



National Agromet Advisory Service Bulletin Based on Extended Range Weather Forecast (ERFS)

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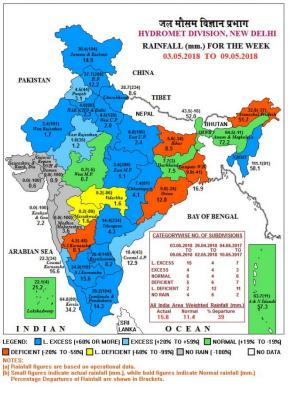
Earth System Science Organization India Meteorological Department

Realized Rainfall and Extended Range Forecast (Rainfall and Temperatures)

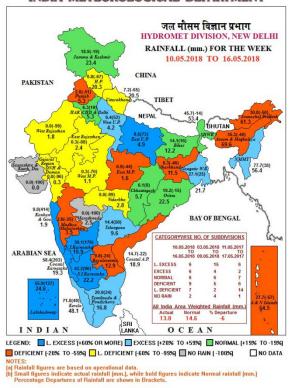
Realized Rainfall

(03rd May to 16th May 2018)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT



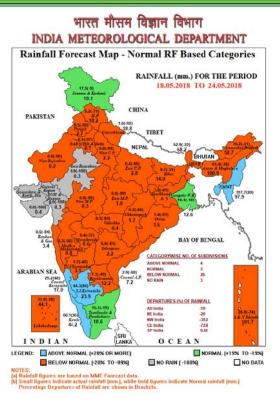
भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT



- Normal or above normal rainfall received during last two weeks in Jammu & Kashmir, Haryana-Chandigarh & Delhi, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, NMMT (Nagaland, Manipur, Mizoram and Tripura), Chhattisgarh, Telangana, Coastal Karnataka, South Interior Karnataka, Kerala, Tamil Nadu and Lakshadweep.
- Normal or above normal rainfall occurred in either of the last two weeks in Uttarakhand, Himachal Pradesh, Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Odisha, Assam & Meghalaya, Gangetic West Bengal, Coastal Andhra Pradesh, Rayalaseema, Konkan & Goa, North Interior Karnataka and Andaman & Nicobar Islands.
- Below normal rainfall occurred in both the weeks in Arunachal Pradesh and Vidarbha.
- No rain occurred in Saurashtra & Kutch in both the weeks.

Extended Range Forecast System

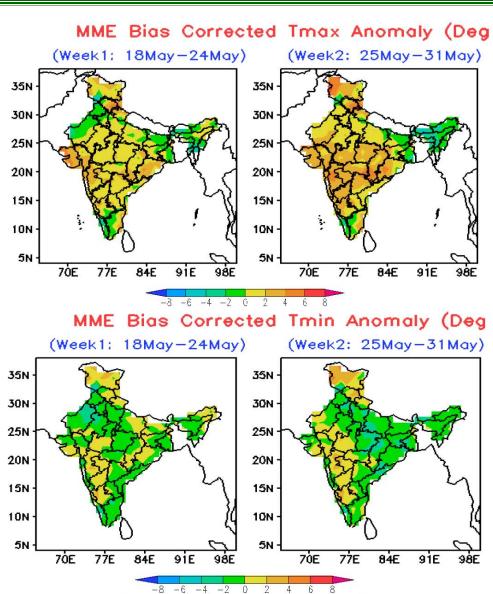
Rainfall forecast maps for the next 2 weeks (IC - 16 May) (18th May to 31st May 2018)





Extended Range Rainfall Forecast

• Week-1 (18.05.2018 to 24.05.2018) and Week-2 (25.05.2018 to 31.05.2018): Pre-monsoon rainfall to continue over Northeast India, extreme north India and also over the southern parts of India during week-1 and week-2. In addition, the north equatorial Indian Ocean and adjoining southern peninsular India will be active associated with likely system over the Arabian Sea. Although it will give rainfall over Kerala and adjoining region during week-1, the possible movement of the system over the Arabian Sea will disturb the flow over the Arabian Sea for a while (Week-1). The Bay branch will be active during week 2 after the dissipation of the system over the Arabian Sea in week 1.



Tmax (Maximum Temperature)

• Week-1 (18.05.2018 to 24.05.2018) and week-2 (25.05.2018 to 31.05.2018): Above normal Tmax over most of India except over Northeast states, Gangetic West Bengal, Jharkhand, southern tip of India and isolated pockets over Northwest India. In week-2, the warming is likely to increase further with maximum warming (4 to 6 degree C) over central and northwest India.

