

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
BACTERIAL CANKER, <i>Pseudomonas</i>	ALMOND	Fall N spray	Better	Doll (2009)
ALMOND RUST	ALMOND	Hi N	Worse	Symmes, (2017)
ALMOND SCAB	ALMOND	Hi N	Worse	Johnson (2017)
BAND CANKER, <i>Botryosphaeria</i>	ALMOND	Hi N	Worse	Trouillas, F. (2017)
BROWN ROT, BLOSSOM	ALMOND	Hi N	Worse	Teviotdale (1996a)
HULL ROT	ALMOND	Hi N	Worse	Teviotdale (1996)
HULL ROT	ALMOND	Hi N	Worse	Saa, et al (2016)
SHOT HOLE	ALMOND	Hi N	Worse	Teviotdale (1996a)
DEFOLIATION	ALMOND	Low K	Worse	Basile, et al (2002)
PREMATURE FRUIT SPUR DEATH	ALMOND	Low K	Worse	Parsons (2016)
BACTERIAL CANKER	ALMOND	Low N	Worse	UC IPM (2005)
BLUE MOLD, STORAGE QUALITY	APPLE	Ca dips	Better	Janisiewicz, Conway, Glenn, Sams, (1998)
LOW ETHYLENE PRODUCTION	APPLE	Ca dips	Better	Siddiqui, Bangerth (1995)
APPLE SCAB, <i>Venturia</i>	APPLE	Ca sprays	Better	Hickey, Conway, Sams (1995)
BROWN ROT	APPLE	Ca sprays	Better	Holba, Ballaa, Vamosa, Gallc (2012)
FLYSPECK, <i>Schizothyrium</i>	APPLE	Ca sprays	Better	Hickey, Conway, Sams (1995)
SOOTY BLOTCH, <i>Gloeodes</i>	APPLE	Ca sprays	Better	Hickey, Conway, Sams (1995)
STORAGE ROT, <i>Alternaria</i>	APPLE	Ca sprays	Better	Biggs, Ingle, Solihati (1993)
BLOSSOM END ROT	APPLE	Ca, B sprays	Better	Khalifa, Omaima, Abd-El-Khair (2009)
REPLANT DISEASE	APPLE	CaCO3	Better	Utkhede (1989)
APPLE PROLIFERATION DISEASE	APPLE	Hi Ca	Better	Musetti, et al (2010)
BITTER PIT	APPLE	Hi Ca	Better	Perring, (1986)
BITTER ROT	APPLE	Hi Ca	Better	Biggs, (1999)
BOTRYTIS FRUIT DECAY	APPLE	Hi Ca	Better	Conway, Sams, Wang, Abbott (1994)
COLLECTOTRICHUM ROT	APPLE	Hi Ca	Better	Park, et al (2001)
INTERNAL BREAKDOWN	APPLE	Hi Ca	Better	Raese, (1993)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
POST HARVEST DECAY, <i>Botrytis</i>	APPLE	Hi Ca	Better	Wisniewski, Droby, Chalutz, Eilam (1995)
POST HARVEST DECAY, <i>Botrytis</i>	APPLE	Hi Ca	Better	Klein, Conway, Whitaker, Sams (1997)
POST HARVEST DECAY, <i>Penicillium</i>	APPLE	Hi Ca	Better	Sams, et al (1993)
POSTHARVEST ROT, <i>Penicillium</i>	APPLE	Hi Ca	Better	Conway, et al (1988)
STORAGE ROT, <i>Penicillium</i>	APPLE	Hi Ca	Better	Brackmann, Ceretta, Vizzotto (2001)
INTERNAL BROWNING	APPLE	Hi Ca, Mg, or B	Better	Hernández, Biasi, Mitcham (2005)
FIREBLIGHT	APPLE	Hi K	Worse	Chase, et al (1968)
LATE STORAGE CORKING	APPLE	Hi K, Low Ca	Worse	AHDB (2015)
APPLE SCAB, <i>Venturia</i>	APPLE	Hi K, P	Better	Felipini (2016)
BITTER PIT	APPLE	Hi K:Ca	Worse	Volz, Tustin, Ferguson (1996)
BITTER PIT	APPLE	Hi K:Ca	Worse	Ferguson, Watkins (1992)
BITTER PIT	APPLE	Hi K:Ca	Worse	Smith (2009)
SOGGY BREAKDOWN	APPLE	Hi K+Mg:Ca	Worse	Hansen (2012)
BITTER PIT	APPLE	Hi Mg	Worse	Burnmeister & Dilley (1993)
BITTER PIT	APPLE	Hi Mg, Lo Ca	Worse	Hofman (1998)
DISCOLORATION	APPLE	Hi Mn	Worse	Ferree, et al (1984)
2 SPOT MITE	APPLE	Hi N	Worse	Rodriguez (1958)
2 SPOT MITE	APPLE	Hi N	Worse	Rodriguez, (1958)
2 SPOT MITE	APPLE	Hi N	Worse	Storms, (1969)
2 SPOT MITE	APPLE	Hi N	Worse	Wermelinger, Oertli, Baumgärtner (1991)
2 SPOT MITE	APPLE	Hi N	Worse	Suski, Badowska (1975)
2 SPOT MITE	APPLE	Hi N	Worse	Jesiotr, Suski, Badowska-Czubik (1979)
2 SPOT MITE	APPLE	Hi N	Worse	Wermelinger, Delucchi (1990)
2 SPOT MITE	APPLE	Hi N	Worse	Wermelinger, Oertli, Delucchi (1985)
2 SPOT MITE	APPLE	Hi N	Worse	Fritzsche, Wolfgang, Reiss, Thiele (1980)
2 SPOT MITE	APPLE	Hi N	Worse	Storms (1969)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
2 SPOT MITE	APPLE	Hi N	Worse	Hamstead, Gould (1957)
ALFALFA GREENING	APPLE	Hi N	Worse	Raese (1980)
ANTIOXIDANT CONTENT	APPLE	Hi N	Worse	Warner (2007)
APHID	APPLE	Hi N	Worse	U Mass (2004)
APHID	APPLE	Hi N	Worse	Kaakeh, Pfeiffer, & Marini (1992)
APHID	APPLE	Hi N	Worse	Hukusima & Ando. (1967)
APHID	APPLE	Hi N	Worse	Takeda, Hukusima, Kawada (1967)
APHID	APPLE	Hi N	Worse	Brown & Welker (1992)
CALCIUM UPTAKE	APPLE	Hi N	Worse	Martin, Lewis, Cerny, Grassia (1970)
COLOR, FLAVOR	APPLE	Hi N	Worse	Tahir, Johansson, Olsson (2007)
COLOR, FRUIT FIRMNESS	APPLE	Hi N	Worse	Blanpied, et al (1978)
COLOR, STORAGE QUALITY	APPLE	Hi N	Worse	Cline (1980)
DELAYED MATURITY	APPLE	Hi N	Worse	Bacon (1996)
