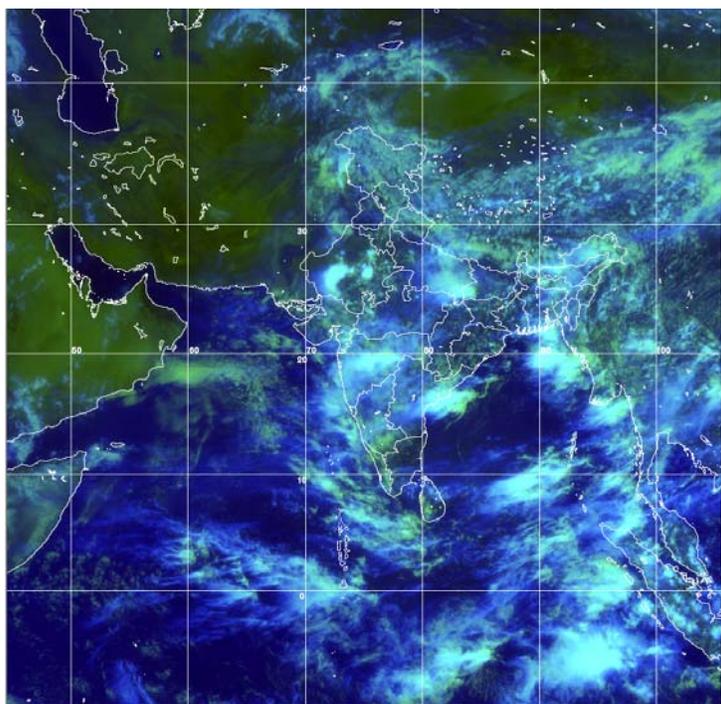




National Agromet Advisory Bulletin

Thursday, 12th August, 2010
(For the period 12th August to 16th August, 2010)

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Weekly Summary of Agromet Advisory Services in India

Long dry spell and erratic distribution of rainfall during almost a month in the eastern region of the country particularly in Bihar, Jharkhand and a few districts of West Bengal affected sowing / transplanting and other agricultural operations. Adverse effect of dry spell on crops is also reported from some districts of Uttar Pradesh. Rice seedlings at many places in these states (28 districts in Bihar and 12 districts in Jharkhand) are either over aged or wilting. The transplanted rice crops, which are established and at tillering stage, are facing severe moisture stress condition. In south Bengal (Murshidabad, Nadia, 24 Parganas (South & North), Birbhum, Purulia, Bankura and Hoogly districts), around 30-35% transplanting of rice has been undertaken; a relatively good shower within a week will help the agricultural operations and save the crops in these districts.

Considering more likely rainfall towards the eastern parts of the country from 16-22 August, based on the outputs from different models, following contingency measures need to be taken up in Bihar.

1. Urd (T-9, Navin, Pant Urd 19 etc.), pigeon pea (Bahar, Narendra, Arhar 1 etc.) and sunflower (Surya, Paradevic, Morden etc.) crops should be sown now. Kulthi and castor crops can also be taken at this time.
2. Short duration rice varieties like Saket 4, Prabhat, Saraoj, Richhariya etc. can be selected in medium land situations.
3. Farmers should utilize the available rain water and sow rice with 2-3 seedlings / hill and closer spacing with recommended nutrient level.
4. Yambeam, vegetables such as cauliflower, radish, pointed gourd etc. can be grown profitably. Farmers are advised to transplant Kuwari, Patna Early, Pusa Katki, Pusa Deepali and Hajipur Agat varieties of cauliflower. Farmers are also advised to sow Rajendra Baigan-2, Rajendra Annapurna, Pant Rituraj, Pant Samrat, Swarn Pratibha and Arka Navnit varieties of brinjal at this time.
5. Fodder crops like Jowar, maize, lobia could also be grown.
6. Provide life saving irrigation to standing rice crops where water is available, so that with occasional rains crops can sustain.
7. In upland areas which are now vacant and rice could not be transplanted owing to deficit rainfall, farmers are advised to take up tori and September arhar. September arhar can be sown after 25th August.
8. SRI method may be adopted for getting maximum yield of rice with water requirement only at critical growth stages. Short duration rice varieties such as Turanta, Prabhat, Saket-4, Pusa 2-21 etc. can be chosen for this purpose.

Contingency plans for Jharkhand State are –

1. Farmers are advised to complete sowing of direct seeded *khari* crops on uplands. In medium land, short duration varieties of maize (Birsa Vikas Macca-2 and Birsa Macca -1) and pigeon pea (Birsa Arhar-1, UPAS-120, Narendra Arhar -1) can be taken. Sowing of kulthi (Madhu, Birsa Kulthi-1) and niger (Birsa Niger-1 and 2) can also be taken.
2. In vegetables, early crops of ladies finger (Arka Anamika, Pusa A-4, Versa, Uphar), lobia (Pusa Falguni, Pusa Komal, Narendra Lobia) and French bean (Swarnalata, Birsa Priya, Pant Annapurna) are recommended. Preparation of nursery for tomato (Pusa Ruby, Swarn Lalima), cabbage (Golden Acre, Pride of India) and cauliflower (Pusa Dipali, Pusa Ketki) can also be undertaken.
3. Farmers can grow fodder crops like maize (African Tall, J-1006), fodder lobia (UPC-4200) and Jawar.
4. Transplanting of rice is in progress in very small area where good rainfall was received.

Following contingent planning may be undertaken by the farming community in different rainfall deficient districts of West Bengal.

1. In uplands and medium lands, sowing of urd (Navin), Arhar (Bahar and Pusa9) etc. can be done.
2. Extra early duration (75 to 85 days) rice varieties like Turant dhan and Prabhat can be direct seeded in midlands upto 25th August.

3. Close planting (40-45 hills / sq. m) of long duration high yielding rice varieties upto 55 days old seedlings can be done in lowlands. Balanced use of P & K is required to avoid high yield loss due to delayed planting.
4. In rainfed low lands, photosensitive rice varieties upto 65 days old seedlings can be done @ 40-45 hill/sq. m.
5. Double transplanting of rice can be done with 30+45 days old seedlings of long duration or photosensitive varieties upto 30th August.
6. Weeding and mulching should be done in already sown maize, Arhar and other crops facing drought.
7. Available ground water should be used to moist the field for sowing of pulses (urd, moong, arhar) and oil seeds (Sesame, castor, Ground nut) in uplands.
8. Maximum possible ground water should be used to save the rice nursery. Fertilizer should be applied judiciously. Avoid high N-dose.

