

ICAR-Indian Institute of Water Management, Bhubaneswar

AICRP on Irrigation Water Management

Agro-advisory to Farmers on Water Management during COVID-19 for May 2020

Sl. No.	Centre name	Agro-advisory on water management to farmers
1	Navsari	<ol style="list-style-type: none">1. Apply irrigation and fertilizer in summer crops through drip irrigation system to save water, fertilizer and minimize infestation of pests2. Stop irrigation 15 days before harvest of summer rice3. Apply irrigation to summer greengram crop at pod setting stage4. Irrigate sapota orchard to reduce fruits dropping5. Apply irrigation to sugarcane crop in furrow to save water6. Apply mulch in watermelon/muskmelon crop to reduce fruit damage during hot days and also control weeds and pest with saving of water during summer season
2	Palampur	<ol style="list-style-type: none">1. With good rains received in last two weeks, transplanting of tomato, chilli, brinjal, okra and cucurbitaceous crops can be done in plots where FYM has been incorporated well. Ensure that the area has provision of life-saving irrigation. If not, delay the transplanting.2. For cultivation of maize and pulses in rainfed area, deep ploughing should be done to conserve moisture3. In areas where transplanting has been taken up for vegetables, use mulch for moisture conservation because in the later part of May evaporation demand will be high.4. Wherever, transplanted tomato crop is under protected conditions during May, the crop should be drip irrigated at 0.8 PE and fertilized with water soluble fertilizers at weekly intervals.
3	Jammu	<ol style="list-style-type: none">1. Primary tillage using the existing soil moisture is advised either for ensuring irrigated rice or for rainfed maize.2. For irrigated rice deep summer ploughing along with dressing of field bunds will kill weeds/ pathogens in soil as well as recharge the soil profile. Two summer ploughings are necessary prior to advent of monsoon at an interval of 15 days.3. After harvesting of wheat or any preceding crop, plough the field with rotavator and apply pre-sowing irrigation (<i>rauni</i>) and sow @ 1.5 kg of <i>dhaincha</i> seed/ kanal or @ 1 kg of greengram/ kanal during first week of May for green manuring. Irrigate green manuring crop at 10 days interval.

		<ol style="list-style-type: none"> 4. For rainfed maize use mould board plough, disc-harrow or cultivator for two summer ploughing along with dressing of field bunds in order to facilitate in-situ soil moisture conservation. 5. Sowing of fodder crops (maize, bajra, jowar, etc.) may be done during this week. Adequate moisture should be maintained for maximum germination of seeds. Sowing should be done at a depth of 3-4 cm and at row to row spacing of 25-30 cm. 6. Under COVID-19 lockdown situation, there may be acute shortage of labour for rice transplanting. Hence, farmers are advised to explore the possibility for bringing more area under direct seeding of rice (DSR) especially in the areas of medium to heavy textured soils.
4	Gayeshpur	<ol style="list-style-type: none"> 1. Framers are advised to do laddering of field after sowing jute. Laddering will act as dust mulch for soil water conservation promoting better seed germination and seedling emergence. Provide life-saving irrigation under water stress condition and apply top dressing of nitrogen @ 20 kg/ha after light irrigation. 2. Now greengram or blackgram are at germination/seedling stage. Farmers are advised to maintain optimum soil water for proper seed germination and seedling emergence and growth as per prevailing water status of the soil. 3. For vegetables (Cucurbits), carry out intercultural operation and supply of irrigation water in summer vegetables such as okra, pumpkin, cucumber, spongegourd, bottlegourd. 4. Summer rice is at harvesting stage. Framers are advised to drain out excess water from the field before harvesting 5. Sesame is at flowering stage. So one supplemental or life-saving irrigation should be applied.
5	Sriganganagar	<ol style="list-style-type: none"> 1. Apply drip irrigation for 3 hours and 7 minutes on alternate days in paired planting tomato crop. 2. In paired planting of brinjal crop, apply drip irrigation for 3 hours and 51 minutes on alternate days. 3. Apply drip irrigation in paired planted chilli crop for 3 hours and 18 minutes on alternate days. 4. For single row planted bitter gourd, apply drip irrigation for 2 hour on alternate days.