Tmin (Minimum Temperature)

• Week 1 (18.05.2018 to 24.05.2018) and week 2 (25.05.2018 to 31.05.2018): Slightly above normal Tmin over Northwest and central parts of India or mostly it is close to normal.

Strategic Agricultural Planning based on rainfall during next two weeks till 31st May 2018 Agromet Advisories

Tamil Nadu

Rainfall Situation

Rainfall received during 01 March to 16 May 2018 over Tamil Nadu is 108.5 mm, which is 13% excess compared to the normal. The extended range weather forecast provided for next two weeks [18-24 May (week-1) and 25-31May (week-2)] are above normal for both weeks.

- Farmers are advised to go for summer ploughing in fallow land.
- Banana: Prevailing moderate high wind speed may damage banana crops. Farmers are advised to do propping for Banana.
- Animal Husbandry: Vaccinate the cattle for foot and mouth disease. To escape from heat stress provide adequate drinking water, green fodder and spray water on gunny bags surrounding the cattle shed.

Kerala

Rainfall Situation

Rainfall received during the period of 01 March to 16 May 2018 over Kerala is 315.6 mm, which is 35% excess from the normal. The extended range weather forecast provided for next two weeks is above normal for week-1 and normal for week-2.

- Coconut: To control Rhinoceros beetle, inoculate breeding sites with entomopathogenic fungus Metarrhizium anisopliae @ 10-15g per litre water and also apply neem cake mixed with equal volume of sand in the innermost leaf axils.
- Arecanut: (Spindle bug, Yellowing, Sun scorching)- Apply fertilizer @ urea 165 g + rock phospahate 150 g + potash 175 g per palm.
- Banana: As a precaution for sigatoka disease, spray Pseudomonas 10-20 g per 1 litre of water. In case of severe attack spray 1 g Bavistin by mixing it with gum in 1 litre of water on lower surface of leaf.
- Pepper: Apply trichoderma or pseudomonas culture in soil or 1% Bordeaux mixture can be sprayed on the leaves and small branches for quick wilt disease.
- Ginger/Turmeric: Apply green leaf mulching to prevent soil erosion and to increase the organic matter content in the soil.
- Nutmeg: Protect the trees from drought and sun scorching. Mulching is recommended and also irrigate the plants.
- Vegetables: Remove and destroy affected and decayed fruits. Use special pheromone traps like cue lure (6 nos/Acre) for vegetable fruit fly or Thulasi/fruit traps. If the attack is not reduced, spray mixture of 2 ml malathion and 10 g jaggery in one litre of water during flowering and fruit initiation stage.
- Coffee: Apply fertilizers @ 85 kg urea, 150 kg rock phosphate and 66 kg potash per hectare of coffee.
- Cardamom: Take necessary control measures against cardamom thrips, white flies etc. It is advised to give a heavy irrigation once in a fortnight and keep the drainage channel clean. Destroy the katte disease affected plants.

Karnataka

Rainfall Situation

Rainfall received during 01 March to 16 May 2018 over different meteorological sub-divisions of Karnataka is: North Interior Karnataka is 74.4 (42 % excess), South Interior Karnataka is 148.6 mm (55 % excess) and Coastal Karnataka is 137.9 (91 % excess). The extended range weather forecast provided for next two weeks is above normal for South Interior and Coastal Karnataka and below normal for North Interior Karnataka during

week-1; below normal for coastal and north interior Karnataka and normal for south interior Karnataka during week-2.

North Interior Karnataka

- Harvesting of mango and ripening processes can be continued for next two weeks.
- Land should be ploughed and the crop residue should be incorporated in the soil. The left over crop residue should be used for making compost or vermicompost, instead of burning. Heaping of fodder, straw may be completed as early as possible to prevent the damage of fodder due to summer thunder showers
- It is advised to apply 4-6 inch thick hay thatch as a roofing material to animal shed, and spray water on the floor and roof of shelter periodically to avoid heat stress to animals.

Maharashtra

Rainfall Situation

Rainfall received during 01 March to 16 May 2018 over different meteorological sub divisions of the state is: Konkan: 13 mm (62% excess), Madhya Maharashtra: 8.4 mm (58% Deficit), Vidarbha: 10.8 mm (37% Deficit) and Marathwada: 11.6 mm (53 % Deficit). The extended range weather forecast provided for next two weeks is below normal for all the subdivisions of the state for both the weeks.

