



Farm operations in August

PADDY

- To the rice crop, irrigation should be given two days after the ponded water has infiltrated into the soil but fields should not be allowed to develop cracks. Last dose of nitrogen (30 kg urea/acre) may be applied if already not given. If urea is to be applied with the help of leaf colour chart, apply 25 kg of urea/acre only if 6 leaves out of 10 are lighter than shade no. 4 of leaf colour chart. In direct seeded rice (DSR), apply second and third dosage of about 43 kg urea/acre each at 6 and 9 weeks of sowing.
- In highly deteriorated soils, zinc deficiency may appear in patches even after the application of recommended dose of zinc sulphate. In such cases, apply an additional dose of 10 kg zinc sulphate (21%) or 6.5 kg zinc sulphate (33%) per acre mixed with equal amount of dry soil, on the affected area.
- Iron deficiency may appear in sandy soils. The deficient plants show yellowing of younger leaves which ultimately turn white. To correct this malady, 1.0% ferrous sulphate solution (one kg ferrous sulphate in 100 litres of water per acre) may be sprayed 2-3 times at weekly intervals. Do not apply ferrous sulphate to soil.
- In early transplanted crop, drying of leaves due to bacterial leaf blight disease may be noticed. Spraying with any chemical will not be helpful to control this disease. Do not pond water in the field. Addition of nitrogen will further increase the disease.
- Sheath blight may be noticed during August. The disease can be checked by spraying Pulsor/Iglare 24 SC @ 150 ml or Epic 75 WG @ 26.8g or Gallio way 18.76 SC @ 400 ml or Amistar Top 325 SC @ 200 ml or Nativo 75 WG @ 80 g or 320ml Lusture 37.5 SE or Folicur/Orius 25 EC @ 200 ml or Tilt/Bumper/Pikapika 25 EC or Monceren 250 SC 200 ml in 200 litres of water. Keep the bunds clean by removing weeds.
- To check false smut, spray the crop with Gallio way 18.76 SC @ 400 ml or Kocide 46 DF @ 500 g in 200 litres of water per acre at boot stage in disease prone areas.
- **Rice Stem Borers:** The larvae bore into the stems of young plants and result in dead hearts. The rice crop fields showing more than 5 per cent dead hearts (ETL) should be sprayed with 20 ml Fame 480 SC (flubendiamide) or 50 g Takumi 20WG (flubendiamide) or 60 ml Coragen 18.5 SC (chlorantraniliprole) or 170 g Mortar 75 SG (cartap hydrochloride) or one litre of Coroban/Dursban/Lethal/Chlorguard/Durmet/ Classic/Force 20 EC (chlorpyrifos) or 80 ml neem-based bio-pesticide, Ecotin (azadirachtin 5%) in 100 litres of water per acre. These insecticides may be repeated as and when damage reaches economic threshold level. Prefer Ecotin at pest initiation stage.
- In *basmati* rice, when there are more than 2% dead hearts, apply Fame 480 SC @ 20 ml or Takumi 20WG @ 50 g or Coragen 18.5 SC (chlorantraniliprole) @ 60 ml or Mortar 75 SG @ 170 g or one litre of Coroban/Dursban/Lethal/Chlorguard/Durmet/ Classic/Force 20 EC or Ecotin @ 80 ml/acre or Achook/Neem Kavach @ 1 litre in 100 litres of water per acre. In addition to these insecticides, Ferterra 0.4 GR (chlorantraniliprole) @ 4 kg or Padan/Caldan/Kritap/Sanvex/Nidan/Marktap/Miftap/ Katsu 4G (cartap hydrochloride) @ 10 kg/acre or Vibrant 4 GR (thiocyclam hydrogen oxalate) @ 4 kg or Regent/Mortel/Mipro-G/Mahaveer GR/Shinzen 0.3 G (fipronil) @ 6 kg or Dursban 10 G (chlorpyrifos) @ 4 kg per acre can also be used in standing water in *basmati* rice. These insecticides also control leaf folder in addition to stem borers.
- **Leaf folder:** The larvae of this insect fold the leaves, eat out the green tissues and produce white streaks. Before flowering, the leaf folder damage can be controlled by passing a 20-30 m long coir/jute rope, forward and then backward, both ways while touching the crop canopy. While passing the rope, please ensure that water must be standing in the crop. When the leaf damage reaches 10 per cent (ETL),

this pest can be controlled by spraying 20 ml Fame 480 SC or 50 g Takumi 20WG (flubendiamide) or 60 ml Coragen 18.5 SC (chlorantraniliprole) or 170 g Mortar 75 SG or one litre of Coroban/Durmet/Force 20 EC or 80 ml neem-based bio-pesticide, Ecotin (azadirachtin 5%) in 100 litres of water per acre.

