FARM OPERATIONS IN JULY

PADDY

1. Complete transplanting of Punjab Basmati -5, Punjab Basmati -4, Punjab Basmati 3, Punjab Basmati 2, Pusa basmati 1637, Pusa Basmati 1121 and during the first fortnight of July and CSR 30, Pusa Basmati 1509, Basmati 370 and Basmati 386 should be transplanted during the second fortnight of July. After 3 weeks of transplanting, apply first half dose of 9 kg urea/acre to CSR 30, Basmati 370 and Basmati 386, 18 kg to Pusa Basmati 1121, Punjab Basmati -5, Punjab Basmati -4, Punjab Basmati 3, Punjab Basmati 2, Pusa basmati 1637 and Pusa Basmati 1718 and 27 kg to Pusa Basmati 1509. Omit application of P fertilizer to basmati, if recommended amount of P was applied to wheat.

2. For the control of foot rot of basmati rice treat the seed with talc based formulation of *Trichoderma harzianum* @ 15g/kg and then dip the roots in solution of *Trichoderma harzianum* @ 15g/litres of water for 6 hours before transplanting.

3. For control of weeds, use 1200 ml of any recommended brand formulation of Butachlor 50 EC or Pendimethalin 30 EC 1000-1200 ml or Pretilachlor 50 EC 600 ml or Pretilachlor 37 EW 750 ml or Oxadiargyl 80 WP 45 g or Anilofos 30 EC 500 ml or Pyrazosulfuron ethyl 10 WP 60 g/acre by mixing with 60 kg of sand. Broadcast any one of the above herbicides uniformly in 4-5 cm deep standing water within 2-3 days of transplanting.

4. For the control of broadleaf weeds, spray Algrip 20 WG 30 g or Sunrice 15 WDG 50 g or Londex 60 DF 40g or Segment 50 DF 16 g/acre in 150 litres of water after 20-25 days of transplanting. Before spray, the standing water from the field should be drained out and irrigation may be applied one day after spray. The spray should be done on a clear and calm day.

5. In transplanted rice, apply second and third dose of 30 kg urea per acre each after 3 and 6 weeks of transplanting. For need based nitrogen application by using PAU-Leaf Color Chart (LCC), match the color of randomly selected 10 fully expanded new leaves after 2 weeks of transplanting. If the color of 6 or more leaves out of 10 is less than the shade 4 on LCC, apply 25 kg urea per acre. On the other hand if color of 6 or more leaves out of 10 is darker or equal to shade 4 on LCC do not apply urea. Follow the procedure at 7-10 days interval till flower initiation and apply urea if needed. In ‘Direct Seeded Rice’ apply 43 kg urea per acre each at 4, 6 and 9 weeks of sowing.

6. On coarse textured soils (sandy soils) iron deficiency may appear as interveinal chlorosis of younger leaves along with poor growth. In excessive iron deficiency, the new leaves turn white. To correct it, spray 1% Ferrous Sulphate solution (1 kg ferrous sulphate in 100 litres of water) 2-3 times at weekly intervals. Soil application of Ferrous Sulphate is not effective.

7. The rice fields showing more than 5% dead hearts due to attack of stem borer should be sprayed with either of the insecticide i.e. 20 ml Fame 480 SC or 170 g Mortar 75 SG or one litre of chlorpyriphos 20 EC in 100 litres of water per acre. Further application of any of these insecticides may be repeated as and when damage reaches economic threshold level. These insecticides also control leaf folder. Leaf folder infested plants show white streaks on leaves. When the leaf damage reaches 10 per cent (ETL) then spray either of the above said insecticides.
8. The crop planted early, may show the *Kresek* phase of bacterial leaf blight. In case of *Kresek* attack, the whole plant wilts and become straw coloured. Avoid excessive use of nitrogen and flooding of fields.

**COTTON**

1. Cotton crop is highly sensitive to standing water during early growth stages. Hence, drain out the excess water from the cotton fields.

