihar, Jharkhand. • 0 to 8 knots over many parts of the country except Saurashtra & Kutch, West Madhya Pradesh, some parts of Bihar, Jharkhand. 	

Significant realized rainfall during last week

Significant rainfall received in most of the districts in Jammu & Kashmir, West Bengal, Orissa, Northeast India, in Bilaspur district in Himachal Pradesh and in Meerut district in Uttar Pradesh, Bastar district of Chhattisgarh in Dharmapuri, Krishnagiri, Perambalur, Sivaganga, Thiruvannamalai and Vellore in Tamilnadu, Cuddapah and Kurnool in Rayalaseema, most of the districts in Coastal Karnataka, Bagalkote, Belgaum, Dharwad, Gadag and Haveri in North Interior Karnataka, Bangalore Urban, Bellary, Chamarnajagar, Chickmagalur, Davangere, Hassan, Kodagu, Kolar and Shimoga in South Interior Karnataka and almost all districts of Kerala except Kasargod, Palakkad and Waynad .

Distribution of rainfall of the country during week ending on 29.05.2013

State/Districts	Actual(mm)	% dep.						
Arunachal Pradesh			Ribhoi	21.6	-59	Rajouri	8.5	49
Changlang	41.8	-36	South Garo Hills	2.0	-97	Ramban	53.5	322
Dibang Valley	45.0	-34	West Garo Hills	22.2	-69	Reasi	26.4	252
East Kameng	37.3	1	West Khasi Hills	23.0	-71	Samba	2.1	-56
East Siang	18.4	-78	Mizoram			Shopian	35.0	197
Lohit	94.3	60	Aizwal	36.5	-59	Srinagar	31.2	150
Lower Dibang Valley	16.0	-77	Champhai	7.0	-88	Udhampur	42.9	472
Lower Subansari	20.4	-63	Chhintuipui	**	**	Bihar		
Papumpara	79.8	-36	Kolasib	16.0	-78	Araria	10.3	-70
Tawang	102.0	7	Lawngtlai	56.0	-39	Arwal	0.0	-100
Tirap	27.5	-71	Lunglei	1.0	-99	Aurangabad	0.0	-100
Upper Siang	160.5	33	Mamit	2.0	-98	Begusarai	16.7	53
Upper Subansari	88.6	110	Saiha	47.0	-46	Bhagalpur	81.3	326
West Kameng	123.1	29	Serchhip	34.0	-59	East Champaran	18.3	23
West Siang	54.6	-2	Manipur			Gaya	0.0	-100
Assam			Chandel	19.0	-70	Gopalganj	0.0	-100
Baksa	23.7	-76	Churachandpur	4.0	-91	Jahanabad	6.7	-24
Barpeta	76.3	-24	Imphal east	31.2	-25	Jamui	13.8	21
Bongaigaon	122.2	1	Thoubal	27.0	-6	Kathihar	8.5	-68
Cachar	29.5	-64	Ukhrul	44.0	69	Khagadia	19.0	64
Chirang	59.0	-51	Nagaland			Kishanganj	50.0	-9
Darrang	2.0	-97	Dimapur	11.5	-48	Lakhisarai	6.0	-44
Dhemaji	31.0	-63	Kephire	2.0	-96	Madhepura	0.0	-100
Dhubri	20.1	-79	Kohima	42.8	10	Monghyar	24.8	132
Dibrugarh	52.1	-25	Longleng	56.0	-39	Muzaffarpur	46.0	253
Goalpara	37.0	-62	Mokokchung	127.0	35	Nalanda	19.1	127
Golghat	51.3	4	Phek	12.8	-67	Nawada	2.0	-76
Hailakandi	23.9	-77	Wokha	0.0	-100	Patna	16.2	131
Jorhat	48.7	-23	Zunheboto	97.0	76	Purnea	26.8	-19
Kamrup(Rural)	3.6	-95	Tripura			Rohtas	0.0	-100
Kamrup(Metro)	47.7	-31	Dhalai	69.7	-26	Saharsha	0.0	-100
Karbi Anglong	48.6	52	North tripura	31.8	-68	Samstipur	13.8	-13
Karimganj	28.9	-74	South tripura	105.1	49	Saran	15.6	62
Kokrajhar	73.5	-49	West tripura	64.6	-17	Sheikpura	13.4	17
Lakhimpur	95.7	13	Jammu & Kashmir			Sheohar	68.2	183
Morigaon	35.4	-4	Anantnag	49.5	166	Sitamarhi	5.8	-76
N.C.Hills	21.5	-67	Badgam	29.8	168	Supaul	20.0	13
Nowgong	22.1	-37	Baramula	90.4	309	Vaishali	35.0	361
Nalbari	27.5	-60	Doda	62.8	394	West Champaran	64.4	272
Sonitpur	24.5	-63	Ganderwal	80.0	540	Orissa		
Sibsagar	30.1	-41	Jammu	16.2	237	Angul	31.0	123
Tinsukia	40.7	-34	Kargil	4.2	-65	Balasore	7.8	-77
Udalgiri	46.7	-31	Kathua	16.9	383	Bargarh	8.3	48
Meghalaya			Kulgam	44.8	141	Bhadrak	19.6	-13
East Garo Hills	5.0	-93	Kupwara	58.1	221	Bolangir	18.6	105
East Khasi Hills	81.9	-52	Ladakh(Leh)	8.2	382	Boudh	14.3	45
Jaintia Hills	262.0	59	Poonch	0.0	-100	Cuttack	30.3	39
			Pulwama	20.3	72	Deogarh	7.8	-10