- **Planthoppers:** The nymphs and adults of planthoppers suck the cell sap, particularly, from the leaf-sheath from July to October. These can be controlled by spraying the crop with 94 ml Pexalon 10 SC (triflumezopyrim) or 80 g Osheen 20 SG/Token 20 SG (dinotefuran) or 120 g Chess 50 WG (pymetrozine) or 800 ml of Ekalux/Quinguard/Quinalmass 25 EC (quinalphos) or 80 ml Ecotin or 4 litre PAU Homemade neem extract in 100 litres of water per acre. For better results, use knapsack sprayer while directing its spray towards the base of the plants. Prefer Ecotin or PAU Homemade neem extract at pest initiation stage.

MAIZE

- Adequate supply of water is essential for proper growth of the crop. However, maize is very sensitive to standing water, so excess water may be drained out from the field which would also help to keep stalk rot under control. Damage due to standing water can be minimized by two sprays of 3 per cent urea solution at weekly interval or by applying additional nitrogen @ 12-24 kg (25-50 kg urea) per acre in case of moderate to severe damage after the flooding is over.
- Apply last dose of nitrogen i.e. 37 kg of urea per acre to early sown hybrids or high yielding varieties of maize at the appearance of tassels. Apply 25 kg of urea per acre to local maize/Pearl Popcorn/ Kesri.
- To control banded leaf and sheath blight of maize, spray 100ml of Amistar Top 325 SC in 200 litres of water as soon as it appears in the field.
- The attack of maize borer can be checked by spraying with 30 ml of Coragen 18.5 SC (chlorantraniliprole) in 60 litres of water per acre with knapsack sprayer. Bioagent *Trichogramma chilonis* can also be used to

controls this pest. Use trichocards having 40,000 eggs of *Corcyra cephalonica* parasitized by *T. chilonis*, twice per acre; first release on 10 days old crop and second 7 days after the first release.

COTTON

- To keep weeds under check, give hoeing. Apply 33 kg of urea/acre to varieties, 45 kg to Bt cotton on the appearance of first flower. Use PAU-LCC for need-based urea application. Apply four sprays of 2% potassium nitrate (13:0:45) solution at weekly intervals, starting at flower initiation.
- Spray against whitefly should be done when population reaches 6 adults per leaf in the upper canopy of plants before 10 AM with Sefina 50DC (afidopyropen) @ 400 ml/acre or Osheen 20 SG (dinotefuran) @ 60 g/acre or Polo/Craze/Ruby/Ludo/Shoku 50 WP (diafenthiuron) @ 200 g/acre or Lano/Daita 10 EC (pyriproxyfen) @ 500ml or Oberon/voltage 22.9 SC (spiromesifen) @ 200 ml/acre or Ulala 50 WG (flonicamid) @ 80 g/acre or Dantotsu 50 WG (clothianidin) @ 20 g or Fosmite/Volthion/Goldmit 50 EC (ethion) @ 800 ml/acre or PAU Homemade neem extract @ 1200 ml/acre or Nimbicidine/Achook (neem based) @ 1 litre/acre. Initiate spray against jassid whenever some of the fully formed leaves in the upper canopy show yellowing and curling at the margins on 50 per cent on the plants. Use Keefun 15EC (tolfenpyrad) @ 300 ml/acre or Ulala 50 WG (flonicamid) @ 80 g/acre or Osheen 20 SG (dinotefuran) or Neon 5 EC (fenpyroximate) @ 300 ml/acre or Actara/Extra Super/ Dotara/Thomson 25 WG (thiamethoxam) @ 40 g/acre in 125-150 litres of water.
- Attack of mealybug can be checked by spraying 150 ml Transform 11.8 SC (sulfloxaflor) using 125-150 litres of water per acre.
- To protect the crop from bollworm and tobacco caterpillar damage, the insecticides given for the control of bollworm and tobacco caterpillar in Table 1 are recommended. These should be sprayed using 125-150 litres of spray material per acre with manually operated knapsack sprayer or 75 litres with the shoulder mounted power sprayer and tractor mounted sprayer when the damage in shed fruiting bodies exceeds 5% and thereafter spray as and when the need arises.

