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University of Agricultural Sciences
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Main Campus, Shalimar-190025

Directorate of Research

INTEGRATED MANAGEMENT GUIDE **FOR** **APPLE ORCHARDS IN KASHMIR** **2026**



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DIFFERENT PHENOLOGICAL STAGES



DELAYED DORMANCY



GREEN TIP



TIGHT CLUSTER



PINK BUD



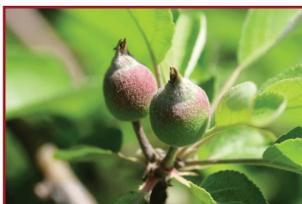
FLOWERING STAGE



PETAL FALL STAGE
(60-70 % petal fall)



FRUIT LET STAGE



FRUIT DEVELOPMENT-I STAGE



FRUIT DEVELOPMENT-II STAGE



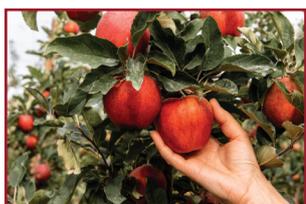
FRUIT DEVELOPMENT-III



FRUIT DEVELOPMENT-IV



PRE-HARVEST



HARVEST STAGE



POST-HARVEST



DORMANCY



STAGE 1 DELAYED DORMANCY

Spray No.	1 st
Phenological stage	Delayed Dormancy
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> • Ensure Proper Training & pruning • Ensure orchard sanitation • Ensure proper drainage in orchards • Staking of newly planted fruit trees
Insecticide/ Acaricide/ Oil per 100 litres of water	Horticulture Mineral oil (2 lit.) Apply HMO before green tip stage
Fungicide per 100 litres of water	X



STAGE 2 GREEN TIP

Spray No.	2 nd
Phenological stage	Green Tip
Fertilizer/Nutrient dosage	Apply recommended dose of well decomposed FYM & fertilizers (1/3rd dose of Urea, full dose of DAP & ½ dose of MOP) as per age of tree (Conventional Orchards) (Annexure-1)
Cultural/ Management practices	<ul style="list-style-type: none"> • Monitor plant growth. If any tree fails to produce new leaves, immediately inspect the roots for any possible disease issues • Use <i>Trichoderma harzianum/viride</i>, multiplied on FYM at the time of new plantation and <i>Trichoderma harzianum/ viride</i> as drench treatment for established orchards in root rot prone soil • Maintain the graft union 6 inch above the soil surface • Avoid injury to collar region of the tree during cultural operations • Provide staking to newly planted fruit trees • Ensure proper drainage & sanitation in orchards
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	<p>Avoid spraying any fungicide if weather remains dry for next 7 days at green tip stage.</p> <p>Spray any of the following fungicides before the onset of (Full day or more) rains:</p> <p>Mancozeb 75WP (300g) or Captan 50 WP (300g) or Propineb 70 WP (300g) or Zineb 75 WP (300g) or Metiram 70 WG (300g)</p>



STAGE 3 TIGHT CLUSTER

Spray No.	3 rd
Phenological stage	Tight Cluster
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> Regular inspection of orchard to prevent early season diseases and controlling of overwintering pests
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	<p>Avoid spraying any fungicide if weather remains dry for next 7 days</p> <p>In case of rain forecast (full day or more) then spray any of the following fungicides before the onset of rains:</p> <p>Mancozeb 75WP (300g) or Captan 50 WP (300g) or Propineb 70 WP (300g) or Zineb 75 WP (300g) or Metiram 70 WG (300g) or Mancozeb 75 WG (300g)</p>



STAGE 4 PINK BUD

Spray No.	4 th
Phenological stage	Pink Bud
Fertilizer/Nutrient dosage	Need Based: Foliar application of Boron (1-1.5g/ litre)
Cultural/ Management practices	<ul style="list-style-type: none"> • Crucial stage for primary scab infection • Don't allow water stagnation in the orchards • Keep orchards clean and free from any crop debris/residue • Continuously monitor the weather • If the weather is dry then try to spray fungicide when majority of flowers are at pink stage to avoid spraying in early flowering. • Place 3-4 bee hives per hectare for effective pollination at 5-10 % bloom • Irrigate orchards, if necessary • De-weeding of tree basins & mowing of orchard floor for management of various pests.
Insecticide/ Acaricide/ Oil per 100 litres of water	Need Based for Insects: <ul style="list-style-type: none"> (a) If HMO spray is missed: <ul style="list-style-type: none"> • Apply Chlorpyrifos 20 EC (100 ml) (b) For Blossom Thrips (When 2 or more thrips per flower are observed) & Leaf Roller (In areas where leaf roller infestation is observed): <ul style="list-style-type: none"> • Spray Thiacloprid 21.7 SC (40 ml)
Fungicide per 100 litres of water	If the weather is dry, spray fungicide when majority of flowers are at pink stage to avoid spraying in early flowering: <ul style="list-style-type: none"> Zineb 68% + Hexaconazole 5% (125g) or Metiram 55% +Pyraclostrobin 5% 60 WG (100g) or Dodine 65 WP (60g) or Dodine 40 SC (90 ml) or Tebuconazole 6.7% + Captan 26.9% 33.6 SC (250 ml) or Tebuconazole 38.9% SC (40ml) or Chlorothalonil 40%+ Difenaconazole 4% 44 SC (180ml) or Mancozeb 63% + Carbendazim 12% WP (250)