In Uttar Pradesh, acute dry conditions prevailed in Central Plain Zone (Faethpur, Pratapgarh, Allahabad, Chitrakutnagar and Kausambi districts) and drying of rice seedlings were reported. However, due to good rainfall during last week, seedlings at many places recovered from moisture stress. Dry weather conditions also prevailed in Bundelkhand Zone (Jalaun, Jhansi, Lalitpur, Mahoba, Banda and Hamirpur districts) which resulted in wilting of rice at seedling and early vegetative stages. In Northeastern Plain Zone (Bahraich, Shrawasti, Balrampur, Gonda, Kushinagar, Siddharthnagar, Maharajganj) also, there is report of poor rainfall conditions resulting in 50-60% loss of standing rice crop. Farmers are advised to select oilseeds, pulses, bajra and linseed for sowing as alternate crops. Short duration varieties of rice like Ratna, Saket-4, Narendra-7, Govind etc. may also be selected for upland conditions. Farmers are also advised to undertake gap filling and adopt closer spacing for better crop stand.

Except some flood affected districts in Gujarat and Orissa, overall crop conditions in the remaining states are quite satisfactory and crop and location specific advisories are being issued to the farmers based on realized and forecast weather.

Distribution of rainfall (% departure from normal) of the districts receiving subdued rainfall in Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal for last five Weeks

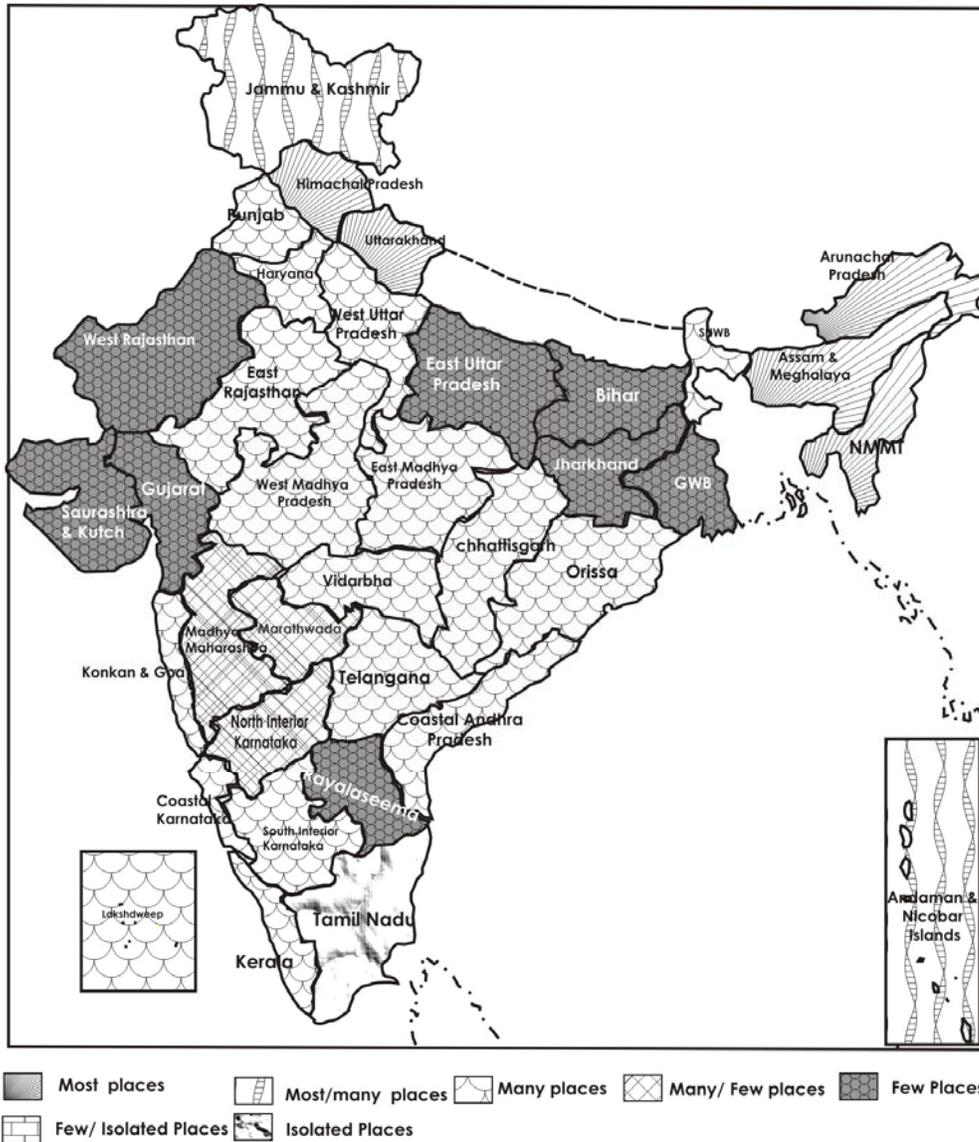
Uttar Pradesh					
More than 3 weeks continuously deficient to no rain					
East Uttar Pradesh	14.07.10	21.07.10	28.07.10	04.08.10	11.08.10
Ballia	-8	-41	-47	-95	-88
Banda	58	-20	-36	-33	-77
Jaunpur	-66	-35	-39	-52	-100
RaiBareilly	-92	-43	-45	-57	-87
Sultanpur	-67	-30	-25	-24	-99
West Uttar Pradesh					
Agra	-85	-78	-59	-27	-92
Aligarh	-96	-86	-60	-28	-79
Meerut	-7	-54	-28	-32	-83
3 weeks continuously deficient to no rain					
East Uttar Pradesh					
Ambedkar Nagar	-67	17	-84	-83	-100
Azamgarh	-59	11	-69	-42	-99
Balrampur	-36	-19	-29	-95	-95
Basti	-66	1	-91	-89	-73
Deoria	-7	4	-63	-73	-90
Faizabad	-50	104	-48	-51	-85
Gazipur	201	-5	-73	-85	-90
Gorakhpur	83	52	-59	-97	-95
Kushi nagar	-44	19	-53	-100	-99
Maharajganj	-59	-11	-33	-91	-96
Sant Ravidas Nagar	-62	4	-74	-75	-100
Sidharthnagar	-61	-2	-67	-95	-96
West Uttar Pradesh					
Baghpat	11	-9	-70	-25	-81
Muzzaffarnagar	9	-1	-76	-45	-83
Shahjahanpur	-69	207	-26	-42	-21
2 weeks continuously deficient to no rain					
East Uttar Pradesh					
Allahabad	-59	60	14	-76	-90
Bahraich	-37	70	14	-90	-76
Barabanki	-42	-2	47	-80	-84
Fatehpur	-78	-31	-1	-66	-58
Gonda	-32	-9	-9	-81	-48
Hardoi	-68	71	113	-40	-82
Kanpur City	-63	43	27	-45	-90
Kanpur Dehat	-35	203	-11	-48	-83
Lucknow	-63	105	157	-44	-100
Pratapgarh	-36	11	62	-72	-100
Shrawasti	-38	103	28	-42	-30
Sitapur	-35	167	48	-82	-71
Sonbhadra	-6	-53	-5	-62	-96
Unnao	-60	120	57	-92	-95

