



National Agromet Advisory Service Bulletin

Friday 26th July 2019

(For the period 26th July to 30th July 2019)



Issued by

India Meteorological Department

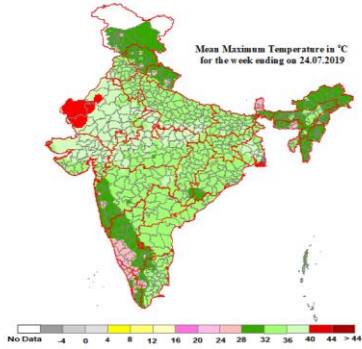
Weblink For

District AAS Bulletin: <http://www.imdagrimet.gov.in/node/3545>

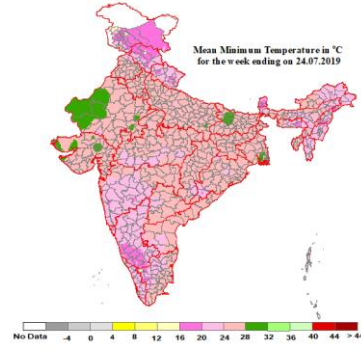
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending on 24.07.2019

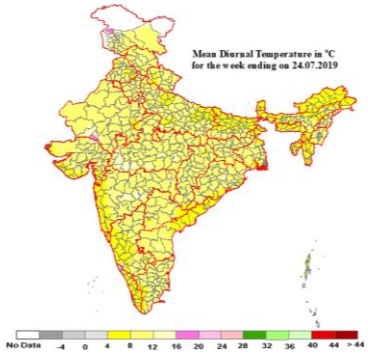
Mean Maximum Temperature (°C) for the week ending on 24.07.2019



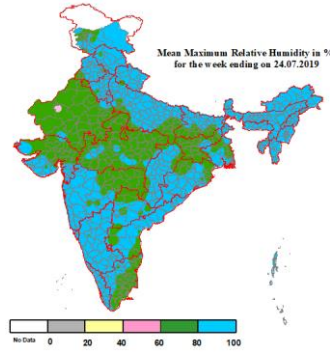
Mean Minimum Temperature (°C) for the week ending on 24.07.2019



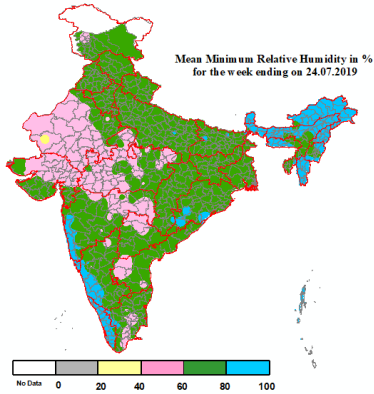
Mean Diurnal Temperature Variation (°C) for the week ending on 24.07.2019



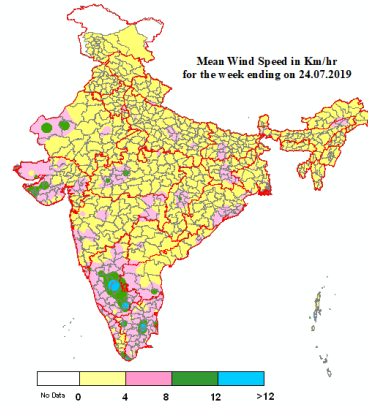
Mean Maximum Relative Humidity (%) for the week ending on 24.07.2019



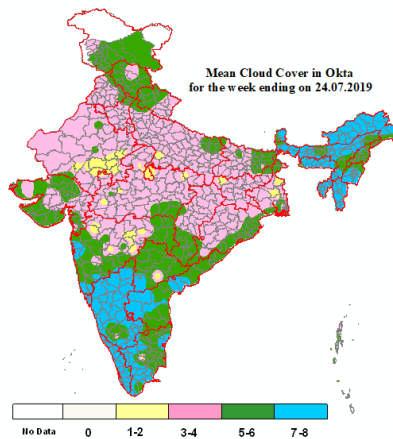
Mean Minimum Relative Humidity (%) for the week ending on 24.07.2019



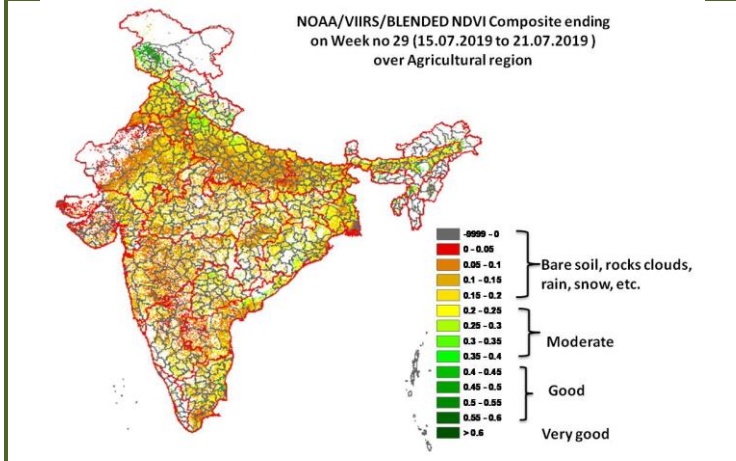
Mean Wind Speed (km/hr) for the week ending on 24.07.2019



Mean Cloud Cover (okta) for the week ending on 24.07.2019

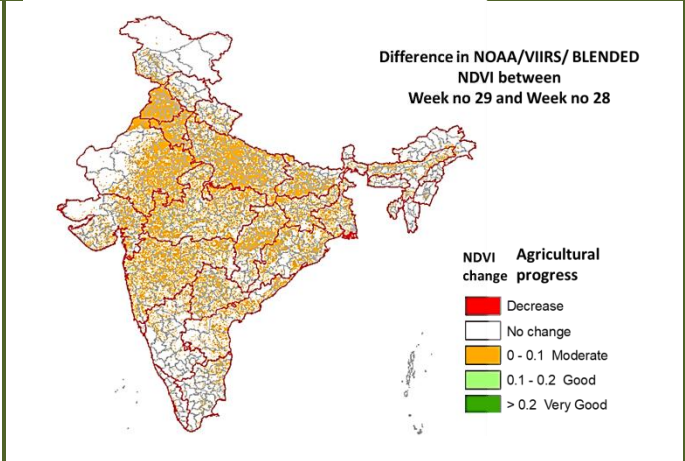


NOAA/VIIRS/BLENDED NDVI composite for the week number 29 (15.07.2019 to 21.07.2019) over Agricultural regions of India