STAGE 5 FLOWERING STAGE

Spray No.	5 th
Phenological stage	Flowering Stage
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> • Install Pheromone traps @ 8-10/ha for monitoring of Adult Apple leaf blotch miner population • Mow weeds to keep bees on the trees • Continuously monitor weather, if there are dry weather conditions then avoid spraying any fungicide • Avoid wounding stem/ branches/ roots for canker or root rot management • Avoid washing of trees with sprays • Apply sprays in mist form
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	<p>Spraying is not advisable during flowering, however, if there is 10 days fungicidal gap and rains are forecasted, then spray any of the given fungicides:</p> <p>Mancozeb 75WP (300g) or Captan 50 WP (300g) or Propineb 70 WP (300g) or Zineb 75 WP (300g) or Metiram 70 WG (300g) or Mancozeb 75 WG (300g)</p>



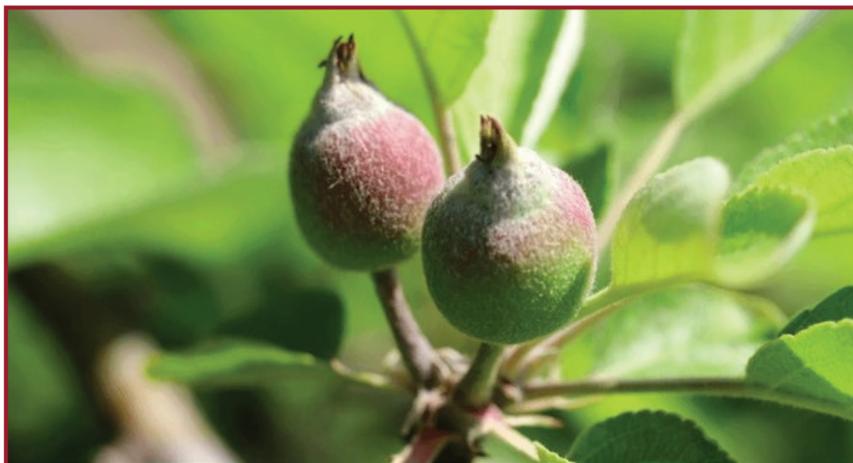
STAGE 6 PETAL FALL (60-70 % PETAL FALL)

Spray No.	6 th
Phenological stage	Petal fall stage
Fertilizer/Nutrient dosage	Foliar application of Boron (1-1.5g/ litre) if not done at pink bud stage
Cultural/ Management practices	<ul style="list-style-type: none"> • Scout orchards, especially HDP and check lower side of leaves • Remove all the scab infected leaves before onset of rains. It is practical in HDP orchards as, at this stage the number of infected leaves are very less • Mulching should be done, wherever needed
Insecticide/ Acaricide/ Oil per 100 litres of water	<p>Need Based for Insects:</p> <p>Neem oil (1500 ppm) @ 300ml Or Chlorpyrifos 20 EC (100 ml) Or Quinalphos 25 EC (100 ml)</p> <p>Need Based for Mites:</p> <p>Apply acaricide when 4-5 mites per leaf are observed</p> <p>Etoxazole 10 SC (110ml) Or Hexythiazox 5.45 EC (40 ml) Or Spiromesifen 22.9 SC (40 ml) Or Cyenopyrafen 30 SC (30 ml)</p>
Fungicide per 100 litres of water	<p>Spray any of the following fungicides before rains:</p> <p>Difenaconazole 25EC (30ml) or Flusilazole 40EC (20ml) or Penconazole 10EC (50ml) or</p> <p>Fluxapyroxad 75g/l + Difenaconazole 50g/l SC (30 ml) or Trifloxystrobin 25% + Tebuconazole 50% 75 WG (40g) or Fluopyram 17.7% + Tebuconazole 17.7% 400SC (50ml) or Trifloxystrobin 10% + Difenoconazole 12.25% + Sulphur 3% SC (90ml)</p>



