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Status of monsoon and contingency plans for some rainfall deficit/excess areas

During 1st June to 24th August, the country as a whole experienced 18% deficit rainfall, which is considered as normal. The rainfall was deficit by 32% over North-West India, 16% over Central India, 13% over Southern peninsula and by 13% over East and North-East India. Monsoon was vigorous over North Eastern states, Kerala & South Interior Karnataka during the last week. Dry weather prevailed over Punjab, Marathwada, Haryana, Chandigarh & Delhi and Telangana. Current rainfall status and contingency plans for major rainfall deficit regions in the country are given below.

Maharashtra

The rainfall deficit of Marathwada has reduced by 4%. Madhya Maharashtra and Konkan regions received near normal rainfall with 13 and 15% deficit, respectively. Vidarbha region is also facing deficit rainfall condition (30%). In Maharashtra, kharif sowing were completed in 117 lakh ha area (87% of normal area). Contingency plan for Marathwada region is as follows:

- As rainfall is scanty/deficit during earlier part of the season, sowing of contingency crops is not recommended till the receipt of sufficient rains.
- Farmers may take up intercultural operations like weeding / hoeing in already sown cotton, soybean, pearl millet, sunflower and pigeon pea crops to conserve soil moisture and remove weeds. Apply supplementary irrigation to already sown crops.
- In cotton, mulching by hoeing may be carried out to conserve moisture.
- Considering the deficient rainfall situation, sprinkler/micro sprinkler /drip irrigation to turmeric and ginger and drip irrigation to banana & sugarcane may be applied. Also mulching with crop residue is recommended to preserve the soil moisture.
- In view of subdued rainfall activity, mulching in suru and ratoon sugarcane may be undertaken. As there is probability of occurrence of rainfall, planting of adsali sugarcane may be undertaken.

For Vidarbha:

- As subdued rainfall is prevailing and likely to prevail, apply irrigation to maintain water level up to 2-3 cm in already transplanted rice field.
- Unsown/delayed sowing areas can be accommodated with sole pigeon pea (AKT 8811, Vipula, PKV- Tara and BSMR-736 (with closer 45x20 spacing) in the districts of Amravati, Wradha, Washim etc. after receipt of adequate rain.
- Alternative crops include sunflower (TAS 82, PKV SF-9, PKVSH-27, KBSH 1 and KBSH 44), pearl millet (PKV Raj, Shradha and Saburi), sesame (AKT-64 and JLT-7), castor (AKC-1, GCH-4,5,6, DCH-117, 32), and pearlmillet+ pigeonpea (2:1 or 4:2), sunflower+ pigeonpea (2:1), sesame+ pigeonpea (4:1) intercropping systems.
- Early rabi pigeonpea (C-11, ICPL-87119 with closer spacing 45x20 cm) can be sown up to September 15.
- Early rabi sesame (N-8) can be sown up to September 15.

Telangana

The state faces a deficit rainfall of 54%. Total area sown in Telangana is 32.43 lakh ha, which accounts for 80% of the normal kharif season area. As rainfall activity is likely to improve, sowing of cotton, maize, groundnut, pulses and castor is expected to be completed in Southern Telangana utilizing expected rainfall. However, in view of scanty/deficit rainfall situation (scanty over Nizamabad, Rangareddy, Medak, Nalgonda districts and deficit over Hyderabad, Adilabad, Karimnagar, Warangal, Khammam, Mehbubnagar districts) following measures are suggested.

- Foliar spray of 2% KNO₃ or 2% urea solution to supplement nutrition during dry spells.
- Frequent inter cultivation for moisture conservation.
- Supplementary irrigation by using micro-irrigation (sprinklers).
- Avoid top dressing of fertilizers until receipt of rains.

Andhra Pradesh

Rainfall is deficit by 37% and 26% in Coastal Andhra Pradesh and Rayalaseema, respectively. Total area sown in Andhra Pradesh is 25.72 lakh ha, which accounts for 62% of the normal kharif season area.

- Farmers of Anantpur district are advised to go for spraying of 2% urea or DAP or KNO₃ to protect the rainfed groundnut crop. Intercultural operations, weeding may be carried out to conserve soil moisture and protective irrigation may be applied to groundnut, pearl millet, redgram, castor. Farmers of Kurnool district are advised to protect maize crop from moisture stress.
- In Cuddapah district, sowing of contingency crops like redgram (60 x 20 cm spacing), maize, tomato, cowpea, field bean (TFB 5) and sunflower in red soils and instead of groundnut, crops like redgram, jowar and sunflower in black soils may be continued utilizing the expected rainfall.
- In Krishna, Guntur and Prakasam districts, application of protective irrigation to cotton is recommended. Farmers are advised to take up inter-cultivation and fertilizer application in cotton sown on July 2nd FN. Adopt closure spacing for cotton and redgram sole crops and form dead furrows for moisture conservation in Prakasam district.
- Transplanting of rice and ragi may be continued in Coastal Andhra Pradesh.
- In Coastal AP, direct seeding of rice with drum seeder can be taken up with short duration varieties under dry conditions and later converted to wet paddy after receipt of good rainfall. Farmers are advised to go for short and medium duration varieties of rice instead of long duration varieties.
- Farmers of Rayalaseema are advised to take up sowing of contingency crops like sorghum, pearl millet, foxtail millet, cowpea, sunflower, greengram, field bean and horse gram instead of groundnut.