E. RED MITE - egg production	APPLE	Hi N	Worse	Papp, Jenser, Haltrich (2001)
EUROPEAN RED MITE	APPLE	Hi N	Worse	van de Vrie, McMurty, Huffaker (1972)
EUROPEAN RED MITE	APPLE	Hi N	Worse	Breukel, Post (1959)
EUROPEAN RED MITE	APPLE	Hi N	Worse	Smith, Stiles, Weires (1989)
EUROPEAN RED MITE - egg laying	APPLE	Hi N	Worse	Brunkel, Post (1959)
EXCESS ETHYLENE PRODUCTION	APPLE	Hi N	Worse	Fallahi, Conway, Hickey, Sams (1997)
EXCESS SHOOT GROWTH	APPLE	Hi N	Worse	Pole, et al (2017)
FIREBLIGHT	APPLE	Hi N	Worse	Hildebrand, Heinicke (1937)
FIREBLIGHT	APPLE	Hi N	Worse	Fallahi, Mohan (2000)
FIREBLIGHT	APPLE	Hi N	Worse	van der Zwet, Keil (1979)
FIREBLIGHT	APPLE	Hi N	Worse	Hildebrand, Heinicke (1937)
FIREBLIGHT	APPLE	Hi N	Worse	Pest Management Center (2013)
FIREBLIGHT	APPLE	Hi N	Worse	Fallahi, Mohan (2000)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
FIREBLIGHT	APPLE	Hi N	Worse	van der Zwet, Beer (1991)
FLAVONOID CONTENT	APPLE	Hi N	Worse	Strissel, et al (2005)
FLAVOR, COLOR	APPLE	Hi N	Worse	Link (1980)
FREEZE INJURY	APPLE	Hi N	Worse	Cline (1980)
FRUIT COLOR	APPLE	Hi N	Worse	Marsh, Volz, Cashmore, Reay (1996)
FRUIT COLOR	APPLE	Hi N	Worse	Fallahi, Conway, Hickey, Sams (1997)
FRUIT DROP	APPLE	Hi N	Worse	Ministry of Agriculture (1972)
FRUIT FIRMNESS	APPLE	Hi N	Worse	Racskó, Szabó, Nyéki, (2005)
FRUIT QUALITY	APPLE	Hi N	Worse	Raese & Drake (1997)
FUNGAL ROTS	APPLE	Hi N	Worse	Wallace (1953)
LENTICEL BLOTCH PIT	APPLE	Hi N	Worse	Łysiak, (2013)
MITES	APPLE	Hi N	Worse	Kuenen (1964)
MITES	APPLE	Hi N	Worse	Hampstead, Gould (1957)
PHYTOPHTHORA CROWN ROT	APPLE	Hi N	Worse	Utkhede (1984)
POST HARVEST ROT	APPLE	Hi N	Worse	Station (1983)
POSTHARVEST ROT	APPLE	Hi N	Worse	Bacon (1996)
RED COLOR	APPLE	Hi N	Worse	Hernández, Biasi, Mitcham (2005)
RED COLOR	APPLE	Hi N	Worse	Fallahi, Fallahi, Seyedbagheri (2006)
REDUCED FRUIT COLOR	APPLE	Hi N	Worse	Smith (2012)
SCAB	APPLE	Hi N	Worse	Leser, Treutter (2006)
SCAB	APPLE	Hi N	Worse	Strissel, et al, (2005)
SCAB - spore production + lesions	APPLE	Hi N	Worse	Pedersen, et al (2012)
STORAGE BREAKDOWN	APPLE	Hi N	Worse	Sharples (1980)
SUGAR/SOLUBLE SOLID LEVELS	APPLE	Hi N	Worse	Dris, Niskanen, & Fallahi (1999)
TWO SPOT MITE	APPLE	Hi N	Worse	van de Vrie, McMurty, Huffaker (1972)
WINTER COLD HARDINESS	APPLE	Hi N	Worse	Pole, et al (2017)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
PHYTOPHTHORA CROWN ROT	APPLE	Hi N (Ammonium)	Worse	Utkhede & Smith (1995)
BITTER PIT	APPLE	Hi N, K	Worse	AHDB (2015)
BITTER PIT	APPLE	Hi N, Low Ca	Worse	Bacon (1996)
BITTER PIT	APPLE	Hi N, Low Ca	Worse	Shear (1975)
BITTER PIT	APPLE	Hi N, Low Ca	Worse	Day, Crisosto (1993)
FIREBLIGHT	APPLE	Hi N, Low Ca	Worse	Bastas (2016)
LENTICEL BREAKDOWN	APPLE	Hi N, Low Ca	Worse	Martins, et al (2013)
SKIN SPLITTING	APPLE	Hi N, Low Ca	Worse	Martins, et al (2013)
BITTER PIT	APPLE	Hi N, P; Low Ca	Worse	Warner (2014)
SOGGY BREAKDOWN	APPLE	Hi N:Ca	Worse	Hansen (2012)
EUROPEAN RED MITE	APPLE	Hi N; Lo P, K	Worse	Bhardwaj, Sharma, Bhardwaj (2003)
APPLE REPLANT DISEASE	APPLE	Hi P	Better	BCFGA (2017)
ORCHARD REPLANT DISEASE	APPLE	Hi P	Better	Braun, Fuller, McRae., Fillmore (2010)
BITTER PIT	APPLE	Hi soil K:Ca	Worse	Weibel, (1997)
INTERNAL CORKING	APPLE	Low B	Worse	AHDB (2015)
PREMATURE FRUIT DROP	APPLE	Low B	Worse	Turner (1970)
FLOWER BUD FORMATION	APPLE	Low C: Hi N	Worse	Cameron, Dennis (1986)
CORK SPOT	APPLE	Low Ca	Worse	Raese (1980)
WATER CORE	APPLE	Low Ca	Worse	AHDB (2015)
BLACK ROT, <i>Spaeropsis</i>	APPLE	Low Fe	Worse	Butler, Jones (1955)
STORAGE BREAKDOWN, BITTER PIT	APPLE	Low K	Worse	Perring (1968)
SCAB	APPLE	Low N	Better	Kühn, Pedersen (2009)
FRUIT FRIMNESS	APPLE	Low P	Worse	Sharples, (1980)
FRUIT FIRMNESS	APPLE	Optimum K/Ca ratio	Better	Dilmaghani, et al (2005)
POST HARVEST BROWNING	APPLE	Zn fertilization	Better	Malakouti, (2001)
FRUIT RESPIRATION - STORAGE	APPLE, PEAR	Hi N, Low Ca	Worse	Swindeman (2002)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
STORAGE LONGEVITY	APRICOT	Ca sprays	Better	El-Motty, et al (2007)
BACTERIAL CANKER	APRICOT	Hi Ca	Better	Vigouroux, Bussi (1995)
BROWN ROT, <i>Sclerotinia</i>	APRICOT	Hi K	Better	Wade (1956)