Note:

- a. Regularly monitor the pest population.

Insecticides for the control of bollworms in cotton

Brands (insecticides)	Dose/acre
Pink and Spotted bollworms	
A. Synthetic Pyrethroids	
Danitol/Meothrin 10EC (fenpropathrin)	300 ml
Fastac/Alphagaurd/Merit Alpha 10 EC (alphamethrin)	100 ml
Bulldock 0.25 SC (β-cyfluthrin)	300 ml
Ripcord/Bilcyp/Bullet/Ustad/Cybergaurd 10 EC (cypermethrin)	200 ml
Cymbush/Cyperkill/Hillcyper/Colt/Basathrin/Agrocyper/Cybergaurd 25 EC (Cypermethrin)	80 ml
Decis/Rukrain/Decicare 2.8 EC (deltamethrin)	160 ml
Sumicidin/Fenval/Agrofen/Fenlik/Triumph card/SB Fenvalerate Milfen/Markfenval 20 EC (fenvalerate)	100 ml
Pink, Spotted and younger larvae of American bollworm	
A. Macrocyclic lactones	
Proclaim 5SG	100g
B. Carbamates	
Larvin 75 WP (thiodicarb)	250g
B. Organophosphatic	
Curacron/Carina/Profex/Celcron 50 EC (profenophos)	500 ml
Fosmite/E-mite/Volthion 50 EC (ethion)	800 ml
C. Miscellaneous group	
Fame 480 SC (flubendiamide)	40 ml
Grown up larvae of American bollworm	
A. Naturalyte	
Tracer 48 SC (spinosad)	60 ml
B. Oxadiazine	
Avaunt 15 SC/Avaunt 15 EC (indoxacarb)	200 ml
C. Miscellaneous group	
Sumipleo 10 EC (pyridalyl)	300 ml
Coragen 18.5 SC (chlorantraniliprole)	60 ml
D. Organophosphates	
Coroban/Dursban/Durmet/Chlorgaurd/Lethal/Force/Markpyriphos 20 EC (chlorpyriphos)	2 litres
Orthene/Asataf/Starthene/Markphate 75 SP (acephate)	60ml
Tobacco caterpillar	
A. Insect Growth Regulator	
Rimon 10 EC* (novaluron)	150 ml
B. Miscellaneous group	
Coragen 18.5 SC (chlorantraniliprole)	60 ml

- b. For effective insecticide resistance management, do not repeat the insecticide of the same group in subsequent sprays.
- c. Do not use mixture of insecticides as this will result in faster development of resistance and resurgence of pests.
- d. Do not use synthetic pyrethroids on cotton for the control of bollworm complex after mid -September.
- e. Repeat the spray immediately if it rains within 24 hours after spray.
- f. Cotton is highly sensitive to the 2, 4-D weedicide. Some farmers spray the ester form of 2, 4-D for controlling weeds in maize grown near the cotton fields. Owing to the volatile nature of 2,4-D ester, its vapours cause serious injury to the cotton

- crop. Hence, avoid the application of this herbicide in maize, if cotton is grown in the adjoining fields. The other precautions are:
 - After using 2,4-D, fill all spraying equipment as well as tubs, buckets, etc. with 0.5 per cent washing soda solution (500 g of washing soda in 100 litres of water) in the evening. Next morning, flush all equipment thoroughly with fresh water.
 - To avoid the use of contaminated insecticides on cotton, it is advisable to test insecticide at least two weeks in advance on a few plants. If the insecticide is contaminated with 2, 4-D, the tender leaves and shoots could become distorted and lanceolated within 10 days. Reject such an insecticide.
 - To control fungal foliar leaf spots, the crop

should be sprayed with Amistar Top or 200 ml/acre in 200 litres of water at 15-20 days interval.

