



Farm operations in September

PADDY

- Irrigate the paddy field two days after the ponded water has infiltrated into the soil and stop irrigation two weeks before maturity for easy harvesting and timely sowing of next *Rabi* season crop.
- Rogue out the weeds and off type plants from the paddy.
- Control leaf folder when leaf damage reaches 10 per cent by spraying 20 ml Fame 480 SC (flubendiamide 39.35%) or 50 g Takumi 20 WG (flubendiamide 20%) or 60 ml Coragen 18.5 SC (chlorantraniliprole) or 170 g Mortar 75 SG (cartap hydrochloride) in 100 litres of water per acre.
- Sometimes planthoppers become serious in paddy. The crop dries up in patches. The planthoppers can be controlled by spraying 94 ml Pexalon 10 SC (triflumezopyrim) or 120 g Chess 50 WG (pymetrozine) or 80 g Osheen/Token 20 SG (dinotefuran) or 800 ml of Ekalux/Quinalmass 25 EC (quinalphos) or 80 ml *neem*-based bio-pesticide, Ecotin (azadirachtin 5%) in 100 litres of water per acre. For better results, direct the spray towards the base of the plants.
- Rice stemborers cause dead hearts during vegetative stage and white erect ears near maturity. Rice fields showing more than 5% dead hearts can be sprayed with 20 ml Fame 480 SC or 50 g Takumi 20 WG or 60 ml Coragen 18.5 SC or 170 g Mortar 75 SG in 100 litres of water/acre. In *basmati* rice, when 2% dead hearts are noticed, these can be controlled by applying any of the above insecticide or 4 kg Ferterra 0.4 GR (chlorantraniliprole) or 6 kg Regent/Mortel/Mifpro G/Mahavir GR 0.3 G (fipronil) or 10 kg Padan/Kritap/Sanvex/Caldan/Nidan/Marktap/Miftap 4 G (cartap hydrochloride) or 4 kg Vibrant 4 GR (thiocyclam hydrogen oxalate) per acre in standing water. Fame 480 SC/ Martar 75 SG/Coragen 20 SC/Padan/Kritap/Sanvex/Caldan/Nidan/Marktap 4 G Regent/ Mortel/ Mifpro G/Mahavir GR 0.3 G/Ferterra 0.4 GR or Vibrant 4 GR also control leaf folder effectively.
- To save the crop from sheath blight, keep the bunds of the fields clean by removing grass. On noticing the disease symptoms, spray the crop with Iglare/Pulsur 24 SC (thifluzamide) @ 150 ml or Epic75 WG (hexaconazole) @ 26.8 g or Nativo 75 WG (trifloxystrobin + tebuconazole) @ 80 g or Galileo Way 18.76 SC (picoxystrobin + propiconazole) @ 400 ml or Lustre 37.5 SE (flusilazole + carbendazim) @ 320 ml or Amistar Top 325 SC (azoxystrobin + difenconazole) or Tilt/Bumper 25 EC (propiconazole) or Folicur/Orius 25 EC (tebuconazole) or Monceren (pencycuron) @ 200 ml in 200 litres of water per acre. Repeat the spray after 15 days interval.
- If high humidity and cloudy weather persist, the crop may be sprayed at boot stage with Galileo Way 18.76 SC (picoxystrobin + propiconazole) @ 400 ml or Kocide 46 DF (Chopper hydroxide) @ 500 g in 200 litres of water per acre to control false smut.

MAIZE

- Maintain adequate water supply, particularly, at tasseling and silking

stages. Stress at these stages causes considerable loss in the yield.

- After heavy rains if water stagnates in the fields, drain out the excessive water to keep the plants free from bacterial stalk rot.
- Manage banded leaf and sheath blight of maize by spraying 100 ml of Amistar top in 200 litres of water as soon as it appears in the field.
- Fall armyworm (FAW) in grain maize can be checked by spraying 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. If 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 Missile 5 SG in 10 ml of water and mix well in one kg of soil. In case of fodder crop, use Coragen 18.5 SC @ 0.4 ml per litre of water and do not harvest fodder for 21 days after its application to ensure safety to farm animals.