Dhenkanal	20.1	9	South Dinajpur	0.0	-100	Kozhikode	107.3	36
Gajapati	27.9	34	South Sikkim	72.7	7	Malappuram	22.5	-58
Ganjam	9.3	-46	West Sikkim	74.0	-19	Palakkad	10.3	-73
Jagatsingpur	46.3	39	Karnataka			Pathanamthitta	59.0	-21
Jajpur	19.3	-25	Coastal Karnataka			Thiruvananthapuram	41.6	-32
Jharsuguda	17.0	105	Dakshin Kannada	40.6	-35	Thrissur	78.8	-8
Kalahandi	14.1	24	Udupi	50.6	-28	Wyanad	14.7	-70
Kandhamal	20.5	107	Uttar Kannada	44.9	11	Tamil Nadu		
Kendrapara	16.1	-50	North Interior Karnataka			Ariyalur	3.3	-78
Keonjhar	28.0	2	Bagalkote	21.4	-6	Chennai	0.0	-100
Khurda	27.8	67	Belgaum	20.0	-6	Coimbatore	8.5	-31
Koraput	0.0	-100	Bidar	7.3	-21	Cuddalore	14.2	54
Malkangiri	21.2	81	Bijapur	3.0	-85	Dharmapuri	101.8	309
Mayurbhanj	20.3	-29	Dharwad	27.4	25	Dindigul	7.1	-59
Nawapara	4.0	-49	Gadag	21.6	-7	Erode	16.0	3
Nawarangpur	18.4	-34	Gulbarga	9.9	-25	Kanchipuram	5.9	-17
Nayagarh	9.2	-29	Haveri	34.0	64	Kanyakumari	14.1	-57
Puri	36.6	142	Koppal	15.9	-8	Karikal	0.0	-100
Rayagada	21.2	6	Raichur	11.8	-16	Karur	8.6	-23
Sambalpur	11.0	28	Yadgir	7.9	-42	Krishnagiri	62.2	166
Sonepur	4.5	-53	South Interior Karnataka			Madurai	11.7	-9
Sundargarh	37.5	195	Bangalore Rural	9.8	-56	Nagapattinam	0.6	-93
West Bengal			Bangalore Urban	21.0	-20	Namakkal	7.5	-63
GWB			Bellary	21.1	14	Nilgiris	18.5	-29
Bankura	0.0	-100	Chamarajnar	33.3	13	Perambalur	32.5	136
Birbhum	12.2	-30	Chichballapur	4.5	-74	Puducherry	0.0	-100
Burdwan	2.9	-86	Chickmagalur	25.5	3	Pudukottai	10.4	5
East Midnapore	3.1	-91	Chitradurga	11.9	-31	Ramanathapuram	0.6	-90
Hooghly	15.2	-41	Davangere	47.3	164	Salem	18.6	-22
Howrah	5.0	-87	Hassan	22.3	-2	Sivaganga	43.9	314
Kolkata	13.4	-60	Kodagu	22.6	-43	Thanjavur	5.2	-57
Murshidabad	77.8	153	Kolar	34.5	95	Theni	0.0	-100
Nadia	36.0	68	Mandya	15.1	-47	Tirunelveli	0.0	-100
24 Pargana (N)	32.3	22	Mysore	19.5	-35	Tirupur	8.4	-35
Purulia	0.2	-98	Ramnagara	15.5	-52	Tiruvallur	4.9	-42
24 Pargana (S)	27.2	-9	Shimoga	37.0	97	Tiruvannamalai	47.3	219
West Midnapore	5.2	-86	Tumkur	10.2	-52	Tiruvarur	6.1	-40
SHWB			Kerala			Toothukudi	0.0	-100
Cooch Behar	43.0	-62	Alappuzha	63.6	-24	Trichy	25.0	95
Darjeeling	140.0	90	Kannur	26.3	-65	Vellore	38.1	120
East Sikkim	53.6	-21	Ernakulam	75.9	-16	Villupuram	7.0	-17
Jalpaiguri	74.9	-34	Idukki	20.7	-67	Virudhunagar	0.9	-92
Malda	21.8	-33	Kasaragod	15.4	-80			
North Dinajpur	30.0	-36	Kollam	52.3	-21			
North Sikkim	54.9	-40	Kottayam	54.2	-36			

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

Weather Forecast

- Rain/thundershowers would occur at most places over Bihar and Jharkhand during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at many places over north Odisha and West Bengal & Sikkim during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at few places over northeastern states during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at one or two places over Chhattisgarh, east Madhya Pradesh and east Uttar Pradesh during next 48 hours.
- Rain/thundershowers would occur at many places over Andaman & Nicobar Islands, Kerala, Lakshadweep and coastal Karnataka; at a few places over Andhra Pradesh and interior Karnataka and at one or two places over Maharashtra & Goa and Tamilnadu.
- Maximum temperature would rise by 1 - 2° C over northwest, west and adjoining central India.
- Weather would be mainly dry over rest parts of the country.