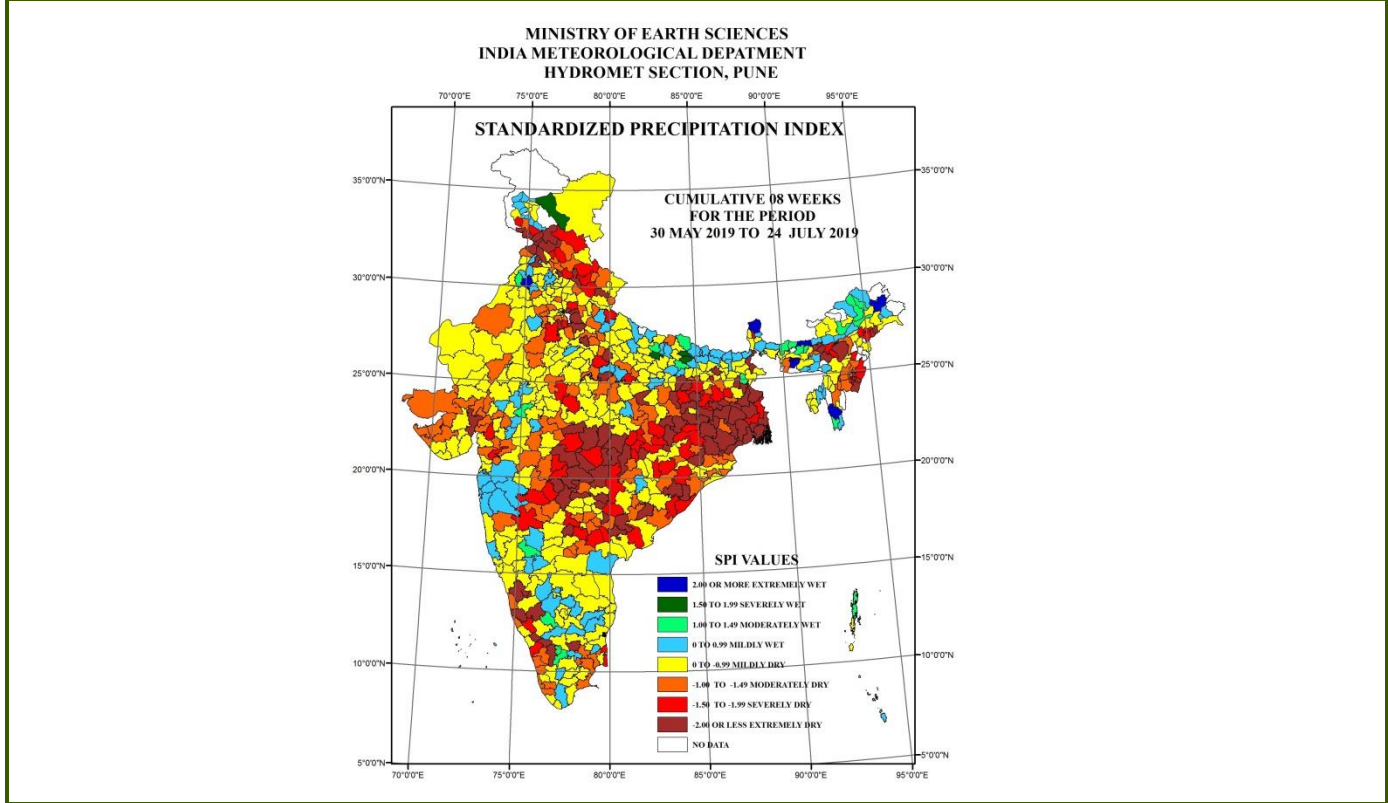
Agriculture vigour was good at many places over valley region of Jammu & Kashmir and in Nagappattinam district of Tamilnadu. Moderate vigour was observed at isolated places of North Telangana, North Coastal Andhra Pradesh, Odisha, North Eastern states, Jharkhand, West Bengal, Western part of Uttar Pradesh, Himachal Pradesh, Uttarakhand, South Interior Karnataka and East Rajashthan. NDVI could not be derived over rest of the country due to persistant cloud cover.

Difference in NOAA/VIIRS/BLENDED NDVI between week number 29 and week number 28



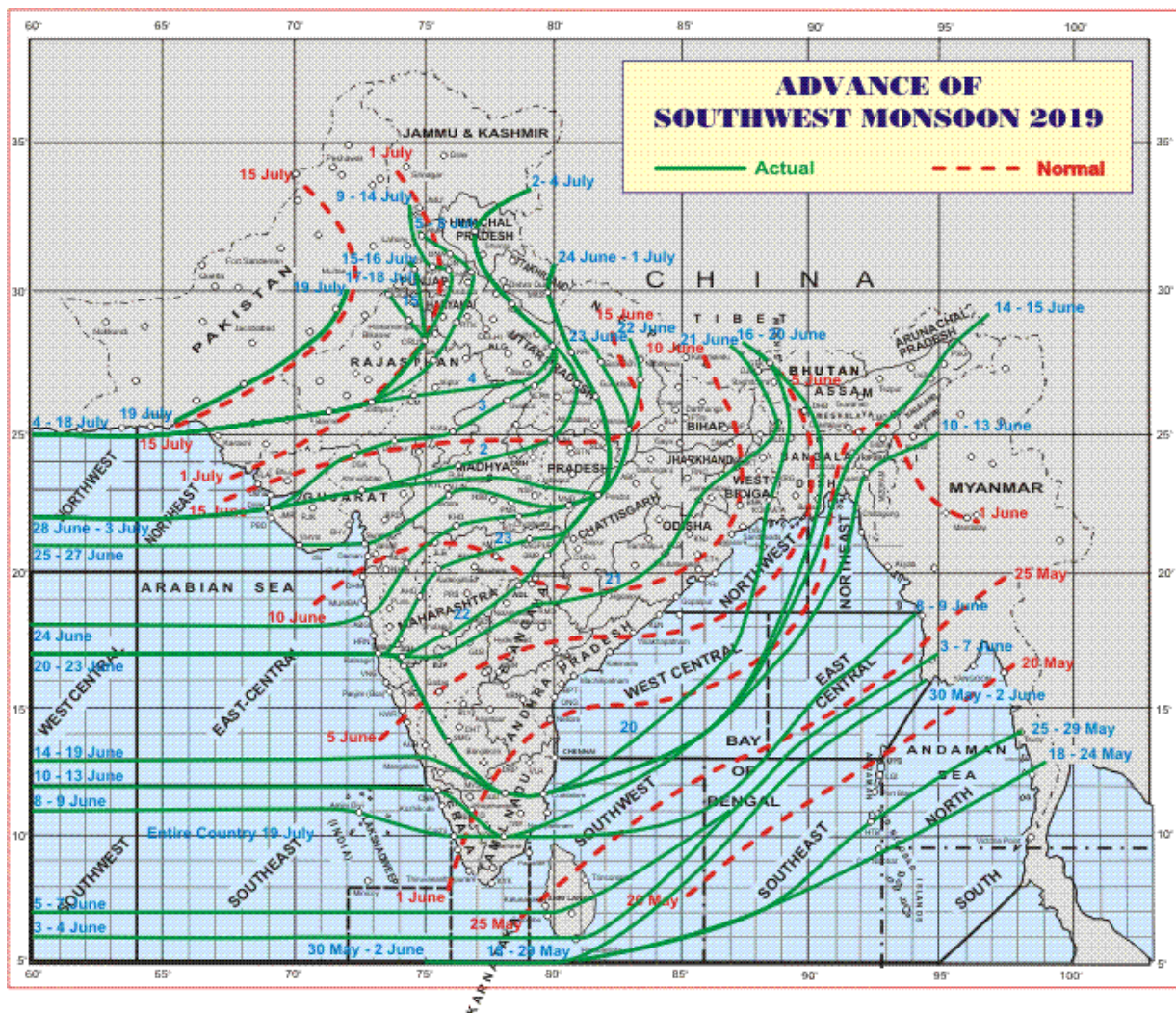
Good agricultural progress was observed over isolated places in Madhya Pradesh, Konkan, East Vidarbha, Chattisgarh, Jharkhand, North Telangan, North Coastal Andhra Pradesh and Uttarakhand. It was moderate over rest of the country.

