College of Agriculture, Food and Environment
Cooperative Extension Service

Plant Pathology Fact Sheet **PPFS-FR-T-25**

Cultural Calendar for Commercial Apple Production

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Integrated pest management (IPM) includes the combination of biological, cultural, physical, and chemical tools in efforts to manage diseases and pests while minimizing risks associated with pesticides. Cultural practices are an integral part of an IPM program and should be incorporated into all commercial systems whether large or small, conventional or organic. This publication provides recommended practices at approximate growth stages and/or production periods. However, these timelines are approximate and may require adjustment for particular conditions. Growers who encounter situations that may not align with suggestions here should contact their county Extension office for assistance. Extension offices can also provide updated pest management recommendations. This cultural guide serves as a supplement to published spray guides and scouting guides.

PINK

BLOOM

PETAL FALL

HARVEST

	TIME OF YEAR~	February/ Early-March	Late-March	Late-March/Mid-April	Mid-April/Early-May	May	June/July	August/ September	October/ November
	GROWTH STAGE	Dormant[1]	Green tip to half-inch green[2]	Pink[3]	Bloom[4]	Petal fall[5]	Summer growth[6]	Late summer/fall growth[7]	After harvest
Diseases	**Cedar-apple rust**	Remove nearby alternate hosts; Plant resistant cultivars.	Remove nearby alternate hosts.	Prune and destroy cedar apples found on ornamental junipers and cedars (for small orchards).				Remove cedar galls from juniper (for small orchards).	Plant resistant cultivars; Remove cedar galls from juniper (for small orchards).
	Fire blight	Prune cankers and dead, dying and diseased wood; Prune to allow for increased air movement, to speed drying, and allow for thorough spray coverage; Plant resistant cultivars.	Avoid excessive nitrogen fertilizer.	Use weather predition models to monitor risk.	Use weather prediction models to monitor risk; Apply growth regulators to vigorous plants, particularly fire blight-susceptible cultivars in efforts to slow growth and protect from shoot blight.	Avoid pruning infected trees until dormancy; Do not work in wet orchards to prevent spread of bacteria.			Plant resistant cultivars.

NOTES:

~THE GROWTH STAGE INDICATED TYPICALLY OCCURS DURING THIS TIME OF YEAR; HOWEVER, THIS MAY VARY FROM YEAR TO YEAR DEPENDING ON ENVIRONMENTAL CONDITIONS.

[1] BEFORE BUDS SWELL
[2] ONE-HALF INCH OF GREEN BUDS ARE VISIBLE
[3] JUST BEFORE BLOOMS OPEN
[4] 20% TO 60% OF BLOSSOMS ARE OPEN
[5] 90% OF PETALS HAVE DROPPED
[6] COVER SPRAYS
[7] PRE-HARVEST

	TIME OF YEAR~	February/ Early-March	Late-March	Late-March/Mid-April	Mid-April/Early-May	May	June/July	August/ September	October/ November
	GROWTH STAGE	Dormant[1]	Green tip to half-inch green[2]	Pink[3]	Bloom[4]	Petal fall[5]	Summer growth[6]	Late summer/fall growth[7]	After harvest
Diseases	**Fruit rots and spots**	Prune cankers and dead, dying and diseased wood; Prune to allow for increased air movement, to speed drying, and to allow for thorough spray coverage; Remove fruit mummies; Plant resistant cultivars.			Use weather prediction models to monitor risk.	Thin dense fruit clusters by hand; Bag developing fruit when they are 3/4 inch in size (for small orchards).	Remove any diseased or rotted fruit from trees or the ground; Pick up and dispose of fallen fruit.	Remove any diseased or rotted fruit from trees or the ground; Dispose of fallen fruit; Remove fruit bags 2 weeks before harvest (for small orchards).	Remove all fruit from tree and clean up all fallen fruit and do not compost.
	Scab	Prune to allow for increased air movement, to speed drying, and to allow for thorough spray coverage; Remove mummies from trees; Plant resistant cultivars.			Use weather prediction models to monitor risk.				Remove all fruit from tree and clean up all fallen fruit; Rake fallen leaves and destroy (do not compost); Apply nitrogen/urea during flail mowing; Plant resistant cultivars.