6	Faizabad (Ayodhya)	<ol style="list-style-type: none"> 1. Deep summer ploughing is advised to increase the absorption capacity of water in land and to reduce and destroy the weeds and insects. 2. Level the land so that water runs uniformly in the fields at the time of irrigation. 3. Irrigate the <i>zaid</i> crops like greengram, maize etc. at about 10 days intervals. 4. Irrigate sugarcane crop sown in winter at an interval of 20 days and weed out when the moisture comes out. 5. Sow the green manure crops to enhance the soil fertility after its incorporation into the soil. 6. Sow the paddy nursery of long duration paddy varieties in the last week of May 2020.
7	Ludhiana	<ol style="list-style-type: none"> 1. Sowing of paddy nursery in second fortnight of May will save water. Irrigate the nursery regularly. Short duration paddy varieties like PR 126 (123 days) will reduce the pressure on groundwater resources. The farmers are discouraged to grow long duration paddy varieties. 2. Complete the sowing of cotton by 15th May with heavy pre-sowing irrigation using good quality water. Grow cotton on ridges to save precious water and save the crop from water stagnation during rains, besides other benefits. For April sown cotton crop, apply first irrigation after 4 to 6 weeks of sowing depending on soil type. 3. Start sowing of maize on a well-drained medium to heavy textured soils in last week of May after heavy pre-sowing irrigation with good quality water through furrow irrigation system. 4. Irrigate spring sugarcane sown in mid-February to end of March at 7-12 days interval during April-June using drip irrigation system. 5. Irrigate summer moong 25 days after sowing. 6. Complete sowing of pigeonpea (<i>Arhar</i>), <i>kharif</i> groundnut by second fortnight of May after pre-sowing irrigation with good quality water. 7. Apply 3-4 irrigations at weekly intervals to green manuring crop <i>Sesbania</i> (<i>Dhaincha/Jantar</i>) sown in April. 8. Irrigate fodder maize sown in March or April or May if rain is delayed. 9. Complete sowing of multicut sorghum and pearl millet (fodder <i>bajra</i>) till end of May after following pre-sowing irrigation. 10. Complete sowing of guinea grass for fodder purpose by mid-May. First irrigation should be given immediately after sowing. Second light irrigation essential for germination should be given after about 4-6 days of first irrigation as soon as the surface gets dry. 11. Apply fortnightly irrigation to cowpea sown in May until the advent of the monsoon. 12. During summer irrigate brinjal at 4-6 days interval, okra at 10-12 days, cowpea at 4-5 days interval, muskmelon (sown in March) every

		<p>week avoiding over-flooding of the field , watermelon (transplanted in March) at 9-13 days interval, bottlegourd (sown in March) at 6-7 days interval, bittergourd at 6-7 days interval, spongegourd (sown in March) at 7-10 days interval, cucumber at 4-6 days interval, long melon (sown in March) at 4-5 days interval and roundgourd at 4 to 5 days interval.</p>
8	Chalakydy	<ol style="list-style-type: none"> 1. Utilize canal water supply from CRDS during May to irrigate crops using micro irrigation system 2. Maintain and clean field bunds, rain pits and other field water conservation structures to conserve water. Plant fodder grasses along the bunds at the top. Allow adequate drainage of rainwater at the landslide prone areas. Clean open wells for drinking water before summer rains. 3. Complete harvesting of paddy and store the grains and hay in safe places before rain. Start land preparation for <i>kharif</i> paddy. 4. On receipt of good rainfall, open coconut basins of 2 m circumference and apply 1 kg of lime. After 2 weeks, apply organic manure @ 25 kg/tree. This month is also suitable for sowing seed coconuts. Mulching shall be done using coconut leaves after sowing seed nuts. If rainfall is less, sown nuts should be irrigated. Pit size of 1m x 1m x 1m is recommended for planting of new coconut seedlings on arrival of south-west monsoon. 5. Plant rainfed banana varieties like Poovan, Chenkadali, Robusta, Palayankodan, Njalipoovan, Kunnan, etc. If planted during rainy season, the pits should be filled immediately. Irrigate older plants till the receipt of rainfall. Propping can be followed to reduce the damage due to high wind speed. 6. Irrigate mangosteen and rambuttan till the receipt of south-west monsoon. 7. Prepare land for vegetables. Transplant brinjal at a spacing of 60 cm x 60 cm and chilli at 45 cm x 45 cm. Use mulching and provide shade for the first 3-4 days and irrigate when required. 8. Irrigate nutmeg trees until the receipt of monsoon. Apply both organic as well as inorganic fertilizers. Fill pits with organic manure and plant nutmeg saplings on receipt of rainfall. As a prophylactic measure to prevent the fungal disease in nutmeg, Spray 20 g <i>Pseudomonas</i> in one litre of water or 1% Bordeaux mixture. Provide drainage channels in lowland nutmeg plantations. 9. Prepare raised beds for planting ginger and turmeric. Plant rhizome bits of 15 g weight at a spacing of 20 cm x 20 cm and provide leaf