Bihar					
State/Districts	14.07.10	21.07.10	28.07.10	04.08.10	11.08.10
More than 3 weeks continuously deficient to no rain					
Kathihar	16	-85	-90	-74	-90
Khagadia	-37	-47	-64	-71	-93
Madhubani	5	-26	-81	-65	-91
Patna	76	-68	-53	-81	-81
Samstipur	77	-25	-88	-58	-48
Sitamarhi	-23	-45	-67	-58	-75
Vaishali	-45	-42	-83	-70	-98
3 weeks continuously deficient to no rain					
Darbhanga	98	73	-83	-85	-94
Jamui	21	-16	-29	-56	-100
Madhepura	0	-6	-77	-81	-89
Muzaffarpur	80	-18	-69	-78	-91
Saharsha	97	70	-31	-22	-96
Supaul	-24	-10	-62	-53	-100
West Champaran	153	23	-42	-44	-91
2 weeks continuously deficient to no rain					
Aurangabad	-46	-34	68	-55	-99
Bhagalpur	-17	-24	1	-55	-98
Bhojpur	-44	-75	-5	-74	-95
Buxar	-75	-73	5	-99	-97
East Champaran	32	22	8	-99	-69
Gaya	3	-34	-1	-56	-81
Gopalganj	62	51	32	-74	-82
Jhanabad	57	-93	-2	-100	-73
Nalanda	-7	-78	-14	-66	-91
Saran	52	-20	-15	-80	-96
Siwan	-37	37	45	-59	-100
Jharkhand					
More than 3 weeks continuously deficient to no rain					
Chatra	-45	-72	-58	-61	-65
East Singbhum	-92	-98	-44	-48	-72
Gumla	11	-61	-56	-54	-86
Lohardagga	-33	-45	-46	-37	-86
Ranchi	-27	-83	-47	-60	-71
2 weeks continuously deficient to no rain					
Bokaro	26	-47	82	-68	-82
Dhanbad	5	-89	-16	-62	-77
Hazaribagh	-38	-79	2	-83	-53
Palamau	-8	-68	5	-77	-89
Gangetic West Bengal					
More than 3 weeks continuously deficient to no rain					
Murshidabad	-79	-100	-58	-43	-100
Nadia	-51	-100	-42	-47	-79
West Midnapore	2	-80	-54	-35	-36
More than 3 weeks continuously deficient to no rain					
Burdwan	-8	-70	-10	-49	-82

LEGEND

- EXCESS 20% OR MORE
- NORMAL +19% TO - 19%
- DEFICIENT - 20% TO - 59%
- SCANTY - 60% TO - 99%
- NO RAIN - 100%
- DATA NOT AVAILABLE

Weather Forecast
(Valid upto 1430 hours of 15th August, 2010)



Weather Outlook (upto 1430 hours IST of 17th August, 2010)

- Increase in rainfall activity along foothills of Himalayas.

Warning

- Isolated heavy to very heavy rainfall would occur over Jammu & Kashmir, Himachal Pradesh, Uttrakhand, Haryana, west Uttar Pradesh, east Rajasthan, south coastal Orissa and north Andhra Pradesh during next 48 hours.

Zonewise Agromet Advisories

NORTH WEST INDIA [J & K, H. P., UTTARAKHAND, PUNJAB, HARYANA, DELHI, UP, RAJASTHAN]

- **Realised Rainfall:** Rain occurred most of the districts in Himachal Pradesh except Sirmaur district, a few districts except Bhatinda, Faridkot, Fatehgarh Saheb, Jalandhar, Kapurthala, Moga, Muktesar, Nawashahar and Sangrur in Punjab, most of the districts in Jammu & Kashmir, most of the districts in West Uttar Pradesh, Uttarakhand and most of the districts in East Rajasthan except Alwar, Bharatpur Jhunjhunu, Dholpur, Sikar and Tonk districts and most of the districts in West Rajasthan. No significant rainfall occurred in most of the districts of New Delhi, Haryana, East Uttar Pradesh and West Uttar Pradesh during last week.
- **Rainfall Forecast:** Rainfall is likely at many places during next five days in Uttarakhand and Himachal Pradesh. Rainfall is likely at many places during next 24 hours in Jammu & Kashmir and at most places thereafter. Rainfall is likely at many places during next five days in West Uttar Pradesh, Haryana, Delhi, Punjab and East Rajasthan. Rainfall is likely at a few places at East Uttar Pradesh and West Rajasthan. Isolated heavy to very heavy rainfall would occur over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Haryana, West Uttar Pradesh, East Rajasthan during next 48 hours.
- **Major Crops:**
 - Rice(early vegetative), jowar, pigeon pea and maize(early vegetative), vegetable crops (early vegetative) in Delhi
 - Rice (transplanting/early vegetative), vegetables (transplanting / vegetative) in Himachal Pradesh.
 - Vegetable crops (flowering / fruiting / harvesting), rice (early vegetative), Early sown maize, groundnut and sunflower (early vegetative) in Jammu & Kashmir.
 - Sugarcane (vegetative), rice (transplanting/early vegetative), soybean, jowar, bajra, pigeon pea and groundnut (sowing/early vegetative) in Uttarakhand.
 - Sugarcane (vegetative), cotton, maize (early vegetative), rice (early vegetative), mung, mash (sowing/early vegetative) in Punjab.
 - Sugarcane (vegetative), cotton (early vegetative), rice, guar, bajra(early vegetative) in Haryana.
 - Sugarcane (vegetative), vegetable crops (sowing), black gram, green gram, jowar, bajra, groundnut, sesamum, lobia, maize, pigeon pea + pulses, groundnut and sesamum(sowing) in Uttar Pradesh.
 - Sugarcane (vegetative), vegetable crops (flowering / fruiting / harvesting), maize, soybean, bajra, jowar, mung, cluster bean, sesamum and groundnut (sowing/early vegetative) in Rajasthan.
- **Advisory:**
 - As rainfall is likely at many places during next five days in Uttarakhand and Himachal Pradesh, at many places during next 24 hours in Jammu & Kashmir and at most places thereafter, at many places during next five days in West Uttar Pradesh, Haryana, Delhi, Punjab and East Rajasthan, farmers are advised to postpone irrigation to the standing crops. Farmers are advised to provide adequate drainage facilities in Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Haryana, West Uttar Pradesh, East Rajasthan as isolated heavy to very heavy rainfall would occur over these region during next 48 hours.
 - In Uttar Pradesh, acute dry conditions prevailed in Central Plain Zone (Faethpur, Pratapgarh, Allahabad, Chitrakutnagar and Kausambi districts) and drying of rice seedlings were reported. However, due to good rainfall during last week, seedlings at many places recovered from moisture stress. Dry weather conditions also prevailed in Bundelkhand Zone (Jalaun, Jhansi, Lalitpur, Mahoba, Banda and Hamirpur districts) which resulted in wilting of rice at seedling and early vegetative stages. In Northeastern Plain Zone (Bahraich, Shrawasti, Balrampur, Gonda, Kushinagar, Siddharthnagar, Maharajganj) also, there is report of poor rainfall conditions resulting in 50-60% loss of rice crop. It is advised that, if seedlings could not recover from moisture stress, farmers may select oilseeds, pulses, bajra and linseed for sowing as alternate crops. Short duration varieties of rice like Ratna, Saket-4, Narendra-7, Govind etc. may also

be selected for upland conditions. Farmers are also advised to undertake gap filling and adopt closer spacing for better crop stand.