STAGE 7 FRUIT LET

Spray No.	7 th																
Phenological stage	Fruit let stage																
Fertilizer/Nutrient dosage	X																
Cultural/ Management practices	<ul style="list-style-type: none"> • Thinning of fruit in case of heavy fruit set either manually or by use of chemicals (NAA @ 5-10 ppm at 10-12 mm fruit size) • White washing of fruit tree trunks (1kg Lime + 300 g Copper sulphate + 250g Glue in 10 liters of water) • Remove young shoots affected with powdery mildew • Apply <i>Ampelomyces quisqualis</i> @500ml or gram/100 litre water if powdery mildew appears in susceptible varieties • Remove scab infected fruits • Cut orchard grass to reduce humidity in the orchard • Mulching of tree basins for weed control & moisture conservation • Irrigate orchards as per requirement 																
Insecticide/ Acaricide/ Oil per 100 litres of water	<p>For Insects: Quinalphos 25 EC (100 ml) Or Chlorpyrifos 20 EC (100 ml) Or Thiacloprid 21.7 SC (40 ml)</p> <p>Fruit Borers In areas where Fruit Borer is found: (a) Monitoring adult population through sex pheromone baited traps @ 8-10/ha (b) Mass trapping of adults using sex pheromone traps @ 40 traps/ha</p> <p>For Mites Apply acaricide when more than 5 mites per leaf are observed Hexythiazox 5.45 EC (40 ml) Or Spiromesifen 22.9 SC (40 ml)</p>																
Fungicide per 100 litres of water	<p>Spray any fungicide before rains:</p> <table> <tr> <td>Zineb 68% + Hexaconazole 5% (125g)</td> <td>or</td> </tr> <tr> <td>Dodine 65WP (60g)</td> <td>or</td> </tr> <tr> <td>Dodine 40 SC (90 ml)</td> <td>or</td> </tr> <tr> <td>Fluxapyroxad 250g/l + Pyraclostrobin 250g/l 500 SC (20ml)</td> <td>or</td> </tr> <tr> <td>Tebuconazole 6.7% + Captan 26.9% 33.6 SC (250 ml)</td> <td>or</td> </tr> <tr> <td>Pyraclostrobin 12.8% + Boscalid 25.2% WG (30g)</td> <td>or</td> </tr> <tr> <td>Tebuconazole 38.9% SC (40 ml)</td> <td>or</td> </tr> <tr> <td>Mancozeb 63% + Carbendazim 12% WP (250g)</td> <td></td> </tr> </table>	Zineb 68% + Hexaconazole 5% (125g)	or	Dodine 65WP (60g)	or	Dodine 40 SC (90 ml)	or	Fluxapyroxad 250g/l + Pyraclostrobin 250g/l 500 SC (20ml)	or	Tebuconazole 6.7% + Captan 26.9% 33.6 SC (250 ml)	or	Pyraclostrobin 12.8% + Boscalid 25.2% WG (30g)	or	Tebuconazole 38.9% SC (40 ml)	or	Mancozeb 63% + Carbendazim 12% WP (250g)	
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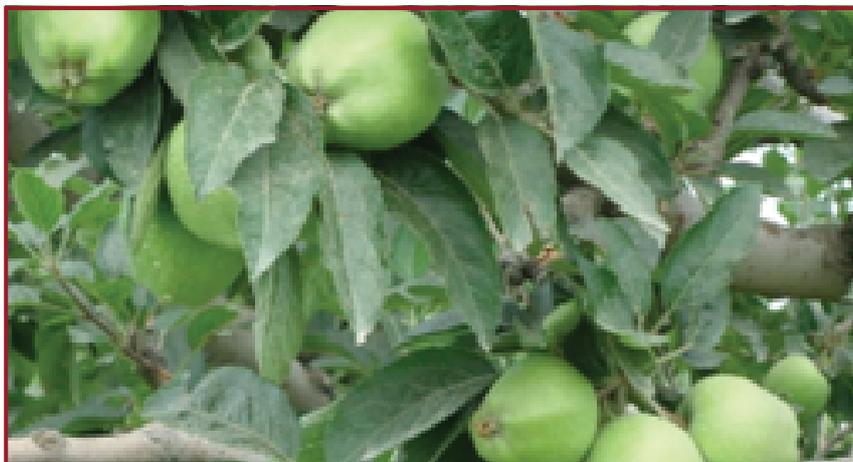
STAGE 8 FRUIT DEVELOPMENT-I

Spray No.	8 th
Phenological stage	Fruit Development-I
Fertilizer/Nutrient dosage	<ul style="list-style-type: none"> • Application of second dose of fertilizers (1/3 of Urea and remaining 1/2 dose of MOP) as per age of tree • Foliar spray of calcium chloride 3-4g/litre
Cultural/ Management practices	<ul style="list-style-type: none"> • Remove young shoots affected with powdery mildew • If dry & hot conditions prevail, apply organic mulches such as straw or crop residues to retain soil moisture • White wash tree trunks to protect them from sunburn • De-weeding of tree basins & mowing of orchard floor
Insecticide/ Acaricide/ Oil per 100 litres of water	<p>Need Based for Insects: Neem oil (1500 ppm) @ 300ml followed by <i>Lecanicillium lecanii</i> 1.15% WP (1x10⁸ CFU/gm) @ 500 gm after a gap of 4 days Or Chlorpyrifos 20 EC (100 ml) Or Quinalphos 25 EC (100 ml)</p> <p>Need Based for Mites: When population is more than 10 mites per leaf apply Hexythiazox 5.45 EC (40 ml) Or Spiromesifen 22.9 SC (40 ml)</p> <p>*The bio agent should not be sprayed in areas where sericulture is practised by the farmers</p>
Fungicide per 100 litres of water	<p>If there is any rain forecast, spray any fungicide among the following list:</p> <p>Mancozeb 75WP (300g) or Captan 50 WP (300g) or Propineb 70 WP (300g) or Zineb 75 WP (300g) or Ziram 80 WP (200g) or Metiram 70 WG (300g)</p>



