Some Insect/Disease Control Products Allowed for Use in Certified Organic Production

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How this list was produced: Under the USDA-managed National Organic Program rules have been established on what practices can be used to produce foods sold as "organic" in the United States. These rules also discuss pest management products.

Determination of whether specific products meet NOP rules has largely devolved to the independent private agency OMRI (Organic Materials Review Institute). This is a voluntary program where manufacturers submit products for review. Those deemed to be consistent with NOP rules are then allowed to display the OMRI Listed Seal on their packaging and in marketing. (Note: Because this is a voluntary system there may be additional products that meet NOP rules, but did not submit to the OMRI review.)

OMRI produces periodically updated lists of specific products that can carry the OMRI Listed Seal. In February 2007 all Crop Production Products in the web edition were examined. This list is sorted by the Generic Category used by OMRI. Twenty-five of the generic categories were thought to primarily include products used in pest management.

The labels for all products (except garlic) in each of these categories was checked to determine active ingredients to further define materials within generic categories (e.g., which strain of *Bacillus thuringiensis*). Availability was also checked and a few materials were dropped since they no longer appeared to be marketed. A few products that were not on the list but appear to meet NOP rules (e.g., NoLo Bait, Diatect V) were added.

1. Bacillus thuringiensis. *Bacillus thuringiensis* is a soil bacterium that has strains with insecticidal activity. The *kurstaki* and *aizawai* strains are used for control of caterpillar (Lepidoptera) pests; the *israelensis* strain is effective against larvae of certain Diptera, including mosquitoes, black flies, and fungus gnats.

Bacillus thuringiensis* var. *kurstaki

DiPel 2X (Valent BioSciences Corp.)
DiPel DF (Valent BioSciences Corp.)
DiPel PRO DF (Valent BioSciences Corp.)
Foray 48 SI Biological Insecticide Flowable Concentrate (Valent BioSciences Corp.)
Bactospeine DF (Valent BioSciences Corp.)
Biobit HP (Valent BioSciences Corp.)
Deflin WG (Certis USA)
Deliver (Certis USA)
XenTari WDG (Valent BioSciences Corp.)
Safer Brand Dust (Woodstream Corp.)

Britz Bt Dust (Fertilizers, Inc.)

Bacillus thuringiensis* var. *aizawai

Able (Certis USA)
Agree WG (Certis USA)
XenTari DF (Valent BioSciences Corp.)
Xtreem DF (Valent BioSciences Corp.)

Bacillus thuringiensis* var. *israelensis

VectoBac WDG (Valent BioSciences Corp.)
Gnatrol DG (Valent BioSciences Corp.)
Javelin WG (Certis USA)

2. Beauveria bassiana. *Beauveria bassiana* is a fungal disease of many insects.

Mycotrol O (Emerald BioAgriculture)
Naturalis H&G (Troy BioSciences, Inc.)
Naturalis L (Troy BioSciences, Inc.)

3. Biological Controls. This is a mixture of microorganisms primarily used in various purposes to control bacterial and fungal plant pathogens. The latter three products have insect control applications.

***Bacteriophage* virus**

AgriPhage (OmniLytics, Inc)

***Pantoea agglomerans* bacteria**

Bloomtime Biological (Northwest Agricultural Products, Inc.)
Bloomtime Biological FD (Northwest Agricultural Products, Inc.)

***Myrothecium* spp.**

DiTera DF (Valent BioSciences Corp.)

Trichoderma reesei

JUG *Trichoderma* spp. (Gauri Lab-Microorganismos Beneficos)

Bacillus subtilis

Kodiak Concentrate Biological Fungicide (Bayer CropScience LP)

***Bacillus pumilis* GB34**

Yield Shield Concentrate Bilological Fungicide (Bayer CropScience LP)

Bacillus sphaericus

VectoLex WDG (Valent BioSciences Corp.)

Nosema locustae

NoLo Bait (M&R Durango) (Note: Not on OMRI list used for this survey, but appears to meet NOP rules)
Semaspore Bait (Planet Natural)

***Heterorhabditis* spp. Nematodes** (*Heterorhabditis marelatus*, *Heterorhabditis indica*, *Heterorhabditis bacteriophora*

Symbion (Integrated BioControl Systems, dba BioControl Systems, Inc.)

4. Botanical Pesticides-Restricted. This category mostly includes products with active ingredients found in several other sections. However, the restricted category suggests that OMRI has found a manner of production or an additive to be of a source that prevents listing in the Allowed category.

