

FARM OPERATIONS IN JANUARY

WHEAT

1. Sowing of wheat variety PBW 757 under irrigated very late sown conditions.
2. Apply second irrigation to wheat sown during November and first irrigation to wheat sown during December. Apply second dose of N with first irrigation to late sown wheat.
3. Manganese deficiency may appear in coarse textured soils, where wheat follows paddy. The middle leaves show interveinal chlorosis with light grayish yellow to pinkish brown colored spots/ streaks. If such symptoms are noticed, spray the crop with 0.5 per cent manganese sulphate solution (one kg manganese sulphate in 200 litre of water per acre). Give two to three sprays at weakly interval on sunny days.
4. Sulphur deficiency may appear in wheat grown on sandy soils especially during prolonged winter rains. In this deficiency, the younger leaves turn yellow leaving the tip slightly green. If such symptoms are noticed, broadcast gypsum @ 100 kg per acre.
5. For controlling *Gulli Danda* in late sown wheat, apply Clodinafop 15 WP @ 160 g/acre or Fenoxaprop pethyl 10 EC @ 400 ml/acre or Axial 5 EC (Pinoxaden) 400 ml/acre after 30-35 days of sowing. For control of both grassy and broad leaf weeds, use Accord Plus (Fenoxaprop + Metribuzin) @ 500 ml or Shagun 21-11(metribuzin+ clodinafop) @ 200g /acre or ACM-9 (metribuzin+clodinafop) @ 240g /acre at 30-35 days after sowing.. For control of broadleaf weeds only, use 2,4-D @ 250 g/acre at 45-55 days after sowing. Algrip/Agrip Royal/Markgrip 20 WP (metsulfuron) @ 10 g/acre can also be used for control of *Kandia wali Palak (Jangli Palak)* and other hardy broadleaf weeds by using 150 litres of water and its time of application is 30-35 days after sowing. In addition to this, for control of *button weed* and other broadleaf weeds apply Aim/Affinity 40 DF (Carfentrazone ethyl) at 20 g/acre by dissolving in 200 litre of water at 25-30 days after sowing. For control of *makoh rari/rewari, kandali palak, hirankhuri* spray lanfida 50 DF @ 20g/acre in 150 litres of water at 25-30 days of sowing. Do not spray Accord Plus or Shagun 21-11 or ACM-9 (metribuzin+clodinafop) on Unnat PBW-550.
6. Monitor the crop for occurrence of yellow rust in fields especially in sub-mountainous districts of the state. If symptoms of yellow rust are noticed, spray the crop with Taqat @ 300g or Caviet @ 200g or Nativo @ 120g or Ampact Xtra or Custodia or Opera or Tilt or Shine or Bumper or Stilt or Compass or Markzole @ 200 ml in 200 litres of water per acre.

RAPSEED AND MUSTARD

1. To save the crop from frost damage, apply irrigation.
2. To check aphid damage on raya observe 12-16 widely scattered plants from an acre and if aphid population is above ETH level, spray 40 g Actara 25 WG (**thiamethoxam**) or 400 ml of Rogor 30 EC (**dimethoate**) or 600 ml Dursban/Coroban 20 EC (**chlorpyrifos**) in 80-125 litres of water per acre. Rogor can also be used to control leaf miner.
3. Avoid irrigation to sarson /raya during 25th December to 15th January to manage Sclerotinia stem rot.
4. For controlling white rust, spray the crop with 250g Ridomil Gold in 100 litres of water per acre when crop is 60 and 80 days old.

SUNFLOWER

The month of January is the optimum time for sowing sunflower. The sowing should preferably be done on southern side of east west ridges. The spacing between rows should be 60

cm and between the plants 30 cm. Sowing can be done with inclined plate crop planter. Apply 24 kg N (50 kg urea) per acre along with 12 kg P₂ O₅ (75 kg single superphosphate) at sowing. Prefer single superphosphate as it contains sulphur. In coarse textured soils, use half dose of urea (25 kg) at sowing and other half after 30 days sowing. Drill muriate of potash in soils testing low in available potassium i.e. 40 kg/acre in Hoshiarpur, Shaheed Bhagat Singh Nagar, Ropar and Gurdaspur districts and 20 kg/acre in all other districts. If the crop follows potato which received farm yard manure (FYM) @ 20 tonnes per acre, apply 25 kg urea. To sunflower following *toria*, apply 10 tonnes FYM along with recommended dose of fertilizers. Stomp 30 EC @ 1.0 litre per acre dissolved in 200 litres of water can be used as pre-emergence within 2-3 days for controlling weeds in this crop. When the sowing is likely to be delayed to February, the crop should be raised by transplanting nursery. To protect the crop from downy mildew, treat the seed before sowing with Tagron @ 6g/ kg.