**Standardised Precipitation Index
Cumulative 08 weeks for the period 30th May to 24th July 2019**



- Extremely/Severely wet conditions exist in Lower Dibang Valley district of Arunachal Pradesh; Baksa district of Assam; Gopalganj, Siwan districts of Bihar; Kargil district of Jammu; East Garo Hills district of Meghalaya; Lunglei district of Mizoram; Bhatinda district of Punjab; Ambedkar Nagar district of Uttar Pradesh; North Sikkim district of Sikkim.
- Moderately wet conditions exist in Papumpara, West Siang districts of Arunachal Pradesh; Barpeta, Kokrajhar, Nalbari, Dhemaji, Chirang districts of Assam; West Champaran district of Bihar; Bagalkote, Mandya districts of Karnataka; Ratlam districts of West Madhya Pradesh; Lawngtlai district of Mizoram; Muktsar district of Punjab; Tirupur district of Tamilnadu; Ballia, Basti districts of Uttar Pradesh; North & Middle Andaman districts of Andaman & Nicobar Islands; Sahibganj districts of Jharkhand.
- Extremely/Severely dry conditions exist in Srikakulam, Vizianagaram, West Godavari districts of Andhra Pradesh; Tirap districts of Arunachal Pradesh; Darrang, Nagaon, Sibsagar and Karbi Anglong districts of Assam; Aurangabad, Begusarai, Gaya, Rohtas, Sheikhpura districts of Bihar; Ahmedabad districts of Gujarat.
- Moderately/ mildly dry conditions experienced in remaining districts in the country.

Advance of SouthWest Monsoon 2019



Weather Forecast for next 5 days valid upto 0830 hours of 31st July 2019

- ◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table-1.
- ◆ No significant change in maximum temperatures likely over major parts of the country during next 4- 5 days.

5 Day Rainfall Forecast (MID-DAY)

26th July 2019

Met-Sub-Division	26-Jul Today	27Jul Sat	28Jul Sun	29Jul Mon	30Jul Tue
1. Andaman & Nicobar Islands	FWS	FWS	WS	WS	WS
2. Arunachal Pradesh	FWS	FWS	FWS	WS	WS
3. Assam & Meghalaya	FWS	WS	WS	WS	WS
4. N. M. M. & T.	FWS	FWS	WS	WS	WS
5. S.H. West Bengal & Sikkim	FWS	FWS	FWS	FWS	FWS
6. Gangetic West Bengal	WS	WS	FWS	FWS	FWS
7. Odisha	WS	WS	WS	FWS	WS
8. Jharkhand	WS	WS	FWS	SCT	FWS
9. Bihar	SCT	SCT	SCT	SCT	SCT
10. East Uttar Pradesh	WS	FWS	SCT	SCT	FWS
11. West Uttar Pradesh	WS	FWS	SCT	SCT	FWS
12. Uttarakhand	WS	WS	FWS	FWS	WS
13. Haryana, Chd & Delhi	WS	FWS	SCT	SCT	FWS
14. Punjab	WS	FWS	SCT	SCT	FWS
15. Himachal Pradesh	WS	FWS	SCT	SCT	FWS
16. Jammu & Kashmir	WS	FWS	SCT	SCT	FWS
17. West Rajsthan	FWS	FWS	FWS	SCT	SCT
18. East Rajasthan	WS	WS	WS	FWS	FWS
19. West Madhya Pradesh	WS	WS	WS	WS	FWS
20. East Madhya Pradesh	WS	WS	WS	WS	WS
21. Gujarat Region	FWS	WS	WS	WS	FWS
22. Saurashtra & Kutch	FWS	FWS	FWS	WS	WS
23. Konkan & Goa	WS	WS	WS	WS	WS
24. Madhya Maharashtra	FWS	FWS	FWS	FWS	FWS
25. Marathwada	FWS	FWS	SCT	SCT	SCT
26. Vidharbha	WS	WS	WS	FWS	FWS
27. Chhattisgarh	WS	WS	FWS	WS	WS
28. Coastal A. P. & Yanam	WS	FWS	SCT	ISOL	SCT
29. Telangana	WS	FWS	FWS	SCT	SCT
30. Rayalaseema	SCT	ISOL	ISOL	ISOL	ISOL
31. T.N.,Puducherry & Karaikal	SCT	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	WS	WS	WS	WS	WS
33. North Interior Karnataka	FWS	FWS	SCT	SCT	SCT
34. South Interior Karnataka	WS	FWS	SCT	SCT	SCT
35. Kerala & Mahe	WS	FWS	SCT	SCT	FWS
36. Lakshadweep	FWS	SCT	SCT	SCT	SCT

% Station Reporting Rainfall

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

Weather Warning during next 5 days

26 July (Day 1): ♦ **Heavy to very heavy rainfall** at a few places with **extremely heavy falls** very likely at isolated places over East Rajasthan; **Heavy rainfall** at a few places with very **heavy falls** at isolated places over Konkan & Goa; **Heavy to very heavy rainfall** at isolated places over West Rajasthan, Madhya Pradesh, Chhattisgarh, Gujarat region, Odisha and Coastal Karnataka and **heavy rainfall** at isolated places over Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Jharkhand, Gangetic West Bengal, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Vidarbha, Madhya Maharashtra, Telangana, Coastal Andhra Pradesh, Interior Karnataka, Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.

♦ **Thunderstorm accompanied with lightning** very likely at isolated places over Jammu & Kashmir and Jharkhand.

♦ **Strong winds**, speed reaching 40-50 kmph, are likely to prevail over westcentral & adjoining southwest Arabian Sea and North Arabian Sea and North & westcentral Bay of Bengal and Gujarat coast. **Rough to very Rough sea conditions** are very likely to prevail along & off West Bengal-Odisha-Andhra Pradesh Coasts. Fishermen are advised not to venture into these areas.

27 July (Day 2): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Rajasthan, Odisha, Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat region and Konkan & Goa and **heavy rainfall** at isolated places over Coastal Karnataka, Coastal Andhra Pradesh & Yanam, Telangana, Madhya Maharashtra, Jharkhand, Gangetic West Bengal and Assam & Meghalaya.

♦ **Thunderstorm accompanied with lightning** very likely at isolated places over Jharkhand.

♦ **Strong winds**, speed reaching 40-50 kmph, are likely to prevail over westcentral & adjoining southwest Arabian Sea and North Arabian Sea and North & westcentral Bay of Bengal and Gujarat coast. **Rough to very Rough sea conditions** are very likely to prevail along & off West Bengal-Odisha-Andhra Pradesh Coasts. Fishermen are advised not to venture into these areas.

28 July (Day 3): ♦ **Heavy to very heavy rainfall** with **extremely heavy falls** very likely at isolated places over Gujarat region; **Heavy to very heavy rainfall** at isolated places over south Rajasthan, Chhattisgarh, Konkan & Goa, south West Madhya Pradesh, Vidarbha, Saurashtra & Kutch and Madhya Maharashtra and **heavy rainfall** at isolated places over Coastal Karnataka, East Madhya Pradesh and Odisha.

♦ **Strong winds**, speed reaching 40-50 kmph, are likely to prevail over westcentral & adjoining southwest Arabian Sea and North Arabian Sea and North & westcentral Bay of Bengal and Gujarat coast. **Rough to very Rough sea conditions** are very likely to prevail along & off West Bengal-Odisha-Andhra Pradesh Coasts. Fishermen are advised not to venture into these areas.

