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Biological Source	Active Ingredient	Examples of Product Names	Small Fruit	Tree Fruit	Green-house Use?	OMRI-Listed Options?	Fungi	Bacteria	Soft-bodied Insects	Hard-bodied insects	Caterpillars	Nematodes
Virus / Phage	Corn Earworm NPV-virus	Gemstar LC	Yes			Yes					X	
	Cotton Bollworm NPV-virus strain BV-0003	Helicovex	Yes		Yes	Yes					X	
	Codling Moth granulovirus strain V-22	Madex HP		Yes		Yes					X	
	Codling Moth granulovirus	CYD-X, CYD-X HP		Yes		Yes					X	
	Beet Armyworm MNPHV strain BV-0004	Spexit	Yes		Yes	Yes					X	
Peptide / Lipid Isolates	rhamnolipid biosurfactant	Zonix	Yes	Yes	Yes	Yes	X					
	Banda de Lupinus albus doce (BLAD) polypeptides	Fracture	Yes				X					
BACTERIALLY DERIVED PRODUCTS												
Bacillus amyloliquefaciens	strain MBI 600	Serifel	Yes	Yes			X	X				
	strain D747 (Ba D747)	Double Nickel 55 & LC	Yes	Yes	Yes	Yes	X	X				
	strain F727	Amplitude, Amplitude ST, Stargus	Yes	Yes	Yes	Yes	X					
Bacillus mycoides	isolate J	LifeGard WG	Yes	Yes	Yes	Yes	X	X				
Bacillus pumilus	QST 2808	Sonata	Yes	Yes	Yes		X					
Bacillus subtilis	strain IAB/BS03	Aviv	Yes	Yes	Yes	Yes	X					
	strain QST 713	Cease, Serenade (ASO, MAX, SOIL), Rhapsody	Yes	Yes	Yes	Except Cease	X	X				
	var. *amyloliquefaciens* strain FZB24	Taegro, Taegro 2	Yes	Yes	Yes		X					
Bacillus thuringiensis	subsp. *aizawai* strain GC91	Agree WG	Yes	Yes	Yes	Yes					X	
	subsp. *aizawai* strain ABTS 1857	XenTari	Yes	Yes	Yes						X	
	subsp. *galleriae* strain SDS-502	beetleGone! TLC, grubGone! G	Yes	Yes	Yes					X		
	subsp. *kurstaki* strain ABTS-351	Biobit HP, DiPel DF, DiPel Pro DF	Yes	Yes	Yes			X			X	
	subsp. *kurstaki* strain EG7841	Crymax	Yes	Yes	Yes						X	
	subsp. *kurstaki* strain SA-11	Javelin WG	Yes	Yes	Yes	Yes					X	
	subsp. *kurstaki* strain SA-12	Deliver	Yes	Yes	Yes	Yes					X	
Beauvaria bassiana	strain ANT-03 with fermentation solids	Bioceres WP	Yes	Yes	Yes				X	X		
	strain GHA	BoteGHA ES, Botanigard Maxx & 22WP, Mycotrol WPO & ESO	Yes	Yes	Yes				X	X	X	
Burkholderia	*B.* sp. strain A396	Venerate XC, Venerate CG	Yes	Yes	Yes	Yes			X		X	
	B. rinojensis (heat-killed)	Majestene	Yes		Yes	Yes						X
Saccharopolyspora spinosa	Spinosad	Seduce	Yes	Yes	Yes	Yes				X	X	
	Spinosad + iron phosphate	Bug-N-Sluggo	Yes	Yes	Yes	Yes				X, slugs		
	Spinosyn A and D	Entrust, SpinTor 2SC	Yes	Yes		Entrust			X		X	
Other bacterial species	*Chromobacterium subtsugae*	Grandevo, Grandevo WDG & CG	Yes	Yes	Yes	Yes			X		X	
	Pseudomonas chloraphis subsp. *aurantiaca* strain AFS009	Zio	Yes		Yes		X					

