Directorate of Extension

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SKUAST KASHMIR

"An institution striving to achieve excellence in Mountain Agricultural Systems"

Monthly Message for Extension functionaries

July 2022

Agronomy

Crop	***Operation/ Diseases/pests***	***Message/Impact points***
Rice	*Nutrient management/ tillering and PI stage*	- For varieties planted in lower belts, urea @ 3.6 kg/kanal, should be applied as first top dose at 18-22 days after transplanting. - For varieties planted in higher belts, urea @ 2.25 kg/kanal, should be applied as first top dose at 18-22 days after transplanting - For varieties planted in water logged areas, urea @ 2.45 kg/kanal, should be applied as first top dose 18-22 days after transplanting. - Around panicle initiation stage (35-40 DAT) apply 2nd top dose of urea @ of first top dose.
	Weed management	- Manual weeding should be carried out at 15-20 days after application of herbicide. - Wherever the incidence of weeds like *Potamogeton distinctus* and *Marsilia quadrifolia* is observed alternate wetting and drying should be followed - Bunds and channels need to be kept clean. - In line transplanted rice crop with wider row spacing weeding may be done by cono-weeder.
	Water management	- Maintain 2-3 cm level of water in general or irrigate as and when required. - At mid tillering stage (18-22 DAT) drain out water completely and maintain 2-3 cm water level up to panicle initiation stage. - Completely drain out water from the field around panicle initiation stage (35-40 DAT) and apply 2nd top dose of nitrogen and re-irrigate the crop after hair like cracks appear in the field.
	Impact Points:	☞ Drainage at maximum tillering stage is must. It facilitates aeration and also promotes availability of some vital nutrients.
Maize	*Weeding/ Hoeing/ knee high stage*	- Weeding, hoeing and earthingup should be done wherever maize is at knee high stage (30-35 DAS) and before tesseling (45-50 DAS)
	Nutrient management	For irrigated maize (per hectare) - For hybrid maize urea @ 4 kg/kanal should be applied as 1st top dose at the time of 1st weeding and hoeing knee high stage (about 30 DAS) and 2nd top dose of urea @ 4 kg/kanal should be applied at the time of 2nd hoeing (45-50 DAS). Apply urea 5-7 cm away from plants and earthing up should be carried out immediately.

		- For composite varieties of maize urea @ 3.25 kg/kanal should be apply as 1st top dose at the time of 1st weeding and hoeing knee high stage (about 30 DAS). Second top dose of urea @ 3.25 kg/kanal should be applied at the time of 2nd hoeing (45-50 DAS). Urea may be applied 5-7 cm away from plants and earthing up should be carried out immediately. For rainfed maize (per hectare) - For hybrids: urea @2.5 kg/kanal should be applied as 1st top dose at the time of 1st weeding and hoeing knee high stage (about 30 DAS). Second top dose of urea @ 2.5 kg/kanal should be applied at the time of 2nd hoeing (45-50 DAS). Urea may be applied 5-7 cm away from plants and earthing up should be carried out immediately. - For composites : urea @ 2 kg/kanal should be applied as 1st top dose at the time of 1st weeding and hoeing knee high stage (about 30 DAS). Second top dose of urea @ 2 kg/kanal should be applied at the time of 2nd hoeing (45-50 DAS). Urea may be applied 5-7 cm away from plants and earthing up should be carried out immediately.
		Impact Points: ☞ The top dose of nitrogen be applied @ 30 kg/ha when there is likelihood of rainfall in rainfed areas.
	Weed management	- Weeds can be managed by hoeing and earthingup in maize.
	Water management	- Maize is grown usually as a rainfed crop. For enhancing productivity, crop should be irrigated at critical periods i.e. at knee high, silking and grain filling stages whichever comes in this month as per sowing time.
Baby corn	*Management*	- All practices similar to that of main crop.
	Picking	- Baby corn can be picked at 3-4 days after silk emergence. - If new cob formation is stopped after harvesting of baby corn then plants may be harvested as green fodder.
Kharif pulses	*Weeding*	- First weeding should be done wherever crop is 25-30 days old.
	Irrigation	- If irrigation facility is available then avoid moisture stress at pre-flowering and seed development stage.
Kharif fodder	*Growth*	- Sowing of fodder crop like maize, sorghum, bajra etc. may continue up to mid July. - Harvesting of green fodder may be done at 50 % flowering stage in early sown crop for higher yield and quality silage. - Top dose of urea @ 3.25 kg/kanal should be applied as 1st top dose at knee high stage (about 30 DAS) or 2nd top dose after 15-20 days after 1st top dose which stage comes as per time of sowing. - Weed can be managed by hand weeding or hoeing if possible up to knee high stage. - Avoid chemical weed management in fodder crop. - Avoid water stress if possible for good quality and higher fodder yield.