STAGE 9 FRUIT DEVELOPMENT-II

Spray No.	9 th
Phenological stage	Fruit Development –II
Fertilizer/Nutrient dosage	Second spray of calcium chloride (3-4 g) /litre of water
Cultural/ Management practices	<ul style="list-style-type: none"> • Monitor plant growth. If the colour of leaves of any particular tree fades or is different from other trees of similar variety, immediately inspect the roots • If root/collar is infected, scrap the infected area to remove the dead wood and follow package & practices regarding Root/collar rot management • Irrigate orchards as per requirement to maintain optimum soil moisture • Carry out de-weeding of tree basins & mowing of orchard floor
Insecticide/ Acaricide/ Oil per 100 litres of water	<p>For Insects:</p> <p>Chlorpyrifos 20 EC (100ml) Or Quinalphos 25 EC (100ml) Or Thiacloprid 21.7 SC (40ml) Or Summer Spray Oil (750ml)</p> <p>For Mites:</p> <p>Hexythiazox 5.45 EC (40ml) Or Fenazaquin 10 EC (40ml) Or Spiromesifen 22.9 SC (40ml) Or Propargite 42% + Hexythiazox 2% EC (100 ml) Or Etoxazole 10% SC (110ml) Or Summer Spray Oil (750ml)</p>
Fungicide per 100 litres of water	<p>If there is any rain forecasting, Spray any fungicides among the following list:</p> <p>Difenaconazole 25EC (30ml) or Flusilazole 40EC (20ml) or Penconazole 10EC (50ml) or Trifloxystrobin + Tebuconazole 75 WG (40g) or Fluopyram 17.7% + Tebuconazole 17.7% 400SC (50ml) or Fluxapyroxad 250g/l + Pyraclostrobin 250g/l 500 SC (20ml) or Fluxapyroxad 75g/l+ Difenaconazole 50g/l SC (30 ml) or Chlorothalonil 40%+ Difenaconazole 4% 44 SC (180ml) or Mancozeb 63% + Carbendazim 12% WP (250g) or Trifloxystrobin 10% + Difenconazole 12.25% + Sulphur 3% SC (90ml)</p>



STAGE 10 FRUIT DEVELOPMENT-III

Spray No.	10 th
Phenological stage	Fruit Development-III
Fertilizer/Nutrient dosage	<ul style="list-style-type: none"> • Apply remaining 1/3 of Urea • Third spray of calcium chloride (3-4 g)/litre • Need Based: <ul style="list-style-type: none"> • 1st Foliar spray of Potassium sulphate 4-5 g/litre for colour development
Cultural/ Management practices	<ul style="list-style-type: none"> • Maintain low mite population in apple orchards for avoiding Alternaria leaf blotch outbreaks • Avoid spraying under wet and hot conditions as it may lead to leaf burning • Remove water shoots to reduce Alternaria disease severity • Irrigate orchards as per requirement and maintain optimum soil moisture under tree canopy to prevent cankers • Keep aphid population under check to avoid sooty mould problem • Undertake Leaf tissue testing for next year fertilizer management • De- weeding around the tree basin • Staking of heavy fruit laden branches
Insecticide/ Acaricide/ Oil per 100 litres	<p>Need Based for Insects: Chlorpyrifos 20 EC (100 ml) Or Quinalphos 25 EC (100 ml) Or Thiacloprid 21.7 SC (40 ml) Or Neem oil (1500 ppm) @ 300ml followed by (after a gap of 4 days) * <i>Lecanicillium lecanii</i> 1.15% WP (1x10⁸ CFU/gm) @ 500 gm Or ** <i>Metarhizium anisopliae</i> 1.0% WP (1x10⁸ CFU/gm) @ 500 gm</p> <p>Fruit fly: Install Methyl eugenol traps @ 25-40 traps/ha</p> <p>Need Based for Mites: If Population is more than 10 mites per leaf apply Fenazaquin 10 EC (40 ml) Or Cyenopyrafen 30 SC (30 ml) Or Etoxazole 10% SC (110ml) *&** The bio agent should not be sprayed in areas where sericulture is practised by the farmers</p>
Fungicide per 100 litres of water	<p>If there is any rain forecast, spray any of following fungicide before rains:</p> <p>Mancozeb 75 WP (300g) or Zineb 75 WP (300g) or Ziram 80 WP (200g) or Ziram 27 SC (600ml) or Chlorothalonil 75 WP (150g) or Mancozeb 75 WG (300g)</p>



