

**Central Research Institute for Dryland Agriculture**  
**Hyderabad**

**Status of monsoon and contingency plans for some rainfall deficit areas**

During 1<sup>st</sup> June to 11<sup>th</sup> August, the country as a whole experienced 18% deficit rainfall, which is considered as normal. The rainfall was deficit by 29% over North-West India, 7% over Central India, 15% over Southern peninsula and by 25% over East and North-East India. Latest status on El Nino published by Australian Bureau of Meteorology states that some cooling has taken place in the central and eastern tropical Pacific ocean, thereby key NINO regions returning to neutral values. Current rainfall status and contingency plans for major rainfall deficit regions in the country is given below.

**Punjab**

Punjab is reeling under dry conditions with 58% deficit in rainfall. Major recommendations for the state is as follows:

- Transplanting of rice varieties Pusa Punjab, Basmati- 1509, Basmati -386 and Basmati- 370 is expected to be completed.
- Short duration early maturing and drought tolerant varieties of crops including paddy (PR 115, PR 111, PR 121, PR 123, PR 113), maize (PMH2) and moong (PAU 911, ML 818) are suggested.
- Moong variety-ML-613 can be sown in rainfed areas in Gurdaspur, Hoshiarpur and Ropar. Moong- PAU -911 varieties has been recommended for the whole state except Bathinda, Mansa, Faridkot, Muktsar and Ferozepur.
- Adopt moisture conservation practices like hoeing, weeding, mulching in crops like sugarcane, maize, cotton to reduce the evaporation losses.

**Maharashtra**

The rainfall was deficit by 23% in Vidarbha, 59% in Marathwada, 13% in madhya Maharashtra, and by 8% in Konkan region. In the state, 72.7% of area has been covered mainly with cotton, soybean, pigeonpea and paddy so far. Contingency plan for Marathwada region is as follows:

- Depending up on the soil moisture, red gram (BSMR-736, BSMR-853) and hybrid jowar (Parbhani Shweta, CSH-14, 16 or PKV 09), castor, ragi, sesame may be sown.
- Intercropping systems like sunflower + pigeon pea, hy. bajra + pigeon pea, castor + pigeon pea etc. are recommended.
- Farmers may take up intercultural operations like weeding/hoeing in already sown cotton, soybean, pigeonpea crops and apply second dose of nitrogen to one month old cotton and sorghum.
- Apply 500 gm Nitrogen per tree to citrus, lemon and sweet orange (Mrug Bahar) orchards and also provide protective irrigation.

In Vidarbha region, 82.5% of normal area in Amravati division and 56.6 % over Nagpur division has been so far covered under different crops.

- Apply first top dressing of nitrogen to the early sown cotton and sorghum.

- In the delayed sowing areas, pigeonpea (AKT 8811, Vipula, PKV-Tara and BSMR-736) may be sown at a closer (45x20 cm) spacing.
- In the delayed sowing areas (up to first fortnight of August) alternative crops like 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 pearl millet + pigeonpea (2:1 or 4:2), sunflower + pigeonpea (2:1), sesame + pigeonpea (4:1) intercropping systems is suggested up to first fortnight of August.

## **Haryana, Chandigarh and New Delhi**

Rainfall was deficit by 56% in Haryana, Chandigarh and Delhi meteorological sub-division. Major recommendations for Haryana and Delhi are as follows:

### **Haryana**

- As the rainfall was 54% deficit 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.
- Intercropping of pearl millet + greengram/moth bbean (intercropping 8:4/6:3) is recommended. In case of poor plant population (<two-third), re-sowing may be done as and when rain resumes.
- Cluster bean can also be intercropped with pearl millet.
- Sowing of guar, bajra, pulses will be normal due to receipt of rainfall during first week of August.
- Sowing of sesame should be avoided beyond mid August.
- Avoid use of chemicals for weed management under stress.

Due to deficit rainfall activity following agronomic measures are suggested.

- Sprinkler Irrigation
- Shallow irrigation of 4-5 cm depth
- Conjunctive use of canal and ground waters
- Split application of fertilizer and organic manures
- Undertake straw mulching
- Marginal ground waters for life saving irrigation
- Short duration cultivars
- Sowing of fodder crops such as sorghum mixed with cowpea to increase the nutritive value and continuous supply of green fodder.

### **Delhi**

- Sowing of pigeon pea, pearl millet, cluster bean, spinach, amaranthus, okra, cucurbits, sweet corn and baby corn will be normal due to the available soil moisture.
- Making of higher and wider bunds for conserving rain water in the field is recommended.

## **Andhra Pradesh and Telangana**

Rainfall was deficit by 37% and 29% in Coastal Andhra Pradesh and Rayalaseema regions, respectively. In Andhra Pradesh so far, 42% of normal area is covered. In Telangana state 74% of normal area has been covered though the rainfall deficiency was 50%. In coastal AP, paddy can be transplanted under canal commands up to 15<sup>th</sup> August. In NSP command areas of Nalgonda, Guntur, Krishna and Prakasam districts, rainfed crops like maize, cotton, redgram, greengram are suggested. In Rayalaseema, sowing of contingency crops like redgram (up to 15th August), sorghum, bajra, foxtailmillet, cowpea, sunflower, greengram, fieldbean are recommended. In Kadapa district, sowing of contingency crops like redgram (60

x 20 cm spacing), maize, tomato, cowpea, field bean (TFB 5) and sunflower in red soils; whereas in black soils instead of groundnut crops like redgram, sorghum and sunflower are suggested.