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Insects & Mites*	**Insects & Mites (general)**			Scout to monitor plant/stink bug populations.		Remove damaged fruit; Bag developing fruit when they are 3/4 inch in size (for small orchards).	Remove any infested fruit from trees or the ground.	Remove any infested fruit from trees or the ground; Remove fruit bags 2 weeks before harvest (for small orchards).	Remove all fruit from trees and clean up all fallen fruit.
	Aphids			Scout to monitor populations; Remove new leaf growth that is tightly curled.	Scout.	Thin dense fruit clusters by hand; Scout.	Scout.		
	Codling moth			Monitor populations using pheromone traps in orchard; Place traps to initiate mating disruption.	Change pheromone lures monthly.	Change pheromone lures monthly; Bag developing fruit when they are 3/4 inch in size (for small orchards).	Remove any infested fruit from trees or the ground; Pick up and dispose of fallen fruit; Remove fruit with insect frass protruding; Scout and monitor traps; Change pheromone lures monthly.	Remove any infested fruit from trees or the ground; Dispose of fallen fruit; Remove fruit with protruding insect frass; Change pheromone lures monthly; Remove fruit bags 2 weeks before harvest (for small orchards).	Remove all fruit from trees and clean up all fallen fruit.

Notes:

~The growth stage indicated typically occurs during this time of year; however, this may vary from year to year depending on environmental conditions.

* Scout for insects and mites throughout the entire production season. Key times for each pest are noted in the table.

[1] Before buds swell
[2] One-half inch of green buds are visible
[3] Just before blooms open
[4] 20% to 60% of blossoms are open
[5] 90% of petals have dropped
[6] Cover sprays
[7] Pre-harvest

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Insects & Mites*	**Mites**	Proper pruning to allow for thorough spray coverage.		Mow/manage weeds.	Mow/manage weeds.	Mow/manage weeds.	Mow/manage weeds.	Mow/manage weeds.	
	Oriental fruit moth			Monitor populations using pheromone traps in orchard; Place traps in orchard.	Change pheromone lures monthly.	Change pheromone lures monthly; Bag developing fruit when they are 3/4 inch in size (for small orchards).	Remove any infested fruit from trees or the ground; Pick up and dispose of fallen fruit; Remove fruit with insect frass protruding; Scout and monitor traps; Change pheromone lures monthly.	Remove any infested fruit from trees or the ground; Dispose of fallen fruit; Remove fruit with protruding insect frass; Change pheromone lures monthly; Remove fruit bags 2 weeks before harvest (for small orchards).	Remove all fruit from trees and clean up all fallen fruit.
	Plum curculio					Remove fruit with crescent shaped scars; Scout fruit for plum curculio activity.	Remove any infested fruit from trees; Pick up and dispose of fallen fruit.	Remove any infested fruit from trees; Dispose of fallen fruit.	

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Insects*	San Jose scale	Proper pruning; Scout during prunning.			Use black tape wrapped around infested limbs to monitor for scale crawler emergence.			Scout during harvest by examining injured fruit.	
	Protecting pollinators			Mow row middles regularly to reduce flowering weeds that attract pollinators.	Mow row middles regularly to reduce flowering weeds that attract pollinators.	Mow row middles regularly to reduce flowering weeds that attract pollinators.	Mow row middles regularly to reduce flowering weeds that attract pollinators.	Mow row middles regularly to reduce flowering weeds that attract pollinators.	
Weeds	Broad leaf & grass weeds			Mow before bloom to eliminate blooms that compete for pollinators.	Mow as needed.	Mow as needed.	Mow as needed.	Mow as needed.	Mow as needed.
Wildlife	Voles & Rabbits	Check and repair wildlife exclosures.		Mow to reduce rodent habitat.			Check and repair wildlife exclosures.	Mow as needed.	Install raptor perches; Protect predators like coyotes; Check and repair wildlife exclosures; Scout for voles and treat as needed.

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Abiotic	Cork spot & Bitter pit			Apply boron; Moderate tree vigor; Apply foliar urea if tree vigor is low; Maintain soil pH at 6.5.		Apply calcium chloride sprays.	Apply calcium chloride; Collect tissue samples for nutrient analysis (mid-July to mid-August).	Apply calcium chloride sprays.	Apply calcium chloride sprays.
	Plant health		Fertilize as needed.			Apply fruit thinning sprays; Remove rootstock suckers.	Collect tissue samples for nutrient analysis (mid-July to mid-August); Soil test; Apply growth regulator to 'Stayman' to prevent fruit cracking.	Collect tissue samples for nutrient analysis; Soil test.	Paint lower trunks of young trees with latex paint to prevent sunscald.
	Pre-harvest drop							Spray fruit stop-drop materials if needed.	Spray fruit stop-drop materials if needed.

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August 2019

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