Rosemary oil, plus oil of wintergreen and mineral oil
Ecoexempt IC (EcoSMART Technologies, Inc.)
***Chenopodium quinoa* saponins**
Heads Up Plant Protectant (HeadsUp Plant Protectants, Inc.)
Ground sesame plant
Nemagard (Natural Organic Products Int'l, Inc.)
d-limonene
Orange Guard Fire Ant Control (Orange Guard, Inc.)
Sesame and fish oils
Organocide Organic Insecticide – Fungicide (Organic Laboratories, Inc.)
Pyrethrins and potassium salts of fatty acids
Safer Brand Houseplant Insect Killer Aerosol (Woodstream Corp.)

5. Copper Sulfate. Copper sulfate is used to control plant pathogenic bacterial diseases.
Basic Copper 53 (Albaugh, Inc.)
Copper Sulfate Crystals (Chem One, Ltd.)
Copper Sulfate Crystals (fertilizer) (Chem One, Ltd.)
White Label 5% Copper with 3% Sulfur (Stoller Enterprises, Inc.)

6. Coppers – Fixed. A mixture of copper-containing products used to control plant pathogenic bacterial diseases.
Fixed Copper
Britz Copper Sulfur 15-25 Dust (Britz Fertilizers, Inc.)
Cueva Fungicide Concentrate (W Neudorff GmbH KG)
Cueva Fungicide Ready –To-Use (W Neudorff GmbH KG)
Copper Hydroxide
Champion Wettable Powder (NuFarm Americas, Inc.)
Dupont Kocide 2000 Fungicide/Bactericide (E.I. duPont de Nemours and Co.)
Dupont Kocide 3000 Fungicide/Bactericide (E.I. duPont de Nemours and Co.)
NuCop 50 WP (Albaugh, Inc.)
Copper octanoate
Neu 1140f rtu copper soap (Lilly Miller Cueva Copper Soap Fungicide Ready to Use) (Lilly Miller Brands)
Copper oxide
Nordox 75 WG (Nordox AS)
Copper plus Soap
Concern Copper Soap Fungicide (Woodstream Corp.)
Copper plus Sulfur
CSC Copper Sulfur Dust (Martin Operating Partnership, L.P.)

7. Diatomaceous Earth. Diatomaceous earth is comprised of the calcium carbonate skeletons of diatoms that developed in water bodies. Deposits of these are mined and used for various purposes. For insect control diatomaceous earth acts by causing desiccation by interfering with the waxy layer on the surface of the body.

Diatomaceous Earth

Insect-Kill (Biofix Holding, Inc.)
Safer Brand Ant & Crawling Insect Killer (Woodstream, Corp.)

Diatomaceous Earth + Pyrethrum

Diatect V (Diatect International) (Note: Not on OMRI list used for this survey, but appears to meet NOP rules)

8. Ferric Phosphate. Ferric (iron) phosphate is used to control slugs and snails. It is also used as a fertilizer.

First Choice Sluggo Snail and Slug Bait (Western Farm Service, Inc.)
Garden Safe Slug & Snail Bait (Schultz Co.)
Sluggo (Lawn and Garden Products, Inc.)
Sluggo Slug and Snail Bait (W Neudorff GmbH KG)
Sluggo-AG (Lawn and Garden Products, Inc.)

9. Fungicides-Nonsynthetic. This appears to be a somewhat curious category that seems to overlap categories 3 (Biological Controls) and 18 (Plant Pesticides Allowed).

***Coniothyrium minitans* strain CON/M**/91-08

Contans WG (Sylvan Bioproducts, Inc.)

***Streptomyces griseoviridis* strain K61**

Mycostop Biofungicide (Verdera Oy)
Mycostop Mix (Verdera Oy)

***Gliocladium (=Trichoderma) virens* (GL-21)**

SoilGard 12G (OHP)

Soybean oil derivative

Bionatrol-M (Compactagro)

Rosemary oil, clove oil, thyme oil

SPORAN EC (EcoSMART Technologies, Inc.)
SPORATEC AG (ClawEL Specialty Products a Division of Brandt Consolidated, Inc.)

10. Garlic. The garlic products that could be checked appear to have some formulation of garlic oil. These are marketed for various purposes, mostly as an insect repellent, some for suppression of powdery mildew and other fungi. (Note: This list has not been completely checked to find if all the products are currently marketed. Attempts to find some manufacturers were unsuccessful.)