STAGE 11 FRUIT DEVELOPMENT-IV

Spray No.	11 th
Phenological stage	Fruit Development-IV
Fertilizer /Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> • Cut the orchard grass to reduce humidity in the orchard • Avoid spraying immediately after heavy rains especially in low altitude areas • De- weeding around the tree basin • Orchard sanitation including collection of fallen fruit • Irrigate orchards as per requirement • Harvest early maturing varieties • Stake of heavy fruit laden branches
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	<p>If there is incidence of Alternaria Leaf Blotch or Scab, spray any of the following fungicide:</p> <p>Zineb 68% + Hexaconazole 4% 72 WP (125g) or Hexaconazole 5 EC (50ml) or Myclobutanil 10 WP (70g) or Metiram 55% +Pyraclostrobin 5% 60 WG (100g) or Pyraclostrobin 12.8% + Boscalid 25.2% WG (30g)</p> <p>For the orchards with Sooty blotch or Fly speck issues, spray any of the following fungicides:</p> <p>Mancozeb 75WP (300g) or Ziram 27 SC (600ml) or Propineb 70 WP (300g) or Ziram 80 WP (200g) or Mancozeb 75 WG (300g)</p>



STAGE 12 PRE-HARVEST

Spray No.	12 th
Phenological stage	Pre-harvest
Fertilizer/Nutrient dosage	<p>Need Based:</p> <ul style="list-style-type: none"> • Naphthalene acetic acid (10ppm) for controlling pre harvest fruit drop • 2nd foliar spray of potassium sulphate @ 4-5g /litre for colour development • Spray calcium chloride @ 3-4 g/litre for increasing storage life
Cultural/ Management practices	<ul style="list-style-type: none"> • Cut the orchard grass to reduce humidity in the orchard • Remove water-shoots to reduce humidity
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	<p>For long term storage, spray any of the following fungicides 15-20 days before harvesting:</p> <p>Captan 50 WP (300g) or Propineb 70 WP (300g) or Ziram 80 WP (200g) or Zineb 75 WP (300g)</p>



STAGE 13 HARVEST

Spray No.	13 th
Phenological stage	Harvest
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<p>Following maturity indices:</p> <ul style="list-style-type: none"> • Starch index test (0- 6.0 scale) <ul style="list-style-type: none"> • 2.5 for CA Storage; 3.5 for table purpose • Ease of separation of the fruit from spur • Fruit skin colour >75% Red (variety specific) • Total Soluble Solids (TSS): 12 to 14° Brix • Pressure: 16-18 lb/square inch • Seed colour: >75% dark brown • Days after Full Bloom (DAFB): Variety specific
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	X



STAGE 14 POST-HARVEST

Spray No.	14 th
Phenological stage	Post-Harvest
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> • Ensure collection and destruction of fallen leaves, mummified fruits pruned snag, and dead wood to reduce disease pressure • To ensure infection free source of graft and bud wood, label the virus infected plants • Avoid mechanical injuries to make trees less vulnerable to canker causing pathogens • Spray 3- 4% urea when 50% leaves turn yellow naturally in scab/ Alternaria infected orchards • Orchards sanitation • Conduct soil testing for future nutrient management plans • Stake/tye branches to prevent snow damage • Tighten trellis wires in HDP • Close anti-hail nets
Insecticide/ Acaricide/ Oil per 100 litres of water	<p>Need Based for Insects: Chlorpyrifos 20 EC (100 ml)</p> <p>Need Based for Mites: If Population is more than 20 mites per leaf apply Fenazaquin 10 EC (40 ml) Or Etoxazole 10% SC (110ml)</p> <p>Essential Spray: Quinalphos 25 EC (100 ml) in areas where apple blotch leaf miner is a problem</p>
Fungicide per 100 litres of water	X



STAGE 15 DORMANCY

Spray No.	15 th
Phenological stage	Dormancy
Fertilizer/Nutrient dosage	X
Cultural/ Management practices	<ul style="list-style-type: none"> • Prune virus infected plants at the end, followed by proper sterilization of pruning equipments • Rogue infected plants • Do not use graft/bud wood from virus infected plants for propagation • Apply fungicidal paint/ paste to pruning wounds or other mechanical injuries • Practice sheep grazing in traditional orchards to reduce disease load • If urea spray was missed during fall, spray Urea @ 5% on orchard floor for early decomposition of fallen leaves • Scrap the dead wood from cankered areas and apply paste on the wound as per package of practices • Add organic matter in sandy soils for canker management <p>Canopy management:</p> <ul style="list-style-type: none"> • Training and pruning of orchards as per recommendations <p>Orchards sanitation:</p> <ul style="list-style-type: none"> • Ensure orchards sanitation for effective disease & pest management
Insecticide/ Acaricide/ Oil per 100 litres of water	X
Fungicide per 100 litres of water	X

IMPORTANT INSTRUCTIONS:

1. Avoid mixing of fungicides, insecticides and spray suspensions.
2. Maintain gap of 3-4 days between insecticide and fungicide spray unless advised otherwise.
3. In case of heavy rains within 12 hours of spray, the spray is to be repeated immediately (when adjuvant /stickers are not used).
4. Before conducting the spray, inform the beekeepers in the vicinity of the orchard about spraying time; bee colonies should be kept preferably away from spraying area.
5. Same pesticide should not be repeated in two consecutive sprays.
6. Avoid spraying during high temperatures/rainy weather. All sprays should be conducted during early morning or evening hours to avoid phytotoxicity.
7. No spray should be done during full bloom period.
8. Spray of the insecticides/fungicides should be stopped 3-4 weeks before harvesting of fruit.
9. Keep 1-2 feet of soil around the tree trunks undisturbed.
10. Close monitoring of pests and diseases is important for effective management.
11. Apply fertilizers along the canopy line.
12. In alkaline or acidic soils, phosphorous dose should be increased by 20 per cent.
13. Always spray before rains at any stage.
14. Avoid spraying immediately after severe rains (after 15th of June) especially in low altitude areas.

DO'S & DON'TS OF PESTICIDE APPLICATION:

DO'S:

1. Purchase pesticides only from registered dealer(s) having valid license.
2. Check Batch No., Registration No., Manufacture /Expiry Date on the labels.
3. Always purchase with proper bill or invoice.
4. Storage place should be well protected from direct sunlight or rain.
5. Read instructions on pesticide container label carefully before use.
6. Always use clean water for making pesticide suspension as per requirement.
7. Use protective clothing viz., hand gloves, face masks, aprons, etc. to cover whole body.
8. Always protect your nose, eyes, ears, hands etc. from spill of spray suspension.
9. Use pesticides at the recommended dosage & at the proper phenological stage.
10. Select right kind of equipment for spraying.
11. Spray pesticide during morning or evening hours.
12. Agitate spray suspension continuously while spraying.
13. For any clarification consult experts.

DON'TS:

1. Don't use muddy or stagnant water for preparing pesticide suspension.
2. Don't prepare or spray pesticides without wearing protective clothing.
3. Avoid spilling of pesticide suspensions while filling or spraying.
4. Don't use over or sub lethal dose of pesticide.
5. Don't spray pesticides during full bloom period unless advised otherwise.
6. Don't spray during day time when temperature is high.
7. Don't mix various pesticides.
8. Don't eat, drink, chew or smoke during spraying or preparing pesticide suspension.
9. Don't transfer pesticide from original to other container.
10. Don't use leaky or defective equipment.
11. Don't blow / clean clogged nozzles with mouth.

ANNEXURE-1

FERTILIZER/NUTRIENT SCHEDULE (CONVENTIONAL ORCHARDS)

I. ORGANIC MANURE (WELL DECOMPOSED FYM)

Age of tree (Years)	Quantity (kg)	Time of Application
1-5	10-15	February- March
6-10	15-25	
11-15	25-40	
16 & above	40-60	

II. INORGANIC FERTILIZERS:

Inorganic fertilizers may be applied on the basis of soil and leaf analysis report. In absence of soil and leaf analysis report, and provided that plant growth and fruiting appear satisfactory, the following recommendations may be adopted:

Age of tree (Years)	Nutrients/ tree (g)			Fertilizer basis/ tree (g)		
	N	P ₂ O ₅	K ₂ O	Urea	DAP	MOP
1	28	11	50	50	25	80
2	55	23	100	100	50	160
3	83	34	150	150	75	250
4	111	45	200	200	100	330
5	139	57	250	250	125	420
6	194	80	350	350	175	580
7	250	102	450	450	225	750
8	305	125	550	550	275	920
9	360	148	650	650	325	1080
10	416	170	750	750	375	1250
11	500	205	900	900	450	1500
12	582	239	1050	1050	525	1750
13	665	273	1200	1200	600	2000
14	749	307	1350	1350	675	2250
15 & above	832	340	1500	1500	750	2500

PESTICIDE FORMULATIONS EVALUATED & RECOMMENDED

(A) FUNGICIDE

S.NO	FUNGICIDES	FORMULATIONS	NAME OF THE COMPANY
1	CAPTAN	Captaf (50 WP)	M/s Rallis India Ltd.
		Kohicap (50 WP)	M/s FIL Industries Pvt. Ltd.
		Captax (50 WP)	M/s India Pesticide Ltd.
		Merimain (50 WP)	M/s Adama India Pvt. Ltd
		Captra (50 WP)	M/s Indofil Industries Ltd.
		Kri-Captan (50 WP)	M/s Krishi Rasayan Exports Pvt. Ltd
		Panther (50 WP)	M/s HPM Chemicals & Fertilizers Ltd.
2	Chlorothalonil	Tata Ishaan (75 WP)	M/s Rallis India Ltd.
3	Chlorothalonil 40%+ Difenaconazole 4% 44 SC	Kavach Flo	M/s Syngenta India Ltd.
4	Difenoconazole	Score (25 EC)	M/s Syngenta India Ltd.
		Rubigan-D (25 EC)	M/s FIL Industries Pvt. Ltd.
		Casper (25 EC)	M/s Godrej Agrovet Ltd.
		Karara (25 EC)	M/s Agro Life Science Corporation
		Wilcore (25 EC)	M/s Willowood Crop Sciences Pvt. Ltd
5	Dodine	Noor (65 WP)	M/s Indofil Industries Ltd.
		Dodino FIL (40 SC)	M/s FIL Industries Pvt. Ltd.
		FIL Super Star (65 WP)	M/s FIL Industries Pvt. Ltd.
6	Flusilazole	Cursor (40 EC)	M/s Dhanuka Agritech Ltd.
		Governor (40 EC)	M/s FIL Industries Pvt. Ltd.
	Fluxapyroxad 75g/l + Difenaconazole 50g/l SC (30 ml)	Sercadis Plus	M/s BASF India Limited
7	Flupyram 17.7% + Tebuconazole 17.7%	Luna Experience	M/s Bayer Crop Sciences Limited
8	Hexaconazole	Contaf (5 EC)	M/s Rallis India Ltd.
		Mainex (5 EC)	M/s Adama India Pvt. Ltd.
		Krizole (5 EC)	M/s Krishi Rasayan Exports Pvt. Ltd.
		Sitara (5 EC)	M/s Indofil Industries Ltd.
		Hexahit (5 EC)	M/s Hindustan Pulverizing Mills
		Envil Plus (5 EC)	M/s FIL Industries Ltd.

