Monthly Workshop for Capacity Building of Extension Functionaries

Message for the Month of March

Agronomy

Crop	***Operation/ Diseases/pests***	***Message/Impact points***
Rabi Crops		
Wheat	Growth	- Clean fields and channels to avoid water stagnation. - Apply top dose of urea @ 3.25 kg/kanal - Weeds should be managed either by hand weeding or post emergence herbicide like sulfosulfuron @ 30 g *a.i.*/ha or clodinofop with 2,4-D (20+500g *a.i.*/ha) or isoproturon 1.5 kg *a.i.* /ha + 2,4-D @ 0.5 kg *a.i.* /ha.
Brown Sarson	Growth	- Clean fields and channels to avoid water stagnation during rain. - Thinning can be done when field is workable to maintain proper plant population. - Apply top dose of urea @ 2.25 kg/kanal. - Second flush of weeds should be controlled by hand weeding at the time of thinning.
Rabi Pulses		
Field Pea	Growth	- Clean fields and channels to avoid water stagnation during rain. - If weed growth appears in the field it can be controlled by hand weeding
Lentil	Growth	- Same as in case of field pea.
Oat fodder	Growth	- Clean fields and channels to avoid water stagnation during rain. - Apply top dose of urea @ 4.1 kg/kanal. - Weeds can be removed by hand weeding if necessary and possible.

Entomology (Horticulture)

Fruits (Except almond)	*San Jose scale & Woolly apple aphid, ERM and other pests*	- Spray of delayed dormant oil/HMO @ 2.0% as per University recommendation. **Impact point:-** Weather advisory need to be followed before spray & HMOs should be Sprayed at appropriate phonological stage of the crop (Fruits) which varies as per altitude
	Hairy caterpillars	- Collection and destruction of egg mass.
	Apple Fruit borer	- Survey and monitoring of the affected orchards to establish red, yellow and green zones - Mass awareness about the pest among the farmers - Proper sanitation in the vicinity of the orchard - Collection and destruction of fallen/infested fruits. - Unwrap and burn burlapped material of tree trunks. - Scrapping of dead/ loose bark and destroy overwintered larvae.
	Blotch leaf miner	- Survey and monitoring of the affected orchards to establish red, yellow and green zones. - Mass awareness about the pest among the farmers. - Proper sanitation in the vicinity of the orchard. - Procure disease and pest free planting material. - Collection of fallen leaves/ fruits/other debris and their subsequent

		destruction. - Scrapping of loose bark for exposing the pupa from tree trunks followed by its destruction.
Vegetables	*Overwintering pests (cut worm etc.)*	- Deep ploughing of fields to expose insect pupae for desiccation/predation by birds. - Removal of weeds in the vicinity of crops to be planted to discourage egg laying by cut worms. - Apply carbofuran 3G @1.5 kg/kanal at the time of preparation of land.
Rodent management	*Horticulture*	If weather is dry, follow the below mentioned practices: - **Field sanitation:** Removal of left over debris and grasses from orchards to discourage rodents from availability of food and shelter - **Reduction in bund size:** Reduce the size of bunds or boundaries around the orchards up to 30cm to force the rodents to leave the burrows - **Burrow Fumigation:** Smoking the burrow with cow dung +Maize straw/maize pith + weeds **with** the help of burrow fumigator**.** **Chemical control (Rodent bait schedule):** - **Day 1:** Plugging of rodent burrows - **Day 2:** Identification of live burrows for pre-baiting prior to poison baiting; For pre baiting with plain bait (crushed rice (48 gm) + broken wheat grain (48 gm) + sugar (2.0 gm and 2.0 ml mustard oil) and place 10-15gm/ live burrow - **Day 3:** 2.0% Zinc Phosphide* baiting during late evening with (crushed rice (48 gm) + broken wheat grain (48 gm) + Zinc Phosphide 2.0 gm and 2.0 ml. mustard oil, all mixed together) be placed inside the live burrow @ 6-10 g bait/ live burrow). - **Day 4:** Collection and burying of dead rodents. Close all burrows at evening hours. - **Day 5:** Identification of live burrows. - **Day 6:** Fumigate live reopened burrows with Aluminum Phosphide pellets @ 2 pellets/burrow or 5-10 g pouch/burrow and cover with wet mud. - **For residual rodent population:** - **Bromadiolone:** Bromadiolone (0.25% BC) @ 10- 15 g per burrow to be placed inside the live burrows. * **Precautions**: Since residual rodent population develops bait shyness after one baiting with Zinc Phosphide, a minimum of 50-60 days' gap should be given before it is used again. • Since rodents are a serious constraint in horticulture their effective control is only possible, if farmers work together as a community. *Note: If treatment has been carried out during February then do not repeat during March.*
Apiculture	☞ Inspect the colonies for presence of the queen, store for bees, health of bees on sunny day. ☞ If the colony is queenless then unite it with the other colony ☞ Clean hives and maintain hygiene. ☞ Hives should be kept on the stand to avoid moisture by rains. ☞ One artificial feeding as sugar syrup (1:1) should be given to stimulate the bees. ☞ Remove the winter packing in last week of the month if weather permits	