29 July (Day 4): ♦ **Heavy to very heavy rainfall** at a few places with **extremely heavy falls** likely at isolated places over Gujarat state; **Heavy to very heavy rainfall** at isolated places over Konkan & Goa and **heavy rainfall** at isolated places over Coastal Karnataka, Madhya Maharashtra, south West Madhya Pradesh, south West Rajasthan and Nagaland, Manipur, Mizoram & Tripura.

♦ **Strong winds**, speed reaching 40-50 kmph, are likely to prevail over westcentral & adjoining southwest Arabian Sea and North Arabian Sea and North & westcentral Bay of Bengal and Gujarat coast. Fishermen are advised not to venture into these areas.

30 July (Day 5): ♦ **Heavy to very heavy rainfall** with **extremely heavy falls** likely at isolated places over Saurashtra & Kutch and **heavy rainfall** at isolated places over Coastal Karnataka, Coastal Andhra Pradesh & Yanam, Konkan & Goa, Assam & Meghalaya, Jharkhand, Odisha, Gujarat region, Chhattisgarh, Uttarakhand and Nagaland, Manipur, Mizoram & Tripura.

♦ **Strong winds**, speed reaching 40-50 kmph, are likely to prevail over westcentral & adjoining southwest Arabian Sea and North Arabian Sea and North & westcentral Bay of Bengal and Gujarat coast. Fishermen are advised not to venture into these areas.

Weather Outlook for subsequent 2 days from 31st July to 2nd August 2019

- ◆ Fairly widespread to widespread rainfall with isolated heavy falls likely over central India, northeast India and Northern parts of west coast.
- ◆ Scattered to fairly widespread rainfall likely over the rest of the country except over southeast peninsular India, where rainfall is likely to be isolated.

Salient advisories

- As rain/thundershowers likely at most/many places over **Konkan & Goa, Gujarat, Rajasthan, Madhya Pradesh Chhattisgarh** and **Odisha** during the period along with **Heavy to very heavy rainfall** with **extremely heavy falls** very likely at isolated places over Gujarat region from 26th to 29th and over Saurashtra, Kutch on 29th & 30th July, **Heavy to very heavy rainfall at a few places with extremely heavy falls** very likely at isolated places over East Rajasthan on 26th, **Heavy to very heavy rainfall** very likely at isolated places over Konkan & Goa from 27th to 29th, over Rajasthan on 27th, over south Rajasthan on 28th July, over Madhya Pradesh and Odisha on 26th & 27th, over south west Madhya Pradesh on 28th, over Chhattisgarh from 26th to 28th July, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields like vegetables, pulses and maize. Provide mechanical support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to heavy rain.
- In Assam, due to heavy rainfall during the past few days, flood situation is observed in many parts of the State, the following contingency measures are suggested:
 - In Lower Brahmaputra Valley Zone, drain out the stagnant water from the crop fields. Transplanting of seedlings may be done after receding of water level in the main fields. In flood affected areas, if there is complete loss of nursery or early crop stand in main fields, initiative should be taken for raising community nursery for late planting with old seedlings of the varieties like Prafulla and Gitesh.
 - In flood affected areas of Central Brahmaputra Valley and North Bank Plain Zone of Assam, if there is the total damage of seedlings or crops in the main field, farmers are advised to sow medium to short duration rice varieties in nursery bed within 1st week of August. Sow wet seeding of sprouted seeds (@75-80 kg/ha) of short to medium duration varieties. Undertake direct seeding with the photo insensitive short duration variety. In partially affected fields, drain out excess water and apply 1/3rd N2 + 50% K2O as top dressing during the tillering stage after current spells of rain.
- In **Kerala**, drain out excess water from the standing crop fields. Maintain 3-5 cm water level in rice fields. Provide support to standing banana crops as there is chance of high wind speed. In pepper gardens, the vines are to be drenched over a radius 45-50 cm with copper oxychloride 2g / litre@ 5-10 litres/ vine. A foliar spray with 1 per cent Bordeaux mixture may also be applied.
- Utilizing the released and expected rainfall, undertake sowing/transplanting of following *Kharif* crops:
 - In South Interior Karnataka, undertake nursery sowing of rice in Southern Transition Zone.
 - In Southern Telangana zone, continue sowing of Castor, Red gram at closer spacing and short duration hybrids of maize.

- Undertake transplanting of rice in Odisha, Bihar and Chhattisgarh.
 - In Nagaland and Manipur, continue transplanting of rice.
 - In East Uttar Pradesh, continue transplanting of rice. Continue sowing of groundnut, arhar, soybean, sunflower, lobia, jowar, bajra and maize.
- **Thunderstorm accompanied with lightning** at isolated places very likely over **Jharkhand** on 26th & 27th July, provide mechanical support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.

Detailed Agromet Advisories

SOUTH INDIA [TAMIL NADU, TELANGANA, ANDHRA PRADESH, KARNATAKA, KERALA]

Realised Rainfall: Significant rainfall occurred in the all districts except Viskhapatnam and Anantpur district of Andhra Pradesh and B. Kothagudem, Hyderabad, J. Bhupally, Peddapalle, Rangareddy and Wanaparthy districts of Telangana, Rainfall occurred in all the districts of Kerala, in Ariyalur, Chennai, Kanchipuram, Nilgiris, Tiruvallur, Tiruvannamalai, Tiruvarur districts of Tamilnadu in all districts of Coastal Karnataka, in all districts of North Interior Karnataka except in Dharward, Gadag, Koppal and Raichur districts and in Bangalore Urban, Chikkamagaluru, Mysuru, Kodagu and Shivamogga districts of South Interior Karnataka during the week.

Advisories:

Kerala:

- In Kerala, drain out excess water from the standing crop fields. Maintain 3-5 cm water level in rice fields. Provide support to standing banana crops as there is chance of high wind speed.
- In Problem Area Zone, in tapping panels of rubber trees, spray Indofil M45 4g/ litre against fungal diseases after current spells of rain. In pepper gardens, the vines are to be drenched over a radius 45-50 cm with copper oxychloride 2g / litre @ 5-10 litres/ vine. A foliar spray with 1 per cent Bordeaux mixture is also to be given.
- In Central Zone, cloudy weather is congenial for leaf folder attack in *Virippu* rice. It can be controlled by using Trichogramma cards (2CC per one acre), spray Quinalphos @ 2ml per one liter of water after current spells of rain.
- In High Altitude Zone, weather is congenial for bud rot in coconut, apply fertilizers @ 250g Urea, 285g Rock phosphate, 350g Potash, 500 g MgSO₄ and 2 kg lime per plant after current spells of rain.

Andhra Pradesh:

- In North Coastal Andhra Pradesh, continue direct sowing of rice. Due to increasing temperature there is chance of Thrips infestation in paddy at nursery stage. Spray monocrotophos 1.6 ml per litre of water after current spells of rain.
- In Krishna Godavari Zone of Andhra Pradesh, undertake sowing of Direct Sown Paddy after teating the seeds with Carbendazin @ 3 grams per kg of seed.
- In Southern Zone of Andhra Pradesh, continue sowing of rainfed crops like groundnut, redgram, maize and jowar after seed treatment.
- In Scarce rainfall Zone of Rayalaseema, continue sowing of Groundnut, Redgram, Bajra, Fox tail millet, Castor Crops after receipt of sufficient rainfall for sowing. Undertake sowing of non BT seed cotton provided along with the BT cotton seed all around the field as refuge crop.