Entomology (Agriculture)

Crucifers	*Diamond back moth (Plutella xylostella)*	- Dimethoate 30 EC @ 1ml/lit. of water when 2-3 larvae per plant if plant population is close to 100 plants per m^2
	Cabbage butterfly (Pieris brassicae)	- Hand picking of egg patches and larvae. - Chlorpyriphos 20EC @1ml/lit. of water.
Paddy	*Snails*	- Install screens with 5mm mesh at water inlets to minimise the entry of snails and facilitate hand collection - Herding ducks in the paddy fields can act as biological control. - Draining the fields to expose snails to sun.
	Grasshopper	- Trimming of field bunds. - Removal of weeds
Maize	*Cut worm (Agrotis ipsilon)*	- Drenching with chlorpyriphos 20 EC @1ml/litr of water - Flooding to expose larvae to birds
	Maize stalk borer (Chilo partellus)	- Imidacloprid 17.8 SL @ 0.3ml/litr of water

Impact Points:

☞ Spray should be carried out during early morning or late evening hours.

Note: Spray should be need based.

Entomology (Horticulture)

Apple (Fruit stage)	Dev. III	*San Jose scale/ Woolly apple aphid*	If more than 13 crawlers/ cm^2 of SJS or colonies of WAA on terminal shoots are observed, spray any one of the following Insecticide : - Dimethoate 30 EC @ 100 ml/ 100 lit. of water. OR - Chlorpyriphos 20 EC @ 100 ml/ 100 liters of water. OR - Quinalphos 25EC @ 100 ml/ 100 liters of water.
		European Red Mite	If population is more than 15 mites/ leaf Spray : - Fenazaquin 10 EC @ 40 ml/ 100 lit. of water OR - Spiromesifen 22.9SC 40ml /100 liters of water. OR - Cyenopyrafen30 SC 30 ml /100 liters of water
		Apple Aphid	- Apply Dimethoate 30 EC @100 ml/100 litres of water.
		Hairy caterpillar/leaf roller	Collection, removal and destruction of egg masses. If foliage damage is noticed, Spray: - Chlorpyriphos 20 EC @ 100 ml/ 100 liters of water
		Stem borer	If adults are observed in the orchard, then spray trees with any one of the insecticide: - - Chlorpyriphos 20EC @ 100 ml/100 litres of water. OR - Quinalphos 25EC @ 100 ml/100 litres of water.
		Pin hole borer/ shot hole borer	- The holes may be plastered with mixture of Chlorpyrifos 1.5% WP and soil in the ratio of 1:1. - If adults are observed in the orchard, then spray trees with Dimethoate 30 EC @ 100 ml/100 litres of water.
		Bark	If beetles are observed in the orchard feeding on leaves spray: -