Plant Pathology (Horticulture)

Fruits

Apple	*Scab*	**Spray at Green Tip stage** - Spray Mancozeb 75 WP @ 0.3% or Captan 50WP @ 0.3% or Propineb 70WP @ 0.3% or Zineb 75 WP @ 0.3%
	Cankers	- Prune the cankered twigs and dead branches and destroy them. - Scrap the affected bark of trunks and limbs and apply Bordeaux or Chaubatia paste on the pruned/scarified area.
Almond, peach, apricot & cherry	*Twig blight, leaf spot, leaf curl*	- Spray the trees at bud swelling stage with propineb 70 WP or mancozeb 75 WP or copper oxychloride 50 WP @ 0.3% - Spray at bud burst stage with carbendazim 50WP or thiophenate methyl 70 WP @ 0.05%
Grapes	*Anthracnose*	- Spray with copper oxychlorde 50 WP or captan 50 WP @ 0.3%
Strawberry	*Leaf spot*	- Spray with carbendazim 50 WP @ 0.05% or mancozeb 75 WP @ 0.3%

Impact Points:

- ☞ Use disease-free graft wood (scion) for grafting or top working operations.
- ☞ Avoid water logging in orchards and nursery beds.
- ☞ Ensure orchard sanitation.

Vegetables

All vegetable seedlings (open or hot bed)	*Pre-emergence damping off*	- Prepare raised nursery beds and incorporate well decomposed FYM @ 20 tons / ha. - Treat the seeds with mancozeb 75 WP or captan 50 WP @ 3 g/ kg seed before sowing.
	Post-emergence damping off/ seedling blight	- Drench the nursery beds with carbendazim 12% + mancozeb 63% 75 WP @ 0.5%. Repeat drenching if needed after 10-12 days of first drenching. - Give light but frequent irrigation in the morning hours. - Avoid water stagnation.
Knol-khol, cabbage, cauliflower, radish, Turnip (seed crop)	*Leaf spots and downy mildew*	- If high severity, spray the crop with mancozeb 75WP @ 0.3% or metalaxyl MZ 72 WP @ 0.2%

Impact Points

- Provide proper drainage.

Vegetable Science

Tomato, Brinjal, Chillies, Capsicum	*Sowing of seeds in hot beds/clotches/ low tunnels*	- Sowing can be continued in hot beds

Impact points

- ☞ Polythene cover must be removed during day time if it is too sunny.

Tomato, Brinjal, Chillies, Capsicum, Knol-Khol and Saag.	*Sowing of seed in raised open beds*	- Convenient sized beds (2m x 1m & 15 cm) raised above ground may be thoroughly prepared for raising nursery.