DELAYED MATURITY	APRICOT	Hi N	Worse	Bacon (1996)
DISCOLORATION (Drying)	APRICOT	Hi N	Worse	Rettke, Pitt, Maier, Jones (2006)
FIRMNESS, SO2 CONTENT	APRICOT	Hi N	Worse	Rettke, Pitt, Maier, Jones (2006)
FROST HARDINESS – FLOWERS	APRICOT	Hi N	Worse	Szücs (1985)
FRUIT FLAVOR, COLOR	APRICOT	Hi N	Worse	Glozer, Ferguson (2007)
PIT BURN	APRICOT	Hi N	Worse	Bacon (1996)
PIT BURN	APRICOT	Hi N	Worse	Claypool, (1975)
PREMATURE BROWNING	APRICOT	Hi N	Worse	Rettk, Pitt, Maier, Jones (2006)
FRUIT SUGAR	APRICOT	Hi N, Low K	Worse	Bayram, et al (2007)
PHENOLIC COMPOUNDS, SUGAR	APRICOT	Hi N, Low K	Worse	Radi, Mahrouz, Jaouad, Amiot 2003)
BACTERIAL CANKER, <i>Pseudomonas</i>	APRICOT	Low Ca	Worse	Scortichini (2010)
INFECTION, <i>Pseudomonas</i>	APRICOT	Low Ca	Worse	Vigouroux, Bussi (1999)
BROWN ROT	APRICOT	Low K	Worse	Griffith (1975)
PHENOLIC COMPOUNDS, SUGAR	APRICOT	Low N	Better	Radi, et al (1997)
BLOSSOM, TWIG BLIGHT, <i>Botrytis</i>	BLUEBERRY	Hi N	Worse	Carroll, Pritts, Heidenreich (2016)
FLOWER FORMATION	BLUEBERRY	Hi N	Worse	Adams (2014)
FOLIAR PATHOGENS	BLUEBERRY	Hi N	Worse	Fulcher, et al (2015)
FROST RESISTANCE	BLUEBERRY	Hi N	Worse	Adam (2014)
FRUIT FIRMNESS	BLUEBERRY	Hi N	Better	Ehret, et al (2014)
ANTHRACNOSE	CASHEW	Hi Ca	Better	Dama, Murthy (2003)
BROWN, STORAGE ROTS	CHERRY	Ca dips	Better	Feliziani, Santini, Landi, Romanazzi (2013)
FRUIT CRACKING	CHERRY	Ca foliar	Better	Westwood (1978)
POST HARVEST DECAY	CHERRY	Ca foliar	Better	Rupert, Vikupitz, et al (1997)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
STORAGE ABILITY	CHERRY	Ca sprays	Better	Díaz-Mula, et al (2013)
STORAGE QUALITY	CHERRY	Hi Ca	Better	Wang, Xie, Long (2014)
NEMATODES, (Species; <i>H.d.</i> & <i>Tyl.</i>)	CHERRY	Hi K	Worse	Kirkpatrick, Mai, Parker, Fisher (1964)
SOFT FRUIT	CHERRY	Hi K, Low Ca	Worse	Curwen, McArdle & Ritter (1966)
APHID	CHERRY	Hi N	Worse	Schüepp, et al (2014)
APHID	CHERRY	Hi N	Worse	Schüepp, et al (2014)
APHID	CHERRY	Hi N	Worse	Schüepp, Uzman, Herzog, Entling (2014)
BACTERIAL CANKER	CHERRY	Hi N	Worse	OSU (1999)
BACTERIAL CANKER	CHERRY	Hi N	Worse	Spotts, et al (2010)
BACTERIAL CANKER	CHERRY	Hi N	Worse	Olsen, et al (2014)
FRUIT FIRMNESS, FLAVOR	CHERRY	Hi N	Worse	Swarts, Mertes, Close (2017)
WINTER INJURY	CHERRY	Hi N	Worse	Lehnert, (2011)
BOTRYTIS ROT	CHERRY	Increased Ca	Better	Demirsoy, Bilgener (1998)
PRE HARVEST CRACKING	CHERRY	Low Ca	Worse	Shear (1975)
CHERRY DECLINE	CHERRY	Low Ca, K	Worse	Melakeberhan, Bird, Jones (2001)
NEMATODES, (Species; <i>X.a.</i> & <i>P.p.</i>)	CHERRY	Low K	Worse	Kirkpatrick, Mai, Parker, Fisher (1964)
STECKLENBERG DISEASE	CHERRY	Low P, Ca, & Mg	Worse	Baumann, von Olfers (1976)
NEMATODES	CHERRY	Optimum Fertilization	Better	Melakeberhan, Bird, Gore (1997)
PHYTOPHTHORA	CHERRY	Poor drainage	Worse	Mircetich, Schreder, et al (1979)
POST HARVEST DECAY	CHERRY	Post harvest Ca	Better	Vangdal, Nordbø, Flatland (2005)
COLD HARDINESS	CHERRY	Urea N sprays	Better	Ouzounis, & Lang (2011)
FLAVOR	FRUIT	Hi N, Water	Worse	Kader (2008)
APHID	FRUIT TREES	Hi N	Worse	Murray (2015)
CANKER, <i>Cytospora</i>	FRUIT TREES	Hi N	Worse	Murray (2015)
MITES	FRUIT TREES	Hi N	Worse	Hanna, Zaher, & Ibrahim (1982)
THIN CUTICLES	FRUIT TREES	Hi N	Worse	Hanna, Zaher, & Ibrahim (1982)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
IRON CHLOROSIS	FRUIT TREES	Hi N, HCO ₃	Worse	Lucena, (2000)
LEAFHOPPERS	FRUIT TREES	Hi N:C ratio	Worse	Brodbeck, Andersen, Mizell (1996)
IRON CHLOROSIS	FRUIT TREES	Hi NO ₃	Worse	Tagliavini, Rombolà (2001)
MEALYBUG	FRUIT TREES	Hi vigor	Worse	Warner (1992a)
ORCHARD DECLINE	FRUIT TREES	Low Ca	Worse	Traynor (1986)
WINTERKILL	FRUIT TREES	Low K	Worse	Griffith (1975)
MITES	FRUIT TREES	Low N	Better	Post (1961)
2 SPOT MITE	FRUIT TREES	Low P	Worse	Harries (1966)
GREEN PEACH APHID, WINGED	FRUIT TREES	Low Zn, Fe	Worse	Raccah, Tahori, Applebaum (1971)
STEM DIEBACK (STIELLAEHME)	GRAPE	Ca + Mg sprays	Better	Boselli, Bavaresco, Fregoni (1985)
STORAGE LIFE	GRAPE	Ca dips	Better	Siddiqui, Bangerth (1995)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Ca sprays	Better	Amiri, Fallahi, & Safari (2009)
BUNCH ROT	GRAPE	Ca, K sprays	Better	Youssef & Roberto (2014)