		mulching.
9	Coimbatore	<ol style="list-style-type: none"> 1. Supply and demand side interventions to reduce the over exploitation of groundwater in the Noyyal and Bhavani basins of Tamil Nadu 2. Water management of major crops <i>viz.</i>, coconut and banana in Bhavani basin need to be taken up as per university advises. 3. Micro irrigation and maintenance of drip irrigation for Vaigai basin. 4. Demand side water management practices like mulching, vermicomposting, cover crops etc., to reduce the ET of the crop during summer season
10	Jorhat	<ol style="list-style-type: none"> 1. Preparation of transplanted paddy nursery bed and maintaining the soil moisture by keeping water in the channel in between two nursery beds at the level of bed height. 2. For <i>kharif</i> rice to be grown under rainfed condition under medium land situation, prepare bund with 30 cm of its height to retain rain water for higher yield of rice 3. In rice field where irrigation facility is available, irrigate at a depth of 5cm should be scheduled 3 days after disappearance of ponded water or at 15cm depletion of ground water from soil surface measured in a perforated pipe installed in rice field. 4. In direct seeded aerobic dry sown upland autumn rice, maintain soil moisture at 75-80% of available range (or 4cm irrigation at 13-15 days interval). Aerobic rice variety 'Englongkiri' is suitable under this situation. 5. If transplanting of sugarcane had been delayed due to present COVID-19 pandemic, plant sugarcane setts in furrows and subsequently put mulchon the ridges with 50 micron plastic film for better harvesting of rain water 6. Provide drainage channel of 25cm width and 15 cm depth in between two beds at 6 m apart of summer / <i>kharif</i> crops like maize, sesame, green gram, blackgram, etc. for better growth and development. 7. For important standing orchard crops like Assam lemon and banana, soil moisture level at around 75% EpR (Evaporation replenishment) for banana and around 100% EpR for Assam lemon is optimum. Drain excess water for both the crops during <i>kharif</i> season, as it is crucial and needs to be practiced. 8. Grow makhana as a wet land crop (Gorgon nut; <i>nikori</i>) under wetland/<i>Hullah</i>/low land situation with the provision of raised bund height maintaining water level at minimum 6cm depth at the spacing 125cm x 120cm.

11	Junagadh	<ol style="list-style-type: none"> 1. Irrigate mango through drip system after fruits become marble size @ 125-200 LPD, sapota @ 175-200 LPD, coconut @ 80-150 LPD, Kagzi @ 75-100 LPD as per the crop age and geometry. 2. Irrigate summer groundnut crop at 3 days interval through drip system (0.9m l/l x 0.6 d/d x 4lph) for 3 hours and 6 minutes during May. 3. Clean groundwater recharge filter and conveyance system before monsoon starts. 4. Desiltation of the farm ponds, dams, natural depressions and water conveyance channel should be carried out before end of June. 5. Excavate farm ponds, divert natural channels to natural depressions to enhance water harvesting. 6. Construct groundwater recharge system like open well and tube well for enhancing the groundwater resources for the future.
12	Morena	<ol style="list-style-type: none"> 1. As per weather conditions farmers may irrigate cluster bean/ guar at interval of 6-9 days depending upon climatic condition and soil.
13	Rahuri	<ol style="list-style-type: none"> 1. Irrigate suru sugarcane crop alternate day with drip irrigation. In case of shortage of water, irrigate the crop with alternate furrow with surface irrigation. 2. Adopt sprinkler irrigation for groundnut and micro irrigation systems for vegetable crops. 3. The crops should be irrigated during early morning, evening or at night to avoid loss of water due to evaporation. 4. Apply protective irrigations as per critical growth stages of the crops. 5. Use mulches for maintaining soil moisture e.g. sugarcane thrash, straw, dry leaves, etc. 6. Adopt open well and borewell recharge technologies for groundwater recharge before commencement of rainy season.
14	Pantnagar	<ol style="list-style-type: none"> 1. For spring season maize (tasseling stage) keep the soil moist and irrigate the crop once a week in light textured soil and at 7-10 days in heavy textured soil. Use rice straw or sugarcane trash as a mulch @5t/ha to conserve the moisture for longer period. 2. Irrigate mentha (<i>Mentha arvensis</i>) crop once a week in light textured and 7-10 days in heavy textured soil 3. Keep the soil moist and irrigate the sugarcane crop at 10-15 days interval

15	Belavatagi	<ol style="list-style-type: none"> 1. Deep plough the fields for harvesting of uncertain / heavy rains 2. Prepare land by contour tillage to conserve moisture and prevent soil erosion 3. Do proper land levelling for uniform storage and conservation of rainwater 4. Prepare check basins for moisture conservation 5. Construct or repair field bunds/ live bunds to harvest rainwater 6. Construct farm ponds for harvesting of rainwater 7. Recharge groundwater through rainwater harvesting
16	Kota	<ol style="list-style-type: none"> 1. Irrigate <i>zaid</i> mungbean and urdbean using sprinkler irrigation at IW/CPE ratio of 1.2 (8-10 days interval) for a period of 3.0 hours. 2. Irrigate summer sugarcane, at IW/CPE ratio 0.75 (15-20 days interval) for proper germination after paired row planting or line sowing. 3. Irrigate <i>zaid</i> okra, with sprinkler at IW/CPE 1.0 (7-8 days interval) for a period of 3.0 hours 4. Irrigate bittergourd, through schedule drip irrigation every 3rd day at 100% PE with 75% of recommended dose of nitrogen (75 kg/ha) and potash (30 kg/ha) and fertigation at 9-12 days in 6 equal parts for higher fruit yield. 5. Manage crop residue of combine wheat harvest, by applying 25 kg urea/ha and 2.0 kg cellulolytic bacteria mixing in well rotten 50 kg FYM/ha spread in the field and then irrigate the field and turnover the wheat residues through mould board plough. 6. Apply irrigation at 5-7 days interval to tomato, leafy vegetables, cucumber and other cucurbitaceous vegetables during morning hours.