COTTON

- Do not allow the cotton crop to suffer from water stress during flowering and fruiting stages, otherwise a lot of shedding of flowers and bolls will take place which results in poor yield. To hasten boll opening, the last irrigation may be given at the end of September.
- If the damage/population of whitefly reaches economic threshold levels, spray the crop with Sefina 50 DC (afidopyropen) @ 400 ml or Osheen

20 SG (dinotefuran) @ 60 g or Polo/Craze/Ruby/Ludo/Shoku 50 WP (diafenthiuron) @ 200 g or Lano/Daita 10 EC (pyriproxifen) @ 500 ml or Oberon/Voltage 22.9 SC (spiromesifen) @ 200 ml in 125-150 litres of water per acre for the control.

- For the control of jassid, use Osheen 20 SG or Keefun 15 EC (tolfenpyrad) @ 60 g or Neon 5 EC (fenpyroximate) @ 300 ml or Ulala 50 WG @ 80 g or Actara/Extra super/Dotara/Thomson (thiamethoxam) 25 WG @ 40 g in 125-150 litres of water per acre with manually operated Knapsack sprayer.
- To check the attack of pink bollworm, prefer to spray Proclaim 5 SG (emamectin benzoate) @ 100 g or Curacron/Carina 50 EC (profenofos) @ 500 ml or Avaunt 15 SC (indoxacarb) @ 200 ml per acre. Repeat the spray if it rains within 24 hours of spraying.
- Mealy bug infested rows/plants should be sprayed with 150 ml Transform 21.8 SC (sulfoxaflor) in 125 -150 litres of water per acre.
- To get higher yields, give four sprays of 2% potassium nitrate 13:0:45 (2 kg potassium nitrate in 100 litres of water) at weekly intervals starting from flower initiation.
- Do not use synthetic pyrethroids on cotton for the control of bollworm complex after mid-September.
- To control fungal foliar leaf spots, the crop should be sprayed with Amistar Top @ 200 ml per acre in 200 litres of water at 15-20 days interval.

SUGARCANE

- Prop up the sugarcane crop in the beginning of this month by using trash-twist method. Irrigate the crop at regular intervals for getting better yields.
- Rogue out the canes affected by red rot and wilt. Collect and destroy the shoots infested with Gurdaspur

borer. Repeat this operation at weekly intervals.

- Start sowing of early maturing sugarcane varieties like CoPb 95, CoPb 96, Co 15023, CoPb 92, Co 118, CoJ 85 and CoJ 64 from second fortnight of this month. Keep 90 cm distance between rows.
- Grow *toria*, potato or garlic as intercrops in sugarcane for getting higher returns.

OILSEEDS

Toria: September is the optimum period for sowing of *toria*. Use short duration variety TL 17 and TL 15 for better yield and getting the field vacated well in time. *Toria* may be sown after applying 55 kg of urea and 50 kg of Single Superphosphate per acre. If Single Superphosphate is not available, apply gypsum @ 80 kg per acre, particularly, in sulphur deficient soils alongwith nitrogen and phosphatic fertilizers. For getting higher productivity, grow *toria* + *gobhi sarson* as intercrops at 22.5 cm row spacing by third week of September or broadcast 1 kg seed of *toria* and then sow *gobhi sarson* at 45 cm row to row distance with 1 kg seed.

Groundnut: Do not allow the crop to suffer from water stress at the pod development stage. Any stress at this stage causes drastic reduction in the yield of groundnut. Control *Tikka* disease by spraying with wettable sulphur @ 500-750 g/acre in 200-300 litres of water per acre or Bavistin/Derosal/Agrozim @ 50-60 g/acre in 100 litres of water per acre. Give 3-4 sprays at 15 days interval starting from August.

