



Monthly Workshop for Extension Functionaries

Message for the Month of December

Agronomy

Crop	Operation/ Diseases/pests	Message/Impact points
Rabi Crops		
Wheat	Establishment/ growth	- Ensure proper drainage by Cleaning the channels and fields to avoid water stagnation during winter.
Brown Sarson	Establishment/ growth	-
Rabi Pulses		
Field Pea	Establishment/ growth	-
Lentil	Establishment/ growth	-
Oat fodder	Establishment/ growth	-

Entomology (Agriculture)

Stored cereals and food commodities	Stored grain pests	<ul style="list-style-type: none"> - Ensure safe storage of cereals by drying, so that the moisture content is reduced to less than 9 per cent. - Proper seed bins be used after thorough cleaning and sun drying.
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Entomology (Horticulture)

Apple	<i>San Jose scale & Woolly apple aphid</i>	- Remove twigs infested with SJS and WAA during pruning and dispose them away from the orchards. Apply Chaubatia paste on cut areas.
	<i>Apple fruit borer</i>	<ul style="list-style-type: none"> - To maintain good sanitation in the infested orchards, all the dropped/infested fruits of apple or other fruits should be collected and buried deep in the soil. - From the bur lapping material, the already overwintered larvae should be destroyed along with or without the burlap.
	<i>Apple stem borer</i>	<ul style="list-style-type: none"> - Heavily infested branches, twigs and completely dried trees should be uprooted, removed from the orchard and burnt. - Insertion of petrol soaked cotton deep in the holes of apple trees, followed by plastering with mud containing insecticide dust/ WP 10% in 6:1 ratio.

Vegetables

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| Rabi vegetables
Garden pea,
Spinach,
Kale | <i>Flea beetle/Cabbage
aphid</i> | - If flea beetle damage is noticed (> 5 holes /leaf), spray the crop and bunds with Chlorpyrifos 20EC @ 100ml/100 liter of water.

- If cabbage aphid is observed on kale, removal and destruction of infested leaves should be done. |
| Rodent management | <i>Horticulture</i> | - Field sanitation
- Reduction in bund size (upto 30 cm)
- Trapping
- Burrow Fumigation with local herbs and cow dung |

Chemical control:

Rodent bait schedule:

- ✓ **Day 1:** Plugging of rodent burrows.
- ✓ **Day 2:** Identification of live burrows/pre-baiting (pre-baiting with plain bait (mix broken rice and wheat flour 100 g with vegetable oil 2 g and placed @10-15 g pre-bait/ burrow should be done prior to poison baiting).
- ✓ **Day 3:** : 2.0% Zinc phosphide baiting (zinc phosphide is mixed with vegetable oil and any carrier such as crushed wheat and broken rice grains at 2 g: 2 g: 96g by weight to be placed inside the live burrow @ 6-10 g bait/ burrow).
- ✓ **Day 4:** Collection and burying of dead rodent. Close all burrows.
- ✓ **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.

**** If treatment has been carried out in November then do not repeat during December.**

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| Apiculture | - Unite weak colonies with strong colonies.
- Give winter packing to colonies.
- Narrow the entrances of the colonies.
- Provide winter feeding in the form of sugar candies if required.
- Migratory bee keepers may migrate their bee colonies to the plain areas. |
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Plant Pathology (Horticulture)

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| Fruit | <i>Water-logging
related problems</i> | - Provide proper drainage in orchards to drain off surface water. |
| All temperate fruits | <i>Foliar fungal
disease</i> | - Collection and destruction of fallen leaves. |
| | <i>Fruit rots</i> | - Bury mummified and diseased fruits left in and around orchards in compost pits to avoid over-wintering of pathogens. |
| | <i>Cankers</i> | - Prune the cankered twigs as well as dry & dead branches and destroy them.
- Scrap the affected bark of trunks and limbs, and apply Bordeaux or Chaubatia paste on pruned/scarified area/ wound. |

Impact Points:

- ☞ Ensure orchard sanitation.
- ☞ Ensure proper drained.

Vegetables

Turnip, radish, Water-logging - Provide proper drainage in orchards to drain off surface water.
carrot, cabbage, related
cauliflower and problems
knol-khol

Vegetable Science

Garlic *Sowing* - If weather permits planting of garlic and pran may be continued with the spacing of 15 cm x 10 cm.

Impact Points:

- ☞ Avoid diseased and damaged cloves.
- ☞ Cloves should be planted deep to avoid frost injury/bird damage.
- ☞ To ease out germination cloves should be planted upright not horizontally preferably on ridges.