Telangana:

- In Southern Telangana zone, continue sowing of Castor, Red gram at closer spacing and short duration hybrids of maize. Do not go for sowing of Cotton, Soybean. In view of receipt of deficient rainfall, undertake direct seeding of rice under puddled conditions after receipt of sufficient rains.
- In Northern Telangana, continue sowing Redgram crop as intercrop in cotton and maize to conserve soil moisture. The prevailing weather conditions are favorable for stem borer infection in paddy nursery, to control, apply 800g Carbofuron 3G granules for 5 cents of paddy nursery after current spells of rain.

Tamil Nadu:

- In Western Zone, undertake sowing of gourd vegetables. Also undertake propping for sugarcane and banana crop.
- In North Western Zone, undertake land preparation with compartmental bunding for groundnut sowing to retain moisture in the soil.
- In Cauvery Delta Zone, weather is congenial for incidence of black bug in kuruvai paddy which is in tillering stage, spray Cholpyriphos 20 E.C 500 ml /acre or Neem seed kernel extract 5% on a non rainy day.
- In Southern Zone, weather is congenial for Yellow sigatoka in Banana. Spray 3 times with Carbendazim 10g/ lt or Propiconazole 10g/ lt and teepol (sticking agent) at 10-15 days interval.

Karnataka:

- In Coastal Karnataka, carry out intercultural operations in maize and cotton crops after current spells of rain.
- In North Interior Karnataka, carry out intercultural operations in earlier sown maize, soybean and green gram crops after current spells of rain. Complete sowing of pigeon pea, sunflower, Bt. cotton, bajra, soybean, maize, sesamum and onion crops under sufficient moisture condition. For control of flower dropping in brinjal spray Planofix @ 1ml/4 liters of water + Boran 1g/litre of water after current spells of rain.
- In South Interior Karnataka, undertake nursery sowing of rice in Southern Transition Zone. Prepare 30 seed beds with 25 feet length, 4 feet width and 4 inch height per acre. Add 750 kg Farm yard manure, 5.85 kg Urea, 8.4 kg super phosphate and 2.25 kg Potash and incorporate into soil before sowing. Undertake direct sowing of ragi.

Animal Husbandry

- In Karnataka, vaccinate the livestock for Black Quarter and foot and mouth diseases. Sheep/goats must be dewormed for maximum weight gain and good health. There is chance of Raniket, gumbra diseases in poultry; provide antibiotic drugs through water or through feed. Protect the birds from wet weather and wet floor.

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

- **Realised Rainfall :** Rainfall occurred in Anjaw, Changlang, East Siang, Kurung Kumey, Lohit, Lower Dibang Valley, Papumpare, Tawang, Tirap, Upper Siang, Upper Subansari and West Siang districts of Arunachal Pradesh; Baksa, Barpeta, Bongaigaon, Cachar, Chirang, Dhemaji, Dhubri, Dibrugarh, Hailakandi, Jorhat, Kamrup (Rural), Karimganj, Kokrajhar, Lakhimpur, Nalbari, Sonitpur, Sibsagar, Tinsukia and Udalgiri districts of Assam; all districts of Meghalaya; all districts of Mizoram except Mamit; Imphal West and Tamenglong districts of Manipur; Dimapur, Mokokchung, Tuensang and Zunheboto districts of Nagaland and all districts of Tripura except West Tripura.

Advisories:**Arunachal Pradesh:**

- Complete transplanting of *kharif* rice. Postpone all spraying operations and fertilizer/manure applications as rainfall is expected at most/many places during the period. Provide proper drainage in crop fields to avoid water stagnation.

Assam & Meghalaya:

- In flood affected areas of Upper and Lower Brahmaputra Valley Zone of Assam where the paddy was completely destroyed, undertake sowing of flood resistant varieties of paddy in the nursery beds up to 1st week of August. In heavily flood affected areas, high lands should be selected for raising of community nurseries to meet the seedling requirement of the farmers when water level in the fields subside.
- In Lower Brahmaputra Valley Zone of Assam, due to occurrence of moderate to very heavy rainfall during the past few days, flood situation is observed in many parts of the districts. Drain out the stagnant water from the fields. Transplanting of seedlings may be done after lowering of water level in the main field. In flood affected areas, there may be complete loss of nursery or early crop stand in main field. Initiative should be taken for raising community nursery for late planting with old seedlings of the varieties like Prafulla and Gitesh. Farmers are advised to postpone land preparation for Arhar,

Sesamum and Green gram cultivation in main field. Maintain proper drainage in the fields of standing crops.

- In flood affected areas of Central Brahmaputra Valley and North Bank Plain Zone of Assam, if there is the total damage of seedlings or crops in the main field, farmers are advised to sow medium to short duration rice varieties in nursery bed within 1st week of August. Sow wet seeding of sprouted seeds (@75-80 kg/ha) of short to medium duration varieties. Undertake direct seeding with the photo insensitive short duration variety. In partially affected fields, drain excess water and apply 1/3rd N2 + 50% K2O as top dressing during the tillering stage after current spells of rain.

- In North Bank Plain Zone of Assam, undertake sowing of kharif sesame within 15th August in fertile upland areas for sesame cultivation. Spray Malathion 50 EC @ 1 ml per litre in the field of summer gourds to control fruit fly, red pumpkin beetle and epilechna beetle attack after current spells of rain.

In Meghalaya, continue transplanting of low land Sali rice. After transplanting maintain a thin layer of 2-3 cm stagnating water in the field. Maintain proper drainage in the field of ginger, turmeric and maize fields.

Manipur, Mizoram, Tripura and Nagaland:

- In Nagaland, continue transplanting of TRC/WRC rice and sowing of groundnut. Continue land preparation for sowing of soybean.
- In Nagaland, place Yellow sticky traps coated with grease and sticky oils to attract white flies in chilli crop. Spray NSKE – 4% (Neem seed kernel extract) – 4 kg Neem seed kernel in 100 liters of water against white flies in chilli after current spells of rain
- In Manipur, undertake transplanting of kharif rice. Continue sowing of black gram and millet. To control borer infestation attack in *kharif* maize at tasseling/ silking stage, spray Bacillus Thuringensis var Kurstaki @ 1.5 kg/ha or Coragen 18.5 SC @ 75 ml/ha in 150 litre of water after current spells of rain.
- In Mizoram, to manage Northern leaf blight disease in maize at cob formation stage, spray Approach (Methoxy-acrylates) @ 2 g/litre of water after current spells of rain. Continue transplanting of rice. Drain out excess water in maize, green gram, ginger/turmeric and jhum rice field after current spells of rain
- In Tripura, maintain 2 to 5cm of water in rice fields after 30 days of transplanting. Complete the sowing of maize at the earliest. Cloudy and humid weather is conducive for the attack of Leaf Curl disease in summer brinjal, chilly etc. To manage the attack, apply Imidachloprid @ 2ml per litre of water.

Animal Husbandry:

- In flood affected areas of Upper Brahmaputra valley zone of Assam, vaccinate domestic livestock like cattle, goat and pigs against BQ, HS, Foot and mouth disease as well as anthrax disease. During the monsoon season animals should not be fed with water submerged rotten grasses.
- In Lower Brahmaputra Valley Zone of Assam, keep the animal in raised platform during the flood situation. Maintain a proper distance from the free flowing flooding streams and rivers. Provide seasonal vaccination against viral and bacterial diseases like FMD, BQ, HS etc. supply adequate amount of clean and pure drinking water.
- In Barak Valley Zone of Assam due to flood like situation, poultry may be infected by diseases so farmers are advised to feed tetracycline powder with rice to their poultry, provide sufficient water with 1% salt and mineral mixture.
- In Tripura, monsoon weather could lead to gastrointestinal parasites infection in pig. It is advised to maintain good sanitary conditions of pig sheds.

