

## FARM OPERATIONS IN JUNE

### SUGARCANE

1. Irrigate the crop at 7-12 days interval and apply second dose of urea @ 65 kg per acre along the rows to plant crop.
2. For the management of top-borer, release Tricho-cards having 20,000 eggs of rice moth parasitized by *Trichogramma japonicum* at 10 days interval up to end June. Pheromone traps @ 10 per acre can be used along with the recommended Tricho-card application.
3. Check attack of top-borer by applying 10 kg Ferterra 0.4 GR or 12 kg of Furadan/Diafuran/Furacarb/**Carbocil**/Fury 3G (carbofuran) per acre at the base of shoots of sugarcane during the last week of June, only if the top borer damage exceeds 5 % level. Earth up slightly and give light irrigation to the crop immediately.
4. Black bug sometimes becomes serious particularly on ratoon crop during this month. Check this pest by spraying 350 ml of Dursban/Lethal/Massban/Goldban 20 EC (chlorpyrifos) in 400 litres of water per acre. Direct the spray into the leaf whorl.
5. If dry weather conditions prevail, mite may also cause severe damage to this crop. *Baru* is the alternative host plant from which spreads mite to sugarcane crop. So remove *Baru* weed growing around the sugarcane fields.

### COTTON

1. In situations where *itsit* emerges after first irrigation or with the rain shower, Stomp 30 EC @ 1 litre/acre dissolved in 200 litres of water can also be applied as post-emergence after first irrigation to cotton. If the weeds emerge before the application of the herbicide, a light hoeing/inter-culture may be done as the Stomp does not control the emerged weeds. Alternatively, spray 500 ml per acre Hitweed Maxx 10 MEC (pyrithiobac sodium 6%+quizalofop ethyl 4%) by dissolving in 150 litres of water after first irrigation, in moist soil, to control annual grass and broadleaf weeds. This herbicide also provides effective control of *lapeta (guara) vel (Ipomoea sp.)* when weed plants are at 2 to 5 leaf stage.
2. Apply urea 33 kg /acre to non-Bt varieties, 40 kg /acre to Bt varieties and 45 kg/acre to all hybrids after thinning. PAU-LCC can also be used to apply need based N, in Bt cotton.
3. To ensure optimum stand of the crop, 3 week old cotton seedlings which were sown earlier in polythene bags filled with soil and farm yard manure in equal parts can be transplanted in the gaps.
4. Give directed spray (by using protective hood) of Gramoxone (paraquat) at 0.5 litre/acre at 6-8 weeks after sowing in between the cotton rows by using 100 litres of water. Avoid application of the herbicide on the top foliage of the cotton plants. Application of either herbicide at 6-8 weeks after sowing when crop is 40-45 cm high can replace hand weeding/hoeing etc.
5. Regularly monitor the crop for the incidence of cotton leaf curl virus. Uproot and destroy the affected plant from time to time.
6. Whitefly also attacks other alternate host crops like brinjal, potato, tomato, okra, *moong*, *mash* and *guar*. Regular surveillance should be done for timely management on these crops. Regular surveillance of whitefly on cotton should also be done.

7. Control cotton jassid by spraying 300 ml Keefun 15 EC (tolfenpyrad) or 60g Osheen 20 SG (dinotefuran) or 300 ml Neon 5 EC (fenpyroximate) or 80g Ulala 50 WG (flonicamid) or 40g Actara/Dotara/Thomson/ Extra super 25 WG (thiamethoxam) in 100 litres of water per acre.
8. Parawilt in cotton plants can be checked by spraying cobalt chloride @ 10 mg/ litre of water on the affected plants at the initial stage of wilting
9. To prevent the incidence of mealy bug on the crop, remove all the weeds growing around the crop fields.