SUGARCANE

- To prevent lodging, prop up the crop at the end of this month by using trash twist method.
- Iron deficiency is observed both in the ratoon and plant crop on light textured and calcareous soils. Deficiency symptoms first appear on young leaves as yellow stripes between the green veins, later the veins also turn yellow. In severe cases, leaves become white and the plants remain stunted. To correct this deficiency, 1% ferrous sulphate solution (one kg ferrous sulphate in 100 litres of water per acre) may be sprayed 2-3 times at weekly intervals soon after the symptoms appear.
- Release bio-agent, *Trichogramma chilonis* @ 20,000 per acre from July to October (10-12 releases) at 10 days interval for the management of stalk borer in sugarcane.
- Collect and destroy the infected shoots affected with different borers, particularly, that of Gurdaspur borer at weekly interval regularly to prevent further infestation of the healthy canes.
- For the management of Sugarcane Pyrrilla, use Dursban 20EC (chlorpyrifos) @ 600 ml/acre in 400 litres of water.

FODDER PRODUCTION

- Sow leguminous and non-leguminous crops in mixture to improve the nutritive value of the fodder i.e. maize + cowpea, sorghum + guara.
- Apply 30 kg of N (66 kg urea)/acre to the multicut fodder (napier bajra hybrid and Guinea grass) after every cutting.
- Harvest the fodder crops at optimum stage like maize at milk ripe stage, bajra at flagleaf stage, napier bajra or guinea grass at one metre height and sorghum at pre-flowering to flowering stage to obtain maximum nutrients for the milk production.
- Conserve surplus fodders like maize, sorghum, napier bajra and guinea grass as silage to be used in lean periods for cheap milk production.

VEGETABLES

Cauliflower: Sow 250 g seed of mid-season varieties in one *marla* bed area. Irrigate the nursery beds with a watering can daily in the beginning and thrice a week thereafter. Treat the seed with 3 g Captan per kg of seed before sowing.

Root crops: From the last week of this month, start sowing Asiatic (*Desi*) varieties of radish (Pusa Chetki), carrot (PC 161, PCP 2, PCY 2, Punjab Black Beauty and Punjab Carrot Red) and turnip (L-1). Before sowing, add 15 tonnes of FYM, 55 kg of urea and 75 kg of Single Superphosphate per acre. Apply 50 kg Muriate of Potash per acre to carrot only. Prepare ridges 45 cm apart and dibble seed in fully moist conditions at 7.5 cm spacing. Apply light irrigation immediately after sowing. Use 4-5 kg seed of radish and carrot, and 2-3 kg seed of turnip to sow an acre.

Chilli

- Harvest red ripe fruits once a fortnight to minimize shedding in the fields. Fully developed green fruits may be plucked for use as a *salad* and pickle.
- For the control of fruit rot and die back, spray the crop with 250 ml of Folicur or 750 g of Indofil M 45 or Blitox in 250 litres of water per acre at 10 days interval.

Brinjal and Okra

- Spray 80 ml Coragen 18.5 SC (chlorantraniliprole) or 80 g Proclaim 5 SG (emamectin benzoate) or 100 ml Sumicidin 20 EC or 200 ml Ripcord 10 EC in 100-125 litres of water against fruit and shoot borer of brinjal.
- In brinjal, spider mite attack can be minimized by spraying 300 ml O-mite 57 EC per acre in 150 litres of water.
- The attack of jassid on *bhindi* can be reduced by spraying 80 ml Ecotin 5% or 2 litre PAU *neem* extract or 40 ml confidor 17.8 SL (imidacloprid) or 40 g Actara 25 WG (thiamethoxan). For the control of spotted bollworms, give three sprays at fortnightly intervals with 50 ml Coragen 18.5 SC or 200 ml Sumipleo 10 EC or 70 g Proclaim 0.5 SG or 100 ml of Sumicidin 20 EC or using 100-125 litres of water per acre, as soon as flowering starts.

Onion: During this month, start planting *kharif* onion crop both with bulbsets as well as seedlings. Apply 45 kg of urea, 125 kg of single superphosphate and 35 kg of Muriate of Potash per acre before planting. Transplant seedlings at 15×7.5 cm distance and irrigate the field immediately after transplanting.