- Farmers in Delhi are advised to start sowing of sweet corn, baby corn in this week and undertake transplanting of brinjal, tomato, chilli and early cauliflower (varieties in Annexure I) utilizing the rainfall during last week.
- Farmers in Delhi are advised to prepare nurseries of cauliflower for mid season varieties.
- Farmers in mild hills sub humid zone (Kullu, Mandi, Seobagh) in Himachal Pradesh are advised to complete transplanting of rice and undertake planting of evergreen plants like mango, litchi, guava, citrus, loquat and amla utilizing rainfall during last week. Farmers in sub-montane and low hills sub-tropical zone (Chamba, Hamirpur, Una, Kangra districts) are advised to undertake nursery sowing of cauliflower.
- Farmers in Flood Prone Eastern Plain Zone (Alwar, Bharatpur, Dholpur, Karauli, Sawai, Madhopur districts) in Rajasthan are advised to continue sowing of short duration varieties of green gram, moth bean, cluster bean and sesame in place of bajra utilizing the rainfall during last week(varieties in Annexure I).
- Farmers in Semi Arid Eastern Plain Zone (Dausa, Ajmer, Tonk, Jaipur districts) in Rajasthan are advised to undertake sowing of early radish, okra, spinach and sweet potato with rainfall received during last week.
- Farmers are advised to undertake sowing of soybean in Southeastern Humid Plain Zone (Kota district) and early maturing crops like maize, blackgram, green gram etc. in the left over areas to be sown.
- Farmers in Bhabar and Tarai Zone (Nainital and Uttam Singh Nagar) in Uttarakhand are advised to complete sowing of soybean, sesamum, moong, bajra and jowar (varieties in Annexure I) utilising the rainfall during last week.
- Farmers in Valley Temperate Zone (Srinagar, Anantnag, Kupwara, Budgam districts) in Jammu & Kashmir are advised to undertake sowing of cabbage and cauliflower in nursery beds utilizing rainfall received during last week.
- Farmers in Haryana are advised to complete the transplanting of rice in Eastern zone(Bhiwani, Fatehabad, Hissar, Jhajjar, Mahendrgarh, Mewat, Rewari, Rohtak, Sirsa districts) and also undertake sowing of toria, guar and bajra in rainfed areas utilizing rainfall during last two weeks.
- Farmers in flood affected areas of western zone are advised to sow short duration varieties of rice nursery so as to transplant preferably upto 15th August to 30th August and Basmati varieties nursery to transplant upto 15th August to 20th August. If high yielding varieties nursery is available, old age seedlings (upto 60days) can be transplanted at closer spacing (15 x15 cm) immediately. Alternate crops such as Urad- T 9 can be sown upto15th August whereas toria- T 9 and Sangam varieties can be sown upto September end.
- Weather is conducive for rice blast in Sub-Montane & Low Hills Sub-Tropical Zone (Chamba, Hamirpur, Una, Kangra) in Himachal Pradesh, for control spray the crop with Blitox 50 (Copper oxychloride) with 2.250 kg Blitox 50 or 750 g Bavistin 50 WP or 750 ml Hinosan in 750 L water/ha and use sticker Stickwel @ 0.2 g/l of water should be added.
- Undertake spraying and intercultural operations after current spells of rain in Uttarakhand, Himachal Pradesh, Jammu & Kashmir, West Uttar Pradesh, Haryana, Delhi, Punjab and East Rajasthan. Continue the above mentioned operations on a non rainy day in West Rajasthan and East Uttar Pradesh.

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

- **Realised Rainfall:** Deogarh, Jharsuguda, Sambalpur, Sundargarh districts of Orissa, most of the districts of West Bengal (except Howrah, Midnapur (West and East) and Darjeeling districts) and almost all the districts of Bihar and Jharkhand received no significant rain during last week.
- **Rainfall Forecast:** Rain is likely to occur at many places over Sub Himalayan West Bengal and Sikkim and Orissa and at a few places over Bihar, Jharkhand and Gangetic West Bengal during next three days. Isolated heavy to very heavy rainfall would occur over south coastal Orissa during next 48 hours.

- **Major Crops:**

- Rice, maize, sesamum, sunflower, groundnut, soybean, castor, black gram, green gram, arhar and vegetables like tomato, cabbage, ladies finger, French bean etc. (sowing / early vegetative / vegetative) in Bihar and Jharkhand.
- Rice (direct sowing / transplanting) (sowing / transplanting / germination / early vegetative / tillering) and maize, groundnut, pulses, soybean, sesamum, ragi, cotton, vegetable crops (sowing / germination / early vegetative / vegetative) in Orissa.
- Sugarcane (vegetative), vegetable crops (vegetative / flowering / fruiting / harvesting), jute (vegetative / harvesting), *aus* rice (panicle initiation / flowering / grain formation), *aman* rice (transplanting / early vegetative / tillering), pulses and vegetables (sowing / germination / early vegetative / vegetative), sesame and groundnut (sowing / germination / early vegetative / vegetative) in West Bengal.
- Large cardamom (capsule formation / transplantation of suckers from nursery), orange (fruiting), seed potato (tuberization / maturity), summer potato (tuberization), maize (cob maturity / cob harvesting), kharif vegetable and off season vegetables (harvesting), ginger (vegetative), rice (early tillering / tillering) in Sikkim.

- **Advisories:**

- As rain is likely to occur at many places over Sub-Himalayan West Bengal and Sikkim and Orissa during next three days, postpone irrigation, intercultural operation and application of fertilizer and plant protection measures in these regions. Arrange for draining out excess water and also withhold sowing / transplanting in view of heavy to very heavy rain during next 48 hours in south coastal Orissa.
- Long dry spell and erratic distribution of rainfall during almost a month in the eastern region of the country particularly in Bihar, Jharkhand and a few districts of West Bengal affected sowing / transplanting and other agricultural operations. Rice seedlings at many places in these states (28 districts in Bihar and 12 districts in Jharkhand) are either over aged or wilting. The transplanted rice crops, which are established and at tillering stage, faced severe moisture stress condition. In south Bengal (Murshidabad, Nadia, 24 Parganas (South & North), Birbhum, Purulia, Bankura and Hoogly districts), around 30-35% transplanting of rice has been undertaken; a relatively good shower within a week will help the agricultural operations and save the crops in these districts.
- Considering more likely rainfall towards the eastern parts of the country from 16-22 August, based on the outputs from different models, following contingency measures need to be taken up in Bihar.
 1. Urd, pigeon pea and sunflower crops should be sown now. Kulthi and castor crops can also be taken at this time.
 2. Short duration rice varieties can be selected in medium land situations.
 3. Farmers should utilize the available rain water and sow rice with 2-3 seedlings / hill and closer spacing with recommended nutrient level.
 4. Yambeam, vegetables such as cauliflower, radish, pointed gourd etc. can be grown profitably. Farmers are advised to transplant cauliflower and to sow brinjal at this time.
 5. Fodder crops like Jowar, maize, lobia could also be grown.
 6. Provide life saving irrigation to standing rice crops where water is available, so that with occasional rains crops can sustain.
 7. In upland areas which are now vacant and rice could not be transplanted owing to deficit rainfall, farmers are advised to take up tori and September arhar. September arhar can be sown after 25th August.
 8. SRI method may be adopted for getting maximum yield of rice with water requirement only at critical growth stages. Short duration rice varieties can be chosen for this purpose.
- Contingency plans for Jharkhand State are –
 5. Farmers are advised to complete sowing of direct seeded *kharif* crops on uplands. In medium land short duration variety of maize and pigeon pea can be taken. Sowing of kulthi and niger can also be taken.