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Biological Source	Active Ingredient	Examples of Product Names	Small Fruit	Tree Fruit	Green-house Use?	OMRI-Listed Options?	Fungi	Bacteria	Soft-bodied Insects	Hard-bodied insects	Caterpillars	Nematodes
Plant Derived	Canola Oil, Capsicum oleoresin, Garlic Oil	Captiva Prime	Yes	Yes	Yes				X			
	Azadirachtin/neem	Neemix 4.5, Molt-X, Aza-Direct, AzaGuard, Azatrol EC	Yes	Yes	Yes	Yes			X	Young Stages	X	X
	Neem oil	Triact 70, Trilogy	Yes	Yes	Yes	Yes	X		X			
	Azadirachtin + pyrethrum	Azera Insecticide	Yes	Yes	Yes	Yes			X	X	X	
	Pyrethrum	Pyganic Crop Protection EC 5.0 II/EC 1.4 II	Yes	Yes	Yes	Yes			X	X	X	
	Swinglea glutinosa (citrus species) extract	EcoSwing	Yes	Yes	Yes	Yes	X					
	R. sachalinensis (Giant Knotweed) extract	Regalia, Regalia CG, Regalia RX	Yes	Yes	Yes	Yes	X					
	Tea Tree Oil	Timorex Gold, Timorex Act	Yes		Yes		X					
Inorganic (Mineral) Derived	Phosporous acid and salts	e.g., Kphite, Prophyt	Yes	Yes			X					
	Polyoxin D zinc salt	Affirm WDG, Oso 5% SC, Ph-D	Yes	Yes	Yes		X					
	Potassium bicarbonate	Kaligreen, Milstop	Yes	Yes	Yes	Yes	X					
	Potassium silicate	Carbon Defense, Sil-Matrix	Yes	Yes	Yes	Sil-Matrix	X		X			
FUNGALLY DERIVED PRODUCTS												
Gliocladium	*G. catenulatum* strain J1446	Pvent, Prestop, Prestop WG	Yes	Yes	Yes	Pvent, Prestop WG	X					
	G. virens GL-21	SoilGard	Yes		Yes	Yes	X					
Isaria fumosorosea	*I. fumosorosea*	Preferal	Yes	Yes	Yes				X			
	strain 97	PFR-97 20% WDG	Yes	Yes	Yes	Yes			X	X	X	
Streptomyces	*S. lydicus* WYEC 108	Actinovate AG, Actinovate STP	Yes	Yes	Yes	Yes	X					
	S. lydicus WYEC 108 + molybdenum + iron + humic acid	Actino-Iron	Yes	Yes	Yes		X					
Trichoderma	*Trichoderma* and related genera	SoilGard, Tenet WP	Yes	Yes	Yes	Yes	X					
	080)	Bio-Tam 2.0	Yes	Yes	Yes	Yes	X					
	T. harzianum strain T-22	RootShield WP, RootShield AG	Yes	Yes	Yes		X					
	T. harzianum strain T-22 and *T. virens* strain G-41	RootShield Plus WP	Yes	Yes	Yes		X					
Other fungal species	*Aureobasidium pullulans* strain DSM 14940 and 14941	Blossom Protect, Botector	Yes	Yes	Yes		X	X				
	Metarhizium brunneum/anisopliae	Met 52	Yes		Yes				X			
	Myrothecium verrucaria - dried fermentation solids & solubles	Ditera DF	Yes	Yes								X
	Paecilomyces lilacinus	MeloCon WG	Yes	Yes		Yes						X
	Ulocladium oudemansii strain U3	Botrystop	Yes	Yes	Yes		X					