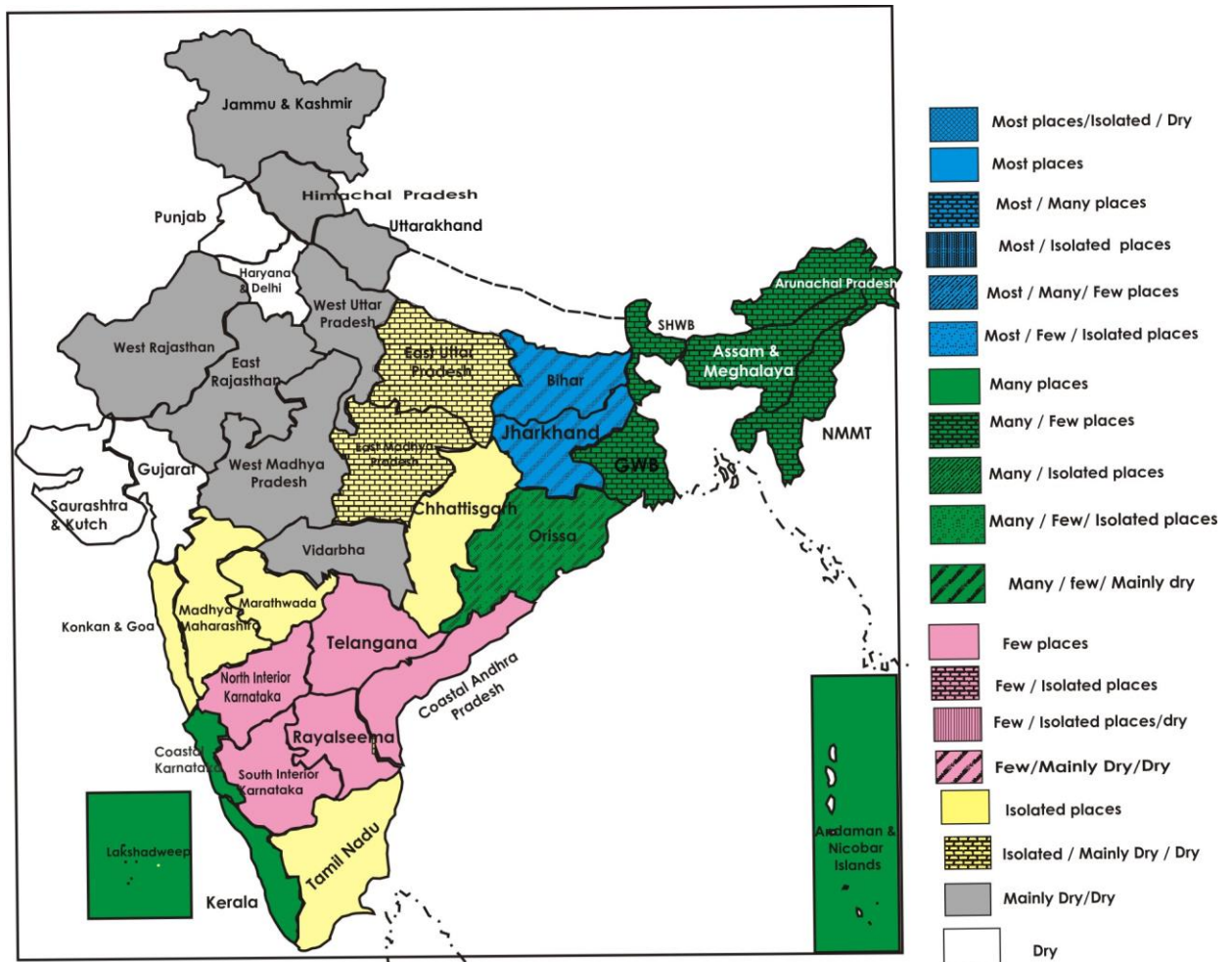
Weather Warning during next 3 days

- Thundersquall would occur at one or two places over Bihar, Jharkhand, north Odisha and West Bengal & Sikkim during next 48 hours.
- Heat wave conditions would occur over some parts of Rajasthan during next 48 hours.
- Heavy to very heavy rainfall would occur at one or two places over north Odisha, West Bengal & Sikkim, Bihar and Jharkhand during next 24 hours.

Weather Outlook for subsequent 4 days from 03rd June to 07th June, 2013

- Rain/thundershowers would occur at many places over northeastern states, Sub-Himalayan West Bengal & Sikkim and Andaman & Nicobar Islands.
- Increase in rainfall activity along west coast.
- Rain/ thundershowers would occur at one or two places over rest east and south peninsular India.
- A fresh feeble western disturbance would affect western Himalayan region from 4th June.
- Weather would be mainly dry over rest parts of the country.

Weather Forecast Map
(Valid upto 0830 hours of 3rd June, 2013)



Zonewise Agromet Advisories

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

- **Realised Rainfall:** Significant rainfall occurred in all the districts except Jammu, Kargil, Kathua, Ladakh, Poonch, Rajouri and Samba in Jammu & Kashmir, Bilaspur in Himachal Pradesh, Meerut in Uttar Pradesh and weather remained mainly dry over rest parts of the region of the State.
- **Weather Forecast:** Rain/thundershowers would occur at one or two places over east Uttar Pradesh during next 48 hours. Maximum temperature would rise by 1-2⁰C over northwest India. Weather would be mainly dry over rest of the region.
- **Weather Warning:** Heat wave conditions would occur over some parts of Rajasthan during next 48 hours.
- **Advisory:**
 - As significant rainfall occurred in all the districts in Jammu & Kashmir except Jammu, Kargil, Kathua, Ladakh, Poonch, Rajouri and Samba, in Bilaspur district in Himachal Pradesh, in Meerut in Uttar Pradesh, farmers are advised to postpone irrigation in all the districts of Jammu & Kashmir except Jammu, Kargil, Kathua, Ladakh, Poonch, Rajouri and Samba in Jammu & Kashmir, Bilaspur in Himachal Pradesh, Meerut in Uttar Pradesh.
 - As mainly dry weather prevailed and also expected over the region during next 48 hours, farmers are advised to apply light and frequent irrigation to summer vegetables in Himachal Pradesh, Delhi and Rajasthan, moderate irrigation in orchard crops in Jammu, Kargil, Kathua, Ladakh, Poonch, Rajouri and Samba districts in Jammu & Kashmir; Himachal Pradesh, Delhi and in summer moong and urad in Uttarakhand, Uttar Pradesh Rajasthan and regular irrigation in sugarcane, *kharif* fodders and evergreen fruits plants in Punjab.
 - As heat wave would occur over some parts of Rajasthan, farmers are advised to give light irrigation in summer vegetables, zaid fodder crops, Cucurbitaceous crops and light irrigation or thatching in small fruit plants in Rajasthan.
 - Farmers in Valley Temperate Zone of Jammu & Kashmir are advised to complete sowing of maize within this week and sowing of *Kharif* pulses utilizing the recent rainfall.
 - In Semi Arid Eastern Plain Zone of Rajasthan, farmers are advised to prepare field for sowing of irrigated groundnut and also planting nursery of kharif onion (N-53 & Agrifound dark red). Also in Irrigated North Western Plain Zone, Sub Humid Southern Plain and Aravali Hill Zone of Rajasthan, farmers are advised to prepare field for the sowing of American cotton (Bikaneri Nerma, RST-9 and Hybrid-4). Also farmers are advised to start harvesting of vegetables, fodder crops and cucurbitaceous crops.
 - Due to dry weather is expected during next three days in Babar and Tarai Zone of Uttarakhand, farmers are advised to give irrigation to vegetable and cucurbit crops.
 - Farmers in Western Zone in Punjab are advised to continue sowing of rice nursery using recommended varieties and irrigate the standing vegetable crops once in a week regularly. Also farmers in Central Plain Zone in Punjab are advised to continue sowing of rice nursery and give require frequent irrigations to sugarcane crop at 8 to 10 days interval as hot weather conditions are prevailing and to irrigate cucurbits, chilli, capsicum, brinjal, okra, tomato etc. to avoid water stress in the field.
 - Farmers in Eastern Zone in Haryana are advised to continue sowing of paddy nursery with recommended varieties and apply irrigation at 10 days interval to sugarcane crop and undertake sowing of fodder crops such as Jowar mixed with cowpea. Apply frequent irrigation to vegetable and horticultural crops. Also farmers in Western Zone in Haryana are advised to complete sowing of desi and American or BT cotton.
 - Due to prevailing high temperature in Delhi, farmers are advised for frequent irrigation in vegetables and other crops. Prepare nursery for chilli, brinjal, cauliflower, pigeonpea and long duration paddy. Optimum moisture level should be maintained in cucurbitaceous crops by light and frequent irrigation. Protect banana, citrus, mango and kinnow orchards against hot winds by physical barrier and frequent irrigation.
 - In Western Plain Zone of Uttar Pradesh, farmers are advised to apply irrigation to sugarcane and vegetables and also for green fodder, start land preparation for sowing of maize, jowar, bajra and lobia.
 - In Bundelkhand Zone of Uttar Pradesh, farmers are advised to apply irrigation to vegetables and fruit plants. Also in Eastern Plain Zone of Uttar Pradesh, farmers are advised to start land preparation and prepare nursery of late sown and mid sown varieties of rice.
 - In Western Plain Zone in Punjab due to dry prevailing weather, there may be attack of black bug on sugarcane crop, farmers are advised to spray 350 ml of Dursban / Lethal/Massban 20 EC in 400 litres of water per acre.