S.NO	FUNGICIDES	FORMULATIONS	NAME OF THE COMPANY
9	Mancozeb 75WP	Indofil M-45	M/s Indofil Industries Ltd.
		Dithane M-45	M/s UPL Sustainable Agri. solutions Ltd.
		Hindustan M-45	M/s HPM chemicals & Fertilizer Ltd.
		Macoban M-45	M/s Adama India Pvt. Ltd.
		Luzem- 45	M/s Cheminova India Ltd.
		Kohinoor M-45	M/s FIL Industries Pvt. Ltd.
		Mount	M/s Bharat Certis AgriScience Ltd.
		Tata M-45	M/s Rallis India Limited
10	Mancozeb 75WG	Uthane Advance	M/s UPL Sustainable Agri. Solutions Ltd.
11	Metiram	Polyram (70 WG)	M/s BASF India Ltd.
12	Metiram 55% + Pyraclostrobin 5%	Cabrio Top (60 WG)	M/s BASF India Ltd.
		Clutch (60 WG)	M/s P.I Industries
13	Myclobutanil	Grapple (10 WP)	M/s FIL Industries Pvt. Ltd.
		Boon (10 WP)	M/s Indofil Industries Ltd.
		Nagarjuna Index (10 WP)	M/s NACL Ind. Ltd.
		Systhane (10 WP)	M/s Corteva AgriScience
		Myclomain (10 WP)	M/s Adama India Pvt. Ltd.
		Insyst (10 WP)	M/s Biostadt India Ltd.
14	Penconazole 10EC	TOPAS 10EC	M/s Syngenta India Ltd.
15	Propineb	Antracol (70 WP)	M/s Bayer CropScience Ltd.
		Proximan (70WP)	M/s Adama India Pvt. Ltd
		Scale (70 WP)	M/s Krishi Rasayan Exports Pvt. Ltd.
		Filprostar (70WP)	M/s FIL Industries Pvt. Ltd.
		Jannat (70 WP)	M/s Indo Gulf CropSciences Ltd.
		Aarosh (70 WP)	M/s Coromandel International Ltd.
		Sanipeb (70WP)	M/s P.I Industries
16	Pyraclostrobin 12.8% + Boscalid 25.2% WG	Visma	M/s P.I Industries
17	Tebuconazole 38.9% SC	Buonos	M/s Bayer CropScience Ltd.
18	Trifloxystrobin 25% + Tebuconazole 50%	Nativo (75 WG)	M/s Bayer CropScience Ltd.

S.NO	FUNGICIDES	FORMULATIONS	NAME OF THE COMPANY
19	Tebuconazole 6.7% + Captan (26.9%)	Shamir (33.6SC)	M/s Adama India Pvt. Ltd.
20	Trifloxystrobin 10% + Difenoconazole 12.25% + Sulphur 3% SC	Tricolor	M/s Seeding India Pvt. Ltd.
21	Ziram	Cuman-L (27 W/v)	M/s Syngenta India Ltd.
		Zed-78 (80 WP)	M/s FIL Industries Pvt. Ltd.
		IPL Ziram -80 (80WP)	M/s India Pesticide Ltd.
		Zirex-L (27 SC)	M/s FIL Industries Pvt. Ltd.
		IPL Ziram -27 (27 SC)	M/s India Pesticide Ltd.
22	Zineb	Indofil Z-78 (75 WP)	M/s Indofil Industries Ltd.
		Nautec (75WP)	M/s UPL & Marketed by M/s Swal Corporation Ltd.
		Fil Kanji (75 WP)	M/s FIL Industries Pvt. Ltd.
23	Zineb 68% + Hexaconazole 4%	Avtar (72WP)	M/s Indofil Industries Ltd.
24	Fluxapyroxad 250g/l + Pyraclostrobin 250g/l	Merivon (500 SC)	M/s BASF India Limited
25	Etoazole 10%	Borneo	M/s Sumitoma Chemical India Limited
26	Carbendazim 12% + Mancozeb 63% WG	SAAF	M/s UPL Ltd.