SUGARCANE

1. Start crushing/harvesting (mill purpose) mid season and late maturing varieties which matures at the end of January.
2. Protect the seed crop against frost by giving frequent irrigations. Frost injury results in low germination of sugarcane.
3. Sugarcane crop meant to be ratooned may be harvested as close to the ground as possible to promote better sprouting.
4. Irrigate the harvested field and plough in between the cane rows to control weeds.
5. The larvae of stalk borer (Tarai borer) overwinter in stubbles/water shoots. The attack can be minimized by collecting the stumps and destroy them and avoid ratooning of such infested fields.

MENTHA

1. The best time of planting mentha is second fortnight of January. Use two quintals of freshly dug 5-8 cm long suckers for one acre.
2. The suckers should be laid end-to-end in 45 cm apart furrows. Apply 24 quintal of paddy straw mulch per acre and apply light irrigation after planting. Paddy straw mulch helps in saving water and control weeds.
3. Apply 10-15 tonnes farmyard manure, 33 kg urea and 100kg single superphosphate per acre at planting.
4. Two rows of mentha should be planted on 67.5cm wide beds or ridges should be made at 60 cm spacing after broadcasting the suckers.

FODDER PRODUCTION

1. If two cuttings of oats are being taken, one cutting can be taken during this month to meet the fodder shortage. Do not take two cuttings of oats where heavy infestation of *Poa* grass is there.
2. If lucerne has been sown, it should also be managed in such a manner that fodder is available during the lean period.
3. **Berseem stem rot:** The crop suffers from rotting at the soil surface due to stem rot disease. The disease is serious under humid/wet season. After taking the cutting of crop, expose the soil to the sun. Collect the diseased debris and destroy.
4. Berseem/Shaftal for seed production can be sown during the first fortnight of this month.

VEGETABLES

Potato

1. Complete sowing of spring potato in the 2nd fortnight of this month. If the seed raised from autumn crop is to be used for spring planting, its dormancy should be broken by dipping cut tubers in mixture of one per cent Thiourea and one ppm Gibberellic Acid for an hour. Air dry the treated seed pieces in shade for 24 hours in thin layers.
2. For spring crop, the seed may be dipped in the solution of Systiva @ 80ml or Emesto Prime @ 83ml or Moncern @ 250 ml in 100 litres of water for 10 minutes before sowing to control black scurf. Spraying this solution on potato will not control this disease.
3. Twenty tonnes of farmyard manure along with 75 kg of N (165 kg of urea), 25 kg of P₂O₅ (155 kg single superphosphate) and 25 kg of K₂O (40 kg of muriate of potash) per acre should be used. Drill whole P and K and half N at sowing and the remaining N at the time of earthing up.
4. The late and early blight of potato may be checked by spraying the crop with Indofil M 45/Kavach/Mass M-45/Markzeb @ 500-700 g/acre. The covering of the seed plot with dehaulmed shoots should be avoided from infected plants.
5. Aphids attack can be reduced by spraying 300 ml Metasystox 25 EC in 100 litres of water per acre. Do not spray these insecticides within 3 weeks of harvest.

Onion

Transplant 6-8 weeks old seedlings of onion in the field during first fortnight of January. Apply 20 tonnes well rotten farmyard manure together with 45 kg of urea, 125 kg single superphosphate and 35 kg muriate of potash per acre before transplanting. To control purple blotch, spray the crop with 300g Caviat or 600 g Indofil M- 45 mixed with 200 ml of Triton or linseed oil as sticker in 200 liters of water/acre. Spray may be repeated at an interval of 10 days.

Early cucurbits

To obtain early crop of muskmelon, watermelon, bottle gourd and pumpkin, procure 5 kg 100 gauge thick white plastic bags of 15 x 10 cm size and 100 gauge thickness. The plastic bags should be filled with a mixture of soil and well rotten farmyard manure in equal proportion. Puncture each bag at the bottom and fill it with this mixture. Place the bags in sunlight and well protected from the frost and chilly Northern winds. In the last week of January, dibble two seeds per bag and water the bags with a sprinkler. Keep the bags moist and do not overwater. This technique is suitable for raising early crops of all the cucurbits for commercial cultivation.