	beetle/June beetle/Chaffer beetle	Chlorpyriphos 20EC @ 100 ml/100 litres of water. OR - Quinalphos 25EC @ 100 ml/100 litres of water. - For immature stages (grubs) in soil, apply Carbofuran 3.0% CG @ 70-100 gm/ tree. OR - Drench the soil with Chlorpyriphos 20EC @ 300 ml/100 liters of water. - Install light traps for monitoring and mass trapping of beetle emergence. Collect and destroy the trapped beetles in insecticide spray solution.
	White grub	If beetles are observed in the orchard, then spray trees with any one of the insecticides: - - Chlorpyriphos 20EC @ 100 ml/100 litres of water. - For immature stages (grubs), apply Carbofuran 3.0% CG @ 70-100 gms/ tree - OR Drench the soil with Chlorpyriphos 20EC @ 3.0 ml/ litre of water
	Apple Blotch Leaf miner	- Survey monitoring and mass awareness of the pest should be done. - Installation of traps (Pheromone traps @ 8-10 traps/ ha or sticky traps@10m apart for monitoring of moth emergence) - Thiacloprid 21.7% SC @ 60ml/100litres of water at 15 day interval OR - Chlorantraniliprole 18.5% SC @ 1ml/litre of water at 15 days interval OR - Thiamethoxam 25%WG@50gm/100litres of water at 15 days interval OR - Spray Imidacloprid 17.8SL@30ml/100litres of water at 15 day interval OR - Spray Lambda cyhalothrin 5%EC @50ml/100litres of water at 15 day interval OR - Spray Flubendiamide 39.35%SC@ 40ml/100litres of water at 15 day interval. **Change lures and liners for the already installed traps(after every 30 days)**
	Fruit borer	- Survey monitoring and mass awareness of the pest should be done. - Monitor adult population through pheromone traps@20 traps/ha - Apply Chlorpyriphos 50%EC+Cypermethrin5%EC@125ml/100litres of water - Change lures and liners for the already installed traps(after every 30 days)
Pomegranate	*Fruit borer*	- Collection and destruction of affected and fallen fruits. - Spray Dimethoate 30 EC @ 100 ml/100 lit. of water. Or - Chlorpyriphos 20EC @ 100 ml/100 litres of water - Repeat the insecticidal spray after 15 days if damage is noticed.
All Crops	*Flea beetle*	- Spray the crop with Chlorpyriphos 20 EC @ 100 ml in 100 liters of

		water early in the morning or evening.
Plum	*Aphid*	- In case aphid population is high, spray Dimethoate 30EC @ 100 ml/100 litres of water.

Note: In case of heavy rains (within 12 hours of spray) the spray is to be repeated immediately. All sprays are need based.

Vegetables		-
Cole Crops	*Diamond Back Moth/ Cabbage butterfly*	- Collect the egg masses, larvae and ensure their destruction if needed spray the foliage with: - - Chlorpyriphos 20EC @ 100 ml/100 litres of water. - OR Dimethoate 30 EC @ 100 ml/100 litres of water. - OR Quinalphos 25EC @ 100 ml/100 litres of water.
	Cabbage aphids	- Set up yellow sticky traps @ 10 per ha - For cabbage aphids use weekly application of Neem oil @ 5.0 ml/ liter of water. - In case of severe infestation spray imidacloprid 17.8 SL @ 30 ml/ 100 liters of water. OR - Dimethoate 30 EC @ 100 ml/ 100 liters of water.
Solanaceous vegetables	*Fruit borer*	- Hand picking of caterpillars and their mechanical destruction in the early stage of infestation. - Spray Dimethoate 30 EC @ 100 ml/ 100 lit of water OR - Spray imidacloprid 17.8 SL @ 30 ml/ 100 lit or Deltamethrin 11EC @ 360 ml/ 100 lit of water after 35 days of transplanting.
Cucurbitaceous crops	*Fruit fly*	- Installation of methyl Eugenol traps @ 5- 10 per ha. - Infested fruits and dried leaves should be collected and burnt in deep pits. For Oviposition trap: - Crush pumpkin 1 kg and add 100 gm jaggery and 10 ml Dimethoate 30 EC and keep in the plot in earthen lids (@ 4-6 per acre). Adults are attracted to the fermenting pumpkin and lay eggs and get killed. Repeat the process 2-3 times in the cropping season.
	Aphid	- Management Same as cabbage aphid.
All vegetables	*Flea beetle*	- Spray the crop with Chlorpyriphos 20 EC @ 100 ml in 100 liters of water at early morning/evening hours.

- **Note:** The safe waiting period of ten days should be observed after spray before the crop is consumed.

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 **<u>Chemical control:</u>** **Rodent bait schedule:** ✓ **Day 1:** Plugging of 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 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.

* **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.