Punjab

The rainfall deficit is 63% so far in the state.

- Sowing of leguminous and non-leguminous crops in mixture to improve the nutritive value of the fodder i.e. maize + cowpea, sorghum + guar is advised.
- Short duration early maturing and drought tolerant varieties of crops including maize (PMH2) and moong (PAU 911, ML 818) are suggested.
- Moong variety ML13 can be sown in rainfed areas in Gurdaspur, Hoshiarpur and Ropar. Moong PAU- 911 variety has been recommended for the whole state except Bathinda, Mansa, Faridkot, Muktsar and Ferozepur districts.
- Adopt moisture conservation practices like hoeing, weeding, mulching in crops like sugarcane, maize, cotton to reduce the evapotranspiration losses and to conserve moisture for rabi crops.
- De-tasselling in maize is advised to reduce transpiration losses.

- Life-saving irrigation may be given, if available.
- In case of limited release of water in canals due to low rainfall, direct seeding of paddy and zero tillage sowing of Raya is recommended which saves 20-25% irrigation water.

Haryana

Rainfall was deficit by 64% in Haryana, Chandigarh and Delhi meteorological sub-divisions. As the rainfall situation is scanty so far, crop diversification is advocated and short duration mung bean (MH 421, SML 668) or maize or fodder crops as per local demand/ market are suggested in place of paddy. Alternate wetting and drying in rice fields and irrigation is advised in alternate rows in sugarcane in case of shortage of water for irrigation. Following measures are also suggested:

- Straw mulching in between rows for soil moisture conservation and preparation of ridge and furrow for rain water harvesting.
- Foliar spray of urea (2.5%) at 30-35 days.
- Conjunctive use of canal and ground water.
- Life saving irrigation, if possible.

Gujarat

In Gujarat, rainfall is deficit over Saurashtra and Kutch region (22%) and by 33% over the rest of the state. About 89 % of normal kharif sowing area is covered under various crops so far in the state.

North Gujarat Region:

- Sesame (cv. Guj. Tal 1,2, 10), cluster bean (Guj. 1 or 2.) and castor (cv.GCH-2, 4, 5 or 7) may be sown.
- As mainly dry weather is likely to continue over North Gujarat and Saurashtra & Kutch region, application of irrigation at critical stages of crops (cotton-flowering, groundnut-flowering/pegging) through micro irrigation systems in North Gujarat and Saurashtra & Kutch region is advised.

Saurashtra region:

- Sowing of cluster bean (Guj. 1 or 2.), castor (cv. GCH-2, 4, 5 or 7.), Sesame cv. Purva-1 and Guar (cv. Guj. Gaur 1 or 2) are specially preferred for Kutch region.
- In North Saurashtra, optimum use of potash fertilizer to minimize the water requirement of crops is also recommended.
- Repeated intercultural operations in black soils to close cracks in soil and create soil mulch to conserve soil moisture.
- Foliar spray of urea (2%) or KNO₃ (2%) in cotton.
- Delay top dressing of N, till sufficient occurrence of rain in castor and cotton.
- Alternate furrow irrigation.
- Harvest one row for every 3-rows of pearl millet and maize.
- Apply life saving irrigation in castor and pigeon pea (micro-irrigation).

South and Middle Gujarat region:

- Transplanting of GT-4, 5,9 and GT-1 tobacco may be initiated under tobacco growing districts of Kheda, Anand, Vadodara and part of Mahisagar district.
- Commence the sowing of cluster bean (Guj. 1 or 2.), castor (cv. GCH-2, 4, 5 or 7).