Bio Crack + Plus (Berni Labs. S. de R.L. Microindustrial)
BioRepel (JH Biotech, Inc.)
CropGuard EC (American Biodynamics)
Garlic Barrier AG+ (Garlic Research Labs)
Garlic Shield (Grotek, Inc.)
Lawn & Turf Fungicide (Garlic GP Ltd. Co.)
Organic BioLink Buffer & Penetrant (Westbridge)
Organic BioLink Insect Repellent (Westbridge)
Ornamental Fungicide (Garlic GP Ltd. Co.)
Repeller (Natural Resources Group)

Rose Fungicide (Garlic GP Ltd. Co.)
Tecnocidal Allicin (Aromaticos Quimicos Potosinos, S.A. de C.V. (Grupo Tecnaal))
Vegetable & Garden Fungicide (Garlic GP Ltd. Co.)

11. Lime Sulfur. Lime sulfur is used as a dormant season spray to help control various orchard diseases and some insects.

Rex Lime Sulfur Solution (OR-Cal, Inc.)

12. Limonene. Citrus extracts have an insecticidal ingredient d-limonene. This is not registered for use on food crops. Present formulations available in this category appear to be limited to home use products.

Concern Citrus Home Pest Control (Woodstream Corp.)
Orange Guard Ornamental Plants (Orange Guard, Inc.)
Safer Brand Fire Ant Killer (Woodstream Corp.)

13. Neem and Neem Derivatives – Natural. These neem-derived materials are given an Allowed status, without restrictions. Most apparently are used as soil amendments. (**Note**: Some neem products are listed under OMRI generic category "Oils – Nonsynthetic")

Neem cake (sold as fertilizer, soil amendment)

AGRO-NEEMCAKE (Agro Logistic Systems, Inc.)

Neem seed oil extract (Note: Site indicates that this product is not labeled for any use as an insecticide or fungicide)

Ahimsa Organics Neem Cake (The Ahimsa Alternative, Inc.)

Neem and karanja extract

Nico Neem Oil 1.5-0.1-0 (Nico Orgo USA, Inc.)

Neem cake, karanj cake, castor cake (sold as fertilizer)

Orgo (Nico Orgo USA, Inc.)

Neem extract including azadirachtin

Plasma Neem Cake (Plasma Power Private Ltd.)
Plasma Neem Oil (Plasma Power Private Ltd.)

14. Neem Extract and Derivatives. These neem-derived materials have an OMRI status of Restricted.

Neem extract including azadirachtin

Agroneem Plus (Agro Logistic Systems, Inc.)
Agroneem (Agro Logistic Systems, Inc.)
AZA-Direct (Gowan Co.)
Azatrol (PBI/Gordon)
Neemix 4.5 (Certis USA)

Neem oil (without azadirachtin - clarified hydrophobic extract of neem)

Trilogy (Certis USA)
Tiract 70EC (OHP)
Green Light Rose Defense Ready-to-Use (Green Light Company)

Green Light Neem Concentrate (Green Light Company)
Green Light Rose Defense Concentrate (Green Light Company)
Monterey 70% Neem Oil (Lawn and Garden Products, Inc.)
Garden Safe Fungicide 3-in-1 (Schultz Company)
Garden Safe Fungicide 3-in-1 Concentrate (Schultz Company)
Concern Garden Defense Multi-Purpose Spray Concentrate (Woodstream Corporation)
Concern Insect Killing Soap, Derived from Neem, Concentrate (Woodstream Corporation)

15. Nematicides – Nonsynthetic. The two products currently listed in this category are oilseed extracts of wild sesame.

Dragonfire-CPP (Poulenger USA, Inc.)
Ontrol (Poulenger USA, Inc.)

16. Oils – Nonsynthetic. This category includes oils that are derived from plant seeds or fish oils. They have a wide range of uses against insects and some fungi, similar to that of the petroleum-derived oils/mineral oils.

Oils from neem (clarified hydrophobic extracts of neem oil - without azadirachtin)

AZA Karanj (UAS of America, Inc.) - also contains Karanj oil
A-plus (Agro Logistic Systems, Inc.)