2. To control weeds in between the crop rows in place of hoeing/interculture, apply Gramoxone 24 SL (paraquat) at 500 ml/acre in 100 litres of water when crop is 6-8 weeks old and about 40-45 cm in height as directed spray. To avoid drift, spray the herbicide on non windy days, using a protective hood so that herbicide does not fall on crop leaves.

3. Regularly monitor the whitefly infestation on cotton crop and also on alternate hosts. Spray the crop when its population reached 6 whiteflies per leaf in the upper canopy before 10 AM with 80g Ulala 50 WP or 200g Polo/Craze 50 WP or 200ml Oberon 240 SC or 800ml Fosmite/-E-mite/Volthion 50 EC in 125-150 litres of water/acre. In case severe attack of thrips, mites and jassid is noticed i.e. the leaves start curling, spray the crop with 80 g Ulala 50 WG or 40 ml of Confidor/Confidence 555/ Imidacel 200 SL or Markdor 17.8% or 40 g Actara/Extra Super/ Dotara/Thomson 25 WG in 100 litres of water per acre.

4. Uproot and destroy leaf curl infected American cotton plants upto initiation of fruiting phase. Protect the crop against white fly vector by using recommended insecticides. Keep the fields free from *Kanghi buti* (*Sida* sp.) and *Peeli buti* (*Abutilon* sp.) which act as collateral hosts of leaf curl virus.

5. To control fungal foliar leaf spots or blight, spray the crop with Amistar Top @ 0.1% (200ml in 200 litres of water) per acre at an interval of 15 to 20 days starting just after appearance of symptoms.

6. If some plants show wilting after rains or irrigation, spray the affected plants with 10 mg of Cobalt chloride dissolved in one litre of water.

**MAIZE**

1. For control of weeds, use atrazine 50 WP as pre-emergence application @ 500g per acre on light textured soils and @ 800 g per acre on heavy textured soils. Atrazine can also be sprayed 10 days after sowing maize for controlling weeds.

2. Do not allow the rain water to stand in the main crop as this crop is highly sensitive to standing water and promotes bacterial stalk rot.

3. Apply second dose of nitrogen (37 or 25 kg per acre, respectively for the long and medium/short duration cultivars) at knee high stage. In rainfed areas, the response of fertilizer application varies with the stored moisture in the soil and according to soil texture. Apply 70 kg urea, 35 kg DAP or 100 kg single super phosphate and 15 kg muriate of potash to sandy loam to clay loam soils with adequate stored moisture. For loamy sand soils having low moisture stored, reduce the doses of all the fertilizers to half. In rainfed areas, drill half nitrogen and all phosphorus and potash at sowing and top dress the other half of nitrogen one month later. Omit application of P and K fertilizers, if maize in adequately fertilized with FYM.

4. To check the attack of maize borer, uproot the borer damaged plants and burry them at the time of thinning or use *Trichogramma* bioagent for controlling this borer. Spray the crop with 30 ml Coragen 18.5 SC using 60 litres of water per acre. After this application, there will be no need to spray further any pesticide to check this pest.
5. Spray the crop with Indofil M 45 @ 200 g/100 litres of water to protect against diseases.

**SUGARCANE**
1. Earthing up of the sugarcane crop may be done if not done earlier during the first week of July. If sugarcane fields get flooded with water, excess water may be drained out.
2. The attack of top borer can be checked by applying 10 kg Ferterra 0.4 GR or 12 kg Furadan/ Diafuran/ carbofuran encapsulated 3 G at the base of the shoots upto first week of July. Earth up slightly to check the granules from flowing with the irrigation water and irrigate the crop immediately. Apply granules only if attack exceeds 5% level.

