

## FARM OPERATIONS FOR THE MONTH OF OCTOBER

### SUGARCANE

Complete the planting of sugarcane upto 20<sup>th</sup> October. Intercropping of wheat, *raya*, *toria*, *gobhi sarson*, pea, gram, potato, cabbage, radish, garlic etc. can be done successfully in this crop.

### WHEAT

1. Start sowing wheat varieties, namely, PBW 725, PBW 677, HD-3086, WH 1105, PBW 621, HD 2967 and durum wheat WHD 943 and PDW 291 under irrigated conditions and PBW 660 and PBW-644 under rainfed conditions from last week of October.
2. In medium fertility soils, apply 55 kg DAP/acre at sowing to irrigated wheat as a source of nitrogen and phosphorus. If 155 kg single super phosphate is applied as a source of phosphorus then apply 20 kg urea just before pre sowing irrigation or with the preparatory tillage. In potassium deficient soils, apply 20 kg muriate of potash/acre alongwith above mentioned fertilizers. The dose of muriate of potash may be doubled in the districts of Gurdaspur, Hoshiarpur, Roopnagar and Shahid Bhagat Singh Nagar.
3. For Judicious use of nitrogen fertilizer use PAU LCC as described below.
  - Drill 55 kg di-ammonium phosphate (DAP) per acre at sowing in medium fertility soils. Apply 40 kg urea per acre for timely sown and 25 kg urea per acre for late sown (after mid December) wheat with first irrigation.
  - Match leaf colour of the topmost fully exposed intact leaf from the randomly selected ten plants with LCC under shade of your body before second irrigation (about 50-55 days after sowing). Apply urea based on leaf greenness of majority of leaves as per following table:

PAU- LCC reading	More than LCC 5	LCC 4.5 to LCC 5	LCC 4 to 4.5	Less than LCC 4
Urea dose (Kg/acre)	15	30	40	55

**Note:** The leaves selected for matching colour with LCC should be free from disease/insect incidence and other nutrient deficiencies.

In rainfed areas, apply 35 kg urea, 100 kg single superphosphate and 20 kg muriate of potash/acre at sowing in sandy loam to clay loam soils. Drill 35 kg urea, 50 kg superphosphate and 10 kg muriate of potash/acre at sowing in loamy sand to sand soils. Termite is a serious pest in light textured soil, particularly in *Barani* areas. Before sowing, treat wheat seed with Cruiser 70 WS (**thiamethoxam**) @ 1g/kg or Dursban/Ruban/Durmet 20 EC (chlorpyrifos) @ 4 ml/kg seed to check the termite damage at early stage. Seed treated with Neonix 20 FS (**imidacloprid+hexaconazole**) @ 2 ml/kg seed also control smuts of wheat.

**Loose smut and Flag smut:** Treat the seed of wheat with Raxil Easy/Orius 6 FS @ 0.33 ml / kg seed (Dissolve 13 ml Raxil Easy in 400 ml water and mix with 40 kg seed) or Vitavax @ 2 g/kg or Vitavax Power @ 3g/kg or Tebuseed/Exzole/Seedex 2 DS @ 1g/kg for the management of loose smut and flag smut. Seed treatment should be done with

seed treating drum. Seed treatment should not be done earlier than one month of sowing as it affects seed germination.

## **PULSES**

### **Gram**

1. Grow varieties PDG-4, PDG-3 (under rainfed from 10 to 25 October) and GPF-2 in the Central and South-Western districts and varieties PBG 5 which have resistance to gram blight in the sub-mountainous districts and PBG-7 in all the districts under irrigated conditions.
2. The best time of sowing of *Desi* and *Kabuli* gram in the entire state is 25 October to 10 November under irrigated conditions.
3. To manage gram blight, grow PBG-7 or PBG 5 in disease prone areas.
4. At the time of sowing, drill 13 kg urea and 50 kg single superphosphate per acre for desi gram but in case of *Kabuli* gram, drill 13 kg urea and 100 kg single superphosphate/acre. Also, inoculate the seed with biofertilizer consortium before sowing.