HORTICULTURAL OPERATIONS

1. This is most appropriate month for planting of deciduous fruit plants such as peach, plum, pear, grapes etc. However, peach and plum should be planted up to mid-January whereas pear, grapes, fig and phalsa can be planted up to end January i.e. before bud swelling and the emergence of new flush.
2. It's most suitable time for pruning of deciduous fruit trees like peach and plum. For pear and grapes, the pruning is normally initiated in the second fortnight of January and completed by first week of February.
3. In citrus, remove the dead wood during January-February i.e. before the new growth starts to rejuvenate the declining orchards after harvest. Apply Bordeaux paste to cut ends and trunk of the trees followed by Bordeaux paint after one week. Spray the crop with Bordeaux mixture (2: 2: 250). Treat foot rot/gummosis and canker in citrus by decortications and disinfection of wound on the trunk with Bordeaux paste. After the paste dries up in about a week, apply Bordeaux mixture (2: 2: 250). The dead, diseased, criss-crossed and unwanted branches from the bearing citrus trees should also be removed during this month soon after the harvest of fruit crop. Spray Bordeaux mixture immediately.
4. Apply recommended doses of well rotten Farm Yard Manure (FYM) to all major fruit crops except ber and guava as soon as possible if not applied in previous month.
5. To rejuvenate senile mango trees head back the trees at 3m from ground level leaving 4-5 outward growing branches in the first week of January and apply Bordeaux Paste on the cut ends and white wash the exposed branches.
6. Ensure that the young plants remained protected from frost during this month
7. One irrigation should be applied to the *ber* trees during this month as the fruits are in the developing stage.
8. To check the climbing of Nymphs of mango mealy bug on the trees, fix 15-20 cm wide slippery band one meter above the ground level.
9. For harvesting of kinnow mandarins the period of mid-January to mid-February is most appropriate.

ORNAMENTALS

Annuals

Most of the varieties of winter season start blooming during end of this month and welcome the eve of new year. Plants in pots need staking and ensure flower beds free from weeds.

Chrysanthemum

Flowering will be over in all the varieties by the end of this month. Cut the dry flowers and head back branches at 4 - 5 cm height from the ground for encouraging sprouting of new suckers.

Rose

Continue removing faded flowers and suckers to improve the quality of new blooms. Propagation of new plants and planting of bare rooted roses can also be done.

Potted plants

These plants are to be protected from frost injury. Water lightly and sensitive foliage plants like Crotons and Aglaonema must be protected from lower night temperature.

Perennial plants

The deciduous plants can be transplanted bare-rooted before they start sprouting. Pruning and training of deciduous plants should also be carried out when new growth starts. Propagation of winter deciduous plants like Pagoda, Euphorbia, Lagerstroemia etc can be carried by rooting stem cutting over sand beds.

Marigold:

Nursery for summer season cultivation of marigold can be sown on raised beds. Punjab gairda No. 1 is suitable for summer season.

Gladiolus : Harvesting of spikes may be started for early planted corms. Spikes are to be harvested when 5-7 basal florets show colour.

FARM FORESTRY

Poplar

Prepare the plan for raising poplar nursery or field plantation in first week of January. Planting time for both is mid January to end of February. Procure the plants/cutting from PAU or other reputed nurseries. Transplant one year old (bare-rooted plants in blocks at spacing of 5x4 m or 8x2.5m (north-south direction). Spacing for boundary plantation is 3 m. Dig the pits of 15-20 cm diameter with the help of auger. Keep the depth as 75 cm in heavy soils or 100 cm in light soils to avoid wind throw later on. Fill the pits with top soil and FYM (1:1) mixed with 50 g urea and 85 g DAP. After planting, irrigate the field and apply irrigation at weekly interval till rainy season. For nursery raising, prepare the cuttings having a length of 20-25 cm and 2-3 cm diameter. Plant the cutting in well prepared field at spacing of 50x50 cm apart by keeping one bud above the surface. Apply light irrigation at 7-10 days intervals.

Safeda

For good marketing, harvest the trees for timber after 10-12 years of growth. For paper pulp, fuelwood and poles, fell the trees at 3 years of age with 40 cm girth. Fell the trees in winter and dry the logs in shade.

Shisham (Tahli)

For growing of nursery of Shisham, collect the ripe pods from healthy and straight trees and store in dry condition before sowing in the month of February-March. Soaking in water for 24 hours enhances the germination. The seed germination starts in seven days and shift the 5-8 cm high seedlings in polybags. The nursery is ready for transplanting after 3-4 months.

BEE KEEPING

Honey bee colonies should be least opened during winter. Under compelling situations, the colonies should be examined very quickly during noon on some calm and sunny day. Any cracks and crevices/holes in the hives should be ensured to be plugged with plaster of paris or mud or some adhesive tape. If the colonies are still under shade, these should be shifted gradually into sun by moving less than 3 feet daily. Ensure that the colonies are not kept in the wide open all around, rather these be placed with one or two sides blocked with walls, etc. as wind breaks. The colonies entrance should face South-East direction. The surrounding and underneath of the colonies should be kept clean of grasses/weeds. Under prolonged cloudy/foggy/rainy spell, the colonies may fall short of honey stores. Under such circumstances, the colonies should be given feeding of concentrated sugar syrup (2 parts sugar: 1 part water). Prefer to provide this feed in drawn combs. Else, it can be provided in Division Board Feeder. Continue winter packing of the colonies during this month. Under migration on bee-flora, ripe/ sealed honey if available in brood-free super chamber in worth extractable quantity, it can be fast extracted during noon on some calm sunny day with the least exposure of the bee colony to the cool weather and post-extraction robbing preventing measures should be undertaken.