- In Babar and Tarai Zone of Uttarakhand, under expected dry weather conditions, there are chances of army worm damaging the sugarcane crop. If the incidence is more than 10 % then farmers are advised to spray insecticide.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
- In Sub-Tropical Zone of Jammu & Kashmir, farmers are advised to provide clean water for drinking to the animals at frequent interval to save animals from heat stroke. Vaccinate cows and buffaloes against foot and mouth diseases.
- In Semi Arid Eastern Plain Zone of Rajasthan, farmers are advised to protect animals from heat stroke, keep animal in shade provide cold water for drinking.
- Due to increase in temperature in Uttar Pradesh, farmers are advised to protect the animals from heat; make arrangement for shade near the poultry house and provide clean water for drink.
- Due to diurnal variation in temperature in Mid Hills Sub-Humid Zone of Himachal Pradesh., livestock owners are advised to protect the animals (especially new born animals) during night hours.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in Bastar district of Chhattisgarh. Mainly dry weather prevailed over remaining part of the region during last week.
- **Weather forecast:** Rain/thundershowers would occur at one or two places over Chhattisgarh and east Madhya Pradesh during next 48 hours. Weather would be mainly dry over rest parts of the region. Maximum temperature would rise by 1- 2^o C over the region.
- **Advisories:**
 - As no significant rainfall occurred during last week except in Baster district of Chhattisgarh and no rainfall is likely, farmers are advised to apply irrigation to sugarcane and start early harvesting of summer moong and summer vegetables in the states of the region.
 - Rise in temperature expected in Kymore Plateau and Satpura Hills Zone and of Madhya Pradesh hence farmers are advised to irrigate summer moong, vegetables and fodder (sorghum and maize) crops during evening hours regularly.
 - Dry weather and no rainfall is expected in Jhabua Hills Zone, Gird Zone of Madhya Pradesh, farmers are advised to apply irrigation in water melon and musk melon, summer vegetables like tomato, brinjal, chilli & okra during evening hours regularly.
 - Farmers in Jhabua Hills Zone and Gird Zone of Madhya Pradesh are advised that this is suitable time for preparation of rice nursery.
 - Due to prevailing hot weather in Chhattisgarh Plain Zone, farmers are advised to apply light and frequent irrigation in sunflower and in groundnut at pod filling stage.
 - Due to prevailing hot weather in Chhattisgarh Plain Zone, farmers are advised to undertake deep ploughing in those fields where wilt, stem rot, and armature disease are frequently observed to facilitate soil solarization after harvesting of summer crops.
 - Due to high temperature in Chhattisgarh, farmers are advised to undertake soil drenching by Chloropyriphos 20 EC in sugarcane to control termite attack.
 - Stages of major crops are mentioned in Annexure I.
- **ANIMAL HUSBANDRY & POULTRY**
 - Due to prevailing hot weather conditions in Madhya Pradesh and Chhattisgarh, farmers are advised to keep their poultry farm cool by covering the window and doors with gunny bag curtains and keep them wet regularly between 10 am to 5 pm.

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

- **Realised Rainfall:** : Significant rainfall occurred in all districts of Sikkim, in Sub Himalayan West Bengal except South Dinajpur in Murshidabad, Nadia, 24 parganas(north) and 24 pargana(south) districts of Gangetic West Bengal in Sahebganj, Ramgarh district of Jharkhand, in Bhagalpur, Kishanganj, Monghyar, Muzaffarpur, Purnea, Sheohar Madhepura, Purnea, Sheohar, Supaul, Vaishali, West Champaran districts of Bihar and Angul, Cuttack, Dhenkanal, Gajapati, Jagatsingpur, Kandhamal, Keonjhar, Khurda, Malkangiri, Mayurbhanj, Puri, Rayagada, Sundargarh districts of Odisha.
- **Weather Forecast:** Rain/thundershowers would occur at most places over Bihar and Jharkhand during next 24 hours and decrease thereafter, at many places over north Odisha, West Bengal & Sikkim during next 48 hours and decrease thereafter. Weather would be mainly dry over rest parts of the region.