For residual rodent population :

Bromadiolone: Bromadiolone (0.25% BC) @ 10- 15 g per burrow to be placed inside the live burrows.

Apiculture

- Maintain proper hygiene of the colonies
- Close all cracks and crevices in the hive so as to prevent entry of the enemies and robber.
- If colonies have poor food stores provide sugar in the form of sugar syrup.
- Keep in check the attack of enemies like wax moth, ants, mites and wasps.
- Apply formic acid for mite management @5.0 ml/colony in vials.
- For wax moth apply Sulphur powder @1-2 g/per frame.
- Protect the bee colonies from wasps by installing wasp traps or by manual flapping.
- For management of ants place the hive stand posts on the water filled bowl and clean the bowl regularly

Plant Pathology **(Horticulture)**

Fruit

Apple

Scab and other foliar diseases

Spray at Fruit Development Stage-III (12-15 days after VII spray)

- Mancozeb 75WP (@ 0.3%) or Zineb 75 WP (@ 0.3%) or Ziram 80WP (@ 0.2%) or Ziram 27SC (@ 0.6%) or Chlorothalonil 70 WP (@0.15%)

Spray at fruit development stage-IV (12-18 days after VIII spray)

For Alternaria leaf blotch and Scab

- Hexaconazole 5 EC (@ 0.05%) or Zineb 68% + Heaxaconazole 4% 72 WP (@ 0.1%) or Myclobutanil 10 WP (@ 0.07%) or Metiram 55% + Pyraclostrobin 5% 60 WG (@ 0.1%)

For Marssonina leaf blotch/Sooty blotch/Flyspeck

- Mancozeb 75WP (@ 0.3%) or Propineb 70 WP (@ 0.3%) or Ziram 27SC (@ 0.6%) or Ziram 80WP (@ 0.2%).

Root rot

- Drench tree basin of affected tree with Carbendazim 50 WP

		(0.1%) or Carbendazim 12% + Mancozeb 63% 75WP (0.5%). Apply fungicide suspension in 15-20 cm deep holes at a distance of 30 cm throughout the tree basin.
	Collar rot	- Clean the affected collar area and apply Chaubatia or Bordeux paste. - Drench the soil under tree canopy with Metalaxyl MZ 72WP (0.5%) or Mancozeb 75WP (0.6%) or Copper oxychloride 50 WP (0.6%)
Almond, plum, peach, apricot and cherry	*Foliar fungal disease*	- Spray Carbendazim 50WP (0.05%) or Thiophanate Methyl 70WP (0.05%) or Carbendazim 12% + Mancozeb 63% 75 WP (0.25%).
Pear	*Febrea fruit spot*	- Spray Thiophanate Methyl 70WP (0.05%) or Carbendazim 50WP (0.05%) or Mancozeb 75WP (0.3%) or chlorothalonil 75 WP (0.25%).
Grapes	*Anthracnose*	- Spray with Thiophanate Methyl 70 WP (0.05%) or Carbendazim 50WP (0.05%) or Carbendazim 12% + Mancozeb 63% 75WP (0.25%)
	Powdery mildew	- Spray with Flusilazole 40EC (0.02%) immediately after disease appearance.
	Downy Mildew	- Spray crop with Metalaxyl 8% + Mancozeb 64% MZ 72 WP (0.25%)

Impact Points

- ☞ Improve orchard sanitation
- ☞ Ensure proper aeration and drainage in orchards.
- ☞ Do not spray during high temperature. Spray should be conducted during morning/evening hours.

Vegetables

Tomato, chilli, brinjal & capsicum	*Blight and leaf spot*	- Spray with Mancozeb 75WP (0.3%) or Hexaconazole 5 EC (0.05%)
	Fruit rot	- Spray with Metalaxyl 8% + Mancozeb 64% MZ 72 WP (0.25%) or Mancozeb 75 WP (0.3%)
	Wilt/root rot	- Drench the soil with Carbendazim 50 WP (0.1%) or Carbendazim 12% + Mancozeb 63% 75 WP (0.5%)
Cucurbits, Pumpkin, Bottle, gouard, cucumber etc.	*Angular leaf spot*	- Spray the crop with Streptocycline (0.02%) - Repeat the sprays if needed.
	Powdery mildew	- Spray Flusilazole 40 EC (0.02%).
	Downy mildew	- Spray crop with metalaxyl 8% + mancozeb 64% MZ 72 WP (0.25%)

Impact points

- ☞ Avoid water stagnation
- ☞ Ensure proper support to tomato, beans and cucurbit plants to avoid fruit/leaf contact with soil.
- ☞ Rogue-out wilted/rotted plants from the fields and ensure their safe destruction.