MUSHROOM CULTIVATION

1. The prepared compost (dark brown in colour) for the 2nd crop of button mushroom should be spawned in the first week of this month.
2. For cultivation of button mushroom on shelves/trays, the top surface should be covered with newspaper sheets. The water should be sprayed once or twice a day on these newspaper sheets to keep the surface moist (65-70%).
3. For cultivation of button mushroom in polythene bags, fold the upper edge of the bags to keep the surface of the bags moist. No water spray is required during spawn run.
4. For casing soil preparation, disinfect the farmyard manure and sandy soil (4:1) with 4-5 % formalin solution. The prepared casing soil should be used after two weeks of spawning.
5. At the time of casing, remove the newspaper sheets and cover the spawned compost with disinfected casing soil (1 " - 1½" thick layer) and spray these bags with water on daily basis.
6. After one week of casing, open the growing rooms for 4-6 hours daily for cross ventilation.
7. Dhingri can also be cultivated during this month and harvesting of previously grown bags to be continued during this month.

DAIRY FARMING

1. Keep the animals in dry place and change the bedding material as and when required.
2. New born calves need special care in cold weather. They are susceptible to Pneumonia and large number of them die due to this disease. Keep them warm by providing clean and dry bedding. Colostrum should be given within first hour after birth for long live immunity. Calves need calf starter feed from 4th day to 3 months of age and avoid any type of fodder for one month to attain early puberty. Wean the calves at 45-60 days of age, keep the calf separate from other animals.
3. Deworming should be done in the calves especially against Ascariasis/*Malap* at 15 days of age with piperazine@ 5ml for 10 kg body weight. Deworming of calves should be done on monthly intervals till 6 months of age after that at 3 months of interval by using different salts to avoid resistance. Dehorning should be done before six weeks of age in calves.
4. Keep the animals under roof at night time and in the sun during the day. The construction of sheds should be in the east west direction which allows the entry of sun rays inside the shed during the day. Cover the animals with *Jhull* (Jute cloth) in extreme cold. Fix *pallis/tat*/plastic cover if required in the shed to prevent animals from direct cold winds.
5. Keep the animals in groups according to their requirements (Milking, Calves, Heifers Dry & Transition animals) for profitable venture.
6. The energy content of the concentrate mixture should be increased by 5-10 % where the protein in the concentrate can be reduced by 2-3 per cent during cold season as green fodder (barseem, lucern and rye grass) have 19-21% protein.
7. Post- Teat dipping should be done with after milking a solution of glycerin and betadine mixed in the ratio of 1:3 which will take care of mastitis as well as teat cracking.
8. Get all the animals vaccinated against foot and mouth disease (FMD).
9. Always handle the healthy animals first and sick ones at last.
10. Feed well chaffed berseem mixed with wheat straw to avoid Tympany (*Aphara*). Avoid wet fodder. Do not feed *Parali* (rice straw) alone to the animals because it is rich in silica & causes diarrhea and degnala disease.
11. Pregnant animals in transition period should be fed niacin 8-12 grams, choline chloride 15-30 grams, vitamin E 500 IU and avoid salt, sodium bicarbonate and mineral mixture or any type of calcium during last 21 days of pregnancy. To avoid milk fever does not feed only legumes and mix it with other fodder or silage.

POULTRY FARMING

1. Provide the curtain at the windows in poultry sheds and keep sun side open to avoid ammonia accumulation. Temperature inside the shed should not be below 75°F (24°C) for laying hens. If the temperature falls, there is need for doubling the curtains and to provide artificial heating system like infrared bulbs, electric furnace/LPG furnace so that production did not drop. To maintain humidity level at 65% in the shed, keep a water utensil near heat source for evaporation.
2. Keep the chicks warm by giving them artificial heat according to age for brooding. For the first week keep 90-95° F and go on decreasing 5° F per week according to the season.
3. Poultry ration should have more protein. Therefore, increase soybean etc in the ration. It helps keep birds warm.
4. Add Coccidiostat in the ration to prevent occurrence of coccidiosis.
5. If the birds are kept on deep litter, then stir the litter 2-3 times in a week to keep it dry.
6. Laying hens should be given 16 hours of light daily and 20-24 hours for chicks.

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