6. In vegetables early crops of ladies finger, lobia and French bean are recommended. Preparation of nursery for tomato, cabbage and cauliflower can also be undertaken.
 7. Farmers can grow fodder crops like maize, fodder lobia and Jawar.
 8. Transplanting of rice is in progress in very small area where good rainfall was received.
- Following contingent planning may be undertaken by the farming community in different rainfall deficient districts of West Bengal.
1. In uplands and medium lands, sowing of urd, arhar etc. can be done.
 2. Extra early duration (75 to 85 days) rice varieties can be direct seeded in midlands upto 25th August.
 3. Close planting (40-45 hills / sq. m) of long duration high yielding rice varieties upto 55 days old seedlings can be done in lowlands. Balanced use of P & K is required to avoid high yield loss due to delayed planting.
 4. In rainfed low lands, photosensitive rice varieties upto 65 days old seedlings can be done @ 40-45 hill/sq. m.
 5. Double transplanting of rice can be done with 30+45 days old seedlings of long duration or photosensitive varieties upto 30th August.
 6. Weeding and mulching should be done in already sown maize, Arhar and other crops facing drought.
 7. Available ground water should be used to moist the field for sowing of pulses (urd, moong, arhar) and oil seeds (Sesame, castor, Ground nut) in uplands.
 8. Maximum possible ground water should be used to save the rice nursery. Fertilizer should be applied judiciously. Avoid high N-dose.

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

- **Realised Rainfall:** Lohit and Upper Siang districts of Arunachal Pradesh and Dibrugarh, East Khasi Hills and Sibsagar districts of Assam received rainfall during last week. Some of the remaining districts of the States of this region also received some rainfall.
- **Rainfall Forecast:** Rainfall is likely to occur at most places in the region during the period.
- **Major Crops:**
 - Vegetables (flowering / fruiting / harvesting), sugarcane (cane development), maize, jute, mesta (vegetative), *sali* rice (transplanting / early vegetative / seedling / tillering), *ahu* rice (transplanted summer rice) (flowering / grain formation) and arhar, cotton and sesamum (sowing / germination / early vegetative / vegetative) in Assam.
 - *Jhum* / WRC rice, pulses, sesame and vegetables (germination / early vegetative / vegetative) and maize (sowing / vegetative) in Arunachal Pradesh.
 - Upland rice (tillering), *aman* rice (transplanting / early vegetative / tillering) and vegetables like pumpkin, ridge gourd, cucumber, ladies finger (sowing / vegetative) in Tripura.
 - *Sali* rice (transplanting / early vegetative / tillering), arhar and potato (sowing / planting / early vegetative / vegetative), ladies finger, bottle gourd, pumpkin, ridge gourd, cucumber, bitter gourd, snake gourd etc. (sowing / germination / early vegetative / vegetative), tomato, chilli and brinjal (transplanting / early vegetative / vegetative) and maize (vegetative) in Meghalaya.
- **Advisory:**
 - As rainfall is likely to occur at most places over the States of this region, postpone sowing, irrigation, intercultural operation and application of fertilizer and plant protection measures to the standing crops. Resume sowing and application fertilizer and plant protection measures after current spells of rain. Also arrange for draining out excess water from the fields to protect the crops from water logging.
 - Farmers in Assam are advised to undertake transplanting of three weeks old seedlings for *sali* rice in the main field and sowing of black gram and green gram with the realized rainfall in Diphu Hills Zone, transplanting of *sali* rice and sowing of sesamum, pigeon pea, black gram and finger millet in Lower Bramhaputra Valley Zone (Barpetha, Bongaigaon, Dhubri, Golpara, Kamrup, Kokhrajhar, Nalbari), transplanting of *sali* rice and sowing of early cauliflower and pulses like black gram and green gram in

Upper Bramhaputra Valley Zone, transplanting of *sali* rice and sowing of sesamum and early brinjal in Barak Valley Zone, transplanting of *sali* rice and sowing of *kharif* pulses in Central Bramhaputra Valley Zone and transplanting of *sali* rice in North Bank Plain Zone.

- Some districts of Assam are affected by stagnant water in the field due to heavy rainfall. Under such circumstances transplanting of *sali* rice is affected. Farmers of such areas are advised to collect short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc. These varieties can be transplanted or sown within 1st week of September. More over long duration cultivars like Monohar Sali, Andrew Sali and Gitesh can be transplanted with 60 days seedlings, where as Praful can be transplanted with 90 days old seedlings. Farmers from the flood affected areas should select cultivars like *Jalashree*, *Jalkuwari*, *Plaban* etc. which remain alive under water up to 15 days before panicle initiation stage. Farmers are advised to plant 6-8 seedlings per hill in flood affected areas.
- Farmers in Arunachal Pradesh are advised to undertake sowing of vegetable crops like French bean, pumpkin, okra, etc.
- Farmers in Manipur are advised to undertake sowing of French bean and planting of mid-season variety of cauliflower.
- Recommended varieties of major crops to be sown in different States of the region are mentioned in Annexure I.
- Decreasing temperature, high cloud cover and high humidity expected during the coming days are conducive for the incidence of Gummosis disease in Khasi mandarin in Mizoram. So far affected bark should be scraped, cleaned and painted with Bordeaux pasting (1:1.5:10) after current spells of rain for managing of these problems.
- High rainfall along with high humidity is conducive for the incidence of lygaied bug in beans in Mizoram causing discoloration of leaves and pod; spray the crop with phosphamidon @ 0.5 ml / litre of water.
- Due to high rainfall along with high humidity, ginger is severely infested by soft rot in Mizoram; drenching the affected plant with blitox @ 0.25% is recommended.
- The present weather conditions viz., cloudiness, rain and dew are favourable for the incidence of leaf blight in Nagaland. Spray Ridomil (0.05%) or Mancozeb (0.25%) twice or thrice after current spells of rain to manage the disease.
- **Animal husbandry:**
 - As the weather conditions are favourable for the development of hemorrhagic septicaemia, farmers are advised to take precautions. The animals will show high fever, profuse nasal discharge, difficulty in respiration, swelling of the throat and recumbancy which may death within 10-72 hrs.