### **RICE**

1. Apply second dose of nitrogen @ 26 kg urea/acre to the nursery sown during mid May.
2. Start transplanting varieties PR-131, PR-129, PR-128, PR-121, PR-122, PR-114 and PR 113, from 20 June whereas PR 127, PR 130, HKR 147 and PR-126 from 25 June onward. PR-126 vacates the fields earlier and facilitates timely sowing of potato, peas or berseem crops. Transplanting of PR 126 can be done upto 20 July. Transplant 25-30 days old nursery for PR-126 whereas 30-35 days old for medium duration varieties.
3. Paddy seedlings in the nursery sown in light textured soils generally become yellow or whitish due to iron deficiency. To such nursery, spray 0.5 to 1.0 kg ferrous sulphate dissolved in 100 litres of water. Apply 2-3 sprays at weekly interval.
4. *Dhaincha* grown for green manuring should be buried at the time of puddling, a day before transplanting.
5. At the time of transplanting, apply 30 kg urea per acre to medium soils. Apply 25 kg urea/acre at last puddling, when leaf color chart (LCC) is to be used for need based nitrogen application to paddy. Phosphorus application should be omitted where paddy follows wheat which had received recommended dose of phosphorus. Apply 75 kg single superphosphate or 27 kg DAP per acre and 20 kg muriate of potash per acre to soils testing low in phosphorus and potash, respectively. Avoid excessive use of nitrogen as it leads to higher incidence of diseases and insect pests.
6. For control of weeds, use 45 g Topstar 80 WP (oxadiargyl) or 60 g Sathi 10 WP (pyrazosulfuron) or 1200 ml of any recommended formulations of butachlor 50 EC or butachlor 50 EW or 500 ml of anilofos 30 EC or pretilachlor 50 EC @ 600 ml or Rifit Plus 37 EW 750 ml or Stomp 30 EC @ 1000-1200 ml/acre by mixing with 60 kg of sand. Broadcast any one of the herbicides uniformly in standing water within 2-3 days of transplanting.
7. Nursery of short duration varieties Punjab Basmati-7, Punjab Basmati-5, Pusa Basmati 1121, Pusa Basmati 1847 and Pusa Basmati 1718 should be sown in first fortnight of June. Nursery of CSR-30 and Pusa Basmati-1509 varieties should be sown in second fortnight of June.
8. To check seed born diseases (foot rot) of Basmati rice, treat 1kg seed with 3g Sprint by making slurry in 10-12ml of water.

### **MAIZE**

1. Start sowing maize from the beginning of the month in the sub-mountainous districts or areas which are prone to damage by water stagnation. If there are no weeds and stubbles of the previous crop then maize can be sown without preparatory cultivation. For weed control, use Atrataf 50 WP (atrazine) @ 800 g/acre in heavy textured soils and 500 g/acre in light soils in 200 litres of water within 10 days of sowing.
2. Maize can be sown in trenches, this practice saves irrigation water and protect the crop from lodging.

3. Apply 37 kg urea per acre to maize PMH 13, ADV 9293, JC 12, PMH11, PMH 1, Prabhat & Punjab Sweet Corn 1 and 25 kg urea to PMH 2, Kesri, JC4 and Pearl Pop Corn at the time of sowing. If farmyard manure has been applied at the rate of 6 tonnes per acre year after year, there is no need to apply any fertilizer at sowing.
4. PAU-LCC can also be used to apply need based N, in maize.
5. Maize borer feeds on growing points of plants and forms dead hearts. Control this pest by spraying 30 ml Coragen 18.5 SC (chlorantraniliprole) in 60 litres of water per acre. Spray work should be initiated when the crop is 2-3 weeks old. Maize borer can also be controlled by using *Trichogramma*, a bioagent as per PAU recommendation.
6. Fall armyworm, a new insect pest of maize, feeds voraciously on the central whorl leaves causing round to oblong holes and producing a large amount of faecal matter. The larvae can be easily identified by the presence of four spots arranged in square pattern at tail end, and a predominant white coloured inverted Y-shaped mark on the head. Avoid staggered sowing in adjacent fields to minimize the spread of this insect. Spray the grain crop with Coragen 18.5 SC (chlorantraniliprole) @ 0.4 ml or Delegate 11.7 SC (spinetoram) @ 0.5 ml or Missile 5 SG (emamectin benzoate) @ 0.4 g per litre of water. Direct the spray nozzle towards the whorl, for its effective control. If the infestation is in patches or the crop is more than 40 days old and spraying is difficult, apply soil-insecticide mixture (about half gram) in the whorls of the infested plants. To prepare the soil-insecticide mixture, add 5 ml of Coragen 18.5 SC or Delegate 11.7 SC or 5 g of Missile 5 SG or **25 g Delfin WG or 25 ml of Dipel 8L** in 10 ml of water and mix well in one kg of soil.