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Biological Source	Active Ingredient	Examples of Product Names	Cole Crops	Solanaceae	Cucurbits	Alliums	Legumes	Greens	Root Crops	Green-house	OMRI Options?
BACTERIALLY DERIVED PRODUCTS											
Bacillus amyloliquefaciens	strain MBI 600	Serifel	X	X			X	X	X	No	
	strain D747 (Ba D747)	Double Nickel 55 & LC	X	X	X	X	X	X	X	X	X
	strain F727	Amplitude, Amplitude ST, Stargus	X	X	X	X	X	X	X	X	X
Bacillus mycoides	isolate J	LifeGard WG	X	X	X		X	X	X	X	X
Bacillus pumilus	QST 2808	Sonata	X	X	X	X	X	X	X	X	
Bacillus subtilis	strain IAB/BS03	Aviv	X	X	X	X	X	X	X	X	X
	strain QST 713	Cease, Serenade (ASO, MAX, SOIL), Rhapsody	X	X	X	X	X	X	X	X	Serenade, Rhapsody
	var. *amyloliquefaciens* strain FZB24	Taegro, Taegro 2	X	X	X	X	X	X	X	X	
Bacillus thuringiensis	subsp. *aizawai* strain GC91	Agree WG	X	X	X	X	X	X	X	X	X
	subsp. *aizawai* strain ABTS 1857	XenTari	X	X	X	X	X	X	X	X	
	subsp. *galleriae* strain SDS-502	beetleGone! TLC, grubGone! G	X	X	X		X	X	X	X	
	subsp. *israelensis* strain AM 65-52	Gnatrol WDG	X	X	X			X		X	
	subsp. *kurstaki* strain ABTS-351	Biobit HP, DiPel DF, DiPel Pro DF	X	X	X	X	X	X	X	X	
	subsp. *kurstaki* ABTS-351 + methyl salicylate	Leap ES		X						X	
	subsp. *kurstaki* strain EG7841	Crymax	X	X	X	X	X	X	X	X	
	subsp. *kurstaki* strain SA-11	Javelin WG	X	X	X	X	X	X	X	X	X
	subsp. *kurstaki* strain SA-12	Deliver	X	X	X	X	X	X	X	X	X
	subsp. *tenebrionis* strain SA-10	Trident		X							X
Beauvaria bassiana	strain ANT-03 with fermentation solids	Bioceres WP	X	X	X	X	X	X	X	X	
	strain GHA	BoteGHA ES, Botanigard Maxx & 22WP, Mycotrol WPO & ESO	X	X	X	X	X	X	X	X	
Burkholderia	*B.* sp. strain A396	Venerate XC, Venerate CG	X	X	X	X	X	X	X	X	X
	B. rinojensis (heat-killed)	Majestene	X	X	X	X	X	X	X	X	X
Saccharopoly-spora spinosa	Spinosad	Seduce	X	X	X	X	X	X	X	X	X
	Spinosad + iron phosphate	Bug-N-Sluggo	X	X	X	X	X	X	X	X	X
	Spinosyn A and D	Entrust, SpinTor 2SC	X	X	X	X	X	X	X		Entrust
Other bacterial species	*Chromobacterium subtsugae*	Grandevo, Grandevo WDG & GC CG	X	X	X	X	X	X	X	X	X
	Pasteuria nishizawae PN1	Clariva PN					X		X		
	Pseudomonas chloraphis subsp. *aurantiaca* strain AFS009	Zio	X	X	X	X	X	X	X	X	

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Biological Source	Active Ingredient	Examples of Product Names	Cole Crops	Solanaceae	Cucurbits	Alliums	Legumes	Greens	Root Crops	Green-house	OMRI Options?
FUNGALLY DERIVED PRODUCTS											
Gliocladium	*G. catenulatum* strain J1446	Pvent, Prestop, Prestop WG	X	X	X	X	X	X	X	X	Pvent, Prestop WG
	G. virens GL-21	SoilGard			X			X		X	X
Isaria fumosorosea	*I. fumosorosea*	Preferal			X					X	
	strain 97	PFR-97 20% WDG		X	X		X	X		X	X
	strain FE 9901	NoFly WP	Yes (Greenhouse/Indoor use only)								
Streptomyces	*S. griseoviridis* strain K61	PreFence		X			X			X	X
	S. lydicus WYEC 108	Actinovate AG, Actinovate STP	X	X	X	X	X	X	X	X	X
	S. lydicus WYEC 108 + molybdenum + iron + humic acid	Actino-Iron	X	X	X	X	X	X	X	X	
	S. sp. strain K61	Mycostop	X	X		X	X	X	X	X	
Trichoderma	*Trichoderma* and related genera	SoilGard, Tenet WP	X	X	X	X	X	X	X	X	X
	T. asperellum (ICC 012) & *T. gamsii* (ICC 080)	Bio-Tam 2.0	X	X	X	X	X	X	X	X	X
	T. harzianum strain T-22	RootShield WP, RootShield AG	X	X	X	X	X	X	X	X	
	T. harzianum strain T-22 and *T. virens* strain G-41	RootShield Plus WP	X	X	X	X	X	X	X	X	
Other fungal species	*Aureobasidium pullulans* strain DSM 14940 and 14941	Blossom Protect, Botector			X			X		X	
	Coniothyrium minitans	Contans WG	X	X	X	X	X	X	X	X	X
	Metarhizium brunneum/anisopliae	Met 52		X		X		X		X	
	Myrothecium verrucaria - dried fermentation solids & solubles	Ditera DF	X	X	X		X	X	X		
	Paecilomyces lilacinus	MeloCon WG	X	X	X	X		X	X		X
	Ulocladium oudemansii strain U3	Botrystop	X	X	X	X	X	X	X	X	
Virus / Phage	Corn Earworm NPV-virus	Gemstar LC	X	X	X	X	X	X	X		X
	Cotton Bollworm NPV-virus strain BV-0003	Helicovex	X	X	X	X	X	X	X	X	X
	Beet Armyworm MNPHV-virus strain BV-0004	Spexit	X	X	X	X	X	X	X	X	X
	Unspecified Bacteriophages (8 strains)	AgriPhage, AgriPhage CMM		X						X	