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

- **Realised Rainfall:** All the districts in Kerala except Thiruvananthapuram, all the districts in Coastal Karnataka, Chikamagalur, Kodagu and Shimoga districts in South Interior Karnataka, Srikakulam, Vizayanagaram, West Godavari, Adilabad, Karimnagar, Khammam and Nizamabad districts in Andhra Pradesh and in Nigiris, district in Tamil Nadu.
- **Rainfall Forecast:** Rain is likely to occur at many places in Coastal Karnataka, Coastal Andhra Pradesh, Telangana, Kerala, South Interior Karnataka and at a few places over North Interior Karnataka during next three days. Rain is likely at isolated places over Rayalaseema and Tamil Nadu. Very to very heavy rainfall is likely at isolated places over North Andhra Pradesh during next 48 hours.
- **Major Crops:**
 - *Viirippu* rice is at active tillering to flowering stage. Nendran banana, Mango, Nutmeg and banana are in harvest stage. This is time for planting of black pepper, ginger, turmeric, tapioca, cocoa, cashew and vegetables in Kerala.

- *Kuruvai* rice (active tillering), green gram and groundnut (grain development), maize (cob development) and sorghum (grain development) in Tamil Nadu.
- *Kharif* crops viz., cotton, jowar, maize, green gram, groundnut, redgram and castor, etc. (vegetative stage) in Andhra Pradesh.
- *Kharif* crops viz., pigeon pea, groundnut, bajra, castor, horsegarm, sesamum, maize and navane, etc (early vegetative / vegetative stage) and sugarcane (cane development) in Karnataka.
- **Advisories:**
 - Rain is likely to occur at many places in Coastal Karnataka, Coastal Andhra Pradesh, Telangana, Kerala, South Interior Karnataka during next three days, farmers are advised to postpone irrigation to plantation crops and vegetable crops. Arrange for drainage facilities in North Andhra Pradesh as very to very heavy rainfall is likely at isolated places during next 48 hours.
 - Farmers in Krishna Godavari Zone (West Godavari, Krishna) are advised to take up paddy transplanting. If nursery is not raised so far, select short duration varieties and raise nursery immediately. Farmers in High Altitude Tribal Zone (East Godavari, Khammam) are advised to undertake nursery sowings of medium and short duration varieties. Continue transplanting Long duration varieties like Swarna and BPT 5204. Farmers are also advised to undertake sowing of Maize crop.
 - As per the forecast, light to moderate amount of rainfall is expected in most of places in North Dry Zone (Bijapur) during the next five days. Taking advantage of these rains sowing of Sunflower, Castor, Horsegarm, Desi cotton (Jayadhar and Suyodhar) may be continued. Farmers in South Dry Zone are advised to continue sowing of red gram and ragi (varieties given in Annexure I).
 - Farmers in Cauvery Delta Zone in Tamil Nadu are advised to undertake sowing of rice nursery for samba/thaladi utilizing Mettur dam water (varieties in Annexure I).
 - Due to forecast of higher wind speed in Hill Zone of Karnataka, Western and Southern Zones of Tamil Nadu and Problem Area Zone of Kerala, there is a possibility of lodging of sugarcane and banana plants. Therefore farmers are advised to provide staking for plants.
 - Prevailing dry weather conditions are favourable for the incidence of sucking pests in groundnut and cotton, early leaf spot in groundnut and aphids and leaf spots in vegetables in Scarce Rainfall Zone of Rayalaseema (Ananthpur, Kurnool). Control sucking pests by applying Monocrotophos and water in 1:4 ratio or Imidacloprid 20 S.L and water in 1:20 ratio with a soft brush on tender part of the stem at 20, 40 and 60 days after sowing. To control Aphids in vegetable crops spray Dimethoate or Methyl – O – Demeton @ 2 ml per litre of water. To control Leaf spots, spray Copper-Oxy-Chloride @ 3 g or Mancozeb @ 2.5 g per litre of water.
 - Due to intermittent rainfall there are chances of infestation of case worm in rice in Coastal Zone (Udupi, Dakshi Kannada) in Karnataka. Hence, farmers are advised to drain the paddy field, pull the rope across the crop by holding rope ends on either side of the field and spray Quinolphos @ 2ml/lit of water to control. Due to higher humidity, low temperature and frequent rains it is likely that brown leaf spot rice on tillering stage may occur, hence farmers are advised to spray Dithane M -45 2g/lit of water. Due to prevalence of higher relative humidity, arecanut crop may be infested with *kolerogo*; farmers are advised to undertake spraying of 1% Bordeaux mixture to control.
 - Present weather conditions are favourable the incidence of sheath blight and sheath rot in paddy in Central Zone of Kerala. To control this, apply 200g carbendazim in one litre of water for one acre. Also there are chances of bud rot in coconut. Spray 1% Bordeaux mixture to young and adult palms. Add rosin washing soda with the mixture during rainy season.
 - There are chances of wide spread occurrence of stem borer in Cauvery Delta Zone due to favourable weather conditions. Place pheromone traps in nursery and transplanted field to attract male stem borer. Place *Trichogramma japonicum* egg cards at weekly intervals @ 5 CC/ha from 28 DAP three times followed by release of *Trichogramma chilonis* egg cards @ 5 CC/ha three times at weekly intervals.

- Plant protection measures may be undertaken after spells of rain in Coastal Karnataka, Coastal Andhra Pradesh, Telangana, Kerala and South Interior Karnataka.