FODDER PRODUCTION

- Sow maize (J 1007 and J 1006) for fodder production upto mid-September to have fodder for the scarcity period.
- Prepare the land for the sowing of *berseem* during the last week of September. Mix oats and *sarson/ raya* in *berseem* to get the first cutting early. *Berseem* seed should

be free from *Kashni* seed. Inoculate the *berseem* seed with *Rhizobium* culture. Apply 22 kg of urea and 185 kg of Super phosphate/acre at the time of sowing *berseem*. If 6 tonnes of FYM has been applied, then 125 kg of Superphosphate/acre will be sufficient. Where *rye* grass has been mixed in *berseem*, apply 22 kg of urea/acre after each cutting.

- Preserve the surplus green fodder of maize or *bajra* as silage or hay to supplement the shortage of green fodder.

VEGETABLES

Potato

- The climatic conditions are ideal for sowing early varieties i.e. Kufri Surya, Kufri Pukhraj, Kufri Ashoka and Kufri Chandramukhi. Take out seed potato from the cold storage in the first fortnight of this month and spread in ventilated place under diffused sunlight in thin layers. Turn the surface of tubers once in a day and allow buds to sprout for a week. Sprouts should attain 0.5 - 1.0 cm length before sowing.
- Use healthy and disease-free seed.
- Disinfect the tubers before sowing with 0.25 % solution of Monceren (250 ml per 100 litre of water) or 0.083 % of Emesto Prime (83 ml per 100 litre water) or 0.08 % Systiva (80 ml in 100 litres of water) for 10 minutes to check the black scurf of potato.
- Application of FYM @ 20 tonnes per acre or green manuring is beneficial for this crop. Drill 82.5 kg of urea, 155 kg of Superphosphate and 40 kg Muriate of Potash per acre at the time of sowing and the remaining urea of 82.5 kg at the time of earthing-up.
- For weed control, use Gramoxone/ Kabuto 24 SL (paraquat) @ 500-750 ml per acre at the stage when most of the weeds have emerged and potato crop shows 5-10% emergence. Use 250 to 300 litres of water in Knapsack sprayer fitted with flat fan

nozzle and 100 litres of water with Power sprayer.

Peas

- If pea crop is to be sown for the first time, treat the seed (40 kg/acre) of early maturing varieties i.e AP 3 and Mater Ageta 7 with *Rhizobium* culture specific for pea. Apply 8 tonnes of FYM, 45 kg of urea and 155 kg of Superphosphate per acre before sowing.
- Apply 10 kg Furadan 3G per acre in furrows at sowing for reducing the infestation of stem fly in the early sown pea crop.

Garlic: Sow the cloves garlic variety PG 18 in the second fortnight of this month. Apply 20 tonnes of well-rotten farmyard manure per acre along with 40 kg urea and 155 kg Superphosphate per acre at sowing. Apply two split doses of urea @ 40 kg at 30 and 60 days of sowing. Dibble or drill 225 to 250 kg healthy cloves of garlic in *wattar* condition on ridges. Keep lines 15 cm and plants 7.5 cm apart. Irrigate immediately after sowing.

Palak: Use 4-6 kg/acre seed of Punjab Green. Seed should be sown 3-4 cm deep in rows at 20 cm apart in *wattar* conditions.

Cole crops

- Transplant fully developed seedlings (4-6 weeks old) of main season varieties of cauliflower. Apply 45 kg of urea, 155 kg of Superphosphate and 40 kg Muriate of Potash before transplanting. Apply 55 kg of urea as a top-dressing four weeks after transplanting.
- Sowing of late season varieties of cauliflower i.e. Pusa Snow Ball-1 and Pusa Snow Ball K-1 can be started. Sow 250 g seed in one *marla* to grow seedlings for planting an acre.