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Biological Source	Active Ingredient	Examples of Product Names	Cole Crops	Solanaceae	Cucurbits	Alliums	Legumes	Greens	Root Crops	Green-house	OMRI Options?
Plant Derived	Canola Oil, Capsicum oleoresin, Garlic Oil	Captiva Prime	X	X	X	X	X		X	X	
	Azadirachtin/neem	Neemix 4.5, Molt-X, Aza-Direct, AzaGuard, Azatrol EC	X	X	X	X	X	X	X	X	Neemix 4.5, Aza-Direct, Azatrol EC
	Neem oil	Triact 70, Trilogy	X	X	X	X	X	X	X	X	X
	Azadirachtin + pyrethrum	Azera Insecticide	X	X	X	X	X	X	X	X	X
	Pyrethrum	Pyganic Crop Protection EC 5.0 II/EC 1.4 II	X	X	X	X	X	X	X	X	X
	Swinglea glutinosa (citrus tree species) *extract*	EcoSwing	X	X	X	X	X	X	X	X	X
	Reynoutria sachalinensis (Giant Knotweed) extract	Regalia, Regalia CG, Regalia RX	X	X	X	X	X	X	X	X	X
	Tea Tree Oil	Timorex Gold, Timorex Act	X	X	X	X	X	X	X	X	
Inorganic (Mineral) Derived	Phosporous acid and salts	e.g., Kphite, Prophyt	X	X	X	X	X	X	X	X	
	Polyoxin D zinc salt	Affirm WDG, Oso 5% SC, Ph-D	X	X	X	X	X	X	X	X	
	Potassium bicarbonate	Kaligreen, Milstop	X	X	X	X	X	X	X	X	X
	Potassium silicate	Carbon Defense, Sil-Matrix	X	X	X	X	X	X	X	X	Sil-Matrix
Peptide / Lipid Isolates	rhamnolipid biosurfactant	Zonix	X	X	X	X	X	X	X	X	X
	Banda de Lupinus albus doce (BLAD) polypeptides	Fracture		X							

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Biological Source	Active Ingredient	Examples of Product Names	Fungi	Bacteria
Plant Derived	Neem oil	Triact 70, Trilogy	X	
	Swinglea glutinosa (citrus tree species) *extract*	EcoSwing	X	
	Reynoutria sachalinensis (Giant Knotweed) extract	Regalia, Regalia CG, Regalia RX	X	
	Tea Tree Oil	Timorex Gold, Timorex Act	X	
Virus / Phage	Unspecified Bacteriophages (8 strains)	AgriPhage, AgriPhage CMM		X
Inorganic (Mineral) Derived	Phosporous acid and salts	e.g., Kphite, Prophyt	X	
	Polyoxin D zinc salt	Affirm WDG, Oso 5% SC, Ph-D	X	
	Potassium bicarbonate	Kaligreen, Milstop	X	
	Potassium silicate	Carbon Defense, Sil-Matrix	X	
Peptide / Lipid Isolates	rhamnolipid biosurfactant	Zonix	X	
	Banda de Lupinus albus doce (BLAD) polypeptides	Fracture	X	
BACTERIALLY DERIVED PRODUCTS				
Bacillus amyloliquefaciens	strain MBI 600	Serifel	X	X
	strain D747 (Ba D747)	Double Nickel 55, Double Nickel LC	X	X
	strain F727	Amplitude, Amplitude ST, Stargus	X	
Bacillus mycoides	isolate J	LifeGard WG	X	X
Bacillus pumilus	QST 2808	Sonata	X	
Bacillus subtilis	strain IAB/BS03	Aviv	X	
	strain QST 713	Cease, Serenade (ASO, MAX, SOIL), Rhapsody	X	X
	var. *amyloliquefaciens* strain FZB24	Taegro, Taegro 2	X	
Bacillus thuringiensis	subsp. *kurstaki* ABTS-351 + methyl salicylate	Leap ES		X
Other Bacteria	*Pseudomonas chloraphis* subsp. *aurantiaca* strain AFS009	Zio	X	
FUNGALLY DERIVED PRODUCTS				
Gliocladium	*G. catenulatum* strain J1446	Pvent, Prestop, Prestop WG	X	
	G. virens GL-21	SoilGard	X	
Streptomyces	*S. griseoviridis* strain K61	PreFence	X	
	S. lydicus WYEC 108	Actinovate AG & STP	X	
	S. lydicus WYEC 108 + molybdenum + iron + humic acid	Actino-Iron	X	
	S. sp. strain K61	Mycostop	X	
Trichoderma	*Trichoderma* and related genera	SoilGard, Tenet WP	X	
	T. asperellum (ICC 012) & *T. gamsii* (ICC 080)	Bio-Tam 2.0	X	
	T. harzianum strain T-22	RootShield WP, RootShield AG	X	
	T. harzianum strain T-22 and *T. virens* strain G-41	RootShield Plus WP	X	
Other fungal species	*Aureobasidium pullulans* strain DSM 14940 and 14941	Blossom Protect, Botector	X	X
	Coniothyrium minitans	Contans WG	X	
	Ulocladium oudemansii strain U3	Botrystop	X	