- **Cattle and Buffaloes**

- Prevailing weather conditions are congenial for the occurrence of Hemorrhagic, Septicemia and Black Quarter in cattle and ET and sheep pox in sheep in Andhra Pradesh. To prevent the diseases, vaccinate the animals.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Most of the districts of the States of the region (except Amreli, Bhavnagar, Porbandar, Diu and Rajkot in Saurashtra and Kutch and Pune, Sangli, Satara, Solapur and Usmanabad of Maharashtra) received rain during last week.
- **Rainfall Forecast:** Rain is likely at many places in Konkan and Goa and Vidarbha and at a few places in Gujarat and Saurashtra & Kutch during the period. Rain is also likely to occur at a few places in Madhya Maharashtra and Marathwada during next 48 hours and at many places thereafter.
- **Major Crops:**
 - *Kharif* rice (transplanting / early tillering in East Vidarbha and early tillering / tillering in Konkan, Kolhapur, Nashik & Pune (western parts) divisions), *kharif* jowar, soyabean, cotton, sunflower, groundnut (vegetative), bajra (early vegetative / vegetative), red gram (early vegetative), moong (branching / flowering) and irrigated cotton (floral bud initiation / flowering) in Maharashtra.
 - Rice, groundnut, cotton, castor, maize, bajra, pigeon pea, soybean, sesamum, green gram and black gram (germination / early vegetative / vegetative) in Gujarat.
- **Advisory:**
 - As rain is likely at many places in Konkan and Goa and Vidarbha and at many places in Madhya Maharashtra and Marathwada after 48 hours, postpone irrigation, intercultural operation and application of fertilizer and plant protection measures to the standing crops in these regions during the period.
 - Complete transplanting of rice in East Vidarbha of Maharashtra with 20 to 25 days old seedlings. Also complete planting of *adsali* sugarcane in Maharashtra whenever there will be less rainfall activity.
 - Transplant seedlings of fennel in North Gujarat region at 90 x 60 cm spacing after dipping in a solution of 0.4% copper fungicide during evening hours. Also undertake sowing of Castor varieties in South Saurashtra Zone.
 - As there is possibility of less rain during next few days in Gujarat, carry out intercultural operation and weeding in crops. Farmers are also advised to apply first split dose of fertilizer 30-35 DAS and go for prophylactic spray during clear sky condition.
 - Due to continuous rainfall activity, there is possibility of incidence of blue beetle and army worm in *kharif* rice crop in Konkan; spray Carbaryl 50 WP @ 20 g or Cypermethrin 25 EC @ 3 ml / 10 litres of water.
 - Infestation of green semi looper & tobacco leaf eating caterpillar in soyabean is reported in Vidarbha which may increase under prevailing weather condition; spray 5 % Neem extract or Endosulfan 35 % @ 15 ml or Fenvalerate 20% @ 5 ml in 10 liters water.
 - Due to continues cloudy weather there is infestation of sap sucking pests (white fly, aphids & jassids) in *kharif* cotton in Nasik, Nagpur, Latur and Amravati division and Ahmednagar district; spray Acitaprid 20% @ 4 g with sticker in 10 liters of water.
 - There is possibility of infestation of downey mildew in pearl millet and maize due to cloudy weather condition in Middle Gujarat Zone; spray Carbendazim @ 3 g / litre of water.
 - Due to continuous rainfall and cloudy condition, there is infestation of castor semilooper in North Gujarat Zone; spray 0.15% monocrotophos to manage the pest.
 - Due to 24 – 33°C temperature and high humidity forecast in coming days, there is chance of stem rot in chilli in North Gujarat region; drench with 1% trichoderma viridi to manage the disease.
 - Apply plant protection measures after current spells of rain in Konkan, Goa and Vidarbha and on a non-rainy day over remaining parts of the region.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Rain occurred over all the districts of Madhya Pradesh except Katni, Rewa, Sidhi, Bhind, Dhar, Gwalior, Morena, Sheopur Kalani and Shivpuri districts and all the districts in Chhattisgarh except Surguja district during the period.
- **Rainfall Forecast:** Rain is likely at many places over Madhya Pradesh and Chhattisgarh for the next three days.
- **Major Crops:**
 - *Kharif* crop like soyabean, maize, sorghum, green gram and black gram (sowing) in Madhya Pradesh. Early sown crops are at early vegetative/vegetative stage.
 - *Kharif* crops like black gram, green gram, soyabean, maize, etc (vegetative), and Sugarcane (cane development) in Chhattisgarh. This is proper time for nursery sowing of rainy season vegetables.
- **Advisory:**
 - Postpone intercultural operations and application of fertilizers and pesticides in Madhya Pradesh and Chhattisgarh as rain is likely at many places.
 - Farmers in Central Narmada Valley Zone (Hosangabad) are advised to undertake transplanting of rice.
 - Farmers in North Hill Zone of Chhattisgarh are advised to complete transplanting of rice at the earliest. Complete nursery preparation for tomato, chilli, brinjal.
 - Farmers in Bastar Plateau Zone are advised to complete sowing for rainy season vegetables immediately. At the time of field preparation, arrange for proper drainage. In rainy season, bottlegourd, okra, snake gourds, bittergourds may be grown apart from beans of small duration, cabbage and cauliflower. Arrangements should also be made while preparation of seed nursery for prevention of excessive rains leading to waterlogging condition.
 - Farmers in Bastar Plateau Zone are advised to prepare land for sowing of sesamum and horse bean. Recommended varieties are given in Annexure I
 - Due to weather and crop conditions in Jhabua hill zone of Madhya Pradesh kharif pulses may be affected by semi-looper, pod borer and tobacco caterpillar, farmers are advised to spray Trizophos 40 E.C. @ 2.0 ml/l for control. Also there are chances of incidences of girdle beetle in soybean crop; farmers are advised to spray trizophos 40 EC @ 2.0 ml/l for control.
 - Plant protection measures may be undertaken after spells of rain in Madhya Pradesh and Chhattisgarh

Annexure I List of Varieties

Delhi

Rice: Hybrid varieties- KRH 2, PHB 71, Arich 6444, Pant hybrid Dhan1, Narendra hybrid Dhan 1 and PRH 10; High yielding varieties - Pusa Sughand 5, Pusa Improved Basmati, Pusa 44, Pusa Sughand 4, Pant Dhan 10, Pant Dhan 4, Narendra Dhan 359, Pusa 834, Ranvir Basmati and Taravadi Basmati.

Pigeon pea: Pusa 2001, Pusa 991 and Pusa 992, Paras, Manak and UPAS 120

Maize: AH-421, AH-58 Composites varieties; Pusa composite-3 Pusa composite-4

Cucurbit vegetables: Hybrid varieties: Bottle Gourd- Pusa Naveen, Pusa Sandesh; Bitter Gourd- Pusa Visesh, Pusa-2 mosumi; Pumpkin- Pusa Visvash; Ridge Gourd- Pusa Chikni, Pusa Supriya.

Uttarakhand:

Soybean: Brag, PK-262, PK-327, VL Soya-2 and VL Soya-21, Pant Soybean-1024, Pant Soybean-1042, Pant Soybean-1092, Pant Soybean-1347

Ghagat: VLG-1

Jammu & Kashmir

Rice: Jaya, RR-8585, PC-19, IET-1410 and Ratna

Groundnut: Punjab No.1, M-13 & JL-24

Maize: GS-2, super composite, mansar, C-6, C-8 and local varieties

Uttar Pradesh

Rice: Narendra-97, Ashwini, Pant-12

Groundnut: Type-64, Chandra, Kaushal, Prakash & Amber

Soybean: Pant soyabean-1024, Pant Soyabean-1092, PK-262, PK-472, PK -416, PS -564

Jowar: Hybrid: Vasha, CSH-16, CSH-9, CSH-14, Sankul: CSV-13, CSV-15, Bundela, CSV-13, CSV-15, CSV-17

Maize: Hybrid: Ganga-2, Ganga-1, Sankul: Navin, Kanchan, Sweta, Azad, Surya, Uttam, Desi: Meerut Pili.