### **GROUNDNUT**

1. Sow groundnut with the advent of monsoon from end of June under rainfed conditions.
2. Treat the seed with 2 ml Neonix 20 FS (imidacloprid 18.5%+hexaconazole 1.5%) or 1.5g seedex or 5 g Thiram or 3 g Indofil M-45/kg of kernels before sowing, to control collar rot disease. Neonix will control white grubs and also the termites.
3. Use 38 kg kernels for M-522 and SG-84 and 40 kg for SG-99 and 48 kg for J 87.
4. Apply 50 kg single superphosphate, 50 kg gypsum and 13 kg urea per acre at the time of sowing. Omit P application, if recommended P fertilizer was applied to preceding wheat crop.

### **KHARIF PULSES**

1. Sowing of recommended varieties of *mash* particularly on light textured soils should be started from last week of June by using 6-8 kg per acre of seed.
2. Apply 11 kg urea, 60 kg single superphosphate/acre to mash at sowing.

### **SOYBEAN**

1. Grow SL-958, SL-744, SL-525 varieties of soybean which are resistant to yellow mosaic virus, using seed rate of 25-30 kg/acre.
2. To supplement the nitrogen supply to the crop, seed of soybean should be treated with specific bacterial culture at the time of sowing. If soybean is being sown for the first time in the field, use of bacterial culture is very important practice.

3. Sow the crop in good *watter* with a pre-sowing irrigation during the first fortnight of June. The crop should be sown in lines 45 cm apart. This crop can also be sown on beds. Crop sown on beds is not affected by the stagnation of rain water. Prefer bed sowing in heavy soils.
4. In this crop, weeds can be controlled with the use of Stomp 30 EC @ 600 ml/acre within two days of sowing. Dissolve the recommended quantity of herbicide in 200 litres of water per acre and spray it uniformly. Alternatively weeds can be controlled by post emergence application of Parimaze 10 SL at 300 ml/acre after 15-20 days of sowing.
5. To get higher yield, apply 4 tonnes farm yard manure, 28 kg urea and 200 kg single superphosphate/ acre at sowing. Apply only 150 kg single superphosphate/acre, when it follows wheat which had received recommended dose of phosphorus.

#### **FODDER PRODUCTION**

1. Berseem crop for seed production may be harvested and threshed to save it from being damaged by rain.
2. *Kharif* fodders sowing at regular intervals may be continued for continuous supply of sufficient green fodder. Irrigate the fodder crops regularly.
3. Harvest the green fodder at optimum stage of harvesting to provide maximum nutrients to animals for cheap milk production and save concentrate.

## VEGETABLES

1. Start sowing of okra varieties Punjab Suhawani and Punjab Lalima which are tolerant to yellow vein mosaic virus. Apply 15-20 tonnes of well rotten Farm Yard Manure and 40 kg urea per acre at time of sowing.
2. Irrigate the standing vegetable crops once a week, however, in light soils, the interval may be reduced to 4 to 5 days.

### Nursery raising

1. Apply 20 to 25 baskets of well rotten farmyard manure per *marla* and mix it thoroughly in to the soil and irrigate the plot. Sow 500 g seed of early variety of cauliflower and 300 g seed of PBHR-41, PBHR-42, PBH-3, PBHL-5, PBH-6, Punjab Himmat, Punjab Raunak, Punjab Bharpoor, of Brinjal in one *marla* bed area to obtain seedlings for transplanting in one acre.
2. Uproot the bulb sets raised for *Kharif* onion and store them in baskets under shade at cool place for transplanting in August.