- **Weather Warning:** Thundersquall would occur at one or two places over Bihar, Jharkhand, north Odisha and West Bengal & Sikkim during next 48 hours. Heavy to very heavy rainfall would occur at one or two places over north Odisha, West Bengal & Sikkim, Bihar and Jharkhand during next 24 hours.
- **Weather Outlook:** Rain/thundershowers would occur at many places over SubHimalayan West Bengal & Sikkim.
- **Advisories:**
 - Significant rainfall occurred in all districts of Sikkim, in Sub Himalayan West Bengal except South Dinajpur in Murshidabad, Nadia, 24 parganas(north) and 24 pargana(south) districts of Gangetic West Bengal in Sahebganj, Ramgarh district of Jharkhand, in Bhagalpur, Kishanganj, Monghyar, Muzaffarpur, Purnea, Sheohar Madhepura, Purnea, Sheohar, Supaul, Vaishali, West Champaran districts of Bihar and Angul, Cuttack, Dhenkanal, Gajapati, Jagatsingpur, Kandhamal, Keonjhar, Khurda, Malkangiri, Mayurbhanj, Puri, Rayagada, Sundargarh districts of Odisha, and as significant rainfall is likely to occur at most places in Gangetic West Bengal, Jharkhand during next 24 hours and at many places over north Odisha, SubHimalayan West Bengal & Sikkim and Bihar, farmers are advised to postpone irrigation in summer maize, summer vegetable, sugarcane, sunflower, moong, onion.
 - As thundersquall would occur at one or two places over Bihar, Jharkhand, north Odisha and West Bengal & Sikkim during next 48 hours and heavy to very heavy rainfall would occur at one or two places over north Odisha, West Bengal & Sikkim, Bihar and Jharkhand during next 24 hours, farmers are advised to arrange for adequate drainage to avoid water stagnation in the crop fields. Farmers are also advised to arrange mechanical support to banana, propping up in sugarcane and staking of vegetables, to prevent the crops from lodging due to strong winds.
 - Farmers in North West Alluvial Plain zone of Bihar are advised to prepare nursery for sowing of long duration rice varieties.
 - In South Bihar Alluvial Zone, farmers are advised to prepare nursery for sowing of rice. Undertake sowing of green manure crop like dhaincha, moong bean in fallow field to improve the soil fertility.
 - Farmers in North East Alluvial Plain Zone of Bihar are advised to undertake sowing of jute and planting of ginger and turmeric.
 - As significant rainfall occurred during last week and also rainfall is expected at a most and many places is expected in Sub Himalayan West Bengal, farmers in Terai Zone are advised to drain out excess water from ginger, turmeric, maize and vegetable seedbed.
 - Farmers of Western Undulating Zone of Odisha are advised to harvest early and medium duration paddy, onion on a bright sunshine day and irrigate vegetable crops.
 - Infestation of early stem borer on sugarcane has been found in East and South Eastern Coastal Plain Zone of Odisha farmers are advised that if it crosses the ETL level (5% dead heart) undertake hoeing,weeding and apply 4 kg phorate or 12 kg Carbofuran or 10 kg Cartap followed by earthing up or spray 400 ml Monocrotophos/Tryozophos/Profenophos.
 - Fruit and shoot borer in brinjal has been found in East and South Eastern Coastal Plain Zone, North Eastern Ghat Zone and Mid Central Table Land Zone of Odisha farmers are advised to install pheromone traps and spray 4 g Sevin WP or 2 ml Malathion in 1 litre water alternatively. Thrips in Chilli has been found. Spray 300 ml Ethion or 400 ml Carbosulphan or Chloropyriphos in 200 litre water/acre after the current spells of rain.
 - Farmers of East and South Eastern Coastal Plain Zone of Odisha are advised to undertake direct seeding of rice in medium , low and deep low land and complete direct sowing by June 1st week.
 - The farmers of North Eastern Ghat Zone of Odisha are advised to undertake sowing of yam, turmeric and ginger planting.
 - Due to prevailing high temperature in Jharkhand, farmers are advised to irrigate summer moong and vegetables at regular interval and maintain optimum water level in summer rice field as the crop is in milking to grain maturity stage.
 - Due to increase of temperature in Laterite and Red soil Zone, New Alluvial Zone of West Bengal, mite may be attack in chilli. Spray Fenazaquin 10 E.C. 15 ml per 10 lt of water followed by Ethion 15 ml /10 lt of water to control the attack, after the current spells of rain.
 - Due to prevailing high temperature in New Alluvial Zone of West Bengal there is a chance of attack of fruit borer in mango. To control these insects, spray Dichlorovos @ 1.5 – 2.0 ml per litre of water.
 - As significant rainfall occurred during last week and also rainfall is expected at a few places in Sub Himalayan West Bengal, farmers in Terai Zone are advised to drain out excess water from ginger,

turmeric, maize and vegetable seedbed. Due to humid weather branches and fruit rotting may occur in pointed gourd, spray Mancozeb 64%+ Metalaxyl 8%, 1 gm per lt of water by wetting the plant and leaf.

- Farmers in of Jharkhand are advised to spray Methyl Dematon (Metasystox) @ 1 ml per litre of water to control the attack of fruit borer insects and spray fungicide Blitox-50 @ 3 gm per litre of water for the rotting of fruits in capsicum crops after the current spell of rain.
- Farmers in Western Plateau Zone of Jharkhand are advised to spray Trizophos or Profanaphos during evening @ 1 ml per litre of water to control the attack of thrips in timely sown summer moong crops which are at flowering stage.
- In Jharkhand, farmers are advised to prepare the field and undertake planting of ginger and turmeric.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In view of the prevailing high temperature, farmers in Bihar are advised to keep livestock in shade and provide plenty of drinking water.
 - As high temperature and dry weather is likely to continue for next five days, farmers of West Central Table Land Zone of Odisha are advised to provide sufficient clean drinking water to animals.
 - In Jharkhand, animals should be kept in shed and avoid dampness in the shed as rain is forecasted .
- **Pisciculture**
 - Farmers in Coastal Saline Zone of West Bengal are advised to apply Mahua khol in the pond of carp cultivation for killing the harmful insects.
 - Stages of major crops are mentioned in Annexure I.

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

- **Realised Rainfall:** Significant rainfall occurred in all districts of the States of the region except Darrang and Kamrup (Rural) districts of Assam, East Siang, Lower Dibang Valley districts of Arunachal Pradesh, East Garo Hills, South Garo Hills districts of Meghalaya, Chandel and Churachandpur districts of Manipur, Kephire, Phek, Dimapur and Wokha districts of Nagaland, Lunglei, Mamit, Champhai and Kolasib districts of Mizoram.
- **Weather Forecast:** Rain/thundershowers would occur at few places over the States of the region during next 24 hours and increase thereafter.
- **Outlook:** Rain/thundershowers would occur at many places over the States of the region.
- **Advisories:**
 - As significant rainfall occurred in most of the districts of the States of the region during last week and also rain/thundershowers is expected at many places over the States of the region during the period, farmers are advised to postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also rainfall would occur at many places, farmers are advised to arrange for adequate drainage to avoid water stagnation in the crop fields especially in already planted ginger crops in these states of the region.
 - Farmers in North Bank Plain Zone, Central Brahmaputra Valley Zone, Upper Brahmaputra Valley Zone and Lower Brahmaputra Valley Zone of Assam are advised to prepare nursery bed of *sali* rice. Select long duration varieties in lowland rice areas, medium duration rice varieties in medium lowland areas.
 - Farmers in Barak Valley Zone of Assam are advised to drain out excess water from the fields of summer gourd, okra and cucurbits.
 - Farmers in Sub-Tropical Hill Zone of Arunachal Pradesh are advised to continue nursery raising of main WRC rice.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised to drain out excess water from crops field of maize, soybean, cucurbits and summer vegetable. Also, drain out excess water from the rice field and maintain water depth of 5-8 cm.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to arrange for adequate drainage to avoid water stagnation in vegetable crop fields. Also, harvest mature *boro* rice on bright sunny days.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised to continue seed bed preparation and sowing for *kharif* rice. Also, continue sowing of groundnut, soybean, black gram. Undertake nursery raising of early cauliflower in the upland area.
 - Farmers in Mild Tropical Plain Zone of Tripura are advised to undertake nursery bed preparation of *aman* rice and land preparation and sowing of groundnut and maize in upland and medium upland. Undertake harvesting of summer maize, summer sesamum on bright sunny days.