Vegetable Science

Chilli	*Water management*	- Avoid flooding in chilli because water logging favours incidence of *Fusarium wilt* during high humidity. - Irrigation should be given upto center of ridge only, in case chilli is grown on ridges. Water should not overflow the ridges.
Cucur-bits	*Pollination management*	- Hand pollination may be done wherever sufficient movement of pollinators is not seen. - For larger plant populations provide bee colonies for pollination. (2 hives/acre).
Onion, Garlic and Pran	Precaution to be taken during harvesting and storage of Onion, Garlic and Pran	- For warehouse, onion should be harvested when 50 to 60% tops show neck fall. - Withheld irrigation 15-20 days before commencement of maturity, otherwise, maturity gets delayed and keeping quality also gets affected - For storage choose the place that is dry, dark and airy avoiding sunlight. - Cure the bulbs under shade for complete drying before storage. - Narrow necked onion should be kept for storage as they don't sprout readily. - Onion can also be tied in bundles and hanged in well ventilated places. - Harvesting in garlic should be done when the tops become partly dry and bend to the ground. The bulbs are lifted along with tops, tied in bundles and hanged in well ventilated places to increase the shelf life.
Carrot and Onion	*Harvesting of seeds*	- In carrot only mature primary & secondary umbels may be harvested for seed purpose. - Umbels which turn brown are picked periodically. - Discard seed of tertiary umbels, as it is inferior in quality. - In onion harvesting should be carried out when the seeds turn black on ripening in silvery colored capsules.

Crop	***Variety***	***Seed Rate/Kanal***	***Operations***
Kale	G. M. Dari	100-125 g	✓ Sowing can be done after 15 July.
Knol khol	Early white Vienna, purple Vienna	60-75 g	✓ Sow seeds in well prepared and raised nursery beds.
Cauliflower	Snow Ball	25-30 g	✓ Mix FYM with upper layer of soil of seed bed to increase water holding capacity.
Cabbage	Golden Acre, Sri Ganeshgol (Hybrid)	25-40 g	✓ To suppress weed growth in nursery beds mulching with rice straw may be done.
Broccoli	Fiesta	25-30 g	✓ To increase the yield in cabbage, treat seeds with Azotobacter or Azospirillium @ 5gm/kg of seed i.e. 2.5gm/500gm required for one hectare.
2nd Crop of Potato (for seed purpose)	K. Jyoti, K. Shalija, K. Himalini, K. Chandermukhi, Shalimar Potato -1, Shalimar Potato – 2 and Gulmarg Special	1 q/kanal	✓ Prepare land thoroughly ✓ Make ridges 60cm apart and plant tubers on ridges at a distance of 20cm. ✓ Use FYM @ 12.5-15 q/kanal, Urea: DAP:MOP @ 6:10:8.5 kg/kanal ✓ In addition use of biofertilizers @ 250 g/kanal soil application is also recommended.

Fruit Science

Orchard Operations

Harvesting of Fruits	- In peach cvs. Peshawari, July Elberta and Quetta, harvesting should be conducted once fruits have attained proper size and characteristic colour. - In case of peach and plum, follow proper maturity indices for harvesting the fruit. - Make sure that fruit does not get any wound or bruises while harvesting. - In case of early varieties of apple, characteristic red colour with streaks should be observed. Picking should be done 2-3 times, so that only those fruits are picked which have developed characteristic colour.
Nursery Operations	- The budding operation in case of stone fruits should be conducted from 3rd week of July. - Before budding operation nursery should be irrigated for effective sap flow. - Hoeing and application of N fertilizer to nursery stocks should be completed. - For seed purposes, stone extraction of wild apricot and peach should be done.
Other Operations	- Tree canopy area should be mulched to conserve moisture if not done earlier. - Summer pruning of grapes should be conducted. - Water shoots should be removed. - Irrigate the plants as per demand and need to ensure healthy development of fruits. - Use of antitranspirants like Kaolin(3%) or salicylic acid(0.2%) to reduce the moisture loss - Foliar application of calcium nitrate (0.4%)should be done - Go for the leaf testing in apple and pear in the 2nd fortnight of July.