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Biological Source	**Active Ingredient**	**Examples of Product Names**				
Plant Derived	Canola Oil, Capsicum oleoresin, Garlic Oil	Captiva Prime	X			
	Azadirachtin/neem	Neemix 4.5, Molt-X, Aza-Direct, AzaGuard, Azatrol EC	X	Young Stages	X	X
	Neem oil	Triact 70, Trilogy	X			
	Azadirachtin + pyrethrum	Azera Insecticide	X	X	X	
	Pyrethrum	Pyganic Crop Protection EC 5.0 II/EC 1.4 II	X	X	X	
Inorganic Mineral Derived	Potassium silicate	Carbon Defense, Sil-Matrix	X			
BACTERIALLY DERIVED PRODUCTS						
Bacillus thuringiensis	subsp. *aizawai* strain GC91	Agree WG			X	
	subsp. *aizawai* strain ABTS 1857	XenTari			X	
	subsp. *galleriae* strain SDS-502	beetleGone! TLC, grubGone! G		X		
	subsp. *israelensis* strain AM 65-52	Gnatrol WDG	X			
	subsp. *kurstaki* strain ABTS-351	Biobit HP, DiPel DF, DiPel Pro DF			X	
	subsp. *kurstaki* ABTS-351 + methyl salicylate	Leap ES			X	
	subsp. *kurstaki* strain EG7841	Crymax			X	
	subsp. *kurstaki* strain SA-11	Javelin WG			X	
	subsp. *kurstaki* strain SA-12	Deliver			X	
	subsp. *tenebrionis* strain SA-10	Trident		X		
Beauvaria bassiana	strain ANT-03 with fermentation solids	Bioceres WP	X	X		
	strain GHA	BoteGHA ES, Botanigard & Mycotrol	X	X	X	
Burkholderia	*B.* sp. strain A396	Venerate XC, Venerate CG	X		X	
	B. rinojensis (heat-killed)	Majestene				X
Saccharopolyspora spinosa	Spinosad	Seduce		X	X	
	Spinosad + iron phosphate	Bug-N-Sluggo		X, slugs		
	Spinosyn A and D	Entrust, SpinTor 2SC	X		X	
Other bacterial species	*Chromobacterium subtsugae*	Grandevo, Grandevo WDG & CG	X		X	
	Pasteuria nishizawae PN1	Clariva PN				X
Virus / Phage	Corn Earworm NPV-virus	Gemstar LC			X	
	Cotton Bollworm NPV-virus strain BV-0003	Helicovex			X	
	Beet Armyworm MNPHV-virus strain BV-0004	Spexit			X	
FUNGALLY DERIVED PRODUCTS						
Isaria fumosorosea	*I. fumosorosea s* train 97	Preferal	X			
		PFR-97 20% WDG	X	X	X	
Other fungal species	*Metarhizium brunneum/anisopliae*	Met 52	X			
	Myrothecium verrucaria fermentation products	Ditera DF				X
	Paecilomyces lilacinus	MeloCon WG				X