- Due to prevailing weather conditions in Barak Valley Zone of Assam, there is chance of attack of beetles and fruit and shoot borer in summer gourd, vegetables and okra; farmers are advised to spray Malathion 50 EC @ 1.5 litres / ha mixed in 500 – 700 liters of water after the current spells of rain.
- The prevalent weather in Mild Tropical Hill Zone of Nagaland is favourable for the development of stem borer in *kharif* maize. Farmers are advised to monitor the crop and apply plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In Mild Tropical Plain Zone of Tripura damp litter and high moisture due to heavy rain may lead to *Coccidiosis* in the chicken; so avoid dampness in the shed. Piglets are susceptible for swine fever due to change in weather and feed. The disease may be controlled by Furazolidone, streptomycin etc.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** No significant rainfall occurred over the States of the region.
- **Weather Forecast:** Rain/ thundershower would occur at one or two places over Maharashtra & Goa. Maximum temperature would rise by about 1- 2°C over west India.
- **Advisories:**
 - As high temperature is prevailing in North Madhya Maharashtra, Marathwada and Vidarbha and temperature is expected to rise by about 2°C during next 3 days, farmers are advised to apply light and frequent irrigation to the vegetable crops, moderate irrigation to sugarcane and orchard crops and also apply straw mulch in orchards and trash mulch in newly planted sugarcane to reduce the high rate of evapotranspiration. Farmers in Yavatmal district are advised to apply drip irrigation to musk melon and water melon to avoid fruit cracking.
 - Farmers in North Konkan and South Madhya Maharashtra are advised to undertake preparatory tillage for sowing of *kharif* crops viz. *kharif* jowar, groundnut, soybean, red gram (in Kolhapur region), rice and finger millet.
 - As isolated rain is expected in South Konkan during next 3 days and increase in rainfall activity thereafter, farmers are advised to complete the preparatory tillage and undertake nursery sowing of *kharif* rice and finger millet on raised beds with the help of pre monsoon showers.
 - As high temperature persists (around 40°C) and rise in temperature by 1- 2°C is expected in Marathwada where banana planted in September is at fruit development / maturity stage, farmers are advised to apply frequent irrigation and cover the banana fruit bunch with leaves and apply mulch. They are also advised not to remove dried leaves.
 - Farmers in Kolhapur, Marathwada and East Vidarbha region are advised to complete the preparatory tillage for the planting of turmeric and ginger. Farmers in Pune region are advised to procure early maturing rice varieties for nursery sowing.
 - As dry weather is prevailing, farmers are advised to complete harvesting of groundnut in Madhya Maharashtra and Central Vidarbha Zone.
 - Farmers in Gujarat state except Saurashtra and Kutch are advised to arrange farm inputs for sowing of *kharif* crops.
 - Due to prevailing high temperature, farmers are advised to apply light irrigation in pearl millet at grain filling stage and to sorghum at ear head formation stage in North West Zone, North Gujarat Zone and Bhal and Coastal Zone of Gujarat in the evening.
 - In South Gujarat Zone, farmers are advised to protect banana bunches from high temperature by covering with plastic sheet.
 - Due to cloudy weather conditions there is possibility of incidence of anthracnose on mango fruits in North Konkan, spray Carbendazim @ 10 g or Copper Oxychloride @ 25 g in 10 litres of water.
 - Due to high temperature in Kolhapur region there may be attack of early shoot borer in newly planted sugarcane; use 2 Phule Trichocard per acre at 10 days interval for 2-3 times.
 - In Middle Gujarat Zone there are chances of occurrence of brown spot in sapota due to high temperature. For the effective control, farmers are advised to spray Dithane M-4525 g in 10 litres of water.
 - Due to high temperature and humidity in Middle Gujarat Zone, there are chances of sucking pest infestation in summer vegetables; spray 0.1% solution of Dimethoate 35 EC to manage the pest.
 - Stages of the crops are mentioned in Annexure I.

- **Animal Husbandry**

- As high maximum temperature is persisting in Gujarat, keep animals under shade during noon hours and provide clean drinking water. Increase the green fodder quantity for feeding. Put curtains on west side of poultry house and sprinkle water on curtains during noon time. Vaccinate animals against FMD and BQ to avoid disease outbreak.