DISCLAIMER:

- The molecules have been evaluated by SKUAST-K for bio-efficacy against apple diseases & pests, & the advisory/ information has been compiled for guidance & not for legal purposes.
- Use and sale of the products recommended in the schedule are subject to production of registration and label claim from CIB & RC, Govt. of India to be ascertained by Plant Protection officer / Directorate of Law Enforcement Department of Jammu & Kashmir.
- The advisory has been formulated in consultation with subject matter faculties & inputs received from Department of Horticulture Kashmir & Directorate of Enforcement Go J&K.

(B) OILS/INSECTICIDES/ACARICIDES EVALUATED & RECOMMENDED

A	OILS	TRADE NAME	NAME OF THE COMPANY
1	Horticulture Mineral Oils for Delayed Dormant Spray	Orchol	M/s R G Industries
		Duratek AgriSpray Oil	M/s Raj Petro specialties Pvt. Ltd.
		HP Spray Oil E/ HP HMO	M/s Hindustan Petroleum Corp Ltd.
		MAK	M/s Bharat Petroleum Corp Ltd.
		SERVO	M/s Indian Oil Corporation Ltd.
2	Horticulture Mineral Oils for Summer Spray	Orchol	M/s R G Industries
		Duratek AgriSpray Oil	M/s Raj Petro specialties Pvt. Ltd.
		HP Spray Oil E/ HP HMO	M/s Hindustan Petroleum Corp Ltd.
		MAK	M/s Bharat Petroleum Corp Ltd.
		SERVO	M/s Indian Oil Corporation Ltd.
B	INSECTICIDES	TRADE NAME	NAME OF THE COMPANY
1	Chlorpyrifos	Coroban (20 EC)	M/s Coromandel Agrico Pvt. Ltd.
		Kohiban (20 EC)	M/s FIL Industries Ltd.
		Dursban (20 EC)	M/s Dow Agro Science Mumbai Ltd.
		Tafaban (20 EC)	M/s Rallis India Ltd.
2	Quinalphos	Ekalux (25 EC)	M/s Syngenta India Ltd.
3	Thiocloprid	Alanto 240 SC (21.7%)	M/s Bayer Crop Science Ltd.
C	ACARICIDES	TRADE NAME	NAME OF THE COMPANY
1	Fenazaquin (10% EC)	Majestic (10 EC)	M/s FIL Industries Ltd.
2	Hexythiazox (5.45% EC)	Maiden (5.45 EC)	M/s Biostadt India Ltd.
3	Spiromesifen 240 SC (22.9%)	Oberon 240 SC (22.9%)	M/s Bayer Crop Science India Ltd.
4	Cyenoxyrafen (30 %SC)	NC-512 30 SC (Kunoichi)	M/s Insecticides India Ltd.
5	Propargite 42% + Hexythiazox 2% EC	Ceasmite	M/s Indofil Industries
6	Etoazole 10% SC	Bornea	M/S Sumitomo Chemical India Ltd.

WP: Wettable Powder;

EC: Emulsifiable Concentrate;

SC: Solution Concentrate;

SL: Sprayable Liquid;

WG: Water Dispersible Granules

WAITING PERIOD OF SOME PESTICIDES IN APPLE :

The waiting period, also known as the Pre-Harvest Interval (PHI), is the minimum number of days that must elapse after the last application of a pesticide or fungicide/Insecticides/Acaricide before harvesting apples. During this period, growers must not harvest fruits, cut grass, or allow poultry or livestock to enter the orchard until the prescribed waiting period is fully completed, to ensure food safety & avoid chemical residues.

IMPORTANCE OF WAITING PERIOD:

- Ensures food safety and consumer health
- Prevents Pesticide residues beyond permissible limits
- Mandatory for export and organized markets
- Protects growers, workers, and the environment
- Non-compliance may lead to rejection of produce and legal action

S.No.	Chemicals	Waiting Period (days)
1	Hexaconazole 5EC	10
2	Fluxapyroxad 250g/l SC	14
3	Difenconazole 25EC	15
4	Pyraclostrobin 250g/l 500SC	25
5	Ziram 80WP	17
6	Metiram 70WG	11
7	Dodine 65WP	22
8	Penconazole 10 EC	13
9	Captan 50 WP	1
10	Propineb 70 WP	29
11	Chlorothalonil 75 WP	36
12	Flusilazole 40 EC	25
13	Fluopyram 17.7%SC	7
14	Tebuconazole 17.7%SC	6
15	Trifloxystrobin 25 WG	4
16	Boscalid 25.2WG	13
17	Myclobutanil 10 WP	15
18	Imidacloprid 17.8 SL	11
19	Spiromesifen 22.9 SC	9
20	Hexythiazox 5.45 EC	13
21	Propargite 57 EC	9
22	Mancozeb 75	14

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