Uttar Pradesh

Rainfall condition is deficit in Western (55%) and Eastern UP (37%). Major recommendations are given below:

East Uttar Pradesh

- The floods in Uttar Pradesh, triggered by the heavy rains in the Himalayas, are posing serious threat to sugarcane crops. Sugarcane is at high risk due to floods as water logging can damage the crop. Draining out of the field and earthing-up and propping in sugarcane is suggested to prevent crop lodging. Drain out excess water from the crop field of papaya, banana and guava.
- Nursery sowing/transplanting of cauliflower, cabbage, tomato and chilli in Raibareilly, Sultanpur, Basti, Sant Kabir Nagar and Gorakhpur districts is suggested.
- Sowing of short duration varieties of bajra (ICMV-155, WCC-75, ICTP-8203, Raj-171, Pusa-322,23, ICMH-451) in Ballia and Deoria districts is expected to be completed.
- Sowing of arhar (Bahar, Narendra Arhar 1,2, Azad, Pusa-9, Malveey-Vikas, Chamtkar, PDA-11) and of moong (Pant-1, Narendra-1, PDM-54, Malyeey- Jyoti, Janchetana, Janpriya, Jagruti, Samrat and Asha) in Barabanki, Faizabad and Ambedkarnagar districts of Eastern Plain Zone of Uttar Pradesh is recommended.
- As mainly dry weather would prevail, second top dressing of nitrogen in maize at silking stage and in jowar, 25-30 days after sowing in Central Plain Zone and application of urea @ 125 kg per hectare in rice and fourth top dressing of nitrogen in maize in Eastern Plain Zone is advised.

West Uttar Pradesh

- Sowing of pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + black gram(Ajad) is recommended.
- Undertake weeding operations like weeding/mulching for soil moisture conservation.
- Undertake foliar spray of 1% KCl.
- Opening conservation furrow is recommended.

Bihar

The rainfall condition in the state is normal so far (13% deficit).

- Under low land conditions re-transplanting (Kharuhan) of medium and long duration paddy varieties (Swarna Sub- 1, BPT5204, Rajendra Manasuri, Sambha Sub-1, Kasturi, Sudha, Vaidahi, Swarna) is suggested using 3-4 seedlings per hill up to 30th August.
- In transplanted rice crop, undertake top dressing of 1/3rd urea (44 kg/ha) after 1st hand weeding at 25-30 days after transplanting and apply remaining 1/3rd urea (44 kg/ha) after 2nd hand weeding at 40-45 days after transplanting.
- As heavy to very heavy rainfall occurred over many places over Bihar, farmers can still go for direct seeding of short duration rice varieties like, Shabhagi, Riccharya, Turanta, Prabhat, NDR-97, Pusa 834, in medium land this can be completed up to end of August.
- In upland situation farmers were advised to sow black gram (T9, Pant U-31 and Pant U-19) as earliest as possible, however, the sowing of Navin could be done up to the end of August.
- Sowing of Rajendra Mishrikand-1 can be done up to the end of August.
- Sowing of pigeonpea (Pusa-9 and Sarad) can be taken up to 15th September. Intercropping of blackgram/sesame with pigeonpea in 1:1row ratio is more profitable than sole pigeonpea.

Arunachal Pradesh, Assam & Meghalaya, NNMT

In flood affected areas of Lower Brahmaputra Valley Zone of Assam, the following contingency measures may be adopted for sali rice:

- Nursery raising of the photo insensitive short duration variety like Luit for replanting (in case of total damage).

- Wet seeding of sprouted seeds (@75-80 kg/ha) of short to medium duration varieties like Disang, Luit, (100 days) Kapili, Kalong (120 days).
- Adoption of submergence tolerant varieties like Jalashree and Jalkuwari for repeat flood prone areas.
- In partially affected fields, drain out excess water and apply 1/2 N + 50% K₂O as top dressing during tillering stage.
- Farmers may also opt for sowing of green gram, black gram, soybean etc.
- In upland areas explore the possibility of growing early rabi vegetables.

In Upper Brahmaputra Valley Zone of Assam, farmers in the flood affected areas should select short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc. These varieties can be transplanted or sown within 1st week of September. Long duration cultivars like Monohar Sali, Andrew Sali and Gitesh can be transplanted with 60 days seedling, whereas Prafulla can be transplanted with 90 days old seedlings. Therefore, farmers should be ready with this type of cultivars to cope up with flood situation. Gap filling in the main field should be done with same age of seedling at 20 and 40 days after transplanting.

In Meghalaya, maintain water level of 2-5 cm in transplanted sali rice. In high upland fields, planting of tuber crops like sweet potato, colocassia, tapioca, etc. may be continued and complete sowing of pigeon pea. Nursery preparation/ sowing of vegetables like cabbage, cauliflower, carrot, radish, laipatta, broccoli and French bean may be undertaken.

Note: The above is a general overview for the states. However, ICAR (CRIDA) has prepared district level contingency plans (covering all farming situations within the district) and placed in the websites of the Ministry of Agriculture & Cooperation, Government of India (www.agricoop.nic.in) and CRIDA (www.crida.in) for further details.