Root crops: Start sowing of '*desi*' varieties of radish (Punjab Safed Mooli 2), turnip (L 1) and carrot (Punjab Black Beauty and PC 161), using 4-5 kg seed

rate of radish and carrot and 2-3 kg seed rate of turnip per acre. Keep ridges 45 cm and plants 7.5 cm apart. The cultivation of root crops on ridges help in better growth and development of roots, and lead to easy harvest. To maintain plant-plant distance, do the thinning of seedlings 15 days after emergence.

HORTICULTURAL OPERATIONS

- It is highly suitable time for planting of evergreen fruit plants, but it should be completed as soon as possible during this month because with the declining temperature, the growth of newly planted plants will not take place. Planting of mango, sweet orange, mandarin, lime, lemon, litchi, guava, *aonla*, *loquat*, *ber* and papaya can be done.
- The newly planted fruit plants are very tender and therefore, operations like irrigation, removal of sprouts stock, training, staking and plant protection measures should be undertaken with extreme care.
- Pre-harvest fruit drop in citrus can be reduced with the spray of 2, 4-D sodium salt of horticulture grade (5 g) in 500 litres of water during mid-September.
- In citrus, leaf miner can be checked by spraying 200 ml Crocodile/Confidor 17.8 SL (imidacloprid) and citrus psylla can be checked by spraying 200 ml Crocodile/Confidor 17.8 SL or 160 g Actara/Dotara 25 WG or 6.25 litres Mak HMO in 500 litres water per acre. To check withertip or die back, anthracnose or stem-end rot diseases, spray the plants with Bordeaux mixture 2: 2: 250.
- In grapes for the control of anthracnose disease, spray the vines with Bordeaux mixture in the middle of September and again at the end of September for the control of downy mildew.
- In *ber*, the incidence of black leaf spots can be managed with the spray of Bordeaux mixture 2: 2:

250 during this month. To minimize the incidence of 'lac' insect in *ber*, remove the infested shoots.

- Apply 50 kg of FYM along with 2 kg of Single Superphosphate and 1.5 kg Muriate of Potash to full grown *loquat* tree in this month.
- Apply supplemental dose of urea @ 500 g to full grown plants of Punjab Beauty pear in this month in addition to recommended dose of fertilizers.
- Apply 500 g of urea, 1250 g SSP and 750 g Muriate of Potash to full grown guava trees as second installment in organic fertilizers.

ORNAMENTALS

Annuals: The nursery of winter annuals can be raised during this month on raised beds. Seeds with hard seed coat like sweet pea are sown directly after soaking them in water overnight. Immediately after sowing the seeds, water must be sprinkled on the beds. The seedlings are to be protected from damping off disease in the nursery beds.

Lawns: For getting lush green appearance of the lawn, apply 1.0 kg CAN or 500 g urea per 1000 sq ft. Adjust the lawn mower blades in such a way that the lawn is mowed as close to the ground as possible.

Chrysanthemum: Take care of drainage in the chrysanthemum pots as poor drainage will lead to yellowing of plants. Keep on training the plants.

Roses: In the second half of this month, the water should be withheld to prepare the rose plants for pruning to be done during the second fortnight of October.

Marigold: Marigold seed sowing is done during this month for winter season crop. Punjab *Gainda* No.1 planted for seed during July -August is to be pinched to get more spread of the plants.

Gladiolus and other bulbous crops: Planting of gladiolus corms should be started. Before planting of corms, the corms must be treated with some fungicide solution for half an hour. Well-developed bulbs of Narcissus (Nargis),

Freesia, etc. can also be planted in the well-drained soil rich in organic matter. Double *Dahlia* plants can be raised both from the terminal cuttings as well as from the bulbs during this period.

FARM FORESTRY

Poplar

- Irrigate the poplar plantations at fortnightly interval.
- In poplar nurseries, the caterpillars of leaf defoliator and leaf webber feed on leaves. Control the insects by collecting and destroying the infested leaves.
- Autumn crop of sugarcane can be sown if the poplar age is less than three years, however, maize/*bajra*/sorghum can be taken as fodder at any age of the poplar.