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

- **Realised Rainfall:** Significant rainfall occurred in Dharmapuri, Krishnagiri, Perambalur, Sivaganga, Thiruvannamalai and Vellore in Tamilnadu, Cuddapah and Kurnool in Rayalaseema, most of the districts in Coastal Karnataka, Bagalkote, Belgaum, Dharwad, Gadag and Haveri in North Interior Karnataka, Bangalore Urban, Bellary, Chamarajnar, Chickmagalur, Davangere, Hassan, Kodagu, Kolar and Shimoga in South Interior Karnataka and almost all districts of Kerala except Kasargod, Palakkad and Waynad. Mainly dry weather prevailed over remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at many places over Andaman & Nicobar Islands, Kerala, Lakshadweep, coastal Karnataka and at a few places over Andhra Pradesh and interior Karnataka, one or two places over Tamil Nadu..
- **Advisories:**
 - As significant rainfall occurred in Dharmapuri, Krishnagiri, Perambalur, Sivaganga, Thiruvannamalai and Vellore in Tamil Nadu, Cuddapah and Kurnool in Rayalaseema, most of the districts in Coastal Karnataka, Bagalkote, Belgaum, Dharwad, Gadag and Haveri in North Interior Karnataka, Bangalore Urban, Bellary, Chamarajnar, Chickmagalur, Davangere, Hassan, Kodagu, Kolar and Shimoga in South Interior Karnataka and all districts of Kerala except Kasargod, Palakkad and Waynad, farmers are advised to postpone irrigation to the crops in the above mentioned districts. Apply irrigation in groundnut, cotton and vegetables in Andhra Pradesh, maize, sesame and sorghum in Tamil Nadu.
 - As onset of monsoon is expected around 3rd June, farmers in the Northern Zone of Kerala are advised to undertake nursery preparation and sowing of *Viruppu* rice and sowing of direct seeded rice.
 - Utilizing the realised rainfall, farmers in South Interior Karnataka are advised to undertake ploughing of the land and farmers in Coastal Karnataka are advised to prepare field for kharif rice nursery.
 - Farmers in the Western Zone of Tamil Nadu are advised to undertake summer ploughing, also undertake land preparation for planting of turmeric.
 - As high temperature (>40oC) is forecasted during this week in the South Zone of Tamil Nadu, farmers are advised foliar spray of potash and urea each at 2.5 per cent at 15 days interval in sugarcane to alleviate moisture stress and spray kaolin 6% solution (60 g/ l) for reducing loss of water through transpiration.
 - Farmers in the North Coastal Zone of Andhra Pradesh are advised to undertake summer ploughing and land preparation for planting of rainfed sugarcane in places where sufficient rainfall has occurred.
 - Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to undertake sowing of cotton (Mungari season) upto first week of June.
 - Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to undertake deep summer ploughing with the realised rains to reduce the soil borne pests and diseases, to reduce the weeds and to increase the rate of water intake into the soil.
 - Incidence of internode borer may occur in sugarcane crop planted in the main season in the South Zone of Tamil Nadu. Hence, farmers are advised to use pheromone trap @ 25/ ha at 20 m distance.
 - As there has been daily rainfall during last week in the High Altitude Hilly Zone of Tamil Nadu, there are chances for spreading of late blight in potato and fruit rot in strawberry. Farmers are advised to adopt necessary prophylactic measures.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry:**
 - Farmers in the Scarce Rainfall Zone of Rayalaseema in Andhra Pradesh are advised to ensure periodic vaccination of animals against FMD, Brucellosis, Haemorrhagic, Septicaemia, Anthrax and small ruminants against PPR (*Peste- des- Pepits*) and Sheep and Goat Pox.
 - As onset of monsoon over Kerala is expected in next 2-3 days, farmers are advised to vaccinate the animals against haemorrhagic septicaemia.

Annexure I Stages of Major Crops

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

- Pome and stone fruits (flowering), onion (vegetative), potato, cabbage, cauliflower (maturity/harvesting), *Capsicum*, tomato, brinjal (vegetative), cucurbits, okra, French bean, fodder crops (chari, bajra) (early vegetative), rice (nursery sowing), peas, maize, fodder maize + legume (vegetative) in Himachal Pradesh.
- Chilli, brinjal, bitter gourd, spinach and tomato (vegetative and fruiting Stage), French bean, cluster bean, summer radish, summer green gram (vegetative stage), lady finger (vegetative and fruiting stage), gwar, maize, bajra, cluster bean as fodder crop (vegetative stage), pigeon-pea and cotton (sowing in progress) , paddy (nursery preparation) in Delhi.
- Wheat (maturity/harvesting), pulses (pea and lentil) (harvesting), vegetables (Vegetative/active vegetative), rice (nursery raising/transplanting), maize (sowing), sunflower (early vegetative / vegetative), garlic, cucurbits, okra (early vegetative/vegetative), radish, spinach (sowing/seedling), carrot, turnip (sowing/seedling), onion, cole crops (nursery sowing / transplanting), oat, berseem (vegetative), summer moong, mash (sowing), dhaincha (sowing), fodder jowar, summer fodder (Maize + Cowpea+Jowar) (sowing/seedling), fruit crops (nursery bed preparation), brinjal, chilli (nursery sowing/transplanting), *kharif* pulses (field preparation/sowing) in Jammu & Kashmir.
- Rice (nursery sowing), ginger (vegetative), garlic (harvesting), autumn sugarcane (vegetative), oat (tillering / ear head emergence), moong, urd (active vegetative / flowering), okra (active vegetative / flowering), sugarcane, cucurbits (planting / seedling), fodder jowar (sowing/seedling) in Uttarakhand.
- *Rabi* maize (milk to dough), spring maize (tasseling), tomato, brinjal and cucurbits (flowering/fruiting), onion, garlic (maturity/harvesting), moong, urad (active vegetative), summer vegetables, spring sugarcane (seedling/vegetative), summer green fodder like maize, lobia, sunhemp, dhaincha (vegetative/tillering) in Uttar Pradesh.
- New sugarcane (tillering), cotton (sowing/germination), cucurbits (sowing), berseem (vegetative / cutting), rice (nursery raising) in Punjab.
- New sugarcane (early vegetative), barseem (vegetative / cutting), other fodder crops (bajra, lobia, Sudan grass and Napier grass) (germination/tillering), cotton (sowing/germination), rice(nursery raising) in Haryana.
- Rice (nursery preparation), Irrigated groundnut (field preparation), cotton (field preparation / sowing), *Zaid* crops (moong, groundnut, fodder crops) (sowing / germination / early vegetative), sugarcane (harvesting), new sugarcane (field preparation/sowing), vegetables (tinda, pumpkin, cucumber, coriander, bhindi, ridge gourd) (seedling / vegetative), opium poppy (pre-flowering / flowering) in Rajasthan.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Ladies finger (fruiting / harvesting), sugarcane (elongation), lobia, cowpea, jowar (vegetative / ear head emergence), maize (vegetative / knee high), summer vegetables (flowering / fruiting/harvesting) in Madhya Pradesh.
- Sugarcane (planting/early vegetative), pigeon pea, groundnut (pod maturity), sesame (capsule development/harvesting), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (flowering /fruiting / harvesting), millet (flowering), rice (grain filling), in Chhattisgarh.