Impact Points:

- ☞ The beds should be raised to avoid stagnation of water.
- ☞ Well decomposed FYM may be applied to the beds @ 6kg / bed.
- ☞ Also mix 40 g urea, 20g each of DAP & MOP to the working soil.

Cucurbits in bags and in low tunnels	*Sowing of seeds in polybags & low tunnels and protected structures for early raising*	- Poly packs of size 15x10 cm are first punched and then filled with soil, sand and FYM/vermicompost in the ratio of 1:1:1 - 2-3 seeds per pack are sown and kept under protected structures.

Impact Points:

- ☞ Low tunnels should be made at elevated areas to avoid water stagnation during rainy season.
- ☞ After seed sowing cover seed beds (low tunnels) with paddy straw & sprinkle water so that optimum level of moisture is maintained in the seed bed.
- ☞ Temperature in low tunnels must be regulated by removing polythene during day time.

Cauliflower, Cabbage, Knol-Khol and Solanoaceous vegetables

Transplanting - Seedling raised under protected conditions may be transplanted after proper land preparation.

Impact Points

Hardening procedure:

- ☞ Before transplanting, the seedlings must be hardened by exposing them to open field conditions and/ or by withholding irrigation for couple of days.
- ☞ Before uprooting seedlings, irrigation may be given to ensure less damage to the roots.

Potato

Planting

- Potato tubers may be planted in plains of Kashmir valley from mid March.
- Planting must be done in furrows with spacing of 60 x 20 cm followed by ridge making (about 15 cm high) immediately.
- Seed rate/kanal is 80-100 kg
- Before planting apply FYM @ 1.25 - 1.50 t/kanal, urea @ 6 kg, DAP @ 11 kg and MOP @ 8.5 kg/kanal

Impact Points:

- ☞ Apply full quantity of DAP & MOP and half dose of urea as basal dose at the time of sowing.
- ☞ Only sprouted tubers should be used for planting.
- ☞ Medium sized tubers should be planted, avoid oversized or small tubers.
- ☞ Each tuber should have at least one eye for ensuring proper germination of tubers.
- ☞ Seed treatment for initiation of sprouting is required only if freshly harvested seed is being used.

Methods of breaking dormancy :

- ✓ Cutting of tubers in pieces during advanced stage of dormancy helps in overcoming dormancy.
- ✓ Cut the tubers in to pieces having at least 2-3 healthy eyes and dip in 1% thiourea solution for one hour. Planting can be done immediately after treatment or can be kept in wet gunny bags for one night.

Floriculture and Landscape Architecture

Gerbera

- Remove dead and withered/diseased leaves
- Dress with well decomposed FYM or Vermi-compost around the gerbera clumps
- Loosen top layer of soil and remove weeds if any
- Remove small sized flower
- Check/repair drip lines
- Lift the side curtains of the poly-house on sunny days

Carnation

- Remove dead and diseased leaves
- Remove week shoots and head back if necessary
- Check/repair drip lines
- Loosen top layer of the soil and mix vermi-compost @ 2 kg /m^2
- Remove dry or small sized flowers
- Repair and tighten the plant supporting net
- Lift the side curtains of the poly-house on sunny days
- Go for prophylactic systemic fungicide

Rose	- Loosen top soil - Remove week and crisscrossing branches - Remove dead flowers if any - Go for oil spray for garden roses at the start of the month - Go for prophylactic systemic fungicide
Pot plant	- Remove dead leaves Loosen top layer of the soil and mix vermi-compost - Relocate pots into open in the 2nd week of the month - Light irrigation of pots is recommended - Repotting of conifers and foliage plants that have outgrown containers
Winter annuals	- First hoeing of beds in 2nd fortnight of the month - Gap filing should be completed at the stat of the month - Light irrigation if the weather remains sunny for more than a week. - Add the top dose nitrogen fertilizer in the 2nd week of the month.