HORTICULTURAL OPERATIONS

- It is very suitable time for planting of evergreen fruit plants like citrus, mango, guava, litchi, *loquat*, sapota, etc.
- The excess rainwater when stagnates for several days is harmful to the orchard trees. Adopt prompt measures to drain out excess

rainwater from the orchard. Root damage due to water stagnation in pear and peach can be managed with immediate draining of excess water from the root zone followed by hoeing at optimum moisture (*wattar*) conditions. Prune the dried ends of the branches along with 5-8 cm of the live wood.

- Spray the affected citrus trees with 0.47% (4.7g/ liter of water) zinc sulphate without addition of lime to late summer flush to control zinc deficiency. To correct zinc and manganese deficiency, spray the plant with zinc sulphate (470 g) + manganese sulphate (330g) in 100 litres of water. A gap of one week should be kept between the foliar application of Bordeaux mixture and zinc sulphate and manganese sulphate solution.
- The physiological fruit drop in citrus can be checked by spraying 2,4-D sodium salt of Horticultural grade (5 g) in 500 litres of water/acre in mid-August.
- To control foot rot (*Phytophthora*) of citrus, give one application of Curzate M8 as paint (2 g/100 ml of Linseed oil) to the infected trunk portion and drench (25 g/10 litres of water/ tree) the soil at the base of the tree in July-August or drench the soil and main limbs of the affected plants with sodium hypochlorite (5%) @ 50 ml in 10 litres of water per tree under their canopies. One week after the spray of sodium hypochlorite, you can apply talc based bioformulation of *Tricoderma asperellum* @ 100 g mixed with 2.5 g FYM per plant at foot and basin region of the plant to manage this disease.
- To control Anthracnose and downy mildew diseases of grapes, spray the vines with Bordeaux mixture (2:2:250) at the end of August using 500 litres of water/acre.
- Fix PAU fruit fly traps @ 16/acre in citrus orchards in the second week of August and recharge the same if required.

ORNAMENTALS

Permanent plants: New plantation of ornamental trees, shrubs and climbers can be continued in this month.

Pot plants: This is an ideal time for the potting and repotting, while repotting, the roots of the plants need to be pruned and the soil mixture is refilled in this process. Some plants can be propagated through this method.

Lawns: New Lawn can be planted in this month in already prepared land. Frequent mowing of the lawn is done for carpet like effect.

Chrysanthemum: Rooted cuttings planted

in pots in the last month should be trained according to their types viz. standard and spray type. The small flowered 'spray' type varieties should be pinched by removing terminal buds.

Roses: Regular weeding of roses should be done and suckers should be removed. Take care of attack of red scale.

Trees and shrubs: The shrubs can be propagated from hardwood cuttings during this month. Tree seeds can also be planted during this month.

Marigold: Punjab Gainda No.1 marigold can be transplanted for seed production purpose.

AGRO-FORESTRY

Transplanting of most of the tree species like *Safeda*, *Kikar*, *Subabul*, *Tahli*, *Dek*, *Nim*, *Sagwan* etc. is done during July-August (rainy season). The pits of 50×50×50 cm should be filled with 50 per cent top soil and 50 per cent 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 do not get damaged. Apply the light irrigation immediately.

POPLAR: All the *kharif* crops (except paddy) can be grown in poplar during first two years of tree growth. Afterwards *kharif* fodders such as maize, sorghum, *bajra*, guinea grass, etc. should be grown. The incidence of defoliators and leaf webber is common in this month. Collect the badly infested leaves having eggs and caterpillars of defoliators and leaf webber, and bury in the soil. Keep the fields weed free.