Soybean (vegetable) oils

Concern Pesticidal Spray Oil (Woodstream Corp.)
Golden Pest Spray Oil (Stoller Enterprises, Inc.)
Natur'l Oil (Stoller Enterprises, Inc.)
Vegol Insecticidal Oil (W Neudorff GmbH KG)

Cottonseed oils

GC-3 (JH Biotech, Inc.) - Cottonseed oil and garlic extract
GC-Mite (JH Biotech, Inc.) - Cottonseed oil, clove oil, and garlic extract
Mildew Cure (JH Biotech, Inc.) - Cottonseed oil, clove oil, and garlic extract
Ant-Out (JH Biotech, Inc.) - Cottonseed oil and clove oil

Canola oil

Lilly Miller Vegol Year-Round Pesticidal Oil (Lilly Miller Brands)

Jojoba oil

ECO E-RASE (IJO Products, LLC)
E-Rase Concentrate Powdery Mildew Control (Lawn and Garden Products, Inc.)
Green Cypress Organic Spreader (Monterey AgResources)

Fish oils

Feed-N-Gro SeaCide (The Fertell Co.) - Fish emulsion
SeaCide (Omega Protein, Inc.) - Menhaden oil and cottonseed oil

17. Oils – Petroleum Based (Narrow Range). These are oils produced by refining petroleum. Such mineral oils that are allowed in Certified Organic production, a tiny fraction of petroleum oils that are marketed for pest management, also have emulsifiers that are of natural origin.

BVA Spray 10 (BVA, Inc.)
BVA Spray 13 (BVA, Inc.)
Organic JMS Stylet-Oil (JMS Flower Farms, Inc.)
PureSpray Green (Petro Canada)
Sparrow 888 Plus (Sparrow Oilz P., Ltd.)

18. Pheromones. These are mating communication disruptors for different species of moths**.**

Codling Moth (*Cydia pomonella*)/Hickory Shuckworm (*C. caryana*)

CheckMate CM (Suterra, LLC)
CheckMate CM-XL 1000 (Suterra, LLC)
Exosex – CM (Exosex Ltd.)
Isomate – C Plus (Pacific BioControl Corp.)
Isomate – CTT (Pacific BioControl Corp.)
NoMate CM Fiber (Scentry Biologicals, Inc.)
NoMate CM-O Spiral (Scentry Biologicals, Inc.)

Diamondback Moth (*Plutella xyostella*)

CheckMate DBM – F (Suterra, LLC)

Oriental Fruit Moth (*Grapholita molesta*)/Macadamia Nut Borer (*Cryptophlebia ombrodelta*)/Koa Seedworm (*C. illepida*)

CheckMate OFM Dispenser (Suterra, LLC)
CheckMate OFM - F (Suterra, LLC)
CheckMate OFM - SL (Suterra, LLC)
CheckMate SF Dispenser (Suterra, LLC)
Isomate – M 100 (Pacific BioControl Corp.)
Isomate – M Rosso (Pacific BioControl Corp.)
Isomate – M Rosso (Pacific BioControl Corp.)
Isomate – OFM TT (Pacific BioControl Corp.)
NoMate OFM Spiral (Scentry Biologicals, Inc.)

Omnivorous Leafroller (*Platynota stultana*)

CheckMate OLR (Suterra, LLC)
CheckMate OLR - F (Suterra, LLC)
Isomate – OmLR (Pacific BioControl Corp.)
NoMate OLR Spiral (Scentry Biologicals, Inc.)

Pink Bollworm (*Pectinophora gossypiella*)

CheckMate PBW - F (Suterra, LLC)
NoMate PBW Spiral (Scentry Biologicals, Inc.)
NoMate PBW Fiber (Scentry Biologicals, Inc.)

Peach Twig Borer (*Anarsia lineatella*)

CheckMate PTB - F (Suterra, LLC)
CheckMate PTB – XL Dispenser (Suterra, LLC)

Tomato Pinworm (*Keiferia lycopersicella*)

CheckMate TPW (Suterra, LLC)
CheckMate TPW- F (Suterra, LLC)
NoMate TPW Fiber (Scentry Biologicals, Inc.)

NoMate TPW Spiral (Scentry Biologicals, Inc.)