Fruit Science

Orchard operations	- Top working of inferior cultivars with highly productive and superior type of cultivars. - Provide pollinizers in the orchard. - Prune fruit trees if not pruned earlier. - Apply Bordeaux paste or white lead paint on cut surface with diameter ≥ 2 cm. - Scrap dead bark and lichens from trees with bark scrapers. - Go for the soil test early in the season. - Go for mulching the fruit trees to restrict weed growth.
Fertilizer Application	- Apply the fertilizer as per the soil/ leaf test already done in the previous season, if not done then apply it as per the package of practices, published by the Directorate of Extension Education, SKUAST-K, Shalimar. - Under rainfed conditions, apply half dose of N and full dose of P and K to all the fruit trees. Under irrigated conditions apply half dose of N & Kalong with full dose of P. - Apply fertilizer under the canopy of trees away from the trunks. - Fertilizer should be applied when sufficient moisture is present in the soil or immediately before rain is expected.
Planting	- Before planting, proper decision should be made on selection of varieties, rootstocks, tree size, spacing, placement of pollinizer and planting layout. - Graft union should be kept 25 cm above the ground level to avoid collar rot and scion rooting. - In case of apple, if seedling rootstock like crab is used, the planting distance should be kept 6 x 6m and if clonal rootstock like M9 or MM106 is used, the planting density should be 3 x1m or 4x 3m/3 x3m, respectively. - Kiwi is dioecious in nature, so at the time of planting male and female plant ratio should be kept 1:8.
Nursery operations:	- Drain excess water from seed and nursery beds. - Sow seeds of different fruits if not sown earlier.
Planting	- Transplant suckers/seedlings of different fruit plants.
Grafting	- Graftwood can be collected in early March if not collected earlier, while the tree is still dormant before the buds start to swell. One-year old, vigorous, healthy wood from the desired variety, which should have only vegetative buds and not the reproductive buds must be collected in order to have higher percentage of success. Select your target tree and make sure that the variety is known and that the trees are free of diseases. - Graftwood must be kept alive and healthy during storage. It may be packed in moist media such as sphagnum moss, sawdust, newspaper or wood shavings. Various containers can be used as storage containers, such as wooden boxes, crates, metal cans with tight fitting lids or polyethylene bags.

- The best graftwood is usually taken from the center portion or basal two-thirds of each shoot and cut into 6, 12 or 18 inchs length. Each six-inch length will make a stick of graftwood long enough to be successful.
- Perform grafting of apple, pear, plum, apricot, etc.
- Remove winter mulch from the strawberries and apply it under the plant.

Planting of Strawberries
- Continue to plant strawberries in this month if not planted earlier.

Soil Science

- ☞ The orchardists of valley are advised to apply the required quantity of fertilizers i.e., Urea, DAP and MOP to fruit trees on the basis of soil test report and after consulting horticultural expert. However, if soil testing has not been conducted due to some reason and if general conditions of fruit trees and quality as well as yield of fruit is good, then on an average, the recommended dose of these fertilizers as per package of practices should be applied.
- ☞ Before application of fertilizers it is important to assure that there is good moisture content in the soil.
- ☞ The fertilizers should be applied under the canopy of fruit trees away from tree trunk.
- ☞ The fertilizer application should be followed by light hoeing in order to cover the applied fertilizers.
- ☞ If organic manures have not been applied to fruit trees, the orchardists should apply these manures under the canopy of fruit trees away from tree trunk and mixed with soil.
- ☞ The organic manures should be well decomposed otherwise they will create some problems.
- ☞ If possible, also use bio-fertilizers with organic manures.
- ☞ Besides orchardists are advised to conduct the spray of boric acid @ 1.5g/ litre of water to fruit trees at bud swell stage, if they have experienced boron deficiency in their orchards.