Cole crops *Seed Production* - In insitu method, rouge out undesirable plants and allow true to type plants to produce seeds.
- In transplanting method select true to type plants and replant them at a spacing of 30x30cm in kale, 50x30cm in knol khol, 60x45cm in cabbage and 45x45cm in broccoli.
- Before replanting, apply well rotten FYM @ 1-1.5t, 6kg DAP and 5kg MOP per kanal.
- Do not remove apical rosette in kale and crown in knol khol and remove outer leaves in cabbage and broccoli.
- Planting must be done in such a way that cabbage head and knob in case of knol khol rests on the soil.

Impact Points:

- ☞ To avoid crossing, isolation distance of 1000 m for certified seed must be maintained.
- ☞ Transplanting should be done on ridges to avoid damage to the crop due to snow.

Root crops (carrot, radish, turnip) *Seed Production* - Select true to type roots. Prepare stecklings by trimming $\frac{3}{4}$ of root and $\frac{1}{2}$ of shoot or entire top leaving crown intact.
- Before planting apply 1 t FYM, half Urea @ 4.5 kg, full DAP and MOP @ 10kg and 5kg per kanal.
- Replant steckling at a distance of 60x30cm on well prepared ridges.

Impact Points:

- ☞ To avoid crossing isolation distance of 1000 m should be maintained
- ☞ Turnip should be isolated from sarson also.
- ☞ During selection turnip and radish with pithiness and carrots with large core size should be discarded.
- ☞ Steckling should be transplanted preferably on ridges to avoid rotting of the roots.

Bulb Crop (Onion) *Seed Production* - Plant true to type bulbs at a distance of 45x45cm in well prepared land. Avoid diseased and damaged bulbs.
- Over sized under sized and diseased bulbs should not be used for seed production.

Impact Points:

- ☞ Apply manures and fertilizers @ 1.5 t/kanal FYM, 9.5 kg urea, 8.75 kg DAP and 3.5 kg MOP after land preparation.

- Transplanting*
- Divide land into convenient sized beds/ strips and apply fertilizers Urea, DAP, MOP @ 7kg, 9kg & 5kg/ kanal.
 - Line planting may be adopted with a spacing of 30x15cm.
 - For obtaining higher bulb yield in onion var. Yellow globe apply Urea, DAP, MOP @ 225:375:100kg per hectare.

Impact Points:

- ☞ Uproot seedlings when bed is moist.
 - ☞ Use healthy and well established seedlings only.
 - ☞ Trim length of the foliage upto 25% for inducing hardiness of the plant.
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Fruit Science

Training of young fruit trees

- ☞ The plants are trained according to growth habit and vigor of the rootstock.
- ☞ Adopt modified leader system for pome, stone and nut fruits and Tall spindle for High Density plantation.
- ☞ Adopt kniffin, bower or head system for grapes.
- ☞ Adopt T- bar or pergola system for kiwi.
- ☞ After the plants have been trained to a particular form, precautions should be taken to maintain the desired frame work of the tree. This is possible by avoiding the formation of water shoots, suckers and weak crotches.

Pruning of bearing fruit trees

- It is critical to know the bearing habit of fruits before undertaking the pruning.
- ☞ Keep tools clean and blades sharp so that they do not produce a ragged cut that is slow to heal.
 - ☞ Thin out dry, diseased and intercepting branches.
 - ☞ Remove shoots with unproductive spurs.
 - ☞ While removing a thick branch, first small cut should be made on underside of limb to avoid bark peeling.
 - ☞ Divert branches to open areas by pruning to desirable laterals.
 - ☞ In one or two year old shoots, heading back can be done to promote growth of the side shoots and quick wound healing. In three year old and older shoots, pruning should be shifted to thinning out cuts to reduce vegetative growth and promote fruiting.
 - ☞ The competing branches should be thinned out rather than head back.
 - ☞ In case of old trees with open centre system, retain only 4-5 wide angled scaffold branches uniformly distributed around the trunk. This will take care of the apprehended snow damage.
 - ☞ Apply white lead paint or Bordeaux paint or chaubattia paste on cut surface with diameter 1-2 cm or more to check the entry of rot causing fungi. It is better to apply these pastes after the wound has dried up.
 - ☞ Stop pruning activity during freezing temperatures.
 - ☞ Graft sticks from identified source should be kept under store.

Orchard Floor operations

- ☞ Orchard sanitation must be ensured so as to eradicate the primary inoculums of various diseases.
- ☞ Clean and store bamboo canes in the shed (or other dry place) to ensure they're still in good condition for next year. Broken ones can be shortened, where possible, for re-use.

Nursery Operations

- ☞ Water channels and drains should be cleared and proper drainage assured.
- ☞ Removal of suckers and water sprouts.
- ☞ A nursery bed should be prepared by repeated ploughing and pulverizing the soil to obtain a fine tilth.