Fishery:

- In Lower Brahmaputra Valley Zone and Barak Valley Zone of Assam, increase in water level in the fish pond due to continuous rainfall may leads to overflow and destroying of embankment. This may cause escape of fish from pond. Raise nylon net around the pond to prevent escaping of fish. Bamboo piling may be used to protect these earthen dykes from erosion during rainy season.
- In Central Brahmaputra Valley Zone of Assam, farmers interested in rice fish farming should select field having capacity to hold water continuously to a depth of 30cm for several months. The land should be selected keeping in view that it will not be over flooded. The paddy field should have strong dyke of around 40-50cm height.

EAST INDIA [JHARKHAND, BIHAR, ODISHA, WEST BENGAL & SIKKIM, ANDAMAN & NICOBAR ISLANDS]

Realised Rainfall: Rainfall occurred in all districts of Andaman & Nicobar Islands; in Banka, Bhagalpur,

Darbhanga, East Champaran, Gopalganj, Jamui, Katihar, Khagadia, Kishanganj, Lakhisarai, Madhubani, Monghyar, Muzaffarpur, Nawada, Rohtas, Samastipur, Sheohar, Sitamarhi, Vaishali and West Champaran districts of Bihar; in Dumka, Hazaribagh, Jamtara, Koderma, Lohardagga, Ramgarh, Sahebganj and districts Simdega of Jharkhand; in Bolangir, Dhenkanal, Gajapati, Ganjam, Jharsuguda, Kalahandi, Kandhamal, Keonjhar, Khurda, Koraput, Nawapara, Nawarangpur, Nayagarh and Rayagada districts of Odisha; in Bankura and Murshidabad districts of Gangetic West Bengal and in all districts of Sub-Himalayan West Bengal and Sikkim.

Advisories:

Odisha:

- Repair bunds to check water loss from the direct seeded rice fields. Prepare land and undertake transplanting of three to four week rice seedlings in main field. Go for low water requiring non-paddy crops like ragi, green gram, black gram, cowpea, sesame, rice bean, castor, horse gram, etc. and vegetables like cowpea, guar, okra, pumpkin, chilli, brinjal, tomato, etc. Take up coconut plantation.
- To minimize infestation of top shoot borer in sugarcane, spray Lamba Cyhalothrin @2ml/litre of water. For fruit borer, leaf eating caterpillar and leaf miner in tomato, spray Spinosad 45SC@70ml/acre with 200 litres of water. Undertake plant protection measures after current spells of rain.

Bihar:

- Undertake transplanting of 20 to 22 days old paddy seedlings in medium to low land areas on priority basis. Carry out weeding within 3 to 7 days of transplanting. Undertake land preparation/sowing of kharif maize. Take up nursery sowing of chilli in raised seed-beds. Undertake planting of healthy banana suckers. Continue land preparation for kharif onion and sowing of pigeon pea. Continue planting of mango, guava, papaya, banana, jackfruit, litchi and citrus plants. Regular monitoring of pests is advised in vegetables crops.

Jharkhand:

- **Thunderstorm accompanied with lightning** at isolated places very likely over Jharkhand on 26th & 27th July, provide mechanical support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.
- In fallow land, farmers may proceed for seeding of Marua, Arhar, Urd or Mung during favourable weather condition. In medium land, proceed for sowing of short duration maize varieties and direct seeding of rice with least duration varieties. Barren land may be utilized with plantation of either fruit or timber plant. Continue sowing of soybean, til and cow pea crops.

West Bengal:

- In Sub-Himalayan West Bengal, continue sowing of early cauliflower in nursery bed and planting of ginger and turmeric in the main field.
- To prevent blight in rice seedlings in paddy nursery, apply Tricyclozole @ 0.5g/litre of water. To control downy mildew of cucurbits spray Metalaxyl + Mancozeb @ 2-2.5g/liter of water. Undertake plant protection measures after current spells of rain.
- In Gangetic West Bengal, repair bunds of Aman rice fields to avoid run off of rain water. Prepare land for sowing of tomato, brinjal, chilli, etc. Make ridge furrow system for sowing. Arrange proper drainage channel around the bed. Take up preparation of nursery for brinjal(Muktakeshi) maturing in the month of September, under low poly tunnel. It is advised to use insect proof nets.
- Remove the infected fruits of pointed gourd and spray Ridomil-MZ @ 2.5g /litre of water at clear weather conditions.

Andaman & Nicobar Islands:

- In Andaman & Nicobar Islands, close the bunds in rice main field and undertake transplanting of 30 days old seedlings of medium duration rice. Remove weed manually from Chilli and Okra fields. Keep the soil dry near the root area of vegetable plants to avoid diseases.

Animal Husbandry:

- In Bihar, vaccinate cattle against Anthrax, BQ and HS diseases.
- In Jharkhand, vaccinate cattle against FMD, HS, BQ and Anthrax diseases. Protect poultry birds against Ranikhet and Gamboro diseases.
- In Odisha, make arrangements for sufficient clean drinking water for the livestock. Do not allow animals

to graze in open field between 11 AM to 3 PM. Arrange to feed the animals with green forages on regular basis.

- In West Bengal, vaccinate cattle against FMD, BQ and HS diseases. Provide clean drinking water to animals. Restrict grazing during noon time.
- In Andaman & Nicobar Islands, provide mineral mixture to the young/small animals (calf, goats and pigs) @ 20 to 25 g. Do not feed the animals with green fodder alone, dry fodder along with grain mixture may be also given.

Fishery:

- In Odisha, purchase fish seeds from a reliable fish seed producer and stock 3000 nos. of advance fingerlings of more than 8cm size per one acre of water area. In case of three species combination, the stocking numbers should be for Catla-900, Rohu-1200 and Mrigal-900. In case of six species combination, the stocking numbers should be for Catla-800, Rohu-1200, Mrigal-500, Common carp-300, Grass carp-100 and Silver carp-100. In any situation, the average water depth of the pond should not be less than 5ft level.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

Realised Rainfall: Rainfall occurred in all districts of KonKan & Goa, in all districts of Madhya Maharashtra except Solapur, in Akola, Nagpur, and Wardha districts of Vidharbha, in Marathwada districts except in Jalna, Beed, Osmanabad, Parbhani districts, in Aravalli, Bharuch, Chhota Udaipur, Dagar & Nagar Haveli, Dangs, Narmada, Navsari, Surat, Tapi, Valsad district of Gujarat Region, in Amreli, Bhavnagar, Gir Somnath, Jamnagar, Junagarh, Morbi, Porbandar, Rajkot and Surendranagar districts of Saurashtra, Kutch & Diu region. Weather remained mainly dry over rest of the the region.

Advisories:

- As rain/thundershowers likely at most/many places over **Gujarat** during the period along with **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Gujarat region from 26th to 29th and over Saurashtra, Kutch on 29th & 30th July, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.