Livestock Production Management

Sheep/Goat

- As lambing period is going on, intensive care should be adapted.
- Weak and underweight lambs along with dams should be kept in warm pen/ lambing pen (temperature 15-20 °C) for 1-3 days to reduce mortality from hypothermia.
- Naval cords of the newly born lambs should be dipped in Povidone solution to avoid infection.
- A minimum floor space of 1.5 m^2/lamb-Dam pair should be ensured in the lambing pen to prevent overcrowding.
- Colostrum feeding should be ensured to lambs for the initial three days and milk feeding thereof.
- Creep mixture should be fed to lambs (15 days and above).
- Routine recording of body weight of lambs should be ensured to assess the growth rate.
- The dams (ewes/does) should be regularly observed for Pregnancy toxaemia signs and in case of any such eventuality, glucose therapy (I/V) and molasses (orally) should be initiated after due consultation with a registered veterinarian.
- As a preventive measure, supplementation of concentrate mixture with molasses @ 5-10% should be done to keep a check on pregnancy toxaemia in ewes. Additionally root crops (Turnips/carrots) @ 500g/pregnant ewe/day should be fed.
- Sanitation and cleanness in and around the livestock sheds should be ensured at all times.
- Deworming against coccidiosis should be done to lambs/kids with a suitable anticoccidial at specified dosages (15-21 days age).
- Vaccination against clostridial infections (MCC vaccination) should be ensured to lambs/kids at 21-30 days age.
- Commensurate with the availability of green fodder, quantity of hay should be gradually reduced as the animals turn to grazing.

Cow/ Cattle

- The cow should be fed 250 g -500 g of concentrate/head/day in addition to normal ration (DM @ 3% of body weight and extra concentrate @ 1 kg/3kg of Milk produced/day)
- On a thumb rule basis, a cow producing 15 litres of milk should be fed approximately 6 kg of

concentrate/day in the absence of high quality green fodder).
- Sufficient Hay (Maize, oats, rye, sorghum) should be provided (12 kg).
- Additional concentrate (500g) should be provided to pregnant cow. Drying should be done after 7 months of gestation.
- FMD vaccination should be done to adult animals (non-pregnant) and calves above 3 months age.

Ration Table

Animal	Concentrate	Hay
Cow (15litre milk/day)	6 Kg	10-12 Kg
Pregnant cow	6 kg +0.5 kg	do

❖ **Homemade Concentrate**

Feed ingredient	Parts
Maize	35
Mustard oil cake	22
Wheat bran	20
Rice bran	15
Molasses/Gur	5
Mineral mix.	2
Salts (mixture of iodized salt 1 part,	1

Machine made: Pellet feeds for cattle available in market etc.

Fisheries (Aquaculture)

Water Quality Requirement for Trout Culture

Fish raised in raceways require a huge amount of high-quality water (not more than 25 cm in the Secchi disc), which is best obtained from artesian wells or higher elevations. The optimal velocity of water in the raceway is 2–3 cm/sec (1.2–1.8 m/min) for smaller fish and 4–10 cm/sec (2.4–6 m/min.) for larger ones. The dissolved oxygen (DO) should not be less than 5mg/liter and should preferably be maintained in the range of 5.8 to 9.5 mg/l. The optimum water temperature for trout culture is considered between 5°C to 18°C. A pH level of 7-8 is ideal for the growth.

Water flow should be sufficient to keep solid waste from collecting in the raceway and to dilute liquid waste generated by fish (mainly ammonia). Ammonia levels should remain below 0.1 mg/l in the discharge. Water quality should be monitored frequently; especially temperature, dissolved oxygen and ammonia to ensure that conditions remain suitable.

S/d
Dr. S.K. Raina
Professor/Chief Scientist

No. Au/De/MW/ 2025/81-120
Dated: 03-03-2025

Prepared & Compiled by: ***Dr. S.K. Raina (Professor, Soil Science).***