Orchard layout and pit digging	<ul style="list-style-type: none"> ☞ Dig the nursery soil about 45 cm deep and follow with application of well decomposed manure @ 13 tons /ha. ☞ Sow seeds of apple and pear 2-4 cm deep on raised beds to avoid water stagnation. ☞ Proper drainage system of the nursery must be ensured. ☞ Layout the orchard in square, rectangular or hexagonal system as per fruit crop and land topography. ☞ Pits measuring 1x1x1 m should be dug and filling up of pits with a mixture of top soil and 20 kg well rotten FYM per pit should be done.
Gap filling	☞ Pits of same dimension must be prepared for gap filling also.
Rodents	☞ Campaign against the rodents must be initiated.
Strawberry mulching	☞ Cover strawberry plants with a mulch about 3-4 inches thick if plants are prone to winter injury.

Food Sciences & Technology

Apple	Weather advisory	<ul style="list-style-type: none"> - Shifting of leftover harvested apples from orchards to on-farm storage structures or other protected structures. <p>Impact Points:</p> <ul style="list-style-type: none"> - Due to persistent snowfall and decrease in temperature the apples left in open spaces should be shifted to safe and protected storage structures where temperature should be above 0°C to protect them from frost and chilling injuries.
	Sorting & Grading	<ul style="list-style-type: none"> - Remove the damaged, diseased and underutilized fruits from the lot. - Grade the fruits on the basis of colour and size in four grades <ul style="list-style-type: none"> A = Extra Large B = Large C = Medium D = Small - Use the undersized mechanically damaged and irregular shaped apple for processing and value addition. <p>Impact Points:</p> <ul style="list-style-type: none"> ✓ Graded apples always fetch premium prize as grower gains the confidence of customers and customer gets satisfaction. ✓ Graded apples can be traded in international market also. ✓ Conversion of C grade apples into processed products increase their value by many folds.
	Packaging	<ul style="list-style-type: none"> - Use CF Boxes for packaging of graded apples using fibre trays. - Do not use wooden boxes and avoid use of paddy straw as cushioning material. - For long storage of apples in C.A and Cold Stores, use either plastic crates or CF boxes with outer polyethylene lining or laminations. <p>Impact Points:</p> <ul style="list-style-type: none"> ✓ Use of CF boxes makes the pack attractive and produce fetches good price. ✓ Use of fiber board boxes is internationally accepted and thus the produce can be marketed in international market as well. ✓ Use of plastic crates or laminated CF Boxes doesn't absorb moisture during long storage and as such maintain the quality and increases shelf life of apples. ✓ Prevents microbial infection also.
	Transportation	-Use refrigerated transport for dispatch of apples to distant markets if

possible.

Impact Points:

- ✓ Maintains quality and increases shelf life.
- ✓ Reduces transport losses.

Storage - Store the apples in on-farm storage structures for a very short period of time.
- For long term storage, store only healthy, firm and disease free apples (A and B grade apples) in the C.A Stores at 0-2^o C depending upon the variety.
O₂ = 2%
CO₂ = 1.5-3.0%

Impact Points:

- ✓ May help in regulating the market.
- ✓ Produce fetches good price.
- ✓ Leads to economic gains.

Whole Walnut

Size Grading ➤ The dried walnuts with a moisture content of 10-12% should be graded into following grades:

Grades	Length (mm)	Width (mm)	Thickness (mm)
Grade-I (very small)	≤ 25	≤ 22	≤ 20
Grade-II (small)	>25- ≤ 32	>22 - ≤ 29	>20 - ≤ 27
Grade-III (large)	>32 - ≤ 39	>29 - ≤ 36	>27 - ≤ 34
Grade-IV (extra large)	>39	>36	>34

- **Note:** - Grading can be done by using sieves already in use or by the power operated walnut developed by AICRP on PHET, Division of FST, SKUAST-K, Shalimar

Impact Points:

- ✓ Graded walnuts always fetch better return and help during extraction of kernels either mechanically or manually

Packaging of walnuts - Use plastic woven sacks for bulk packaging.
- Do not use gunny bags.

Impact Points:

- ✓ Use of gunny bags lead to quality deterioration and microbial infection of walnuts

Extraction of kernels - Do not wash the walnuts before extraction of kernels.

Impact Points:

- ✓ Maintains the quality of kernels.

Conditioning of nuts - Keep thin shelled nuts immersed in water for 8-10 hours only to get the moisture content of 15-18%.
- Keep medium shelled nuts for conditioning for 10-12 hours and thick shelled for 18-20 hours

Impact Points:

- ✓ Conditioning helps in extracting the kernels without any mechanical damage or breakage.