**GROUNDNUT**
1. The rainfed crop to be sown in the first week of July must be treated with fungicide for the control of collar rot disease. For this purpose, use 1.5g Seedex or 5 g Thiram or 3 g Indofil M 45 per kg of kernels.
2. Apply 13 kg urea, 50 kg single superphosphate, and 17 kg muriate of potash per acre at the time of sowing. If the source of phosphorus is other than single superphosphate, 50 kg gypsum/ acre should be applied. If groundnut follows wheat which received recommended dose of phosphorus, omit application of phosphorus. Zinc deficiency can be corrected by applying 25 kg zinc sulphate (21%) or 16 kg zinc sulphate (33%) per acre.
3. The white grub attack can also be reduced by applying 13 kg Furadan 3 G per acre in the soil at or before sowing.

**KHALRIF PULSES**
1. Sowing of mash (Mash 114, Mash 338) should be completed upto first week of July and moong (ML 2056 and ML 818) should be completed during the second fortnight of July as delayed sowing result in lower yields.
2. For moong, apply 11 kg urea and 100 kg single superphosphate and for mash, apply 11 kg urea and 60 kg single superphosphate at the time of sowing. Treat the sowing with recommended rhyzobium culture for higher yield.
3. Check weeds in mash, moong and arhar by giving one or two hoeings.
4. Grow mosaic tolerant variety (ML 2056 and ML 818) for the control of yellow mosaic virus.
5. Semi-looper/hairy caterpillars infestation can be checked in mash by spraying 500 ml Ekalux 25EC (quinalphos) using 100 litres of water per acre. Tobacco catepillar can be checked by collecting & destroying its egg masses & young larvae feeding gregariously on leaves.

**FODDER PRODUCTION**
1. Sowing of kharif fodders at regular intervals should be continued for regular supply of green fodders. Sorghum may be sown for providing fodders late in the kharif season.
2. Sowing of cowpea variety 88 should be carried out during the last week of July and cowpea variety CL 367 should be sown in first week of August. Use 8 Kg seed for CL 367 and 16 kg in case of cowpea 88 per acre if cowpea seed crop is to be sown.
3. Cultivate non-legume fodders in mixture with legume fodders like cowpea or guara.
VEGETABLES

Brinjal
1. Sow 300-400 g seed in one marla raised nursery beds to transplant one acre. Treat the seed with Captan @ 3g per kg seed before sowing.
2. To check fruit and shoot borer attack in brinjal, spray 80 ml Coragen 18.5 SC or 80 g Proclaim 5SG in 100-125 litres of water per acre.

Radish
Sow radish variety Pusa Chetki, Punjab Pasand in this month. Roots of Pusa Chetki are small to medium, thick white in colour and rat tailed. Use 4-5 kg seed for sowing one acre by keeping 45 cm spacing between ridges and 7.5 cm between plants.

Bhindi
Use 4-6 kg seed per acre and soak the seed in water for 24 hours before sowing. Sow Punjab Suhawani, Punjab -8 and Punjab Padmani variety of bhindi. Apply 15-20 tonnes of FYM and 40 kg urea per acre for average fertility soils at the time of sowing. Second dose of 40 kg urea/acre should be applied after first picking.

Cowpea
Sow 8-10 kg seed of Cowpea 263 per acre at a distance of 45 cm between rows and 15 cm between plants. Apply 45 kg urea, 100 kg single superphosphate and 16 kg muriate of potash per acre at sowing.

Cucurbits
Use 2 kg seed per acre for sowing of bottle gourd, sponge gourd, bitter gourd, ash gourd, tinda and 1.0 kg seed for wanga as per recommendations.

Cauliflower
Transplanting of suitable early varieties of Cauliflower should be done at 45 x 30 cm spacing. Apply 40 tonnes of FYM, 55 kg urea, 155 kg single superphosphate and 40 kg muriate of potash per acre at the time of sowing. Apply second dose of 55 kg urea/acre after 4 weeks of transplanting.