Marathwada

- Summer groundnut: Dry the harvested crop of groundnut in shade up to moisture percent of 8-10%.
- Fruit crops: Irrigation management should be done in mrugbahar banana orchard with the help of flood irrigation system with one day interval. To avoid quality loss, harvest mature mango fruits as early as possible. The harvesting should be done early in the morning or at evening. Irrigation management should be done in April pruned grape orchard. To increase quality of citrus fruit take a spray of 1 % potassium nitrate (10 g / litre of water) + 0.5 % Zinc (5 g/ litre of water) in citrus orchard. Due to increase in temperature irrigation management and mulching to be done in pomegranate and sapota orchards.
- Vegetables: Due to increasing temperature, increase in rate of evapotranspiration, the vegetable crops should be irrigated by micro irrigation system in early morning hours so as to avoid loss of water by evaporation.
- Animal husbandry: To reduce the stress of hot weather in animals, provide electrolyte powder mixed in drinking water or fodder. Provide clean and cold drinking water to the animals two to three times during night.
- Fodder crop: Irrigation management should be done in fodder crop.

Madhya Maharashtra

- For control of sap sucking pests apply imidachloprid 70 WG, 0.7 g or thiamethoxam 25 WG, 2 g or diamethoate 30 EC @ 15 ml per 10 litre of water
- Sowing of fodder crops like sorghum, pearlmillet, maize may be done as per availability of water.
- To control thrips and purple blotch, spray alternately diamethoate 30% concentrate 15 ml or lambda psyhalothrine 5 EC, 6 ml or quinolphos 25 EC @ 24 ml per 10 litre of water along with diathen M-45, 0.3 % fungicide + sticker.
- Due to present weather condition the powdery mildew disease and mango hoppers/ jassids may emerge on inflorescence of mango. For its control, spray spinosad 45 SC @ 3 ml along with denocap 48% EC or penconazol 10% EC @ 5 ml per 10 litre of water.

• For control of early shoot borer on sugarcane apply 18.5% SC chlorantriniliprole @ 3 to 4 ml or chlorantraniliprol granule 0.4%, 18.75 kg/ha or chloropyriphos @ 15 ml per 10 litre of water.

West Bengal

Rainfall Situation

Rainfall received over SHWB & Sikkim is 287.1 mm rainfall (6% deficit) and Gangetic West Bengal is 123.5 mm (8% excess) during 01 March to 16 May 2018. The extended range weather forecast provided for next two weeks is: SHWB & Sikkim - below normal, Gangetic West Bengal - normal during week-1; above normal over both subdivisions during week-2.

- Boro rice: Farmers are advised to harvest the crop.
- Jute: For crops of three-week stage, apply 6 to 7 Kg Urea (per bigha) as first top dressing and for crops of six-week stage, apply the same amount of fertilizer as second top-dressing. Under prevalent weather situation, there is chance of the attack of weevil. Spray Dimethoate or Carbaryl @ 1 g/litre of water to control it.
- Summer Vegetables: In cucurbitaceous crops, there is a chance of attack of Red-Pumpkin Beetle in the current weather condition. To control the pest apply Chlorpyriphos or Rogor (1ml per litre of water).

Assam

Rainfall Situation

Assam has received 314 mm of rainfall during the period of 01 March to 16 May 2018, which is deficit of 26%. The extended range weather forecast provided for next two weeks is: below normal for week-1 and above normal for week-2.

- Sali Rice: Procure the seeds of high yielding varieties of Sali rice namely Ranjit, Bahadur, Satyaranjan, Basundhara, Kushal, Mahsuri, Bhogali, Rangilee, Ketekijoha etc. Select Satyaranjan and Basundhara in double cropping areas having crop duration of 130-135 days. Jalashree, Jalkunwari, Plawan are some suitable varieties of Sali rice for flood affected areas. Summer ploughing in rice fields is adviced to kill the eggs and larvae of insects and also will help in moisture conservation in soil.
- Colocasia: Farmers are advised to go for earthing-up in colocasia after 40-45 DAS preceded by weeding.
- Arecanut: Harvest the matured Arecanut and sort out the healthy seed nut form the harvested lot which are suitable for raising seedlings. For nursery bed, select well drained soil free from water-logging.
- Chilli: To control diseases like circular spot and water soaked sunken lesions, spraying of captan or captaf 5 g/2.5 litre of water may be advocated.
- Apiculture: It is a favourable weather conditions for honeybee to be flown from their hive, so beekeepers are advised to monitor the honey bee colonies frequently and destroy if then any newly formed queen hive is found.
- Fishery: As sufficient water has accumulated in the ponds, the ponds should be stocked with fingerlings or carried over seeds of 15 cm size @ 5000 per hectare of water surface area. Before release the fingerlings should be treated with Potassium permanganate solution.
- Cattle: Vaccination should be taken against Foot & Mouth disease, BQ, SH and other bacterial diseases in cattle and Buffaloes before the start of monsoon season.