19. Plant Pesticides – Allowed

Cedar oil

Cedar Gard (Natural Resources Group)

Citronella

Phyta-Guard Citronella Natural Insecticide/Repellent Oil (California Organic Fertilizers)

Citronella, clove oil, and geranium oil

Phyta-Guard Concentrate Liquid Natural Repellent Oil (California Organic Fertilizers)

Clove oil and rosemary oil

Phyta-Guard EC Fungicide/Insecticide Natural Insecticide/Repellent Oil (California Organic Fertilizers)

Cottonseed oil

Phyta-Guard Phyta-Oil Natural Insecticide Oil (California Organic Fertilizers)

Cottonseed oil, clove oil, garlic oil

Pest Out (JH Biotech, Inc.)
No Moss (JH Biotech, Inc.)

Cottonseed oil, corn oil, and garlic oil

Mildew Cure (JH Biotech, Inc.)

Garlic oil

Phyta-Guard Phyta-Oil Garlic & Citronella Natural Insecticide/Repellent Oil (California Organic Fertilizers) - Garlic oil and citronella
Phyta-Guard Phyta-Oil Garlic Natural Insecticide/Repellent Oil (California Organic Fertilizers)
Organic BioLink Insect Repellant (Westbridge)

Garlic oil and Citric acid

Organic BioLink Buffer and Penetrant (Westbridge)

Rosemary oil

Green Light Organic Rose & Flower Spray (Green Light Co.)
Green Light Organic Rose & Flower Spray Ready to Use (Green Light Co.)

Rosemary oil and peppermint oil

ECOTEC AG (ClawEI Speciality Products a Division of Brandt Consolidated, Inc.)
EcoTrol EC (EcoSMART Technologies, Inc.)

White thyme oil, clove oil, cinnamon leaf oil

EcoTrol G (EcoSMART Technologies, Inc.)

Thyme oil, clove oil, and sesame oil

Green Light Bioganic Home & Garden Insect Spray (Green Light Co.)
Green Light Bioganic Home & Garden Multi-Insect Killer (Green Light Co.)
Green Light Bioganic Home & Garden Insect Control Concentrate (Green Light Co.)

Yucca oil and garlic oil

Organic BioLink Surfactant and Penetrant (Westbridge)

20. Pseudomonas. This is the bacterium *Pseudomonas fluorescens* A506 strain used to help manage fire blight in orchards.

Blight Ban A506 (NuFarm Americas, Inc.)

21. Pyrethrum. Natural pyrethrum and extracted pyrethrins are botanical insecticides of long use. The products allowed for use in certified organic production can not have the synergist piperonyl butoxide.

PyGanic Crop Protection EC 1.4 II (MGK Co.)
PyGanic Crop Protection EC 5.0 II (MGK Co.)
Safer Brand Yard & Garden Insect Killer Concentrate II (Woodstream Corp.)
Safer Brand Yard & Garden Insect Killer II (Woodstream Corp.)

22. Soap. Soaps sold for insect control are potassium salts of fatty acids (mostly oleic and/or linoleic fatty acids). A moss control product is potassium laurate.
Potassium soaps of fatty acids and ethyl alcohol

M-Pede (Dow Agrosciences, LLC)
Neudorff's Insecticidal Soap Concentrate (W Neudorff GmbH KG)
Neudorff's Insecticidal Soap Ready-to-Use (W Neudorff GmbH KG)
Safer Brand 3 in 1 Concentrate II (Woodstream Corp.)
Safer Brand 3 in 1 Garden Spray II (Woodstream Corp.)
Safer Brand Fruit & Vegetable Insect Killer II (Woodstream Corp.)
Safer Brand Houseplant Insect Killing Soap Concentrate II (Woodstream Corp.)
Safer Brand Houseplant Insect Killing Soap II (Woodstream Corp.)
Safer Brand Insect Killing Soap Concentration II (Woodstream Corp.)
Safer Brand Insect Killing Soap with Seaweed Extract II (Woodstream Corp.)
Safer Brand Moss & Algae Killer & Surface Cleaner Ready to Spray II (Woodstream Corp.)
Safer Brand Moss & Algae Killer & Surface Cleaner Ready to Use II (Woodstream Corp.)
Safer Brand Rose & Flower Insect Killer II (Woodstream Corp.)
Safer Brand Tomato & Vegetable Insect Killer II (Woodstream Corp.)
Safer's Insecticidal Soap (Woodstream Canada Corp.)
Safer's Insecticidal Soap Concentrate (Woodstream Canada Corp.)
Safer's Insecticidal Soap Ready to Use (Woodstream Canada Corp.)
Safer's Rose & Flower Insecticidal Ready to Use (Woodstream Canada Corp.)