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Biological Source	Active Ingredient	Examples of Product Names	Fungi	Bacteria
Plant Derived	Neem oil	Triact 70, Trilogy	X	
	Swinglea glutinosa (citrus tree species) *extract*	EcoSwing	X	
	Reynoutria sachalinensis (Giant Knotweed) extract	Regalia, Regalia CG, Regalia RX	X	
	Tea Tree Oil	Timorex Gold, Timorex Act	X	
Virus / Phage	Unspecified Bacteriophages (8 strains)	AgriPhage, AgriPhage CMM		X
Inorganic (Mineral) Derived	Phosporous acid and salts	e.g., Kphite, Prophyt	X	
	Polyoxin D zinc salt	Affirm WDG, Oso 5% SC, Ph-D	X	
	Potassium bicarbonate	Kaligreen, Milstop	X	
	Potassium silicate	Carbon Defense, Sil-Matrix	X	
Peptide / Lipid Isolates	rhamnolipid biosurfactant	Zonix	X	
	Banda de Lupinus albus doce (BLAD) polypeptides	Fracture	X	
BACTERIALLY DERIVED PRODUCTS				
Bacillus amyloliquefaciens	strain MBI 600	Serifel	X	X
	strain D747 (Ba D747)	Double Nickel 55, Double Nickel LC	X	X
	strain F727	Amplitude, Amplitude ST, Stargus	X	
Bacillus mycoides	isolate J	LifeGard WG	X	X
Bacillus pumilus	QST 2808	Sonata	X	
Bacillus subtilis	strain IAB/BS03	Aviv	X	
	strain QST 713	Cease, Serenade (ASO, MAX, SOIL), Rhapsody	X	X
	var. *amyloliquefaciens* strain FZB24	Taegro, Taegro 2	X	
Bacillus thuringiensis	subsp. *kurstaki* ABTS-351 + methyl salicylate	Leap ES		X
Other Bacteria	*Pseudomonas chloraphis* subsp. *aurantiaca* strain AFS009	Zio	X	
FUNGALLY DERIVED PRODUCTS				
Gliocladium	*G. catenulatum* strain J1446	Pvent, Prestop, Prestop WG	X	
	G. virens GL-21	SoilGard	X	
Streptomyces	*S. griseoviridis* strain K61	PreFence	X	
	S. lydicus WYEC 108	Actinovate AG & STP	X	
	S. lydicus WYEC 108 + molybdenum + iron + humic acid	Actino-Iron	X	
	S. sp. strain K61	Mycostop	X	
Trichoderma	*Trichoderma* and related genera	SoilGard, Tenet WP	X	
	T. asperellum (ICC 012) & *T. gamsii* (ICC 080)	Bio-Tam 2.0	X	
	T. harzianum strain T-22	RootShield WP, RootShield AG	X	
	T. harzianum strain T-22 and *T. virens* strain G-41	RootShield Plus WP	X	
Other fungal species	*Aureobasidium pullulans* strain DSM 14940 and 14941	Blossom Protect, Botector	X	X
	Coniothyrium minitans	Contans WG	X	
	Ulocladium oudemansii strain U3	Botrystop	X	

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Biological Source	**Active Ingredient**	**Examples of Product Names**				
Plant Derived	Canola Oil, Capsicum oleoresin, Garlic Oil	Captiva Prime	X			
	Azadirachtin/neem	Neemix 4.5, Molt-X, Aza-Direct, AzaGuard, Azatrol EC	X	Young Stages	X	X
	Neem oil	Triact 70, Trilogy	X			
	Azadirachtin + pyrethrum	Azera Insecticide	X	X	X	
	Pyrethrum	Pyganic Crop Protection EC 5.0 II/EC 1.4 II	X	X	X	
Inorganic Mineral Derived	Potassium silicate	Carbon Defense, Sil-Matrix	X			
BACTERIALLY DERIVED PRODUCTS						
Bacillus thuringiensis	subsp. *aizawai* strain GC91	Agree WG			X	
	subsp. *aizawai* strain ABTS 1857	XenTari			X	
	subsp. *galleriae* strain SDS-502	beetleGone! TLC, grubGone! G		X		
	subsp. *israelensis* strain AM 65-52	Gnatrol WDG	X			
	subsp. *kurstaki* strain ABTS-351	Biobit HP, DiPel DF, DiPel Pro DF			X	
	subsp. *kurstaki* ABTS-351 + methyl salicylate	Leap ES			X	
	subsp. *kurstaki* strain EG7841	Crymax			X	
	subsp. *kurstaki* strain SA-11	Javelin WG			X	
	subsp. *kurstaki* strain SA-12	Deliver			X	
	subsp. *tenebrionis* strain SA-10	Trident		X		
Beauvaria bassiana	strain ANT-03 with fermentation solids	Bioceres WP	X	X		
	strain GHA	BoteGHA ES, Botanigard & Mycotrol	X	X	X	
Burkholderia	*B.* sp. strain A396	Venerate XC, Venerate CG	X		X	
	B. rinojensis (heat-killed)	Majestene				X
Saccharopolyspora spinosa	Spinosad	Seduce		X	X	
	Spinosad + iron phosphate	Bug-N-Sluggo		X, slugs		
	Spinosyn A and D	Entrust, SpinTor 2SC	X		X	
Other bacterial species	*Chromobacterium subtsugae*	Grandevo, Grandevo WDG & CG	X		X	
	Pasteuria nishizawae PN1	Clariva PN				X
Virus / Phage	Corn Earworm NPV-virus	Gemstar LC			X	
	Cotton Bollworm NPV-virus strain BV-0003	Helicovex			X	
	Beet Armyworm MNPHV-virus strain BV-0004	Spexit			X	
FUNGALLY DERIVED PRODUCTS						
Isaria fumosorosea	*I. fumosorosea s* train 97	Preferal	X			
		PFR-97 20% WDG	X	X	X	
Other fungal species	*Metarhizium brunneum/anisopliae*	Met 52	X			
	Myrothecium verrucaria fermentation products	Ditera DF				X
	Paecilomyces lilacinus	MeloCon WG				X