## HORTICULTURAL OPERATIONS

1. Application of light and frequent irrigations, white-washing or wrapping over the exposed trunk portions will protect the plants from intense heat.
2. Irrigated the bearing fruit plants such as citrus, mango, pear, litchi etc. at proper interval as these are laden with fruits. The litchi trees need irrigation twice a week during this period; it reduces cracking of fruits to a great extent and helps in proper size development.
3. The pruning of *ber* trees should be completed as early as possible and apply well rotten farmyard manure after the completion of pruning. Sowing of groundnut var. TG 37A as an intercrop can be done in pruned *ber* orchards in this month.
4. Inorganic fertilizers to guava should be added to encourage growth in July-August for getting maximum flowering during August-September for winter season crop. Cultivate the guava orchards in June so that the field can be made weed free and pupae of fruit flies can be exposed to reduce the menace of fruit fly.
5. To correct zinc deficiency in citrus, spray the trees with 0.3% (3 g per liter of water) zinc sulphate solution without adding lime to summer flush in June.
6. Mango trees carrying good load of fruits should be applied with additional one kg CAN per tree during this month.
7. To control insect-pests in citrus, spray 200 ml Crocodile/Confidor 17.8 SL or 160g Actara/Dotara 25 WG in 500 litres of water per acre. To control fruit fly in peach, pick and destroy the infested fruits by burying at least 60 cm deep in the soil. Stir the soil well during this month to expose and kill the pupating larvae/pupae. Fix PAU fruit fly traps @ 16 traps/acre during first week of May.
8. To control citrus scab, give spray of Bordeaux mixture (2: 2: 250) or Copper oxychloride (0.3%). In mango, spray Bordeaux mixture 2: 2: 250 at fortnightly interval for control of diseases. To check rotting of grape berries, spray grapevine with 0.2% Ziram (2 g per liter of water) at 7 days interval. Stop spraying a week before harvesting the bunches. To control pear disease (shoot blight and canker), spray Bordeaux mixture 2: 2: 250 or 0.3% (3 g per liter of water) copper oxychloride.

## ORNAMENTALS

### **Chrysanthemum**

Chrysanthemum is propagated preferably after first monsoon showers during the end of June. Terminal cuttings of 5-7 cm long are taken from the mother plants and planted in sand beds or plug trays kept under shade for rooting.

### **Annuals**

Seeds of rainy season flowering annuals like Balsam, Cosmos, Cockscomb, Gaillardia, ornamental Amaranthus may be sown on the raised nursery beds. However, Balsam seeds can also be sown directly in the pots or prepared flower beds.

### **Lawns**

Lawn should be irrigated twice a week to maintain a lush green carpet. Avoid walking over wet lawn to avoid uneven surface.

### **Permanent plants**

Irrigate the plants to ensure presence of adequate moisture in the soil. Bougainvillea can be pruned during this month after flowering is over.

### **Pot plants**

Keep plants under partial shade and avoid afternoon sun to prevent leaf scorching. Water the pot plants ensuring presence of adequate moisture in the soil. Avoid overwatering and keep the pot plants in groups for a favourable microclimate.

### **Rose**

Remove the dried flowers, diseased shoots and root suckers. Water the beds twice a week to maintain adequate soil moisture for vigour of the plants. Periodically remove flower buds as and when these appear over the rose bush.

## FARM FORESTRY

### Poplar

- Irrigate the poplar plantations at weekly interval to avoid the heat stress. In light soils, the yellowing of leaves is often noticed due to Zinc deficiency. Apply 100, 200 and 300 g/ plant zinc sulphate (21 % Zinc) during 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> year old plantations. Mix the fertilizer with upper 15 cm soil and apply irrigation to increase the effectiveness of fertilizer.
- All the *kharif* crops (except paddy) can be grown in poplar during first three years of tree growth. Poplar leaf defoliator and leaf webber should be controlled by collecting and destroying infested leaves.



## **HONEY BEE MANAGEMENT**

To protect honey bee colonies from harsh summer heat, place the colonies under thick shade of trees or make an alternate provision of some artificial shade. To meet the increased water requirement, put a few sticks/bushes, etc. in the water tanks of tube wells, for the bees to sit on while taking up water. The water requirement can also be met by placing water filled earthen bowls under the legs of hive stand. This will also keep the ants away from the colonies. Colonies ventilation can be improved by placing thin twig pieces (splinters) between bottom board & brood chamber, and between brood chamber & super chamber, but ensure bee tightness of such created spaces. Even staggering brood chamber on bottom board and super chamber on brood chamber facilitate increase in ventilation by creating a little bee-tight space. Ensure cleaning and clearing of wire gauge fixed at the ventilation hole in the centre of the inner cover. Even the gate can be enlarged, if need be. Extract sealed (ripe) honey from sunflower flow from broodless combs preferably from honey supers, if available. During the nectar flow, place horizontal queen excluder between the super and brood chamber. Follow all precautions to avoid robbing during and after honey extraction.