BEE KEEPING

Inspect all the honey bee colonies very quickly and if there is scarcity of food reserves in the colonies and also dearth of bee flora in the fields, provide sugar syrup (sugar and water mixed in ratio of 1:1) to all the colonies in the late evening. Prefer to provide this feed in Division Board Feeder or directly into empty raised combs. For augmenting brood rearing, the colonies should be fed either stored pollen or PAU pollen substitute/supplement. Take all precautionary measures to avoid robbing and appropriate measures to check it if at all it occurs. Protect colonies from the attack of wax moths, ants, wasps and green bee-eaters. Take appropriate measures to check wax moth infestation of stored combs. Unite weak, queenless and laying worker colonies, if any, with queen-right colonies after the necessary preliminaries. Must keep the colonies on high stands and tilted a little in front to prevent the entry of rainwater into the colonies or its

accumulation inside the hive. Hives should not be left in low lying places and ensure their placement at upland to ensure adequate ventilation in order to minimize the impact of high humidity, besides preventing chances of stagnant rainwater entering into the colonies. Do not keep colonies in the way of dry water-way/channels. Must use top cover covered with galvanized iron sheet. Remove all the weeds growing underneath and around the colonies. Ensure that aeration facilitating wire gauge of inner cover is clean and should not be clogged with propolis.

MUSHROOM

- Prepared paddy straw bundles are wetted with fresh water and spawned for the cultivation of paddy straw mushroom.
- After one day of spawning, the spawned beds should be watered daily two times a day.
- Harvesting of this mushroom will be continued for one month after spawn run.
- After the completion of crop cycle, discard the old beds and prepare new beds for next crop.
- Harvesting of milky mushroom will be continued during this month.

DAIRY FARMING

- Use foggers or sprinklers intermittently. Use of only fans should be continued.
- If the animal has a wound, protect it from flies so that maggots do not develop into it. Keep the surroundings clean and preferably apply fly repelling ointment on the wound i.e. Himax or Lorexane. To treat maggot wound, apply negasant powder first above ointments.
- This month is hot and humid during which flies, lice and ticks are very common. These suck blood, cause skin irritation and spread diseases. To check these, spray Butox/cleaner/amitraz 2 ml/litre water on animals and use Kohrsolin 10 ml in 1 litre of water on the animals during early hours of the day as well as on the sheds and repeat the spray after 10-15 days. Do not spray animals below 6 months of age. Animals' sheds, especially, corners, crevices etc. should also be sprayed. Take full care that insecticides do not get mixed with feed, fodder and drinking water. Strictly follow the manufacturer's instructions while spraying the insecticide. Also deworm the animals with broad spectrum anthelmintics like albendazole, fenbendazole and levamisole.
- During this period, there is scarcity of green fodder. Use silage or sugar beet pulp

alongwith wheat straw. Progressive farmers are already using silage throughout the year. Provide concentrates during cooler hours of the day.

- Provide at least 30-35 kg of green fodder mixed with 1 to 1½ kg of wheat straw alongwith 50 g of common salt and 50 g of soda bicarb. Provide 1 kg concentrate feed for every 2.5 kg milk produced by cow and 2 kg milk by buffalo.
- Observe color of urine. If pale yellow, means animal is taking less water. Provide water adlib.
- Keep checking mucus membranes in mouth, conjunctiva of eye and vaginal mucosa for paleness to ascertain anemia and tick born diseases alongwith rectal temperature. If temperature is above 102°F, then take advice of a veterinarian.

POULTRY FARMING

- The ration should contain 15-20 per cent more protein, minerals and vitamins as feed intake in summer.
- Damp litter and high temperature are good media for the growth of protozoa which cause *Coccidiosis* in the chicken; so avoid dampness in the deep litter house by stirring the litter 2-3 times in a week.
- Place the nests inside the sheds, 1-2 weeks prior to the start of egg production.
- Feeding should be done during cooler parts of the day by restricting feed during afternoon hours from 11:00 am to 3:00 pm to reduce heat stress.
- Keep sufficient cold water available for the birds all the time. Add electrolytes in drinking water 5 g/litre of water per 100 birds or 40-50 g vitamin C per quintal of feed.
- The temperature of the poultry house should not be more than 26°C. Be careful about the health of the birds. Immediately consult the expert in case of sickness of the birds.
- Do not store the compound feed for more than 15 days to avoid aflatoxins.
- Control the flies in the shed, especially, in cage house.
- Debeaking and vaccination may be done up to 14-16 weeks of age.
- The price of eggs starts rising from this month; so there should be minimum disturbance after laying starts.

Compiled by: Amarjit Singh

Information supplied by: PK Chhuneja, RK Gupta, KS Suri, Amit Kaul, JS Brar, GPS Dhillon, Ranjit Singh, Ruma Devi, Shivani Sharma and Tejbir Singh