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Crop: _____

Setting: _____

Target pest: _____

Biopesticide you would like to use in 2020: _____

How does this fit into your broader integrated pest management (IPM) plan:

This biopesticide…

… is registered in NY ___ yes ___ no

… label includes my pest ___ yes ___ no

… label includes my crop ___ yes ___ no

… label includes my setting ___ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: _____

Time of day: _____

Weather considerations: _____

The **restricted-entry interval (REI)** for this biopesticide is: _____

The **pre-harvest interval (PHI)** for this biopesticide is: _____

Any concerns with REI/PHI and application timing?

[Type here]

How will you mix and apply the product?

Required **personal protective equipment (PPE)** for mixing AND applying:

Application rate (i.e., per acre or per gallon):

Volume of water for application (gallons per acre):

Do you need to use any specific spray **nozzles** to apply this product?

Does the spray **pressure** matter? If so, what should it be?

Should **adjuvant(s)** be used? If so, which and how much?

Are there any products this biopesticide is **not tank-mix compatible** with?

What precautionary statements does the label have?

Signal word, potential human hazards:

Potential environmental hazards or effects on non-target organism:

How will you mitigate potential risks?

What are the **storage conditions** the product needs?

Max./min. temperature: _____ Shelf life: _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ____snap beans_____

Setting: ____field_____

Target pest: _____white mold (*Sclerotinia sclerotiorum*)_____

Biopesticide you would like to use in 2020: _____Double Nickel LC_____

How does this fit into your broader integrated pest management (IPM) plan:

This biopesticide…

… is registered in NY _X_ yes ___ no

… label includes my pest _X_ yes ___ no

… label includes my crop _X_ yes ___ no

… label includes my setting _X_ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: _____

Time of day: _____

Weather considerations: _____

The **restricted-entry interval (REI)** for this biopesticide is: _____

The **pre-harvest interval (PHI)** for this biopesticide is: _____

Any concerns with REI/PHI and application timing?

[Type here]

How will you mix and apply the product?

Required **personal protective equipment (PPE)** for mixing AND applying:

Application rate (i.e., per acre or per gallon):

Volume of water for application (gallons per acre):

Do you need to use any specific spray **nozzles** to apply this product?

Does the spray **pressure** matter? If so, what should it be?

Should **adjuvant(s)** be used? If so, which and how much?

Are there any products this biopesticide is **not tank-mix compatible** with?

What precautionary statements does the label have?

Signal word, potential human hazards:

Potential environmental hazards or effects on non-target organism:

How will you mitigate potential risks?

What are the **storage conditions** the product needs?

Max./min. temperature: _____ Shelf life: _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ____snap beans_____

Setting: ____field_____

Target pest: _____white mold (*Sclerotinia sclerotiorum*)_____

Biopesticide you would like to use in 2020: _____Double Nickel LC_____

How does this fit into your broader integrated pest management (IPM) plan:

A variety of cultural practices can help minimize losses from white mold (rotation, wider row spacing for improved air flow, not over-applying N fertilizer, appropriate plant density). Know the history of white mold in your field.
Successful white mold management depends on timing fungicide applications correctly (at 10% bloom and a week later) to protect blossoms. If weather conditions are not favorable for disease at this time, it's possible that no fungicide is needed. Similarly, to maximize the effectiveness of any fungicide, be sure it is applied at the correct time.

This biopesticide…

… is registered in NY _X_ yes ___ no

… label includes my pest _X_ yes ___ no

… label includes my crop _X_ yes ___ no

… label includes my setting _X_ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: ___10% bloom and ~1 week later_____

Time of day: _____any_____

Weather considerations: ___(according to manufacturer) needs to dry on foliage/flowers before rain; tolerates UV for 7 days; temps typical of NY growing season are fine_____

The **restricted-entry interval (REI)** for this biopesticide is: ___4 hr_____

The **pre-harvest interval (PHI)** for this biopesticide is: ____0 days_____

Any concerns with REI/PHI and application timing? 10% bloom (and 1 week later) should be well ahead of harvest

[Type here]

How will you mix and apply the product?