Maharashtra:

- In Konkan region, maintain 2-3 cm water level in rice fields. To protect the new flush from mango hoppers, leaf eating caterpillars, shoot borer and midge fly, spray Dimethoate 25 EC @ 12 ml or Monocrotophos 36 WSC @ 11 ml per 10 litres of water after current spell of rain. Undertake earthing up operation in vegetables like okra, brinjal, tomato and chilli. Drain out excess water from orchards and vegetables.
- In Madhya Maharashtra, maintain 2-3 cm water level in rice fields. Undertake transplanting of finger millet (20-25 days old), weeding in early transplanted finger millet, groundnut, soybean fields, in early sown pearl millet, green gram and soybean and sowing of 5 lines or 20% non-Bt cotton around Bt cotton so as to maintain resistance in Bt cotton against bollworm. To control sucking pests, undertake sowing of maize, cowpea and marigold as trap crop, intercrop or mixed crop in cotton. Undertake hoeing in groundnut fields. To control sucking pests in green gram / black gram, spray Imidacloprid 17.8 SL @ 2 ml in 10 liters of water after current spell of rains.
- In Marathwada, undertake light hoeing and weeding operation in early sown pearl millet and weeding in orchards like pomegranate and sapota. To control leaf eating caterpillar in soybean, spray Profenophos 50 % @ 20 ml per 10 liter of water during clear weather condition.
- In Vidharbha, with sufficient realized rainfall and soil moisture condition remaining kharif sowing under late sown condition may be undertaken with recommended contingency crops and intercropping systems. Alternate crops with intercropping system under prevailing late sown condition include sesame (AKT-64), pearl millet (PKV Raj, Phule Adishakti, Phule Mahashakti), sunflower (TAS-82, LFSH-171), pearl millet+pigeonpea(4:2), sunflower+pigeonpea (2:1) intercropping system. Undertake intercultural operations (hand weeding/hoeing) for timely control of weeds in earlier sown soybean. With sufficient realized rainfall and soil moisture condition for remaining sowing of sole pigeonpea recommended varieties include AKT-8811, PKV Tara, BSMR-853, BSMR-736, ICPL- 87119. Avoid sowing of green gram and black gram under prevailing late sowing condition. In earlier sown crops (20-25 days

old), undertake intercultural operations (hand weeding/hoeing) for timely control of weeds after current spells of rain.

Gujarat

- In South Gujarat, continue land preparation for transplanting of rice seedlings and undertake new plantation of banana.
- In Middle Gujarat, continue land preparation and transplanting of tobacco and vegetable crops (tomato, chili, etc) and continue transplanting where seedlings are ready. Carry out gap filling in early sown pearl millet, green gram and groundnut crops.
- In North Gujarat, continue sowing of groundnut, pearl millet, sesame, maize, green gram, black gram and cluster bean crops. Carryout hand weeding and intercultural operations in earlier sown cotton and vegetable crops after current spells of rain. Undertake sowing of short duration pulses crops as inter crop in orchards.
- In Saurashtra & Kutch, undertake thinning in pulses, pearl millet, sesame crops. Carryout intercultural operations in earlier sown sesame, pearl millet, cotton and groundnut crops. Undertake transplanting of vegetable (tomato, chilli, brinjal and early cauliflower) crops where seedlings are ready and sowing of lady's finger, cluster bean, kidney bean, cowpea, tur, amaranthus etc. and cucurbits.
- In South Gujarat, due to cloudy weather, there are chances of incidences of sucking pests in cotton; spray Emidacloprid or Thiomithozam @ 4 ml/10 liters of water.

Animal Husbandry

- In Gujarat, provide 30-35 gm mineral mixture in daily diet of animals. Care should be taken in rainy days for cattle and stored dry fodder.

CENTRAL INDIA [M.P., CHHATTISGARH]

Realised Rainfall: Rainfall occurred in Balaghat, Jabalpur, Katni, Mandla, Satna and Umaria districts of East Madhya Pradesh, Betul, Bhind, Guna, Indore, Jhabua and Vidisha districts of West Madhya Pradesh; Balod, Dhamatri, Kanker, Kondagaon, Koriya Mahasumund Narayanpur Rajnandgaon, Sukma, Surajpur and Surguja districts of Chhattisgarh.

Advisories:

- As rain/thundershowers likely at most/many places over Madhya Pradesh and Chhattisgarh during the period along with **Heavy to very heavy rainfall** very likely at isolated places over Madhya Pradesh on 26th & 27th, over south west Madhya Pradesh on 28th and over Chhattisgarh from 26th to 28th July, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.

Madhya Pradesh

- In Bundelkhand Zone, as there is possibility of rainfall during next five days; hence farmers are advised to start transplant of paddy in main field and dip the roots of paddy seedling in the azotobacter culture before transplanting the seedlings.
- In Jabhua Hill and Satpura Plateau Zone, complete sowing of soybean and maize after current spells of heavy rain. Continue sowing of Bottle gourd, Pumpkin, cucumber, Bitter gourd and Ridge gourd.
- In Satpura Plateau Zone, farmers are advised to follow the line sowing through seed drill for the crops like soybean, maize, arhar, urad and moong crops after proper seed treatment.
- In Central Narmada Valley Zone, complete sowing of soybean and maize. Undertake planting for new orchards.
- In Malwa Plateau Zone, continue sowing of pigeon pea and cotton and undertake planting of ginger and turmeric. Apply intercultural operations in all the sown crops during Kharif season. In present weather conditions, rouging of viral infested crop should be done in chilli. Infected crop should be uprooted and buried in the soil. After rouging, spraying of Imidacloprid @ 0.3 ml per litre of water is advised to control the vector after current spells of rain.

Chhattisgarh:

- In North Hill Zone, complete the transplanting of rice as early as possible. In the transplanted rice field water should be stored up to 5 cm, more than that will cause low tillering. Transplanting of paddy seedlings in upland areas should be avoided. Instead of that, intercropping of maize with Urd is advised. Continue sowing of soybean, arhar, sesamum, and maize crops. Undertake planting of fruit crops i.e. Papaya, Guava, Mango, Litchi, and Pomegranate etc. Undertake sowing of brinjal, early tomato, chilli and onion in the nursery in the upland areas.
- In Chhattisgarh Plain Zone, undertake transplanting of rice if seedlings are ready. Mat type nursery should be prepared for automatic paddy transplanter. Soybean and other pulses crops like arhar should be sown with proper drainage.

- In Bastar Plateau zone, for Early and medium duration rice varieties go for line sowing method, as this method will minimize the labour cost as well as prevent from Biyasi. Farmers are advised to start plantation of banana. At nursery stage of rice crop for the control of insects like stem borer gall midge and white & brown hopper apply Carbofuron 3 G@33 kg or phorat 10G @ 10 kg per /hectare and for cut worm clorpyrifos 20% 2500 mm or daiclorovash 80% 600 mm after current spells of rain.
- **Animal Husbandry:**
- In Madhya Pradesh, there is a possibility of spread of foot and mouth disease in animals for control, vaccinate the animals. Vaccinate the Goat to control PPR disease.
- In Chhattisgarh, dairy animal should not be allowed to drench in rain. Cattle shed should be kept dry as far as possible to prevent from foot rot disease. The rainwater should not be allowed to accumulate. In case the floor is cemented then the floor washing should be done with Phenyl and repair of roof top should be done to stop leakage.

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

Realised Rainfall: Rainfall occurred in New Delhi, North East Delhi, North Delhi, South West Delhi, South Delhi districts of Delhi, Faridabad, Gurgaon, Jhajar, Mahendargarh, Rewari, Rohtak districts of Haryana, Kapurthala, Moga, Muktsar districts of Punjab, in Ambedkarnagar, Bahraich, Balrampur, Banda, Barabanki, Basti, Deoria, Faizabad, Farrukhabad, Gonda, Gorakhpur, Kaushambi, Lukhnow, Maharajganj, Shrawasti, Sidharthnagar and Sultanpur districts of East UP and only Firozabad district of West UP, in Bilaspur, Hamirpur, Kangra, Kullu and Una districts of Himachal Pradesh; Poonch, Reasi and Udampur districts of Jammu & Kashmir and Bageshwar, Nainital, Rudraprayag and Uttarkashi districts of Uttarakhand.