### **Lentil**

Use varieties LL-931/ LL 699 and start sowing from end of October. Inoculate the seed with *Rhizobium* culture which ensure higher yield. Drill 11 kg urea and 50 kg single superphosphate/acre in case of inoculated seed otherwise double the dose of single superphosphate at the time of sowing.

## **OILSEEDS**

1. For *raya*, use varieties RLC-3, PBR 357, PBR-210, RLM-619, PBR-91 under irrigated conditions and PBR-97 under rainfed conditions. The optimum period for sowing *raya* is the second fortnight of October. PBR 210 and PBR 91 are recommended for South-Western districts only. *Gobhi sarson* (GSC-7, GSC-6, GSL-1, GSL-2, Hyola (PAC-401) should be sown from 10<sup>th</sup> of October to end of October. African sarson PC-5 can also be sown during whole month.
2. Drill 45 kg urea, 75 kg single superphosphate and 10 kg muriate of potash per acre before sowing of *raya* and *gobhi sarson* but in *gobhi sarson* sown on light textured soils, increase the dose of urea to 65 kg per acre. In rainfed conditions, apply 33 kg urea and 50 kg single superphosphate/acre at sowing.
4. **Weed Control:** One hoeing to *toria* after the third week of sowing and one or two hoeings preferably with improved wheel hoe to *raya*, *gobhi sarson* and *taramira* are adequate.

## **FODDER PRODUCTION**

1. *Berseem* and shaftal sowing should be completed in first week of October. This month is also ideal for sowing lucerne, oats and senji. *Berseem* crop may be supplied six tonnes farm yard manure (FYM) and 125 kg single superphosphate per acre before sowing and where FYM is not added, 185 kg single superphosphate should be applied alongwith 22 kg urea per acre.
2. In order to get higher yield from first cutting, sow *berseem* or lucerne in mixture with oats and *sarson*. This mixture also helps in keeping the *itsit* under check.
3. Conserve surplus maize/sorghum as silage to meet the fodder requirements in lean period for cheaper milk production.

## VEGETABLE CROPS

### Root Crops

Mix 15 tons of well rotten FYM in soil 10 days before sowing. Apply 55 kg urea and 75 kg single superphosphate per acre for radish, turnip and carrot. Carrot also requires 50 kg muriate of potash per acre. Complete sowing of varieties of Punjab Safed Mooli-2, Punjab Pasand of radish, L-1 of turnip and PC-161, PCY-2 and PCP-2 and Punjab Black Beauty of carrot. Use 2-3 kg seed/acre for turnip and 4-5 kg seed per acre for carrot and radish. Sowing on 45 cm ridges is better for obtaining higher yield, easy harvesting, better root shape, less forking and richness in nutrients. Plant thinning is recommended 15 days after sowing to maintain plant-plant distance for better root development. For large scale planting of carrot, tractor operated inclined plate planter can be used to sow seeds on beds at 67.5 cm spacing. The machine plants 4 rows on each bed with 10 cm spacing between rows and 8 cm between plants and there is no need of thinning.

### Cole Crops

Start transplanting of 4-6 weeks old seedlings of cabbage, mid season cauliflower, Chinese cabbage and broccoli. Keep line and plant to plant spacing at 30 × 30 cm for Chinese cabbage, 45 × 30 cm for cauliflower and 60 × 45 cm for cabbage and 45 × 45 cm for broccoli. Apply irrigation once a week as per soil and climatic conditions. Do gap filling for good crop stand.

### Pea

1. Start sowing of early season pea varieties i.e. Matar Ageta-7 and AP-3. Seed rate is 45kg/acre for early crop. Start sowing main season pea for green pods from mid October to mid of November. Sow varieties Punjab 89 and Mithi Phali. Use 30 kg seed per acre. Drill seeds with ridger at 15 cm spacing.