Rajasthan

Rainfall Situation

West Rajasthan has received 4.6 mm and East Rajasthan has received 6.6 4mm of rainfall during the period of

01 March to 16 May 2018, which is deficit of 61% and 38%, respectively. The extended range weather forecast provided for next two weeks is: below normal for both the subdivisions during week-1 and below normal for West Rajasthan and above normal for East Rajasthan during week-2.

- Apply irrigation in fodder crops like maize, sorghum, bajra and cluster bean are available.
- Deep ploughing of fields after harvesting of rabi crops should be done as high temperature is prevailed which is suitable for killing insect's eggs and pupae and weed seeds. After harvesting of rabi crops farmers are advised to test their soil from certified agencies and do laser leveling in their field if required.
- Godowns should be properly cleaned and advised to spray 0.5 % malathion solution and keep the chamber closed for a week.
- Control of stem and fruit borer in okra spray of malathion @ 2 ml or thiram @ 1 ml in one litre water.
- Protect poultry birds from heat waves.

Haryana

Rainfall Situation

Haryana has received 21.9 mm of rainfall during 01 March to 16 May 2018, which is 23% deficit. The extended range weather forecast provided for next two weeks is: below normal for week-1 and above normal for week-2.

- Wheat: Don't burn heat straw in field as it creates environmental pollution and harmful for soil health. It is also a punishable offence.
- Rice: Prepare the field for nurseries of rice crop with application of compost khad 10 to 12 cart per acre.
- Cotton: Farmers are advised to go for sowing of cotton crop.
- Moong: Farmers are advised to apply irrigation.
- Sugarcane: Farmers are advised to apply irrigation and chemical spray.
- Vegetables/ fruit crops: Due to possibility of rainfall in week 2, farmers are advised not to apply irrigation.
- Livestock: Keep animals inside of shade while high winds and aberrant weather. Provide clean drinking water sufficiently. Give shower to animals to overcome the heat stress and provide balanced feed.

Punjab

Rainfall Situation

Punjab has received 25.2 mm of rainfall during 01 March to 16 May 2018, which is 47 % deficit. The extended range weather forecast provided for next two weeks is: below normal for week-1 and above normal for week-2.

- Start the sowing of paddy nursery after 20th May. Grow recommended varieties of rice i.e. PR 127, PR 126, PR 124, PR 123, PR 122, PR 121, PR 114 and PR 113 etc. Flood the field and puddle it well. Soak 8 kg seed in 10 litres of water containing 20g Bavistin and 1g Streptocycline for 8 to 10 hours before sowing.
- Eradicate the weeds like kanghi buti, peeli buti, puth kanda etc growing on cotton field bunds, waste lands, road side and irrigation channels/canals to avoid further spread of whitefly to cotton field.
- For the management of early shoot borer in sugarcane, use Tricho-cards having 20,000 eggs of Corcyra cephalonica parasitized (seven days old) by Trichogramma chilonis per acre at 10 days interval. Control the weeds from the sugarcane crop.
- To control weeds in summer moong, give first hoeing 4 weeks after sowing of the crop and second

- hoeing, if needed,
- To control the damage caused by tobacco caterpillar (Spodoptera litura) in summer moong, spray 800 g of Asataf 75 SP (acephate) or 1.5 litres of Dursban 20 EC (Chlorpyriphos) using 100 litres of water per acre with manually operated knapsack sprayer.
- Vegetables/ Fruits: Onion thrips should be checked by spraying 250 ml Malathion 50 EC in 80 litres of water per acre. Do not spray during 7 days before harvest. Fruit borer attack in tomato crop can be checked by spraying 30 ml of Fame 480 SL or 600 ml of Carina 50 EC or Coragen 18.5 SC @ 60 ml per acre or 100 ml of Sumicidin 20 EC in 100 litres of water per acre. Observe waiting period of 3 days after the spray of Fame. To protect the tomato crop from early blight spray the crop with Indofil M-45 @ 600 g/acre in 200 litres of water. For management of mites in pear, spray of Fosmite 50 EC @ 2.0 ml per litre water can be done for management of fruit drop in mango spray 2,4-D sodium salt (Horticulture grade) @ 10g in 500 litres of water. During this period fruit fly may attack the peach fruits, therefore fix PAU fruit fly traps @ 16 traps per acre.
- Vaccinate the animal against Gal Ghotu, Black Quarter (Pat Soja) as it can cause heavy loss of animal life. Save your animals, from ticks, lice and flies. Keep the animals in shade and provide clean fresh drinking water.