Bajra: Hybrid: Pusa-322, Pusa-23, ISMH-451, Sankul: ICMV-155, WCC-75, ICTP-8203, Raj-171, Desi: Mainpuri

Pigeon pea : Bahar, Narendra arhar, Azad, malviya vikas, malviya chatmatkar

Black gram: Azad- 1 & 2 , Uttra, Narendra, urd -1, Pant urd-31

Green gram : Samrat, Narendra moong-1, T-44

Sesamum: Shekhar, Pragati

Punjab:

Rice: PR-120, PR-118, PR-116, PR-114, PR-111 and PR-113

Haryana :

Rice: Govind and PRH-10

Rajasthan

Maize : Him – 129, Aravali Makka, PEHM-1, PEHM- 2, Pratap Makka-1, Pratap Makka-3, Pratap Makka-5

Jowar : CSV – 15, CSV – 17, Pratap Jowar – 1430, CSH – 13, CSH – 14, CSH-16

Soybean : JS–335, MACS–13, PK – 472, MACS–58, PS – 16, JS – 71 – 05, Pratap Soya-1 **Moong :** K 851, RMG – 62, K – 851, Pusa Baisakhi, RMG 268 and Ganga

Urd : Krishna, T – 9, PU – 19 and Barkha.

Pearmillet: Pusa 334, Pusa 383, HHB 67, HHB 94, Raj 171, ICMH 356, ICTP 820 and RHB 121

Cleaster bean: RGC 936, RGC 986, RGC 1002, RGC 1003, RGC 1017, M83 and HG 365

Sesamum: Pratap, TC 25, RT 46, RT 54, RT 103, RT 125 and Tt 13

Ground nut: GG 2, GG 7, HNG 10, Prakash and M 13

Radish: Pusa Chetki

Cauliflower: Improved Japanese, Pusa hybrid-2 & Himjoyti

Assam

Sali rice: Ranjit, Bahadur, Kushal, Mashuri.

Rice for flood affected areas: Jalashree, Plaban, Jalkonwari.

Short duration HYV Sali rice varieties (flood affected areas): like Luit, Kapili, Kolong, Dishang etc.

Long duration Sali rice varieties (flood affected areas): Monohar Sali, Andrew Sali and Gitesh, Praful etc.

Red gram: T-21.

Sesamum: AST-1, Madhavi, Vinayak, Punjab Til -1, Gauri, SG 1981, RT-1 etc.

Early varieties of cauliflower: Pusa Keteki, Pusa Dipalee, Early Kowari, Jowahar Moti etc.

Green gram: T-44, Kopergaon, K-851, ML-56, ML-131 etc.

Black gram: T-9, T-27, Pant U-19, T-122, SB 121 etc.

Meghalaya

SRI rice: Ranjeet or Naveen.

Bihar:

Short duration rice varieties: Saket 4, Prabhat, Saraoj, Richhariya etc.

Short duration rice varieties for SRI method: Turanta, Prabhat, Saket-4, Pusa 2-21 etc.

Urd: T-9, Navin, Pant Urd 19 etc.

Pigeon pea: Bahar, Narendra, Arhar 1 etc.

Sunflower : Surya, Paradevic, Morden etc.

Cauliflower: Kuwari, Patna Early, Pusa Katki, Pusa Deepali and Hajipur Agat.

Brinjal: Rajendra Baigan-2, Rajendra Annapurna, Pant Rituraj, Pant Samrat, Swarn Pratibha and Arka Navnit.

Jharkhand:

Short duration rice varieties: Saket 4, Prabhat, Saraoj, Richhariya etc.

Short duration rice varieties for SRI method: Turanta, Prabhat, Saket-4, Pusa 2-21 etc.

Black gram: T-9, PU-19.

Arhar: Birsa Arhar 1, Bahar.

Cauliflower: Kuwari, Patna Early, Pusa Katki, Pusa Deepali and Hajipur Agat.

Brinjal: Rajendra Baigan-2, Rajendra Annapurna, Pant Rituraj, Pant Samrat, Swarn Pratibha and Arka Navnit.

Orissa:

Rice:

Up land: Khandagiri, Vandana, ZHU XI-26, Parijat, Annada, Heera.

Medium land: Lalat, Konark, Surendra, Naveen, Swarna, Kharavela, Pratikhya, MTU-1001 and Geetanjali (aromatic rice).

Low land: Mahanadi, Moti, Indravati and aromatic rice like Dubraj and Ketakijoha.

Maize:

Composites: Navjot, Megha, Pratap, Shakti 1, Pragati.

Hybrids: Decan 103, Decan 109, Decan 115, Bio 9681, Pro 311, Ganga II, Cargil 900 M, Cargil 633, Sartaj.

Ragi:

Early varieties: Dibyasinha, VL 149.

Medium varieties: Bhairavi, Subhra, Godavari, Chilika.

Cotton: Bunny, Sri Tulasi, Bhaskar and Atal.

Arhar: Mahak, UPAS 120, Asha, Laxmi, Jagruti, Maruti.

Green gram: PDM-54, HUM 1, TARM 1, TARM 2, K 851, Dhauli.

Black gram: Sarala, Pant U 30, Pant U 35, KU 301, KU 300

Cowpea: SEB 2, FS 68, Swarna, SGL 1.

Soyabean: JS-72-44, PK-73-163, T-49, Ankur.

Ground nut: AK-12-24, Kisan, Jawan, Smruti.

Sesamum: Uma, Usha, Prachi, Kanaka, Kalika.

Nizer: GA-10 (Deomali), IGP-76 (Sahayadri).

Brinjal: Utkal madhury, Utkal tarrini, Utkal keshari, Pusa kranti

Chilli: Utkal rashmi, Utkal ava, Pusa jwala, Pant C 1, NP 46A

Tomato: Utkal pallavi, Utkal dipti, Panjab chhuara, Pusa hybrid-1

Onion: N 53, Arka kalyan, Agrifound dark red, Arka pragati

Radish: Pusa chetki, Pusa rashmi, Japanese white.

Cowpea: Pusa barsati, Arka garima, Utkal manik, Pusa dofasali.

West Bengal:

Extra early duration (75 to 85 days) rice varieties: Turant dhan and Prabhat.

Urd: Navin.

Arhar: Bahar and Pusa 9 etc.

Gujarat:

Castor: GCH-4, GCH-2 and GAUCH-1.

Fennel: Guj. Fennel- 2.

Karnataka

Red gram: TTB-7, BRG-1 and Hyd-3C

Ragi: Indaf-8, MR-1

Tamil Nadu:

Samba: CR 1009/savithri/ponmani

Late samba and thaladi: ADT 38, ADT 46, improved white ponni, IR 20, Ambai 19,
Paiyur1, Trichy 1, Trichy 3 and Co 50.

Late Thaladi ADT 39 and ADT 42

Chattisgarh

Sesamum: JNC 1, JNC 6, JNC 9, GA 10, G N 2

Horse Bean: AK 21, AK 42, Bastar Kulthi, Birsa Kulthi, BLG 9

Annexure II Contour maps for the week ending 11.08.10