### Potato

1. Complete sowing of autumn potato crop in the first fortnight of October particularly for seed production purpose. Use healthy seed tubers.
2. Sow potato after applying 20 tonnes of farm yard manure, 80 kg urea, 155 kg single superphosphate, and 40 kg muriate of potash per acre. Farm yard manure should be applied about ten days before planting potato whereas fertilizer should be applied at the time of sowing preferably mixed with soil to avoid injury to tubers. Higher doses of nutrients can be applied if soil test shows low to very low status of these nutrients.
3. Application of paddy straw mulch @24q/acre immediately after planting provides effective weed control. For chemical weed control spray Gramoxone/Kabuto 24SL (Paraquat) @ 500-750 ml/acre upto 5-10 % emergence of potato crop and complete germination of weeds.
4. For the control of late blight, select healthy tubers for sowing. Infected/rejected tubers taken out of cold stores should be buried instead of keeping such tubers in the open area. Follow high ridge method to avoid tuber infection.
5. Disinfect the seed tubers in 0.083% Emesto Prime 240 FS or 0.25 % Monceren by dipping for 10 minutes to control black scurf. Avoid sowing of potato in fields with high incidence of common scab. Keep the soil wet at tuberization to minimize the scab infection. If there is a heavy shower in 3<sup>rd</sup> /4<sup>th</sup> week of October, protect the crop immediately by spraying Indofil M-45/Mass M-45/Markzeb/Kavach/Antracol @ 500-700 g/acre.

### **Onion**

1. Sow 4-5 kg seed on raised beds on an area of 8 marlas for raising nursery for one acre. For red onions, sow POH-1 hybrid/PRO-7/PRO-6/Pb Naroya varieties; for white onions sow PWO-1/Pb White and for yellow onions sow PYO-2 varieties.
2. Irrigate *khariif* planted crop as per soil and prevailing climate conditions.
3. Plant 8-10 quintal graded mother bulbs at 60 x45 cm for raising seed crop on one acre in the first fortnight of November.

### **Tomato**

Start sowing nursery of tomato. Use 100 g seed of the recommended varieties/hybrids in two marlas (50 m<sup>2</sup>) bed area to grow seedlings for an acre. Sowing of Punjab Ratta, Punjab Red Cherry, Punjab Kaser Cherry, Punjab Sona Cherry, Punjab Sartaj, Punjab Gaurav, Punjab Sawarna, Punjab *Chhuhara* varieties and PTH-2 hybrid can be done.

### **Leafy Vegetables**

Sow Palak variety Punjab Green using 5 kg seed per acre at a spacing of 20 cm between rows. Apply 10 tonnes FYM, 35 kg urea, and 75 kg single superphosphate per acre before sowing. Sow Kasuri methi variety Punjab Supreme using 10kg seed per acre. Sow by pora method in rows 20 cm apart. Apply 65kg urea in 3 split doses, half at sowing and remaining two in equal split after 1<sup>st</sup> & 2<sup>nd</sup> harvesting of leaves.