## **Gujarat**

In Gujarat state, rainfall over Saurashtra & Kutch region was 15% deficit whilst it was 24% deficit over rest of the state. However, cereals, pulses, oil seeds and other crops are sown over 58, 55, 64 and 90 % of their normal areas, respectively. Major suggestion are listed below:

- As there is good rainfall during last few weeks and also there is probability of rainfall in next fortnight transplanting of rice and sowing of castor and cluster bean may be undertaken in Gujarat.
- Sowing of following contingency crops may be continued in Gujarat Region and Saurashtra region. Avoid sowing of maize and bajra crops for grain purpose in South and Middle Gujarat Region.

### **South, Middle Gujarat region**

- Soybean, cv. Guj. Soybean1, 2, JS-335.
- Short duration oilseeds crops: Sunflower (cv. Modern and EC-68414 and Guj-1) and Sesame (cv. Guj. Tal 1,2, 10 ); Pulse crops like Black gram (cv. T-9, Guj. Udid-1), Green gram (cv. GM-4, K-851, Meha), Cowpea (cv. Guj. cowpea 1,2,4,Pusa Falguni); Grain Sorghum (cv. GJ-35,36 and 37) and Fodder sorghum (cv. S-1049,C-10-2, Gundari, GFS 4,5).
- In Baroda and Panchmahal districts, continue drill sowing of rice cv.GR 5,8,9, Sathi 34-36, IR-28, ADR-1and Sukhvel-20 as contingency crop.

### **North Gujarat Region**

- Sesamum (cv. Guj. Tal 1,2, 10), Sunflower (cv. Modern, EC 68414), Fodder sorghum (cv. S-1049, C-10-2) may be sown.
- Saurashtra region
- Black gram- cv. T-9, Guj. Udid-1; Greengram-GM-4, K-851, Meha; Sorghum cv.CSH-6 and CFS-4 for fodder purpose; Guar-Guj. Gaur 1 and 2 specifically for Kutch region.
- Sesame-Purva-1.

## **Bihar**

The rainfall is deficit by 28% in the state. The major recommendations for the state is as follows:

- Avoid paddy transplanting beyond 15th August and take up sowing of yam bean, pigeon pea, sunflower, maize and vegetable crops in the upland areas.
- In upland areas, sowing of blackgram (cv. Navin) and redgram is recommended up to August.
- In medium and low land areas, direct seeding of short duration paddy varieties (Turanta, Prabhat, Saket-4, Richhariya) is recommended up to 15th August.
- 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.
- If plantings are delayed, farmers may use 45 days old seedlings of medium duration paddy varieties (Sita, Rajshree, Subhasini, Rajendra Kasturi, Rajendra Bhagwati) and 40-50 days old

seedling of long duration paddy varieties (Swarna Sub-1, Rajendra Manasuri, Sambha Sub- 1 (BPT 5204), Kasturi, Vaidahi, Sudha, Rajshree) up to 15th August.

- Undertake sowing of short duration varieties of maize, blackgram, moong if rice transplanting cannot be done due to limited irrigation facilities.

## **Odisha**

In Odisha rainfall during July was 40% in excess and more than 100% during August and the cumulative rainfall so far is +21%. Places like Samabalpur received 460 mm rainfall in 24 hours. 13 districts namely Kendrapada, Jajpur, Bhadarak, Jagatsinghpur, Cuttack, Khurda, Puri, Nayagarh, Dhenkanal, Anugul, Boudh, Baragarh and Sambalpur are put on high flood alert.

- Keep a vigil on floods in Brahmani and Subarnarekha beyond 10th August.
- In upland areas, greengram, blackgram and sesame may be taken up after 15th August
- Nursery raising of tomato and cauliflower is suggested for Keonjhar and Koraput districts.

## **Arunachal Pradesh, Assam & Meghalaya, NNMT**

As northeastern states received good rainfall during last fortnight and likely to receive rainfall in next fortnight, transplanting of kharif rice in Arunachal Pradesh is expected to be completed; transplanting of medium duration (130-135 days) sali rice with varieties like Satyaranjan, Basundhara, Jaya, IR 36 etc. is expected to continue till 15-20 August in Upper Bramhaputra Valley Zone of Assam, sowing of redgram, groundnut and sesame in Hill Zone of Assam; transplanting of medium duration (130-135 days) sali rice and sowing of arhar and sesame may be continued in Central Bramhaputra Valley Zone of Assam. Transplanting of sali rice is expected to be completed in Meghalaya. Sowing of pigeon pea; transplanting of rice in Mizoram; transplanting of rice and sowing of soybean, groundnut and pulses like black gram, green gram in Nagaland; transplanting of kharif rice and nursery raising of cole crops in Manipur and sowing of vegetables in Tripura are expected to continue.

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

- Raising of community nursery for late transplanting with old seedlings of the varieties like Profulla and Gitesh (If more than 50% damaged).
- 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 submerge tolerance varieties like Jalashree and Jalkuwari for repeat flood prone areas.

In partially affected fields, drain excess water and apply  $1/2^{\text{rd}}$  N + 50%  $K_2O$  as top dressing during tillering stage.

**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](http://www.agricoop.nic.in)) and CRIDA ([www.crida.in](http://www.crida.in)) for further details.**