Safeda: The nursery growers can sow the seeds of *Safeda* on raised beds in lines 10 cm apart at the rate of 20 g/m². Cover the beds with thatches and give light irrigation by sprinklers. When seedlings attain height of 4-5 cm, transfer them in perfected polybags filled with a mixture of soil, sand and FYM (1:1:1). The seedlings will be ready for transplantation during March.

HONEY BEE MANAGEMENT

Provide drawn combs/frames and super chambers as per requirement, in case there is nectar flow or pollen income or both from the available bee flora. Ripe (sealed) honey, in case of the availability of nectar flow, should be extracted. In case of pollen flow, provide raised empty worker brood cell combs in the brood chamber to hasten colony growth, and honey extraction be resorted only to broodless honey supers separated from the brood chamber with queen excluder. All precautions to avoid robbing should be undertaken during and after honey extraction. This would also curb spread of bee diseases and *Varroa destructor* mite. Dust sulphur powder on the top bars of the bee combs @ 1.0 g per comb against *Tropilaelaps clareae* brood mite's infestation. Alternatively,

fumigation with formic acid @ 5 ml daily for two weeks may be applied. The latter treatment will also take care of *Varroa* mite but it should be avoided during nectar flow. In the case of heavy infestation by *Varroa* mite, the destruction of sealed drone brood comb part, *Varroa* trapping in sealed drone brood and then its destruction and the use of sticky papers on bottom board coupled with the use of *Varroa* board can also be integrated. Dusting of icing sugar @ about 2 g in the evening time in between every two bee combs 7-8 times at three days interval is also helpful in reducing the mite infestation. Spray of freshly prepared oxalic acid solution (4.2%) prepared in 60 per cent sugar solution in water, on the adult bees @ 5 ml per bee comb in the late evening thrice at weekly interval, is also helpful in the reduction of the mite population. Proper spacing among the colonies and also among the migrated apiaries, and the extraction of honey from only the super separated from the brood chamber with queen excluder help in preventing spread of *Varroa*. Keep vigil on the brood diseases and on suspicion, immediately consult experts and take appropriate control measures; non-chemical methods should be preferred. The suspected colonies should immediately be isolated from the healthy-looking stock. Adopt necessary apiary management operations to avoid wax moth attack inside the colonies. Inspect the stored combs for wax moth attack and apply fumigation with burning sulphur or with aluminium phosphide, if necessary. In areas of floral dearth, give sugar feeding (sugar: water = 1:1) to the honey bee colonies according to the needs and take all measures to prevent/check robbing. In the event of pollen flow and drone brood rearing, queen bee rearing can be undertaken depending on the prevailing weather conditions, for stock multiplication or for requeening for which progressive beekeepers can follow mass queen bee rearing technique for which the best performing selected colonies should be used as 'breeder

colonies'. For augmenting apiary productivity and profitability, adopt diversification in apiculture. For further information, consult apiculture experts.

MUSHROOM GROWING

- As per PAU recommendation, start preparing compost using wheat straw or wheat straw: paddy straw (1:1) for the cultivation of button mushroom during 2nd-3rd week of this month.
- During compost preparation, book your spawn as per requirement for growing button mushroom.
- Discard the spent material (bags) of milky and paddy straw mushroom from the growing rooms. Clean and disinfect the growing rooms with 4-5% formalin.

DAIRY FARMING

- Healthy animals usually come in heat within 19-22 days after parturition. Observe fresh calved animals for heat symptoms and get the animals inseminated after 2 to 3 months and within 12 to 18 hours after the onset of heat in order to reduce the calving interval.
- Animals usually lose weight after calving during first 100 days of lactation. Hence, farmers should follow practices of good management and balanced feeding to overcome negative energy balance e.g. quality green fodder, balance feed, bypass fat and mineral mixture so that the weight loss is minimum and proper maintenance of body condition scores.
- Early lactating and other lactating animals should be fed on dry matter basis. To calculate dry matter intake, use formula: 2% body weight of animal + 1/3 of milk production. For every 2.5 litres milk produced by cows and 2 litres by buffaloes, provide 1 kg concentrate.
- Provide dry bedding (paddy straw) to young calves and follow the recommended practices of de-

worming and vaccination.