Sweet potato
Plant 25000 - 30000 cuttings of sweet potato variety Punjab Sweet Potato-21 at a distance of 60 cm between ridges and 30 cm between plants. Apply 10 tonnes of FYM, 125 kg CAN, 155 kg single superphosphate and 35 kg muriate of potash per acre to raise a good crop.
HORTICULTURAL OPERATIONS

1. Drain out excess rain water from the orchards as it may cause severe damage to fruit plants particularly citrus and papaya.
2. The month of July is the right time for planning of evergreen fruit plants such as citrus, mango, litchi, guava, loquat, ber, Amla and papaya. It is also suitable time for the transplanting of papaya seedlings in the fields.
3. The vacant land in between the fruit plants may be put under *kharif* pulses like *moong*, mash, moth or *jantar*, etc. for green manuring or as an inter crop.
4. To improve fruit size and increase yield in Kinnow mandarin, give foliar sprays of potassium nitrate @ 1.0%.
5. Pear fruit should be carefully picked so that the spurs are not damaged/broken. The fully developed hard ripe mangoes should be picked for artificial ripening.
6. The full grown ber plants should be given 500 g urea per tree during this month. The second coat of white wash should be given. This will help to check the adverse effect of heat on the exposed tree trunk.
7. To control insect pests of citrus like citrus psylla, whitefly and leaf miner, spray 200 ml Crocodile/Confidor 17.8 SL (imidacloprid) or 160g Actara (thiamethoxam) in 500 litres of water. This solution will be sufficient for one acre of full grown orchard.
8. For control of mealy bugs in citrus and grapes; monitor regularly the infestation of trees by observing the underside of leaves, young shoots, fruits and branches. Maintain the orchards neat and clean. Do not allow the branches of trees to touch the ground. Prune or remove the infested branches and destroy the same.
9. In citrus to check withertip or dieback, scab and canker diseases, Bordeaux mixture (2: 2: 250) should be sprayed at 15 days interval.
10. For the control of gummosis in citrus spray of sodium hypochlorite (5%) can be done on soil surface and main trunk under the tree canopy @ 50ml/tree in 10 litres of water.
11. In grapes, spray of Bordeaux mixture (2: 2: 250) can be done in the first and last week of July.
12. To control fruit fly in guava, fix 16 PAU fruit fly traps/ acre in the first week of July and recharge the same if required. Continuously remove and bury the infected fruits from orchards.
ORNAMENTALS

Permanent plants

1. This is the most suitable time for planting ornamental trees, shrubs and creepers in a planned way. They can be planted in the well prepared pits. The size of the pits for trees should be $3' \times 3' \times 3'$ and for shrubs and climbers $2' \times 2' \times 2'$. 

2. Most of the shrubs like Hibiscus, Chandani. Bougainvillea, Hamelia, Har Shingar etc can be propagated from terminal shoot cuttings.

Pot plants

It is the suitable time for potting and repotting and also for propagation of pot plants. Care must be taken while filling pots for drainage hole.

Lawn

For making a new lawn, grass roots of the desired variety are dibbled 10-15 cm apart in the already prepared land, followed by irrigation watering should be given daily until the grass is well established. We can also rejuvenate the old lawns by scraping and applying fertilizers in this month. Watering of lawn may be done depending upon the rains. New leaves can also be make from Turfing.

Chrysanthemum

The plantation of terminal cuttings of chrysanthemum in pure sand or in the burnt rice husk can be continued. Such cuttings planted last month, must have rooted by this time. These can be transplanted in the pots or in the beds.

Marigold: Marigold variety Punjab Gainda No 1 can be planted during this month for seed production.
FARM FORESTRY

Transplanting of most of the tree species like Safeda, Kikar, Subabul, Tahli, Dek, Nim, Sagwan etc. should be done during rainy season. The pits of 50 x 50 x 50 cm should be filled with 50 % top soil and 50 % farm yard manure. Plant the seedlings in the centre of the pit after gently removing the polythene bag. Care should be taken that the earth ball and roots may not get damaged. The plants should be watered immediately after planting.

