

CALIFORNIA NAVEL ORANGE PRODUCTION*

COMMON TREATMENTS

PEST/DISEASE TARGET	PEST CONTROL OPTIONS	TREATMENT PERIOD
Plant Growth Regulator	2,4-D	September-January
	Gibberellic acid (GA ₃)	Navel: Sep-Nov Valencia: Aug-Sep
Disease Control (Alternaria fruit rot, anthracnose, brown rot, Septoria spot)	copper compounds, synthetic fungicides (azoxystrobin, azoxystrobin-difenoconazole, boscalid-pyraclostrobin, fluopyram-trifloxystrobin, polyoxin-D), and phosphonate fungicides (fosetyl-Al, potassium phosphite)	October-November (synthetic fungicides), seasonal (copper and phosphonate fungicides for brown rot)
California Red Scale	<i>Aphytis melinus</i> releases**	February– September
	Petroleum and mineral oils, pyriproxyfen (Esteem), chlorpyrifos (Lorsban), buprofezin (Centaur), spirotetramat (Movento)	May-September
Citricola Scale	oils, chlorpyrifos, acetamiprid (Assail), buprofezin (Centaur) thiamethoxam (Actara), flupyrifidifurone (Sivanto)	August-September
Citrus Red Mite	Oils, pyridaben (Nexter), acequinocyl (Kanemite), fenpyroximate (Fujimite), spirodiclofen (Envidor), hexythiazox (Onager), Cyflumetofen (Nealta)	Feb-April and September-October
Citrus Thrips	Spinosad (Success, Entrust), abamectin (Agri-Mek and others), beta cyfluthrin (Baythroid), cyfluthrin (Tombstone and others), fenpropathrin (Danitol), spinetoram (Delegate), cyantraniliprole (Exirel)	April-June
Forktailed Bush Katydid	chlorpyrifos, dimethoate beta cyfluthrin, fenpropathrin (Danitol), diflubenzuron (Micromite), cryolite (Kryocide)	April-June
Fuller rose beetle	Thiamethoxam	Jul and Oct
Asian citrus psyllid	Fenpropathrin, beta cyfluthrin, cyfluthrin, zeta-cypermethrin (Mustang), thiamethoxam, pyrethrins, spinosad	Sep-Mar

OCCASIONAL TREATMENTS

Caterpillars (citrus cutworm, amorbia and others)	B.T., chlorpyrifos	March-June
Citrus leafminer (new plantings)	Systemic imidacloprid, abamectin, spinetoram	Aug-Oct
Cottony Cushion Scale	Vedalia Beetle Establishment,**	February-April
	malathion, carbaryl	April-September
Glassy-winged Sharpshooter	Imidacloprid, acetamiprid cyantraniliprole	February-August
	Acetamiprid, beta cyfluthrin	October-Jan

POST-HARVEST TREATMENTS		
DISEASE TARGET	DISEASE CONTROL OPTIONS	TREATMENT PERIOD
Green Mold & Blue Mold (<i>Penicillium digitatum</i> & <i>P. italicum</i>)	Synthetic fungicides (thiabendazole, imazalil, fludioxonil, pyrimethanil, azoxystrobin), natural compounds (carbonates) and biocontrols (<i>Pseudomonas</i> spp.)	Pre-packaging of harvested fruit
Sour Rot (<i>Geotrichum citri-aurantii</i>)	Synthetic fungicides (o-phenylphenol) and natural compounds (carbonates)	Pre-packaging of harvested fruit (Seasonal)

*The only pesticides used by California citrus growers are ones that have been approved by U.S. and California regulators.

**Beneficial insects are a key component in the California orange growers IPM program.