

CALIFORNIA LEMON PRODUCTION*		
	COMMON TREATMENTS	
PEST DISEASE TARGET	PEST CONTROL OPTIONS	TREATMENT PERIOD
Plant Growth Regulator	gibberellic acid (GA ₃)	October-November
California Red Scale	<i>Aphytis melinus</i> Releases * *	February – September
	Oils, pyriproxyfen, spirotetramat (Movento)	May-August
Ants	chlorpyrifos (Lorsban) ground only	May – October
Citrus Thrips	Abamectin (Agri-Mek and others), spinosad (Success and Entrust), dimethoate, spinetoram (Delegate), cyantraniliprole (Exirel), Minecto Pro (mixture of cyantraniliprole and abamectin)	May – October
Mites (citrus bud mite, citrus rust mite, broad mite)	sulfur, abamectin, oil, fenbutatin-oxide (Vendex), spirotetramat (Movento), spirodiclofen (Envidor), fenpyroximate (Fujimite)	February-November
Citrus Leafminer	Systemic imidacloprid, abamectin, spinetoram	June-October
Asian citrus psyllid	Fenpropathrin, beta cyfluthrin, cyfluthrin, zeta-cypermethrin (Mustang), imidacloprid thiamethoxam, spirotetramat, spinetoram, pyrethrins, spinosad, flupyradifurone (Sivanto), tolfenpyrad (Bexar)	Sep-Mar
Alternaria rot (<i>Alternaria</i> spp.)	Synthetic fungicides-azoxystrobin (Abound), azoxystrobin-difenoconazole (Quadris Top), boscalid-pyraclostrobin (Pristine), fluopyram-trifloxystrobin (Luna Sensation), fosetyl-Al (Aliette), cyprodonil-fludioxonil (Switch), pyrimethanil (Scala), fluxapyrad-pyraclostrobin (Priaxor), polyoxin-D (Ph-D)	October - February
Anthracnose (<i>Colletotrichum</i> spp.)	Synthetic fungicides-azoxystrobin (Abound), azoxystrobin/difenoconazole (Quadris Top), cyprodonil-fludioxonil (Switch), fluxapyrad-pyraclostrobin (Priaxor)	January
Botrytis infections (<i>Botrytis cinerea</i>)	Synthetic fungicides-cyprodonil/fludioxonil (Switch), pyrimethanil (Scala)	Blossom wet periods
Brown Rot (<i>Phytophthora</i> spp.)	Fluopicolide (Presidio), mandipropamid (Revus), oxathiapiprolin (Orondis), and phosphonate fungicides (fosetyl-Al) including the biopesticide potassium phosphite (e.g., Prophyt, Fungi-Phite)	November-February
Clear Rot (<i>Penicillium</i> spp.)	Synthetic fungicides-azoxystrobin (Abound), azoxystrobin-difenoconazole (Quadris Top), cyprodonil-fludioxonil (Switch), pyrimethanil (Scala)	Preharvest
Septoria Spot (<i>Septoria citri</i>)	Copper compounds and synthetic compounds azoxystrobin (Abound), azoxystrobin-difenoconazole (Quadris Top), fluopyram-trifloxystrobin (Luna Sensation), fluxapyrad-pyraclostrobin (Priaxor), polyoxin-D (Ph-D)	Preharvest (November, January-February)

POST-HARVEST TREATMENTS		
DISEASE TARGET	DISEASE CONTROL OPTIONS	TREATMENT PERIOD
Blue and Green Mold – (<i>Penicillium italicum</i> and <i>P. digitatum</i>)	Synthetic compounds - σ -phenylphenol (OPP), thiabendazole (TBZ), imazalil (Deccocil, Freshgard), fludioxonil (Graduate), fludioxonil-azoxystrobin (Graduate A+), pyrimethanil (Penbotec), propiconazole (Mentor), natural compounds/biopesticides - carbonates (Soda Ash, Baking Soda), natamycin (BioSpectra), and biocontrols (<i>Pseudomonas syringae</i>)	Pre-packaging of harvested fruit
Sour rot (<i>Geotrichum citri-aurantii</i>)	Synthetic fungicides (σ -phenylphenol (OPP), propiconazole (Mentor) and natural compounds/biopesticides – carbonates (Soda Ash, Baking Soda), natamycin (BioSpectra)	Pre-packaging of harvested fruit (Seasonal)
Plant Growth Regulator	2,4-D	

- * The only pesticides used by California citrus growers are ones that have been approved by U.S. Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation.
- * * Beneficial insects are a key component in the California orange growers IPM program.