Poplar
1. All the kharif crops (except paddy) can be grown in poplar during first two years of tree growth. In the plantations of more than three years age, kharif fodders such as sorghum, bajra, guinea grass etc. can be grown.
2. Poplar leaf defoliator and leaf webber should be controlled by collecting and destroying infested leaves.

Safeda
Safeda is commonly planted on the field boundaries. Eucalyptus clones C-72, C-413 and C-2045 are suitable for cultivation under Punjab conditions. Plant the Eucalyptus on boundary in North-South row orientation to minimize the light competition of trees with agriculture crops. Separate agronomic management of crops is required for 10-15 m wide strip running along the boundary plantation of Safeda. Fodder crops (e.g. bajra, jowar) should be grown rather than grain crops in 10-15 m wide strip running along the boundary plantation.
DAIRY FARMING

1. During summer season, concentrate should contain 2-3 per cent more crude protein content and therefore increase 5 to 7 per cent more oilseed cakes in the concentrate mixture.
2. The animals in heat should be judged for signs of frequent urination and vaginal discharge.
3. Care of new born calves should be carried out. Steps for dehorning of buffalo calves must be taken during the first week. Deworm the calves at 2 weeks of age and thereafter repeat deworming after 2 weeks.
4. The animals which have not been vaccinated against H.S. (Gal Ghotu) yet, must be got vaccinated. In case of any outbreak of Gal Ghotu consult your local Veterinary Doctor immediately for treatment.
5. Hot and humid climate may lead to conditions of ring worm in animals so keep the animals clean and dry. Similarly, protect wounds from flies to avoid maggots infestation.
6. Animal shed should be dry, airy and well ventilated.
7. Do not feed wilted fodder crops.

POULTRY FARMING

1. The poultry feed to be used in hot and humid season should have 15-20 per cent more proteins, minerals and vitamins in order to compensate reduced feed intake.
2. The number of water containers should be sufficient so that the birds do not have to walk more than 8 feet to reach them. Water must remain cool and clean. Change water 3-4 times during the day. If possible, fix automatic waterer in order to provide clean and cool water.
3. Avoid dampness during rainy season to avoid incidence of coccidiosis. Add coccidiostats in the poultry feed for prevention of this disease avoid the entry of rain inside the sheds.
4. Be careful about the health of the birds. If there is any sick bird, consult the poultry specialists of your area.
HONEY BEE MANAGEMENT

Inspect all the colonies quickly in the evening and in the case of floral dearth and scarcity of nectar/honey reserves in the colony, provide sugar solution (sugar and water mixed in ratio 1 : 1) to all the colonies in the late evening. In the case of pollen dearth, feed bee collected trapped and stored pollen or PAU pollen supplement/substitute. Take measures to avoid and check robbing. Protect colonies from the attack of wax moth, ants, wasps and green bee eater by following the recommended measures. Also protect the stored combs against wax moths' infestation. Unite weak, queenless and laying worker colonies, if any, with strong queen-right colonies. Do not keep colonies in the way of dry water ways/channels. Must keep the colonies on high stands and tilt their anterior a little downwards to prevent the entry of rain water into the colonies or its accumulation inside the hive. Do not keep colonies in the way of dry waterway/channels. Must use top cover covered with galvanized iron sheet. Shift the colonies from low land areas to upland. Keep the surroundings cleaned of vegetation growth for proper aeration of the colonies to promote bee foraging. Ensure that aeration facilitating wire gauge of inner cover is clean and not clogged with proplis.
MUSHROOM GROWING

1. Every month paddy straw bundles are wetted and spawned for growing paddy straw mushroom.
2. Watering of beds is done continuously twice a day using a spray pump.
3. Harvest the crop in one month.
4. Remove the old beds after harvesting is complete and lay out new beds.
5. Continue the cultivation of milky mushroom during this period.
6. Procure decomposed FYM for its use during white button mushroom cultivation (Oct.-March).
7. Stock it in the form of a loose pile about 2’ high.
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