Advisories:

- As rain/thundershowers likely at most/many places over Rajasthan during the period along with **Heavy to very heavy rainfall at a few places with extremely heavy falls** very likely at isolated places over East Rajasthan on 26th, **Heavy to very heavy rainfall** very likely at isolated places over Rajasthan on 27th, over south Rajasthan on 28th July, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.

Jammu & Kashmir:

- In Valley Temperate Zone, carry out weeding operation in pulses. Carry out intercultural operations in fodder crops like jowar, bajra and maize. Hand pollination may be done in bottle gourd. Undertake land preparation for sowing of carrot.
- In Sub Tropical Zone, carry out hoeing and weeding operations in kharif pulses. Carry out weeding operation in okra and turmeric fields.
- In Intermediate Zone, carry out hoeing and weeding in paddy 15 days after transplanting. If symptoms of blast are observed in paddy, apply Trycycloazole @ 0.06 % or 1 ml in 1.5 liters of water on a non-rainy day. Carry out weeding operation at regular intervals in maize crop. Ensure staking with plastic string in tomato and cucurbits (bottle gourd, bitter gourd, sponge gourd and cucumber) for better crop stand against gusty winds.
- In Cold Arid Zone, carry out regular pruning of extra foliage in tomato to get larger and quality fruit size. Carry out hoeing and weeding operations in cruciferous crops and onion in the open field conditions. Apply Neem oil @ 4ml/litre to control aphids on vegetables.

Himachal Pradesh:

- In Mild Hills Sub Humid Zone, spray Fenazaquin (50ml) or Propargite (200ml) per 200 litres of water on apple trees, in case of mite infestation. In case there is attack of Pomegranate aphid, apply Imidacloprid @ 60ml/200 litres of water after current spells of rain.
- In High Hill Temperate Dry Zone, carry out weeding operations in peas. If white powder appears on pea leaves, spray Contaf @ 0.5ml / litre of water or Karathane @ 0.5ml / litre of water. Undertake weeding operation in potato field after current spells of rain.
- In Mid Hills Sub Humid Zone, carry out hoeing and weeding operations in basins of fruit crops like apple, peach, pear and plum. Spray Redomil gold 25 gram /10 litres of water to control fruit borer and leaf spot diseases in tomato after current spells of rain.

Punjab, Haryana and New Delhi

- In Punjab, continue transplanting of vegetables (tomato, chilli, brinjal, cauliflower). Complete sowing of

cotton including Bt cotton or desi Cotton and planting of turmeric. Complete the transplanting of basmati rice. Complete the sowing of mash and moong. Undertake necessary intercultural operations in the cotton fields to keep the field free from weeds.

- In Haryana, continue transplanting of matured seedlings of tomato, cauliflower, cabbage in prepared field and complete the sowing of ladyfinger, bottle gourd, cucumber, ridge gourd and summer radish. Complete transplanting of rice and continue land preparation for sowing for pulses i.e. green gram, lobia, moth. Due to possibility of rain farmers are advised to drain out the excess rain water in the cotton crop if required. Farmers are advised to withhold irrigation and spray.
- In Delhi, continue transplanting of nursery for early cauliflower, tomato, chilli and brinjal whose seedlings are ready. Undertake sowing and transplanting of paddy where irrigation facilities are available. If paddy nursery has been damaged due to high temperature; farmers are advised for direct sowing of germinated seeds of short duration varieties of paddy. Undertake sowing of soybean, maize, bajra and short duration varieties of pigeon pea. Undertake sowing of cucurbits. Constant monitoring of cucurbitaceous crops against attack of mite and jassid, spray Phosmite @ 1.5 - 2 ml per litre of water to control, when sky is clear.
- In Haryana, due to favourable weather condition, there may be chance for infestation of Jassid in cotton crops, farmers are advised to keep monitoring of the crops.
- In Undulating Plain Zone of Punjab, prevailing weather conditions may increase attack of fruit borer in tomato and fruit & shoot borer in brinjal, spray Coragen 18.5 SC @ 60 ml in tomato and 80 ml in brinjal for control of the insects during clear weather. Due to sporadic rainfall in the region, sucking pest population may increase which can also transmit Mosaic disease in Mung and Mash. Spray recommended insecticides for control of sucking pest after current spells of rain.

Uttar Pradesh

- In East Uttar Pradesh, continue transplanting of paddy. Continue sowing of groundnut, arhar, soybean, sunflower, lobia, jowar, bajra and maize. Continue planting of new fruit orchards. Make arrangements for drainage of excess water under heavy rainfall condition in the fields. Carry out broadcasting of Zinc Sulphate @ 25kg or spraying of Zinc Sulphate @ 5kg plus lime @ 2.5kg in 100 litres of water per hectare for control of khaira disease in paddy crop.
- In West Uttar Pradesh, continue transplanting of 20-25 days old paddy seedlings in the main field. In Western Plain zone, undertake sowing of sorghum, pearl millet, groundnut, pigeon pea, black gram, green gram and groundnut at optimum soil moisture conditions. Make arrangements for drainage of excess water under heavy rainfall condition.

Uttarakhand:

- In Bhabar and Tarai Zone, to control the weeds in transplanted paddy, spray solution of Butachlor (50 EC) @ 3 litres/ 750 litres of water after current spells of rain . In hilly areas, undertake sowing of radish, spinach, rai, turnip in unirrigated condition. To control late blight in tomato, spray solution of Mancozeb @ 2.5 g/litre of water after current spells of rain.
- In Sub-Humid Sub-Tropic Zone, complete transplanting of rice. Carry out weeding in early transplanted rice crop. Drain out excess water from vegetable fields.
- In Hill Zone, apply second dose of urea after 3 weeks of transplanting of paddy. Harvest mature fruits of tomato, capsicum etc. Remove rotten mulch. Pick the matured fruits of apple, pear etc. Carry out gap filling, hoeing and weeding operations in finger millet.

Rajasthan:

- In Transitional Plain Zone of Inland Drainage Zone, undertake sowing of bajara and rainy season cucurbits (bottle gourd, ridge gourd, bitter gourd & cucumber etc) after current spells of heavy rain.
- In Semi-Arid Eastern Plain Zone, undertake planting of fruit crops like mango, plum, pomegranate, Aonla.
- In Arid Western Plain Zone, weather is congenial for thrips (which causes stress) in cotton, spray Acetamiprid or Thiomethoxam 3 g/litre of water after current spells of rain.
- In Sub Humid Southern Plain and Aravali Hill Zone undertake sowing of guar. Also attack of Falls Army Worm reported in maize, spray of Thiomithocsam 12.6 ml or Lemdasaihelothrin 9.5 ZC 200 ml or Cholentraniliprol 18.5 SC 150 ml or Spinotoram 11.7 SC 250 ml/ha after current spells of rain.

Animal Husbandry:

- In Rajasthan, keep cattle in sheds during heavy rainfall period.
- In Uttar Pradesh, give vaccination doses against possibility of foot and mouth disease and langra in cow/buffalo.

Floriculture :

- In Mid Hills Sub Humid Zone of Himachal Pradesh, harvest gladiolus spikes at colour bud stage leaving atleast two-three pairs of leaves on the main plant. Plant chrysanthemum rooted cuttings in the fields.

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