## HORTICULTURAL OPERATIONS

1. The newly planted fruit plants should be staked with bamboo sticks in order to build the string framework and proper shape. The suckers arising from the root-stock portion should be removed regularly.
2. Intercropping of *Rabi* season crops like wheat, peas, senji and black gram can be done in young and non-bearing orchards. Make sure that the irrigation system for intercrop and fruit plants are separate.
3. In ber, physiological fruit drop can be managed with spray of 15 g NAA (Naphthalene Acetic Acid) in 500 litres of water during 2<sup>nd</sup> fortnight of October and again in 2<sup>nd</sup> fortnight of November. Dissolve NAA in small quantity of alcohol before mixing in water.
4. To suppress weeds, the non-bearing orchards should be cultivated lightly for the control of perennial weeds like *baru*, *bhang*, *kahi*, *motha*, *parthenium* etc. The basins of trees can be cleaned manually with khurpa or spade. For weed management in ber orchards, apply paddy straw mulch @ 5.0 ton/acre under the tree canopies during second fortnight of October.
5. In loquat, it is a proper time for application of first split of recommended dose of N (500 g urea/plant).
6. Spray 200 ml Crocodile/Confidor 17.8 SL in 500 litres of water per to manage citrus leaf minor and citrus psylla if prevalent in orchards.
7. For management of citrus canker, spray 50 g of streptomycin + 25 g of copper sulphate in 500 litres of water per acre during this month and repeat during December and February. Bordeaux mixture (2:2:250) or copper oxychloride (0.3%) can also be sprayed.
8. To manage, leaf mould and leaf spots in ber, spray Bordeaux mixture (2:2:250) in this month.
9. For the control of Mango Malformation, remove the affected shoots every month and destroy them. Spray Naphthalene Acetic Acid (NAA) in October. Dissolve 100 g NAA in 100- 150 ml alcohol and make the volume 500 litres.

## ORNAMENTALS

### **Annuals**

One month old the seedlings of winter season annuals should be transplanted during this month in the beds or pots.

### **Chrysanthemum**

Do the staking of the plants grown in pots, both for standard and spray types. Disbudding of side branches should be done in standard types.

### **Roses**

1. Roses are pruned in this month, As general rule, rose plants are headed back 45 cm (from the ground level) and keep only 3-4 strong canes, which are growing outwards from the centre to the centre of the plant open. Treat cut ends with suitable fungicides.
2. Apply FYM and fertilizer.
3. The new plants of rose can also be planted in this month.

### **Bulbous Plants**

The bulbs of Gladiolus, Narcissus (Nargis), Dahlia etc. can be planted in this month. Stop watering summer bulbous plants like Caladium, Tuberose, Football Lilly etc. and uproot them.

### **Marigold**

Seedlings can be transplanted for winter crop.

## **DAIRY AND ANIMAL HEALTH**

1. Watch the animals regularly in the morning and evening for heat symptoms like mucous discharge, bellowing etc. Animals must conceive within 60-90 days after calving.
2. When heat signs are observed, get the dairy animals inseminated by adopting morning-evening formula. Animals seen in heat in morning are to be inseminated in evening and vice versa. Double insemination can be done in cows if their heat is prolonged.
3. Provide clean, dry and good bedding especially for young calves. Colostrum must be fed to the calves within 30 minutes after their birth. Get the calves disbudded and dewormed within 10 days of birth. Apply antiseptic cream on the wound regularly after disbudding.
4. Regular grooming of calves should be done to keep them clean. This practice will also help in detecting wound or tick infection.
5. The crossbred animals are more susceptible to various diseases associated with change in climatic conditions. These animals and their calves are likely to get diarrhoea may be due to internal parasites. Seek veterinary advice immediately and get the calves dewormed and diarrhoea treated.
6. For appropriate milk yield, do the milking quickly, quietly, cleanly and correctly with full hand.
7. Regularly feed the mineral mixture to the animal and give fresh water and provide green fodder and concentrate mixture.
8. The adult animals should be dewormed with broad spectrum anthelmintic. The anthelmintic used earlier should be changed in consultation with local Veterinarian to avoid anthelmintic resistance.
9. Prophylactic measures for control of tick, flies and mites should be taken.
10. To prevent animals from Lumpy Skin Disease, avoid animal's exposure to sick animals or visitors, control ticks, mosquitos and flies by making smoke made by burning of guggal, camphor and neem leaves over cow dung cake during morning and evening. Apply alum solution with clean cloth on the skin of affected animals. Healthy animals should be vaccinated with Goat Pox vaccine.