POWDERY MILDEW	GRAPE	Foliar P	Better	Reuveni, Reuveni (1995)
BERRY - DISEASE RESISTANCE	GRAPE	Hi Ca	Better	Saxton, V. (2002)
<i>Botrytis</i> & OTHER BUNCH ROTS	GRAPE	Hi Ca	Better	Miceli, Ippolito, Linsalata, Nigro (1999)
<i>Botrytis</i> ROT	GRAPE	Hi Ca	Better	Chardonnet, Doneche (1995)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Hi Ca	Better	Chardonnet, Doneche (1995)
FREEZE RESISTANCE	GRAPE	Hi Ca	Better	Eifert, Szoeki Varnai, Nagy (1986)
STORAGE ROT, <i>Botrytis</i>	GRAPE	Hi Ca	Better	Miceli, Ippolito, Linsalata, Nigro (1999)
STORAGE LIFE	GRAPE	Hi Ca, B	Better	Kruger, Snjidier, Fraser (2003)
FROST RESISTANCE	GRAPE	Hi Ca, P	Better	Eifert, Szoeki, Varnai, Nagy (1986)
<i>Botrytis</i> ROT	GRAPE	Hi K	Better	Kiraly (1976)
STEM NECROSIS (STIELLAEHME)	GRAPE	Hi K:Ca + Mg	Worse	Brechbuhler (1975)
GRAPE STALK NECROSIS	GRAPE	Hi K:Ca ratio	Worse	Cocucci, et al (1988)
EUTYPA	GRAPE	Hi Mg	Better	Colrat, et al (1999)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
2 SPOT MITE	GRAPE	Hi N	Worse	Hansen, (2014)
ANTHOCYANIN CONTENT	GRAPE	Hi N	Worse	Hilbert, et al (2003)
ANTIOXIDANT CONTENT	GRAPE	Hi N	Worse	Malusa, Laurenti, Ghibaudi, Rolle (2002)
AROMA	GRAPE	Hi N	Worse	Peyrot, et al (2005)
<i>Botrytis</i> ROT	GRAPE	Hi N	Worse	Delas, Molot, Soyer, (1984)
<i>Botrytis</i> ROT	GRAPE	Hi N	Worse	Chambers, et al (1993)
<i>Botrytis</i> ROT	GRAPE	Hi N	Worse	Keller, Kummer, Vasconcelos (2001)
<i>Botrytis</i> ROT	GRAPE	Hi N	Worse	Delas, Molot, Soyer (1991)
BUD & STEM NECROSIS	GRAPE	Hi N	Worse	Bacon (1996)
BUD FORMATION	GRAPE	Hi N	Worse	Martín, et al (2004)
BUNCH ROT	GRAPE	Hi N	Worse	R-Houma, Cherif, Boubacker (1998)
BUNCH ROT	GRAPE	Hi N	Worse	Conradie, & Saayman (1989)
BUNCH ROT	GRAPE	Hi N	Worse	R'Houma, Chérif, & Boubaker (1998)
BUNCH ROT	GRAPE	Hi N	Worse	Thomidis, et al (2016)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Hi N	Worse	Wilcox, (2005)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Hi N	Worse	Wolf (2003)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Hi N	Worse	Mundy & Beresford (2007)
BUNCH ROT, <i>Botrytis</i>	GRAPE	Hi N	Worse	Chérif, Boubaker (1997)
BUNCH ROT, POWDERY MILDEW	GRAPE	Hi N	Worse	CSWA., WI., CAWG (2012)
BUNCH ROT, STEM NECROSIS	GRAPE	Hi N	Worse	Keller, Kummer, & Vasconcelos (2001)
BUNCH STEM NECROSIS	GRAPE	Hi N	Worse	Keller, Kummer, Vasconcelos (2001)
COLOR, OXIDATIVE STABILITY	GRAPE	Hi N	Worse	Keller, Pool, Henick-Kling (1999)
DELAYED MATURITY	GRAPE	Hi N	Worse	Bacon (1996)
DELAYED RIPENING	GRAPE	Hi N	Worse	Delgado, et al (2004)
DELAYED RIPENING	GRAPE	Hi N	Worse	Wade, et al (2002)
DIE BACK, <i>Phomopsis</i>	GRAPE	Hi N	Worse	Kast (1991)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
DOWNEY MILDEW	GRAPE	Hi N	Worse	Bavaresco, Eibach (1987)
DOWNEY MILDEW, <i>Plasmopara</i>	GRAPE	Hi N	Worse	Bavaresco, Eibach (1937)
FLAVONOIDS, ANTHOCYANINS	GRAPE	Hi N	Worse	Habran, et al (2016)
FRUIT COLOR	GRAPE	Hi N	Worse	Hawk, Martinson (2006)
FRUIT, CANE, LEAF ROT, <i>Phomopsis</i>	GRAPE	Hi N	Worse	CSWA., WI., CAWG. (2012)
GRAPE LEAFHOPPER	GRAPE	Hi N	Worse	CSWA., WI., CAWG (2012)
LEAFHOPPER	GRAPE	Hi N	Worse	Mayse, Roltsch, Roy, (1991)
MEALYBUG	GRAPE	Hi N	Worse	Daane, et al (2002)
MEALYBUG - female size, fecundity	GRAPE	Hi N	Worse	Daane, K., et al (2012)
PACIFIC MITE	GRAPE	Hi N	Worse	Wilson (1988)
PACIFIC MITE	GRAPE	Hi N	Worse	Wilson, et al (1988)
PACIFIC MITE	GRAPE	Hi N	Worse	Wilson, et al (1988)
PHOMOPSIS CANE SPOT	GRAPE	Hi N	Worse	Bacon (1996)
PHOMOPSIS CANE SPOT	GRAPE	Hi N	Worse	Katz (1999)
POWDERY MILDEW	GRAPE	Hi N	Worse	Bavaresco, Eibach (1987)
POWDERY MILDEW	GRAPE	Hi N	Worse	WSU (1995)
POWDERY MILDEW	GRAPE	Hi N	Worse	Keller, Rogiers, Schultz (2003)
POWDERY MILDEW, <i>Oidium</i>	GRAPE	Hi N	Worse	Bavaresco, Eibach (1937)
RESVERATROL CONTENT	GRAPE	Hi N	Worse	Bavaresco, et al (2005)
SKIN COLOR	GRAPE	Hi N	Worse	Keller, Pool, Henick-Kling (1999)
SKIN COLOR	GRAPE	Hi N	Worse	Hilbert (2003)
SOUR ROT	GRAPE	Hi N	Worse	Bisiach, Minervini, Zerbetto (1986)
VINE MEALYBUG	GRAPE	Hi N	Worse	Aphids (2013)
VINE MEALYBUG	GRAPE	Hi N	Worse	Cocco, et al (2014)
VINE MEALYBUG	GRAPE	Hi N	Worse	Muscas, et al (2017)