Jammu and Kashmir

Rainfall Situation

Rainfall received during 01 March to 16 May 2018 over Jammu and Kashmir is 229.6 mm, which is 22% deficit. The extended range weather forecast provided for next two weeks over Jammu and Kashmir are above normal for week-1 and below normal for week-2.

- Land preparation and nursery raising of early transplanted rice (var. IET-1410, K-39, Ratna, PC-19, Jaya) should be carried out.
- Sowing of summer fodder (maize+cowpea+charri) and bajra is recommended as sufficient moisture is available in the soil.
- Sowing of diancha for green manure @ 62.5 kg/ha should be done (in those areas where harvesting of wheat crop is done) without further delay in fields where rice has to be taken during kharif in order to maintain the soil fertility especially in rice—wheat system.
- Vegetables: Harvest onion crop and leave it for curing at safer place to reduce moisture level in bulbs before storage, in tomato install yellow sticky traps for aphid/whitefly @4 traps/kanal and need based application of neem oil @ 3ml/litre In brinjal spray mancozeb @ 0.25% to control phomopsis blight.
- Horticulture and Floriculture: In Marigold, weeding and hoeing is recommended to conserve moisture.
 Fruit thinning in grape and papaya, if the crop load is heavy. Keep basin free of weeds and remove water suckers.

Chhattisgarh

Rainfall Situation

Chhattisgarh has received 44.3 mm of rainfall during 01 March to 16 May 2018, which is 16 % excess. The extended range weather forecast provided for next two weeks is: below normal for both week-1 and week-2.

- Deep ploughing of the field should be done and covered with polythene. This will prevent crops from soil borne diseases and destroy the weeds and insect eggs in the soil.
- Vegetables: In the vine vegetables, balanced dose of fertilizers and irrigation is important for bumper production. Automatic weeder should be used in vegetables for inter-cultural operations. This will save energy and time.

- Flower/ Fruit: Banana leaves may dessicate due to heat waves. Therefore farmers are advised to cut the dried and yellowish leaves so that transpiration rate will decrease. Water requirement of citrus is high in these days, therefore should be irrigated on daily basis.
- Animal husbandry: Do not graze animals after 10 AM and before 3PM in open place. Animals must be fed 50-60 grams of salt mixed with water. Looking to the present high temperature, farmers are advised to keep their poultry farm cool by hanging gunny bag curtains and wet it regularly. Gunny bags should be kept wet so that birds and animal are protected from loo /heat storm.

Jharkhand

Rainfall Situation

Jharkhand has received 54.4 mm of rainfall during 01 March to 16 May 2018, which is 4 % deficit. The extended range weather forecast provided for next two weeks is: below normal for week-1 and above normal for week-2.

- Rice Timely transplanted crop is at grain filling stage and this stage is sensitive of moisture stress. Hence, maintain the water level in the field.
- Ginger/ Termeric/ Elephant foot Yam Farmers, who wish to cultivate the crop of ginger, turmeric or elephant foot yam (Oal) are advised to prepare the land and sow the seed immediately. Before sowing, a light irrigation is needed in case of deficient soil moisture. After sowing, mulch the field with straw / leaves etc. which not only reduces weeds but also conserve soil moisture. Select one of the improved variety of Ginger: Bardhwan, Suruchi, Suprabha and Nadiya, Turmeric: Rajendra Sonia, Elephant foot yam: Gajendra, Vidhan, Kusum, Sri Padma. Before sowing, seeds must be treated with fungicide. For seed treatment 2 g of Bavistin mix in 1 litre of water and seeds may be soaked for one hour in the solution.
- Green gram To conserve soil moisture for a longer period, intercultural operation (weeding) must be done. Timely sown crops are at flowering stage, therefore attack of Thrips at this stage is not uncommon which causes dropping of flowers from the plant. If such symptoms appears, spray the insecticide like Trizophos or Profenphos @ 1 ml. per liter of water.
- Vegetable Irrigate different vegetables at the regular interval. Brfore irrigation, weeding is essential.
- Cattle There is possibility of attack of heat stroke in animals due to prevailing high day temperature. Hence, animals should be protected against intense heat and should not allow them to expose in sunlight during noon and avail fresh and plenty of water for drinking. If the animals suffering with heat stroke, they should be allowed to bath, keep ice cube on their nose and head, and in extreme case, the medicine Avil should be injected @ 10 ml for adult, 5 ml for kids and 2 ml for goat.
- Green Manuring To increase the fertility of Rice field, farmers may sow the green manure crops like Sunhamp and Dhaincha. The seed rate for both is 20-25 kg per acre.
- Fruit trees Select the suitable place for plantation of different fruit seedlings and prepare/dug the pit and maintain the distance between pit as per requirement of fruit tree.