Floriculture and landscape Architecture

Spring flowering Annuals/ bulbous crops	*Weeding/ top dressing and intercultural operation*	- Weeding/top dressing of Spring flowering annuals like Pansy, Calfornia poppy, Candy tuft, Verbena, Sweet pea, Sweet Foliar etc. - Tulip, Hyacinth, oxalis, freesia, fritillaria, Dutch Iris etc - Foliar application of micronutrients/growth retardants after flowering is over which will enhance propagation ratio.
Cut flowers: Gerbera Carnation,Lilium, Gladiolus	*Planting/ Inter cultural operations*	- Planting of plants/bulbs/corms. - Regular weeding, application of proper fertilizer doses, irrigation, right method of harvesting and post-harvest management should be ensured.
Turf grasses	*Raising*	- Raising through different methods like seeds, dibbling, turfing etc
Shrubs Edges	*Intercultural operations*	- Pruning of shrubs which have completed flowering phase. - Hedges/edges should be trimmed regularly.
summer annuals	*Nursery raising*	- Nursery raising of marigold, zinnia salvia etc.

Soil Science

Leaf Sampling:

Leaf sampling in general is recommended between July, 15 and August, 15. While collecting the samples due attention should be given to all sampling procedures. However, the general guide lines for collection of leaf samples from fruit crops are discussed as under.

- Judge the orchard for uniformity.

- Select the trees for sampling diagonally.
- Pick leaves from mid-point of the current season mid terminal growth at chest height.
- Collect a composite sample from North, South, East and West.
- When sampling a commercial orchard of 8-40 kanals (1-5 acres) take 4-8 leaves per tree, one leaf per shoot from not less than 25 trees, the composite sample should consist of not less than 100 leaves.
- Remove leaves with a down ward pull so that petioles are intact with leaves.
- Select leaves that are fully exposed to the sun, to overcome shading effect.
- Collect leaves age wise and variety wise if possible.
- Collect leaves prior to fertilization or any sort of spray.
- Leaf samples should be then brought to the laboratory in paper bags.
- To receive accurate fertilizer recommendations, the sample information sheet needs to be filled out carefully.
- Do not include trees that are under stress due to disease. Root and foliar diseases can interrupt water/nutrient uptake or flow in the plant resulting in misleading information.
- Do not include trees that are affected by excessively wet soil, herbicide drift, cultivator damage, etc. Any severe stress can cause a nutrient imbalance in the plant.
- Leaves sampled for analysis must be free of sunburn, disease and insect damage.
- Avoid immature leaves due to their rapidly changing composition.
- Trees at the block's edge or at the end of rows should not be sampled as leaves from these trees may be coated with soil particles and dust.
- Do not expose the collected samples to the sun or excessive heat.

Food Science & Technology

Apricot, Peach and Plum	Harvesting	Apricot - Harvest when surface colour changes from green to yellow i.e ¾ yellowish green - TSS: 10-12 ^{0}B Peach - Surface colour changes from green to yellow. - Shape: fullness of shoulders and suture. - TSS: 10-12 ^{0}B Plum - Surface colour changes as per the cultivar. - TSS: 10-12 ^{0}B. *Impact Points* ☞ Harvest during early hours ☞ Harvest by hand picking and avoid beating/shaking the crop. ☞ Use cushioned basket-when-soft surface ☞ Avoid harvesting during rains ☞ Improves shelf life and quality attributes particularly flavour. ☞ Increases shelf life due to less field heat. ☞ Avoids bruising mechanical damage and microbial infection.
	Pre-cooling	- Keep the crop in open air under shade for 2-3 hours and avoid heaping *Impact Points* ☞ Removes field heat thus increases shelf life
	Grading and sorting	- On the basis of colour and size as per cultivar. - Avoid exposure to direct sunlight