WATER BERRY	GRAPE	Hi N	Worse	Christensen, Boggero (1985)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
WATERBERRY	GRAPE	Hi N	Worse	Crisosto & Smilanick (2004)
WINE AROMA	GRAPE	Hi N	Worse	Marangoni, et al (2001)
<i>Botrytis</i> ROT	GRAPE	Hi N Low Ca & K	Worse	Young (1988)
<i>Botrytis</i> ROT	GRAPE	Hi N Low Ca & K	Worse	Gurnsey, (2005)
POOR FRUIT SET	GRAPE	Hi N (Bloom)	Worse	Pollock (2017)
<i>Botrytis</i> ROT	GRAPE	Hi N, Low K	Worse	Munson (1985)
CROWN GALL	GRAPE	Hi N, Low K	Worse	Munson (1985)
BLOSSOM SHATTER	GRAPE	Hi N, Low Zn or B	Worse	Christensen, Kasimatis, Jensen (1978)
<i>Botrytis</i> ROT	GRAPE	Hi N, Poor Ca:Mg:K	Worse	Fregoni (1983)
RACHIS NECROSIS	GRAPE	Hi N, Poor Ca:Mg:K	Worse	Cline (1987)
MITES	GRAPE	Hi N:P ratio	Worse	Chaboussou (1960)
INFLORESCENCE NECROSIS	GRAPE	Hi NH ₃	Worse	Jordan (1989)
IRON CHLOROSIS	GRAPE	Hi NO ₃	Worse	Tagliavini, Rombolà (2001)
PHYLLOXERA	GRAPE	Hi Vigor	Worse	Kimberling, Scott, & Price (1990)
LEAFHOPPER	GRAPE	Hi water & vigor	Worse	Daane, et al (1995)
GRAPE PHYLLOXERA	GRAPE	Higher soil pH	Better	Reisenzein, et al (2007)
BOIS NOIR, GV YELLOW S DISEASE	GRAPE	Low Ca	Worse	Schweigkofler, Cassar, Stimpfl (2008)
NEMATODES	GRAPE	Low Ca	Worse	Traynor (1986)
SHELF LIFE	GRAPE	Low Ca	Worse	Salisbury, Ross (1992)
SHOOT NECROSIS	GRAPE	Low Ca	Worse	Fournioux, Bessis (1987)
PIERCE'S DISEASE	GRAPE	Low Ca:P	Better	Leite, et al (2004)
BLACK LEAF	GRAPE	Low K	Worse	Pearson, Goheen (1988)
<i>Phylloxera</i>	GRAPE	Low Mn	Worse	Perov, et al (1971)
BUNCH STEM NECROSIS	GRAPE	Low N	Worse	Capps (1999)
PHENOLICS, WINE QUALITY	GRAPE	Low N, Water	Better	Choné, et al (2017)
POWDERY MILDEW	GRAPE	Low NPK	Worse	Reuveni, et al (1994)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
BLOSSOM SHATTER	GRAPE	Low P	Worse	Cook, Ward, Wicks (1983)
YOUNG VINE DECLINE/ESCA	GRAPE	Low Zn, B, Mg, K	Worse	Stamp (2003)
BUNCH STEM NECROSIS	GRAPE	Mg sprays	Better	Bachteler (2014)
EUROPEAN GRAPEVINE MOTH	GRAPE	Mod N	Better	Filip (1985)
AROMA POTENTIAL	GRAPE	Moderate N	Better	Peyrot des Gachons, et al (2005)
SKIN ANTHOCYANIN CONTENT	GRAPE	Moderate N	Better	Delgado, et al (2004)
<i>Eutypa</i> DIEBACK	GRAPE	Optimum Mg	Better	Colrat, et al (1999)
GRAPE <i>Phylloxera</i>	GRAPE	Poor K:Mg ratio	Worse	Reisenzein, et al. (2007)
<i>Botrytis</i> ROT	GRAPE	Pre harvest Ca spray	Better	Miceli, Ippolito, Linsalata, Nigro (1999)
<i>Phytophthora</i>	GRAPE	Wet, acid soil	Worse	Wolpert, Walker, Weber (1992)
STORAGE WEIGHT LOSS, DECAY	GRAPES	CaNO ₃ sprays	Better	Gupta, Jindal, Singh (1979)
INTERNAL BROWNING	HAZELNUT	Ca sprays	Better	Cacka, Sanguaneko (2012)
KERNEL MOLD	HAZELNUT	Ca sprays	Better	Cacka, Sanguaneko (2012)
BLIGHT, <i>Xanthomonas</i>	HAZELNUT	Hi N, Low Mg	Worse	Lamichhane, et al (2013)
BACTERIAL CANKER	HAZELNUT	Low Ca, pH; Hi Al	Worse	Scortichini (2006)
FRUIT PITTING	KIWI	Hi Ca	Better	Thorp, Ferguson, Boyd, Barnett (2003)
POST HARVEST BRUISING	KIWI	Hi Ca	Better	Benge, Banks, Tillman, De Silva (2000)
<i>Botrytis</i> ROT	KIWI	Hi N	Worse	Pertot, Perin (1999)
FLOWER BLIGHT, <i>Pseudomonas</i>	KIWI	Hi N	Worse	Balestra, Varvaro (1997)
FRUIT SOFTENING	KIWI	Hi N	Worse	Vizzotto, Lain, & Costa (1999)
VITAMIN C CONTENT	KIWI	Hi N	Worse	Vizzotto, Lain, & Costa (1999)
FRUIT FIRMNESS	KIWI	Hi N, K:Ca	Worse	Pacheco, et al (2008)
SUGAR CONTENT	KIWI	Hi N,P or K	Worse	Smith (1994)
FRUIT FIRMNESS	KIWI	Hi N: Low Ca	Worse	Zoffoli, Gil, Crisosto (1999)
<i>Botrytis</i> ROT	KIWI	Hi N:Ca	Worse	Prasad, Spiers (1992)
STORAGE QUALITY	KIWI	Hi N:Ca ratio	Worse	Tagliavini (1993)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
STORAGE ROT	KIWI	Low Ca	Worse	Dichio, Remorini, & Lang (2003)
FRUIT FIRMNESS	KIWI	Low N	Better	Hasey, et al (1997)
BROWN ROT	NECTARINE	Ca sprays	Better	Adaskaveg (1996)
FRUIT FIRMNESS	NECTARINE	Ca sprays	Better	Manganaris, et al. (2006)
POWDERY MILDEW	NECTARINE	Foliar P	Better	Reuveni, Reuveni, (1995)
BROWN ROT	NECTARINE	Hi N	Worse	Michailides, et al (1993)
BROWN ROT	NECTARINE	Hi N	Worse	Johnson, et al (2013)
BROWN ROT	NECTARINE	Hi N	Worse	Daane, et al (1995)
BROWN ROT	NECTARINE	Hi N	Worse	Michailides, Johnson (1991).