- In case of tick infestation, control it by spraying Butox (2 ml/litre of water) on the animals as well as in the sheds and repeat the spray after 10-15 days. Do not spray animals below six months of age. Animal sheds, especially, corners, crevices, etc. should also be sprayed. Strictly follow the manufacturer's instructions while spraying the insecticides. Keep the animal sheds and surroundings clean to keep the fly population under control.
- For prophylaxis against trypanosomiasis (*surra*) disease, consult the local veterinarian. Since the disease is transmitted by flies, so spray insecticides to keep the flies away.
- Deworm the adult animals regularly

at an interval of three months with broad spectrum anthelmintics, keeping in view the prevalence of endoparasites in your area.

- By the end of September, prepare the fields for the sowing of *berseem* and other fodders.
- Protect udder of animals from mastitis by proper sanitation and using teat dip by the solution of 75 ml povidone iodine plus 25 ml glycerine.
- The pregnant animals should be segregated from rest of the herd at least 15 days prior to parturition.

POULTRY

- Light plays an important role in egg production. Provide 14-16 hours of total light to layers, including the day light. Gradually go on increasing the

light when egg production starts.

- Provide extra grit (5 g per bird) in the layer ration to avoid production of thin shelled eggs.
- Stir the litter regularly to avoid dampness. At the same time, sufficient air movement should be made possible inside the poultry shed.
- It is the best season to raise the broilers. Get your broiler chicks from a reputed hatchery.
- Protect the sheds from rodents as they eat feed meant for poultry.

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Taste Buds

The sprouting of pulses enhances the nutritional contents, improves the protein digestibility as well as reduces the anti-nutritional factors. The sprouting increases vitamin B and C content to a great extent. It also improves the absorption of calcium and iron in the body. Sprouted pulses can be used in salads, *chaat*, stuffed *paranths* and snacks. Fruits available in summers such as plums and mangoes can be used for the preparation of nutritious beverages that can be used throughout the year.

Sprouted Moong Dal Salad

Ingredients

Moong Dal (Whole) : 100 g,
Onions : 50 g, Tomatoes : 50 g
Cucumber : 100 g, Pomegranate : 100 g
Green chillies : 2-3, Lemon juice : 1 tsp
Coriander (finely chopped): 1 tsp
Black pepper and Salt : According to taste



Method

- Soak *moong dal* overnight.
- Tie *moong dal* in muslin cloth and keep it for sprouting for 12 to 24 hours according to weather conditions. Sprinkle water in between to prevent drying of muslin cloth.
- Cook sprouted *dal* in pressure cooker for 5 minutes by pouring half cup of water.
- Chop tomatoes, cucumber, onions, green chillies and coriander leaves.
- Mix sprouted *moong dal* with chopped vegetables.
- Add salt, black pepper and mix well.
- Garnish with coriander leaves and pomegranate.

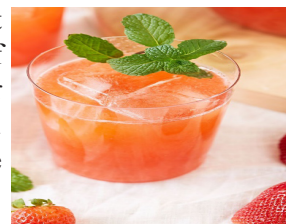
PLUM PUNCH

Ingredients

Plums : 500 g, Soda water : 1 bottle,
Water : 250 ml, Ginger : 20 g,
Mint leaves : A few, Salt : A pinch,
Sugar : 400 g, Black pepper : ¼ tsp

Method

- Extract pulp of plums after blanching. Destone it.
- Make syrup of sugar and water, cool it and mix pulp with syrup.
- Add ginger juice and mint leaves juice.
- Sieve it and cool in refrigerator.
- Serve chilled after adding soda.
- Garnish with mint leaves.



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