Potassium laurate

Moss-Aside (W Neudorff GmbH KG)

23. Spinosad. Spinosad is derived from a soil actinomycete, *Saccharopolyspora spinosa*, that produces insecticidally active compounds known as spinosyns. It is primarily sold for control of caterpillars but has activity against some leaf beetles and thrips. It is also incorporated into baits for control of flies and ants.

Spinosad 0.5% SC (Dow Agrosciences, LLC)
Entrust (Dow Agrosciences, LLC)
GF-120 Naturalyte Fruit Fly Bait (Dow Agrosciences, LLC)

Conserve Fire Ant Bait (Dow Agrosciences, LLC)
Green Light Lawn & Garden Spray Spinosad (Green Light Co.)
Green Light Fire Ant Control with Conserve (Green Light Co.)
Justice Fire Ant Bait (Dow Agrosciences, LLC)
Monterey Garden Insect Spray (Lawn and Garden Products, Inc.)
Safer Brand Fire ant Bait Ready to Use (Woodstream Corp.)

24. Streptomycin Sulfate. Streptomycin sulfate has antibiotic effects and is used to manage certain bacterial diseases.

Agri-Mycin 17 Agricultural Streptomycin (NuFarms Americas, Inc.)
Firewall Fungicide/Bactericide (Cerexagri-Nisso, LLC)

25. Sulfur – Elemental. Sulfur that is mined (elemental sulfur) rather than extracted through manufacturing/power generation can be used in Certified Organic production. In addition to serving as a trace mineral it has fungicidal effects. Spider mites and a few insects (e.g., potato psyllid) are also susceptible to sulfur treatments.

Ben-Sul 85 (Wilbur-Ellis Co.)
Britz Bt 25 Sulfur Dust (Britz Fertilizers, Inc.)
Britz Dryout (Britz Fertilizers, Inc.)
Britz Magic Sulfur Dust (Britz Fertilizers, Inc.)
Bt 320 Sulfur 25 Dust (Wilbur-Ellis Co.)
Cosavet DF (Sulphur Mills, Ltd.)
CSC 80% Thiosperse (Martin Operating Partnership, L.P.)
CSC DS-90 (Martin Operating Partnership, L.P.)
CSC Dusting Sulfur (Martin Operating Partnership, L.P.)
Dusting Sulfur Fungicide-Insecticide (Loveland Products, Inc.)
GreenSun 90 (Moore Agricultural Products Co.)
IAP Dusting Sulfur (Independent Agribusiness Professionals)
INTEGRO MAGNETIC SULFUR DUST (InteGro, Inc.)
Kumulus DF (Micro Flo Co.)
Micro Sulf (NuFarm Americas, Inc.)
Micro-Sul Fertilizer Grade (Gassin Pierre PVT. LTD.)
Micro-Sul (Hondo Chemical, Inc.)
Phytamin Micros Flowable Sulfur (California Organic Fertilizers)
ProNarural Micronized Sulfur (Wilbur-Ellis Co.)
Safer Brand Garden Fungicide II (Woodstream Corp.)
Signal Dusting Sulfur (Wilbur-Ellis Co.)
Special Electric (Wilbur-Ellis Co.)
Sulfur DF (Wilbur-Ellis Co.)
Thiolux Jet (Syngenta Crop Protection)
Tiger Organic 0-0-0-90 (Tiger-Sul Products (Canada) Co.)
Wilbur-Ellis Dusting Sulfur (Wilbur-Ellis Co.)
Yellowstone Brand Hi-Purity Prill (Montana Sulphur and Chemical Co.)
Yellowstone Brand Disintegrating Sulfur Granules (Montana Sulphur and Chemical Co.)

26. Virus Sprays. Viral diseases occur among many insects and recently a few of these have been commercialized. All are highly specific in their host range, usually limited to a single genus of insects. All viruses must be ingested by the insect for infection.

Nuclear polyhedrosis virus of *Heliothis/Helicoverpa* spp. (e.g., corn earworm, tobacco budworm

Gemstar LC (Certis USA)

Nuclear polyhedrosis virus of *Spodoptera* spp. (e.g., beet armyworm)

Spod-X LC (Certis USA)

***Granulosis* virus of codling moth**

Virosoft CP4 (BioTEPP, Inc.)

CYD-X (Certis USA)

Carpovirusine (Arysta LifeScience North America Corp.) (Note: This product is no longer listed as an Arysta product and may have been discontinued).