COLOR, WATER LOSS	NECTARINE	Hi N	Worse	Crisosto (1994)
CUTICLE DENSITY	NECTARINE	Hi N	Worse	Day (1997)
FRUIT WATER LOSS	NECTARINE	Hi N	Worse	Day (1997)
PEACH TWIG BORER	NECTARINE	Hi N	Worse	Daane, et al (1995)
PEACH TWIG BORER	NECTARINE	Hi N	Worse	Weinbaum, Johnson, DeJong (1992)
PEACH TWIG BORERS	NECTARINE	Hi N	Worse	Weinbaum, Johnson, DeJong (1992)
RED COLORATION	NECTARINE	Hi N	Worse	Day (1997)
NECTARINE POX	NECTARINE	Hi N,K, Mg; Low Ca, B	Worse	Ogawa, et al (1995)
FRUIT BROWNING	NECTARINE	Low N, P	Worse	Olivos, et al (2012)
FRUIT BROWNING in STORAGE	NECTARINE	Low P	Worse	Johnson, et al (2013)
BROWN ROT	PEACH	B sprays, dips	Better	Thomidis, Exadaktylou (2010)
FLESH FIRMNESS	PEACH	B sprays, dips	Better	Thomidis, Exadaktylou (2010)
BROWN ROT	PEACH	Ca dips	Better	Biggs, et al, (1997)
FIRMNESS, STORAGE DISEASE	PEACH	Ca dips	Better	Rahman, (2016)
PEACH TWIG CANCKER	PEACH	Ca salts	Better	Biggs, El-Kholi, El-Neshawy (1994)
BROWN ROT	PEACH	Ca sprays	Better	Adaskaveg (1996)
BROWN ROT	PEACH	Ca sprays	Better	Manganaris, et al (2005)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
BROWN ROT	PEACH	Ca, B sprays	Better	Kavvadias, et al (2012)
FRUIT CRACKING	PEACH	Ca, B sprays	Better	Kavvadias, et al (2012)
BACTERIAL DIEBACK	PEACH	Hi Ca	Better	Vigouroux, Bussi. (1989)
BROWN ROT	PEACH	Hi Ca	Better	Thomidis, et al (2007)
POST HARVEST BRUISING	PEACH	Hi Ca	Better	Prussia, S., et al (2005)
POST HARVEST DECAY	PEACH	Hi Ca	Better	Conway, (1989)
STORAGE QUALITY	PEACH	Hi Ca	Better	Gupta, Jawandha, Gill (2011)
VITAMIN C, SUGAR, PECTIN	PEACH	Hi Ca	Better	Singh (2000)
WOUND HEALING - BROWN ROT	PEACH	Hi Ca	Better	Souza (2001)
BACTERIAL SPOT	PEACH	Hi K	Better	Mathee & Daines (1969)
BACTERIAL CANKER	PEACH	Hi K, Low Ca	Worse	Vigouroux, Berger, Bussi (1987).
2 SPOT MITE	PEACH	Hi N	Worse	Altieri (2005)
BROWN ROT	PEACH	Hi N	Worse	Michailides, et al (1993)
BROWN ROT FRUIT LESIONS	PEACH	Hi N	Worse	Parda (2012)
COLORING, MATURITY	PEACH	Hi N	Worse	Sistrunk (1985)
FLESH FIRMNESS. PECTIN	PEACH	Hi N	Worse	Jia, Mizuguchi, Hirano, Okamoto (2006)
FRUIT COLOR	PEACH	Hi N	Worse	Kato, et al (2000)
FRUIT SUTURE SOFTENING	PEACH	Hi N	Worse	Ma, Liu (2006)
GREEN PEACH APHID	PEACH	Hi N	Worse	Rousselin, et al (2016)
LEUCOSTOMA CANKER	PEACH	Hi N	Worse	Biggs, (1989)
PEACH CANKER, <i>Phomopsis</i>	PEACH	Hi N	Worse	Simões, et al (2008)
POST HARVEST DEHYDRATION	PEACH	Hi N	Worse	Crisosto, Mitchell (2002)
SOFT FRUIT	PEACH	Hi N	Worse	Southwick (2004)
SPLIT PIT	PEACH	Hi N	Worse	Bacon (1996)
SPLIT PIT	PEACH	Hi N	Worse	Claypool, Uriu, Lasker (1972)
SUGAR	PEACH	Hi N	Worse	Takano (2003)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
<i>Pseudomonas</i> CANKER	PEACH	Hi N, Low Ca	Better	Cao, et al (2006)
BACTERIAL CANKER	PEACH	Hi N:Ca	Worse	Cao et al (2013)
CANKER, <i>Cytospora</i>	PEACH	Hi or Low N	Worse	Cline (1980)
BACTERIAL CANKER	PEACH	High C:N ratio	Worse	Cao, T. et al (2005)
BROWN ROT	PEACH	Increased Ca	Better	Elmer, Spiers, Wood (2007)
APHID	PEACH	Lo or Hi N	Better	Sauge, Grechi, Poëssel (2010)
BACTERIAL CANKER, <i>Pseudomonas</i>	PEACH	Low C/N	Worse	Reighard, Bridges, Glenn, Mayer (2016)
BACTERIAL CANKER, <i>Pseudomonas</i>	PEACH	Low Ca	Worse	Scortichini (2010)
INFECTION, <i>Pseudomonas</i>	PEACH	Low Ca	Worse	Vigouroux, Bussi (1999)
INTERNAL BREAKDOWN	PEACH	Low Ca	Worse	Manganaris, et al. (2006)
PEACH DECLINE	PEACH	Low Ca	Worse	Gallaher, Perkins, Jones (1975)
BACTERIAL SPOT, <i>Xanthomonas</i>	PEACH	Low K	Worse	Mathee, Daines (1969)
BACTERIAL CANKER	PEACH	Low N	Worse	Cao, et al. (2005)
APHID	PEACH	Mod N	Worse	Sauge, Grechi, Poëssel (2010)
APHID	PEACH	Mod N	Worse	Sauge, Grechi, Poëssel (2010)
APHIDS	PEACH	Mod N	Worse	Sauge, Grechi, Poëssel (2010)
FRUIT SET	PEACH	Optimum – Hi B	Better	Johnson (2003)
APHID	PEACH	Optimum N	Better	Sauge, Grechi, Poëssel (2010)
DIEBACK, <i>Phytophthora</i>	PEACH	Poor drainage	Worse	Burnham (1996)
FRUIT FIRMNESS	PEACH	Post harvest Ca	Better	Prussia, (2005)
FREEZE DAMAGE	PEAR	Ca sprays	Better	Raese, Drake (1992)
FRUIT FRIMNESS	PEAR	Ca sprays	Better	Moon, Lim, Choi, Suh (2000)
FIREBLIGHT	PEAR	Good soil Ca balance	Better	Stanley (1993)
PREMATURE FRUIT DROP	PEAR	Hi B, K; Low Mg, Fe	Worse	Admin/Editor (2012)
BROWN SPOT, <i>Stemphylium</i>	PEAR	Hi Ca	Better	Toselli, et al (1994)
CORK SPOT	PEAR	Hi Ca	Better	Raese, J. (1993)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