## MUSHROOM CULTIVATION

1. During this month, procure and store fresh wheat straw for cultivation of white button and dhingri mushroom (September-March).
2. Well decomposed farm yard manure should be stored in a dry place for button and milky mushroom casing preparation.
3. Paddy straw mushroom cultivation can be continued during the month of June on paddy straw bundles (about 1.5 kg each), wetted and spawned.
4. The prepared paddy straw beds should be watered twice a day and harvesting of mushrooms continues till one month on daily basis.
5. Bags of milky mushroom with complete mycelial impregnation should be cased with 1” layer of casing soil (disinfected farm yard manure and sandy soil 4:1).
6. After casing, the bags should be watered daily and pinning in cased milky mushroom bags will start in 15-17 days of casing. The harvesting of milky mushroom continues for 30-40 days.

## **DAIRY AND ANIMAL HEALTH**

1. Silent heat is the major problem in buffaloes during hot months (from April to September). Observe the heat symptoms in the early hours of morning and late hours in the evening. Mucous discharge from vagina is the only prominent sign while other symptoms are weak in summer. AI should be done within 10- 12 hours of heat symptoms onset.
2. Gal Ghotu, (HS) Haemorrhagic septicaemia can cause heavy loss in unvaccinated animals. Also do vaccination of animals with goat pox vaccine to avoid lumpy skin disease. If not done, get your animals vaccinated immediately against both the diseases.
3. Save your animals, from ticks, lice and flies and internal parasites. These suck blood, cause irritation and spread parasitic diseases. Due precautions should be taken while applying the insecticide on the animal body. Repeat deworming every three months. Follow the instructions of veterinarian/ manufacturer strictly.
4. Keep the animals in shade and provide clean fresh drinking water. Provide good air flow using electric fans, use sprinklers and foggers to reduce heat stress. Provide screens for control of insects, flies etc.
5. Due to sun stroke if an animal starts bleeding from nose, do not disturb it much and pour ice cold water over face and head and keep its head lifted. Transfer animal to a cool shady place. Consult Veterinarian at the earliest.
6. Provide concentrate rations during cool hours of the day like early morning or late evening.
7. In case of high rise of temperature in dairy animals, get their blood tested for protozoan diseases from the Department of Parasitology, Guru Angad Dev Veterinary and Animal Science University, Ludhiana or State/District Laboratories near to your place.

## **POULTRY FARMING**

1. Provide double number of waterers for increasing space to meet increasing requirement of water. Change the water frequently to provide cool water. Provide cool air flow using desert coolers, use sprinklers and foggers to reduce heat stress
2. Sprinkling of water around the shed and more green area surrounding the shed is helpful in reduction of heat. White washing of poultry shed from outside will be helpful in reflecting the sun rays back from the shed.
3. Increase protein, minerals and vitamins in feed as the feed intake is reduced during summer. Provide electrolytes in drinking water.
4. Provide no light to growers of 6-16 week age but layers must be provided light at night and early in morning to compensate the decreased feed consumption during the day time.
5. Get your birds of 6-8 weeks of age vaccinated with injection of R2B Ranikhet disease. Do not give this vaccine in drinking water or lassi. In the case of an outbreak of Ranikhet disease immediately give R2B vaccine injection to healthy birds to avoid further loss. Provide vitamin supplemented water to vaccinated birds.

6. If there is sudden fall in egg production or mortality, consult the Poultry Expert immediately.
7. Do not provide feed during day hours to the birds as it will increase heat load. Fat content of the feed should be increased by 1-2% to meet the energy requirements in summer. Therefore, feed the birds during cool hours preferably during early hours in the morning and late in the evening.
8. To prevent *E.coli*, use 250 ml acidifier+120 ml sanitizer in 100 litre of drinking water. Don't fill water tank to full capacity during summer.
9. Use 1gm/10 lit ammonium chloride in drinking water to reduce temperature during summer
10. Monitor shed temp using thermometer and don't disturb birds frequently.

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