Himachal Pradesh

Rainfall Situation

Himachal Pradesh has received 139.8 mm of rainfall during 01 March to 16 May 2018, which is 36 % deficit. The extended range weather forecast provided for next two weeks is: below normal for both week-1 and week-2.

- Harvest the wheat crop and keep it in a safe place.
- Summer ploughing should be done in the already harvested field.

Gujarat

Rainfall Situation

Rainfall received during 01 March to 16 May 2018 over different meteorological sub divisions of the state is: Gujarat: 0.2mm (93 % Deficit) and Sourashtra & Kutch: 0.1 mm (93 % Deficit). The extended range weather forecast provided for next two weeks is below normal for both subdivisions of the state for both the weeks.

- Harvesting of green gram and sesame is advised.
- Vegetables: To control sucking pest in summer vegetables, spray neem seed extract 5% or neem seed oil 50 ml with acetamiprid 20% SP @ 5 g in 10 litres of water. Reduce irrigations interval in vegetables to avoid high temperature stress.
- Protect the pearlmilet crop from bird damage by bird scaring methods.
- Livestock: Keep animals under shade or in sheds during noon hours of the day, provide cool water for drinking and shower them with cool water twice or thrice in a day.

Bihar

Rainfall Situation

Bihar has received 36.6 mm of rainfall during 01 March to 16 May 2018, which is 26 % deficit. The extended range weather forecast provided for next two weeks is: below normal for week-1 and above normal for week-2.

- Fodder crops: Sowing of fodder crops such as sorghum, maize and bajra are advised due to the rainfall received during the last few days.
- Spraying of Spinosad 48EC@1ml/4 litres of water is advised under clear sky condition, if pest population of fruit borer in tomato reaches ETL.
- Turmeric: Sowing of turmeric crop from 15th May are advised due to the rainfall received during the last few days. Rajendra Sonia and Rajendra Sonali varieties are recommended for sowing in North Bihar. Application of 25-30 tons of cowdung per hectare is advised before sowing. At the time of final land preparation, 60-75 kg nitrogen, 50-60 kg phosphorus, 100-120 kg potassium and 20-25 kg zinc sulphate per hectare is advised. The size of the planting material (seed) should be around 30-35 gram, which contains 4-5 buds. Seed materials should be sown at 30x20 cm apart maintaining a soil depth of 5-6 cm. Seed treatment with 2.5 gram Endophyl M-45 plus 0.1% Bavestin per Kg of seed is advised. Sowing should be done after half an hour of seed treatment.
- Ginger: Sowing of ginger is advised from 15th May. Maran and Nadia varieties are recommended for sowing in North Bihar. Application of 25-30 tons of cow dung per hectare is advised before sowing. At the time of final land preparation, 30-40 kg nitrogen, 50 kg phosphorus, 80-100 kg potassium 20-25 kg zinc sulphate and 10-12 kg borax per hectare is advised. The size of the seed should be around 20-30 gram, which contains 3-4 buds. Seed materials should be sown at a distance of 30x20 cm. Seed treatment with solution of 0.2% Redomil per Kg of seed is advised.
- Paddy: Land preparation is advised for sowing of seeds in nursery. During land preparation, application
 of cow dung is suggested for good and healthy seedlings. Farmers may start the nursery sowing of long
 duration paddy from 25th May.
- Animal: Farmers are advised to administer vaccination to their cattle against Foot and Mouth disease ten days after providing the medicine for worms. Give 50 g common salt and 50 g mineral mixture every day to animals.

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