FIREBLIGHT	PEAR	Hi Ca	Better	Lewis, Kenworthy (1962)
FIREBLIGHT	PEAR	Hi Ca	Better	Toselli, et al (1994)
FRUIT ROT, <i>Botrytis</i>	PEAR	Hi Ca	Better	Vaz (1984)
FRUIT ROT, <i>Penicillium</i>	PEAR	Hi Ca	Better	Vaz (1984)
STORAGE TIME	PEAR	Hi Ca	Better	Wills, Tirmazi, Scott (1982)
FIRE BLIGHT	PEAR	Hi K	Better	Parker, et al (1961)
CORK SPOT	PEAR	Hi K:Ca	Worse	Warner (2007)
2 SPOT MITE	PEAR	Hi N	Worse	Hukusima (1958)
BACTERIAL CANKER, <i>Phytophthora</i>	PEAR	Hi N	Worse	Laywisadkul (2007)
BROWN ROT	PEAR	Hi N	Worse	Llorente & Montesinos (2006)
COLD TOLERANCE	PEAR	Hi N	Worse	Raese (1997)
EUROPEAN RED MITE	PEAR	Hi N	Worse	van de Vrie, McMurty, Huffaker (1972)
FALL SHOOT BLIGHT, <i>Pseudomonas</i>	PEAR	Hi N	Worse	Pataky (2002)
FIREBLIGHT	PEAR	Hi N	Worse	Lewis, Kenworthy (1962)
FIREBLIGHT	PEAR	Hi N	Worse	Toenjes (1949)
FIREBLIGHT	PEAR	Hi N	Worse	Williams, Couey, Moffitt, Coyier (1978)
FIREBLIGHT	PEAR	Hi N	Worse	Agrios (1997)
FIREBLIGHT	PEAR	Hi N	Worse	Van der Zwet, Keil (1979)
FRECKLE PIT	PEAR	Hi N	Worse	Raese & Staiff (1989)
PEAR PSYLLA	PEAR	Hi N	Worse	Burkhart, Shearer (1990)
PEAR PSYLLA	PEAR	Hi N	Worse	Flint (1991)
PEAR PSYLLA	PEAR	Hi N	Worse	Alston, Evans, Roe, Jenkins (2001)
PEAR PSYLLA	PEAR	Hi N	Worse	Pfeiffer, Burts (1983)
PEAR PSYLLA	PEAR	Hi N	Worse	Daugherty, Briggs, Welter (2007)
PEAR PSYLLA	PEAR	Hi N	Worse	Shaltiel-Harpaz, et al (2010)
PEAR PSYLLA	PEAR	Hi N	Worse	Beers, Brunner, Willet, Warner (1993)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
PEAR PSYLLA	PEAR	Hi N	Worse	Shaltiel-Harpaz, et al (2010)
PEAR PSYLLA	PEAR	Hi N	Worse	Warner (2014)
PEAR PSYLLA	PEAR	Hi N	Worse	McMullen & Jong (1972)
PEAR PSYLLA	PEAR	Hi N	Worse	Sugar, Righetti, Westigard (1989)
PEAR PSYLLA - Damage	PEAR	Hi N	Worse	Raese, Staiff (1989)
PEAR PSYLLA - Fecundity	PEAR	Hi N	Worse	Hodkinson (1974)
<i>Phytophthora</i>	PEAR	Hi N	Worse	Laywisadkul, (2008)
POSTHARVEST ROT	PEAR	Hi N	Worse	Bacon (1996)
PREMATURE FRUIT DROP	PEAR	Hi N	Worse	Admin/Editor (2012)
SPIDER MITES	PEAR	Hi N	Worse	Post (1962)
SUGAR, SCALD, FLAVOR	PEAR	Hi N	Worse	Joshi, Bhutani (1995)
WINTER INJURY	PEAR	Hi N	Worse	Olsen, et al (2014)
PEAR ROT, <i>Penicillium</i>	PEAR	Hi N, Low Ca	Worse	Sugar, et al (1992)
FIREBLIGHT	PEAR	Hi N, Low K, Mn	Worse	Koseoglu, Tokmak, Momol (1996)
BLOSSOM BLAST	PEAR	Low B	Worse	Turner (1970)
BLACK END	PEAR	Low Ca	Worse	Peterson & Stevens (1994)
CORK SPOT	PEAR	Low Ca	Worse	Westwood (1978)
PEAR PSYLLA - Honeydew production	PEAR	Low N	Worse	Pfeiffer, Burts (1984)
POSTHARVEST ROT	PEAR	Low N, Hi Ca	Better	Sugar, Righetti, et al (1992)
POSTHARVEST ROT	PEAR	Low N, Hi Ca	Better	Warner (1992)
STORAGE ROTTS	PEAR	Low N, Hi Ca	Better	Warner (2010)
PHYTOPLASMA DISEASE	PEAR	Poor Fe/Mn	Worse	Rossi (2010)
CANKER, DEAD ARM, <i>Sphaeropsis</i>	PEAR, APPLE	Fe sprays	Better	Graham (1983)
FIREBLIGHT	PEAR, APPLE	Hi N	Worse	Fulcher, Bowers (2013)
FIREBLIGHT	PEAR, APPLE	Low N, Optimum Ca	Better	Ostenson, Granatstein (2013)
BLACK PECAN APHIDS	PECAN	Hi N	Worse	Wood, Reilly (2000)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
KERNEL NECROSIS	PECAN	Hi N	Worse	Wagle, Smith. Wood, Rohla (2011)
LEAF SCORCH MITE	PECAN	Hi N	Worse	Wood, Reilly (2000)
POTASSIUM DEFICIENCY	PECAN	Hi N	Worse	Pollack (1998)
ROOT PRODUCTION, LIFESPAN	PECAN	Hi N	Worse	Graves (2014)
STICKTIGHT	PECAN	Hi N	Worse	Goldberg (2001)
NEMATODES	PECAN	Low Ni	Worse	Nyczepir, Wood, Reilly (2006)
PECAN LEAF SCORCH MITE	PECAN	Mod N	Worse	Jackson, Patrick, Hunter (1983)
PISTACHIO PSYLLID	PISTACHIO	Hi Ca	Better	Rouhani, Samih, Esmaeilizadeh (2012)
PSYLLA	PISTACHIO	Hi Ca	Better	Rouhani, Samih & Esmaeilizadeh (2012)
PISTACHIO PSYLLID	PISTACHIO	Hi N, Zn	Worse	Rouhani, Samih, Esmaeilizadeh (2012)
WINTER JUVENILE TREE DIEBACK	PISTACHIO	Low Ca-Hi Na	Worse	Kallsen (2012)
<i>Verticillium</i> WILT	PISTACHIO	Low P or K	Worse	Ashworth, Morgan, Surber (1986)
<i>Botryosphaeria</i> BLIGHT	PISTACHIO	Optimum N, Ca, K	Better	Michailides, et al (2002)
FRUIT SIZE	PLUM	Adequate K	Better	Southwick (2004)
SOLUBLE SOLIDS	PLUM	Adequate K	Better	Southwick (2004)
HARVEST DAMAGE; FIRMNESS	PLUM	Ca sprays	Better	Manganaris, Vicente, & Crisosto (2008)
MECHANICAL DAMAGE- Resistance	PLUM	Ca sprays	Better	Serrano, et al (2004)
BROWN ROT, STORAGE QUALITY	PLUM	Hi Ca	Better	Vangdal, Borve (2002)
NEMATODES	PLUM	Hi K	Worse	Sharma, Thakur, Kashyap (2003).