Extraction - Use only experienced personals.

Impact Points:

- ✓ Minimizes the mechanical damage to the kernels and output is more.

- Drying of kernels** - Use solar tunnel dryers or cabinet dryers for drying of kernels to get final moisture content of 4-4.5%.
 - Avoid prolonged drying at high temperature (max. temperature of 40± 2° C)

Impact Points:

- ✓ Minimum quality deterioration of walnut kernels.
- ✓ Economical and time saving

- Packaging** - Use vacuum packaging for walnut kernels.

Impact Points:

- ✓ Maintains the quality and increases the shelf life.

- Storage** - Storage both walnuts and kernels at a temperature of 8-10° C with RH of 68-70% under dark conditions.

Impact Points:

- ✓ Maintains the quality and increases the shelf life.

- Quince Conversion into value added products ➤ Quince being rich in pectin and other nutrients can be converted into following value added products:
1. Quince Jam
 2. Quince Jelly
 3. Quince Preserve
 4. Dried Quince rings

Impact Points:

- ☞ Reduces post harvest losses.
- ☞ Value added products fetch better returns

- Vegetables **Processing into mixed vegetable pickle**
- ✓ Mixed vegetable pickles are naturally appetizing fermented products, where in vegetables can be successfully converted into this value added product.
 - ✓ Vegetables pickles have exceptional probiotic activity and as such can prove beneficial for overall human health.

- Message Use surplus vegetables that are produced in bulk particularly for those vegetable belts where glut in the market may generate post harvest losses due to rotting and decay for the preparation of mixed vegetable pickle for fetching better returns.

Floriculture and Landscape Architecture

- Cut flowers *Proper intercultural operations viz, Rose, Gerbera and carnation* - Regular weeding, application of proper fertilizer doses, irrigation, right method of harvesting and post-harvest management.
- Winter Annuals *Transplanting (Late)* - Transplanting of hybrid winter season seedlings like Pansy, Phlox, Antirrhinum etc can be carried out in poly bags under protected conditions for sale in spring.
- Shrubs/ Edges *Intercultural operations* - Hedges/edges should be trimmed regularly. Pruning of shrubs can also be carried out if not done earlier.
- Tulip, Hyacinth *Planting* - Planting operation can be carried out up to 21st Dec.
- Bulbous crops *Storage of Lilium/* - Lilium to be stored in Coca peat to avoid moisture loss.
 - Gladiolus to be stored in well ventilated moisture free

- Ploy houses *Gladiolus* conditions.
 Management - Vents of polyhouse need closed so as to ensure proper temperature
- Pot plants/
indoor plants *Exotic/*
 Indigenous - Indooring of pot plants and management of light, irrigation and pests.

Livestock Production Management

- Small ruminants (Sheep/goat)**
- Due to decrease in grazing resources, gradual shift to intensive feeding should be done.
 - Dry fodder (Sorghum/oats) should be provided @ 0.5 kg/animal and pelleted feed @ 300 gm/adult and 200 gm/weaner from 1st week of Dec.
 - Dry fodder should be gradually increased to 1 kg/animal and concentrate/pelleted feed up to @ 500 gm/adult and 400 gm/young stock by last week.
 - If dry fodder is scarce, silage can be given once a day upto ½ kg per day and ½ kg as dry fodder.
 - Sanitation and cleanness in and around the livestock sheds should be maintained.
 - Multicomponent Clostridial vaccination (MCC) to pregnant ewes before one month of expected date of lambing should be ensured for protection against Lamb dysentery, Struck, Pulpy kidney disease, Black disease and Braxy.
 - Broad spectrum anthelmintic (**pregnancy safe**) dosing to pregnant ewes should be ensured before 7-15 days of expected date of lambing as advised by veterinarian.
 - Routine recording of body weight during last three days of every month.
 - While ensuring heating arrangement for the newborn animals, ventilation should not be compromised.
- Cattle**
- Ensure cleanliness in and around animals animal sheds to ward off flies.
 - Ensure washing of udder of milch animals with a mild disinfectant solution (e.g Potassium permanganate) before and after milking to prevent mastitis.
 - **Ration Table**

Category	Concentrates	Greens
Cow (15litre milk/day)	6 Kg	Adlib*. (50kg)
Pregnant cow	6 kg +0.5 kg	do

**If quality green fodder is available, 7-8 kg can replace 1 kg of concentrate*

❖ **Homemade Concentrate**

Feed ingredient	Parts
Wheat bran	10
Rice bran	12
Mustard oil cake	30
Maize	40
Molasses/Gur	5
Salts (mixture of iodized salt)	1
Mineral salts	2

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