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

- Sunflower (head maturity), sugarcane (early vegetative/tillering), summer vegetables (flowering/ fruiting / harvesting), moong, urad (pod maturity) , yam (vegetative) in Bihar.
- Pigeon pea (maturity), onion (vegetative), vegetables flowering / fruiting/harvesting), ginger and turmeric (planting), rice (grain maturity), summer moong (flowering) and maize (vegetative to grain filling) in Jharkhand.
- Jute (active vegetative), turmeric, ginger, yam (Planting /early vegetative) summer rice (maturity/harvesting), sugarcane (tillering), banana (vegetative), cowpea (pod maturity/harvesting), tomato (flowering / fruiting), summer vegetables (vegetative/flowering), sunflower (head formation) in Odisha.
- *Aus rice*(active vegetative/panicle initiation), sesame (harvesting), summer vegetables (vegetative/flowering), jute (early vegetative/branching), ginger, turmeric (planting), maize (flowering),

tomato (flowering / fruiting), brinjal, bitter gourd, pointed gourd, ladies finger (flowering / fruiting), sunflower (flowering), groundnut (pegging to pod formation), chilli (flowering / fruiting), mango (fruiting), Litchi (fruiting) in West Bengal.

- Ginger (vegetative), large cardamom (secondary flowering), summer vegetables (vegetative /flowering), rice (maturity/harvesting) in Sikkim.

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

- Sugarcane (active vegetative /elongation), *boro* rice (harvesting), transplanted early *ahu* rice (panicle initiation / flowering / grain filling), transplanted normal *ahu* rice (active tillering), *sali* rice (nursery raising), maize (cob formation), jute (vegetative), summer pulses (pod maturity/ harvesting), okra, cucurbits (active vegetative/flowering/fruiting), ginger, turmeric, banana, papaya (planting) and summer vegetables (flowering / fruiting/harvesting) in Assam.
- *Jhum* rice (vegetative), WRC rice (nursery raising/ transplanting), maize (vegetative/ cob formation), soybean (vegetative), green gram, black gram (active vegetative/flowering/pod formation), French bean (flowering/pod formation), okra (vegetative/ flowering) and cucurbits (flowering/fruiting), potato (tuber formation), banana (planting) in Arunachal Pradesh.
- *Pre-kharif* rice (flowering/ grain formation), *kharif* rice (nursery sowing), maize (cob maturity/harvesting), groundnut and soybean (sowing/ early vegetative), turmeric, ginger (vegetative), black gram, (sowing) in Manipur.
- *Kharif* maize (sowing), *ahu* rice (vegetative), *sali* rice (nursery sowing), *boro* rice (grain maturity/ harvesting), jute (vegetative), black gram, green gram (vegetative), bottle gourd, ash gourd (vegetative), tomato (planting / vegetative), brinjal (vegetative), potato (vegetative/ tuberization), turmeric, ginger (planting) in Meghalaya.
- Maize (sowing), *jhum* rice (nursery sowing), banana (vegetative / fruiting / harvesting), okra, cucurbits, French bean (sowing), ginger and turmeric (nursery raising / planting) in Mizoram.
- *kharif* maize (sowing), upland rice (tillering), lowland rice (nursery raising), cucurbits (vegetative), chilli (vegetative/flowering), okra (flowering /fruiting), ginger (germination) and brinjal (flowering) in Nagaland.
- *Jhum* rice (late tillering), *boro* rice (harvesting), *Aman* rice (nursery preparation), groundnut (sowing), maize (sowing), summer green gram and black gram (harvesting), summer maize, summer sesamum (harvesting) in Tripura.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (new *adsali*) (tillering / elongation), sugarcane (new pre seasonal) (tillering), new *suru* sugarcane (early tillering), summer rice (grain maturity / harvesting in Western Ghat region and East Vidarbha), summer groundnut (pod maturity / harvesting in Madhya Maharashtra, Marathwada and Vidarbha) in Maharashtra.
- Pearl millet (grain filling/maturity), pulses (vegetative / flowering), summer groundnut (pod formation/maturity), mango (fruit maturity), summer rice (grain formation/maturity), summer vegetables (vegetative / flowering / fruiting), sugarcane (elongation / grand growth) in Gujarat.

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

- Summer groundnut (vegetative /pod development), cotton (vegetative/ flowering) sunflower (maturity/harvest), summer rice (grain formation), Bt. cotton (vegetative to flowering stage/boll development), cowpea (pod maturity/harvest), sesame (capsule maturity), sugarcane (vegetative) and vegetables (vegetative/ flowering) in Andhra Pradesh.
- Black gram (vegetative/flowering), rice (active tillering), summer cotton (flowering/boll formation), sesame (capsule maturity), sugarcane (tillering/grand growth), pearl millet (vegetative), maize (vegetative/flowering), groundnut (vegetative/flowering/pegging), sorghum (vegetative/flowering) in Tamil Nadu.
- *Viruppu* rice (nursery preparation), arecanut (flowering), sugarcane (tillering), banana (planting), rubber (tapping), vegetables (flowering/fruiting /harvesting), pepper, ginger and cardamom (vegetative) in Kerala.
- Mango (harvesting), sugarcane (elongation), arecanut (flowering/nut formation), and banana (fruit development) in Karnataka.

Annexure II

List of Varieties

Punjab

Rice: PR 121, PR 122, PR 118, PR 116, PR 114, PR 113, PR 111, PR 115 etc.

Delhi

Cotton: H-777, H-974, H-1098.

Pigeonpea varieties: Pusa 2001, Pusa991, Pusa992, Paras manak, UPAS 120

Odisha

Ginger: Suprava, Suruchi, Surabhi

Turmeric: Roma, Surama, Rang, Rashm

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

Yam: Shreekirti, Shreerupa, Hatikhoj, Shreeshilpi,

Small yam: Shreelata, Shreekala White yam: Shreesubhra, Shreepriya, Shreedhanya

West Bengal

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

Jharkhand

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

Ginger: Vardhaman, Nadia etc.

Turmeric: Rajendra Sonia.

Maharashtra

Turmeric: Selam, Krishna, Rajapuri and Lokhandi varieties for Marathwada.

Ginger: Mahim, Suruchi and Suprabha.

Rice: Karjat 4, 184, Ratnagiri 24, Pawna and mid late varieties like Phule Samruddhi, Indrayani and Pusa Basmati.

Assam

Ginger: Nadia, Karkai, Maran, Jorhat, Chaina.

Turmeric: Shillong Type, CL-24, PTS-38, PCT-13, VK-145.

Banana: Dwarf variety: Jahaji. Medium tall variety: Chenichampa, Malbhog, Barjahaji.

Maize: Ganga 5, Ganga 101, Hi-starch, Kisan, Vijay, Vikram, Diara

Sali rice:

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

Medium duration rice variety: Satya, Basundhara.

Tripura

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

Groundnut : TAG 24, TG 37A, ICGS 76.

Maize : DMH- 849, 117, HQPM 1, BQPM 9