SOLUBLE SOLIDS/SUGAR	PLUM	Hi K	Better	Cuquel, Motta, Tutida, Mio (2011)
COLOR & SUGAR CONTENT	PLUM	Hi N	Worse	Cuque, Motta, Tutida, De Mio (2011)
FRUIT FIRMNESS	PLUM	Hi N	Worse	Cuquel, Motta, Tutida, Mio (2011)
SHOT HOLE	PLUM	Hi N	Worse	Lamey, Stack (1991)
SHOT HOLE, <i>Pseudomonas</i>	PLUM	Hi N	Worse	Lamey, Stack (1991)
SPIDER MITES	PLUM	Hi N	Worse	Post (1962)
STORAGE QUALITY	PLUM	Hi N	Worse	Cuqul, Motta, Tutida, De Mio (2011)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
TOTAL ACIDITY	PLUM	Hi N	Worse	Cuquel, Motta, Tutida, Mio (2011)
FRESH & STORAGE QUALITY	PLUM	Hi N, Low K	Worse	May-De-Mio, et al (2008)
BACTERIAL CANKER	PLUM	Hi P	Worse	Beard, Wormald (1936)
FIRMNESS, SOLUBLE SOLIDS	PLUM	Low N, Hi K	Better	Cuquel, Motta, Tutida, Mio (2011)
STORAGE QUALITY	PLUM	Low N, Hi K	Better	Cuquel, Motta, Tutida, & Mio (2011)
STORAGE QUALITY	PLUM	Optimum N, K	Better	Cuquel, et al. (2011)
NEMATODES	PLUM	P,K	Better	Sharma, Thakur, Kashyap (2003).
BROWN ROT	PRUNE	Ca sprays	Better	Wojcik (2001)
CANKER, <i>Cytospora</i>	PRUNE	Hi K	Better	Bertrand, et al (1979)
BROWN ROT	PRUNE	Hi N	Worse	Niederholzer, Adaskaveg (2009)
BROWN ROT	PRUNE	Hi N	Worse	Buchner (2012)
DRYING QUALITY, MATURITY	PRUNE	Hi N	Worse	Stebbins, et al (1982)
CANKER, <i>Cytospora</i>	PRUNE	Low K	Worse	Johnson (2017)
CYTOSPORA CANKER	PRUNE	Low K	Worse	Bertand, English, Carlson (1976)
DIE-BACK	PRUNE	Low K	Worse	Dixon (1990)
BACTERIAL CANKER	PRUNE	Low N	Worse	Southwick, et al (1996)
CANKER, <i>Cytospora</i>	PRUNE	Low N, Low K	Worse	Ogawa, et al (1995)
BROWN ROT	PRUNE	Wet soil	Worse	Michailides, Luo, Ma, Morgan (2007)
SHOT HOLE	STONE FRUIT	Ca, K sprays	Better	Azza, Korra (2010)
BACTERIAL ROT	STONE FRUIT	Hi N	Worse	Stefani (2010)
BACTERIAL SPOT, <i>Xanthomonas</i>	STONE FRUIT	Hi N	Worse	University of Illinois (1989)
PEACH FLATHEAD ROOTBORER	STONE FRUIT	Hi N	Worse	Sharon, Peles, Gordo, & Harari (2010)
SHOT HOLE	STONE FRUIT	Hi N	Worse	Lamey, Stack (1991)
BACTERIAL CANKER	STONE FRUIT	Low N	Worse	Cao, T. et al (2005)
APHID	VARIOUS	Hi N	Worse	Denno (1985)
APHID	VARIOUS	Hi N	Worse	Strauss (1987)

INTERACTIONS between NUTRIENTS/SOIL CONDITIONS and PESTS, DISEASES & PHYSIOLOGICAL DISORDERS

PEST, DISEASE or CONDITION	CROP	SOIL or NUTRIENT CONDITION	Effect On Problem	REFERENCE
OIL QUALITY, PHENOLICS	WALNUT	Hi N	Worse	Verardo, et al (2013)
WALNUT APHID	WALNUT	Hi N	No Effect	Mace, Mills, (2015)
ANTHRACNOSE	WALNUT	Increased N	Better	Jones, Mueller, Van Sambeek (1998)
WALNUT BLIGHT	WALNUT	Low Ca	Worse	Chevallier, Bray, Prunet, Giraud (2009)
APICAL NECROSIS	WALNUT	Low P, Ca, Mg	Worse	Garcin, Duchesne (2001)
APHID	WALNUT	N level	No Effect	Mace, Mills (2015)

TOTAL	DATE	Hi N = Worse	% Hi N	Ca = Better	% Ca	K = Involved	% K	Nutrient Ratio/ Balance Involved
500	11-10-17	294	59%	142	28%	59	12%	5%
		(or low N = Better)		(or low Ca = Worse)		(Hi or Low K)		(23 studies)