		- Lot with full colour development and size should be used for fresh marketing. *Impact Points* ☞ Graded produce fetches more returns. ☞ Fruits with full or ¾ colour development and proper size should be used for fresh marketing and undersized fruits having less colour for value addition i.e jam, squash, nectar etc.
	Packaging	- Pack in heavy duty corrugated cardboard boxes with cross-direction staking rims. - Pack in 7-8 kg capacity boxes *Impact Points* ☞ Prevents impact and vibration bruising during transportation ☞ Most preferred by consumers
	Transporta-tion and storage	- Transport crop immediately to market. - Avoid over staking of boxes during transportation. - Store at 0-2 ^{0}C. *Impact Points* ☞ Delay in transportation leads to quality deterioration and weight loss. ☞ Prevents bruising and increases shelf life. ☞ Increases storage life upto 2-3 weeks.
Apricot	<u>Processing</u>	- Varieties with high TSS/Acid ratio like Halman
	Osmo-dehydration of Apricots	*Impact Points* ☞ Results in high quality dried product
	Sulphitation treatment	- Dipping in 6% KMS plus 0.1% citric acid solution for 1 hour *Impact Points* ☞ Prevents colour deterioration
	Drying	- Use solar tunnel dryers for quick and efficient drying and till moisture content reaches 10-12%. *Impact Points* ☞ Hygienic product ☞ Economical drying ☞ Product with superior quality and attractive colour.

<u>Livestock Production Management</u>

Sheep/goat

- Construction of temporary tarpaulin sheet roofing with chain link fencing paddock at highland pastures should be ensured to protect livestock from inclement weather conditions like snow, rainfall, hailstorm etc.
- Fox torches/fire crackers/guard dogs should be carried along to repel any predators especially during night hours.
- Weight of the animals should be recorded periodically to assess the growth rate.
- Mixing of male and female animals should be avoided to check indiscriminate breeding.
- 2nd dose of MCC vaccination should be ensured to ewes which have been vaccinated with first dose 6 months earlier.
- Cleaning and disinfection of sheep sheds at home campus should be ensured.

- Cleaning and disinfection of paddock at highland pasture should be ensured at regular intervals.
- First aid kit containing bandages, antiseptics and prescribed medicines should be carried along.

Cattle

- Ensure cleanliness in and around 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.
- Ensure vaccination against Haemorrhagic Septicaemia and Black Quarter.
- Ensure 6-8 hrs of daily grazing to animals if community pastures are available. Grazing should be avoided in orchards which have been sprayed with pesticides, fungicides as these may cause poisoning.

Ration Table

Category	Concentrates	Greens
Cow (15litre milk/day)	6 Kg	Adlib*.
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	20
Rice bran	15
Mustard oil cake	22
Maize	35
Molasses/Gur	5
Salts (mixture of iodized salt)	1
Mineral salts	2

Aquaculture Management

Stocking density in Trout Farming: The water supply, water temperature, quality/water and types of feed should be taken into consideration before stocking. If the water temperature is above 20°C, the stocking density should be less than the recommended density. The recommended stocking density of the trout fingerlings (size 5-6 cm, wt. 2-5 g) is about 50-100 fingerlings/ m^3.

Feeding in Trout Farming: Feeds with protein ranges of 30-50% & 10-14% lipid on dry matter basis is recommended for rainbow trouts. However, in grow out raceways feeds with 35% protein and 14 % lipid in grow-out feed should be given for proper growth. Also the water temperature should remain in the range of 13-18 ^{0}C for as long as possible. The temperature of water supply should not be allowed to exceed 20 ^{0} C.

Feeding Rate: Feeding @ 4-6 % of body weight is necessary for the fingerlings for better growth but due consideration should be given to the water temperature for following the feeding schedule. At the water temperature range of 10-12° C, feeding schedule of 6% is optimum but when it increases to 15°C, the feeding schedule to be lowered to 4%. A minimum of three (03) to six (06) times per day.

Sd/
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