## **POULTRY**

1. Provide 14-16 hours lights including daylight to your flock if the flock has come in production.
2. Provide extra grit in addition to marble powder in feed for better quality of egg shell.
3. Keep the litter dry by stirring it 2-3 times in a week. If there is any wet part of litter, remove it immediately. Keep the litter depth 4-5 inches.
4. It is good time for raising broiler chicks. Get your chicks from reputed hatchery. Provide broiler chick feed for the first 4 weeks and then broiler finishes ration for 2-3 weeks to attain proper weight.
5. Always use good quality balanced feed free from dust and molds to avoid infections and drop in egg production.

## AGROFORESTRY

### **Poplar**

Irrigate poplar plantations and nurseries at the fortnightly interval. Prune the branches of the nursery for ensuring better quality planting stock. In case there is incidence of bark eating caterpillar, collect and destroy the infested leaves. Sowing of wheat/sugarcane as intercrop can be done. In the light soils, deficiency of zinc is observed in upper leaves. The leaves turn into yellow. Apply 100 g, 200 g and 300 g ZnSo<sub>4</sub> (21%) per plant in the plantations of 1, 3 and 5 years age.



## MUSHROOM CULTIVATION

1. Clean and disinfect the growing rooms with 4-5 % formalin solution at least one week before the completion of composting for button mushroom (1<sup>st</sup> – 2<sup>nd</sup> week of October).
2. The ready compost (dark brown in color) is spawned in the 2<sup>nd</sup>-3<sup>rd</sup> week of October in the cross ventilated covered space.
3. After spawning , the compost is filled in polythene bags, wooden trays and shelves for its cultivation which are either covered with newspaper sheets or polythene. To keep the top surface of the trays/shelves moist, water is sprinkled on these sheets regularly once a day.
4. For cultivation of button mushroom in polythene bags, no watering is required during spawn run period.
5. No cross ventilation is required during spawn run (1<sup>st</sup> two weeks after spawning).
6. Disinfect farm yard manure and sandy soil (4:1) with 4-5 % formalin solution for its use as casing soil after mycelial run.
7. Cultivation of *dhingri* can also be started during this month.
8. Procure fresh paddy straw and store it at a dry place for its further use for paddy straw mushroom cultivation during summer

## BEE KEEPING

Measures should be undertaken to strengthen honey bee colonies to exploit honey flow from *ber* and ensuing flow from *toria* crop in the Punjab and from *sarson* in *Rajasthan*. If feasible, the colonies may be migrated to areas where these crops are grown in abundance, for increasing honey production and colonies growth. However, safe distance among the migratory apiaries of different beekeepers must be maintained to prevent the spread of bee diseases and mites. Dust sulphur powder on the top bars of bee combs underneath inner cover @ 1.0 g per comb against brood mite (*Tropilaelaps clareae*). Alternatively, fumigation with formic acid (85%) @ 5 ml daily for two weeks may be applied. The latter treatment will also take care of *Varroa* mite. However, formic acid should be avoided during nectar flow. In the case of heavy infestation by *Varroa* mite, destruction of capped drone brood comb part, *Varroa* trapping on drone brood and then its destruction and the use of sticky papers on bottom board can also be integrated. Dusting of icing sugar @ 15g per 10 bee-frame strength colony in the evening in between the bee combs is also helpful in reducing the mite population. Spray of freshly prepared oxalic acid solution (4.2% in 60% sugar solution) @ 5 ml per comb of bees in late evening thrice at weekly interval is also helpful against *Varroa* mite. Proper spacing among the colonies and the extraction of honey from only the brood free supers separated from brood chamber with horizontal queen excluder help in preventing spread of *Varroa* among the colonies in apiary. Keep vigil of the brood diseases and on suspicion, immediately consult experts and suggested control measures should be undertaken; non-chemical methods should be preferred. The suspected colonies should immediately be isolated from the healthy stock. Use of antibiotics against bee diseases should be avoided. In the areas of congenial climate and floral conditions and depending upon the colony performance/development including drone bees availability, mass queen bee rearing and colony multiplication or requeening can also be undertaken.

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