Required **personal protective equipment (PPE)** for mixing AND applying: Applicators and other handlers: long-sleeved shirt, long pants, waterproof gloves, shoes plus socks. Mixers/loaders & applicators: dust/mist filtering respirator at least N-95, R-95, or P-95

Application rate (i.e., per acre or per gallon): Pethybridge program: 1 or 2 qt/A

Volume of water for application (gallons per acre): Pethybridge program used ~25 gal/A

Do you need to use any specific spray **nozzles** to apply this product? Pethybridge program used TeeJet 8002VS flat fan nozzles

Does the spray **pressure** matter? If so, what should it be? Pethybridge program used 36-38 psi

Should **adjuvant(s)** be used? If so, which and how much? Pethybridge program applied with a spreader (polysorbate-20) at 0.01% v/v. Manufacturer suggests avoiding silicon spreaders.

Are there any products this biopesticide is **not tank-mix compatible** with? Do not tank mix with antibiotics, peracetic acids, or hydrogen peroxides; generally biologically compatible with fertilizers, insecticides, herbicides, and fungicides. Avoid silicon spreaders.

What precautionary statements does the label have?

Signal word, potential human hazards: Caution; prolonged or frequent skin exposure can cause allergic reaction. Avoid contact with eyes, clothes. Avoid breathing spray mist.

Potential environmental hazards or effects on non-target organism: Do not apply to water

How will you mitigate potential risks?

What are the **storage conditions** the product needs?

Max./min. temperature: room temp, away from extreme heat

Shelf life: 2 yr for dry formulation

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

Pethybridge, Gugino, Kikkert. 2019. Efficacy of Double Nickel LC (*Bacillus amyloliquefaciens* D747 Strain) for management of white mold in snap and dry bean. Plant Health Progress 20:61-66. https://apsjournals.apsnet.org/doi/10.1094/PHP-01-19-0006-RS

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Crop: ___**Apple**_____

Setting: __**Orchard**_____

Target pest: _____***Erwinia amylovora* (fire blight)**_____

Biopesticide you would like to use in 2020: ____**Regalia + Double Nickel**_____

How does this fit into your broader integrated pest management (IPM) plan:

> **Regalia is a formulation of *Reynoutria sachalinensis* (knot weed) plant extract. It acts by inducing host defenses. It must be applied prior to infection events, i.e. prior to bloom. This is used in replacement of streptomycin.**
>
> **Double Nickel LC is a formulation of *Bacillus amyloliquefaciens* strain D747. The bacteria is believed to act by competing for the same biological niche as *E. amylovora*, and via the production of antimicrobial metabolites which kill the pathogen. It is applied at bloom when blossoms are open to inhibit growth and kill the pathogen during this critical infection window. In this way, the product is a replacement for streptomycin.**

This biopesticide…

… is registered in NY ___ yes ___ no

… label includes my pest ___ yes ___ no

… label includes my crop ___ yes ___ no

… label includes my setting ___ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: _____

Time of day: _____

Weather considerations: _____

The **re-entry interval (REI)** for this biopesticide is: _____

The **pre-harvest interval (PHI)** for this biopesticide is: _____

Any concerns with REI/PHI and application timing?

How will you mix and apply the product?

Required **personal protective equipment (PPE)**: _____

Field application rate (per acre or per gallon): _____

Volume (gallons per acre): _____

Does the spray **pressure** matter? If so, what should it be? _____

Should **adjuvant(s)** be used? If so, which? _____

Are there any products this biopesticide is **not tank-mix compatible** with?

What precautionary statements does the label have?

What are the potential impacts on **non-target organisms**?

How will you mitigate potential non-target effects?

What are the **storage conditions** the product needs?

Max./min. temperature: _____ Shelf life: _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ___**Apple**_____

Setting: __**Orchard**_ _____

Target pest: _____***Erwinia amylovora* (fire blight)**_____

Biopesticide you would like to use in 2020: ____**Regalia + Double Nickel LC (DN)**_____

How does this fit into your broader integrated pest management (IPM) plan:

> **Regalia is a formulation of *Reynoutria sachalinensis* (knot weed) plant extract. It acts by inducing host defenses. It must be applied prior to infection events, i.e. prior to bloom. This is used in replacement of streptomycin.**
>
> **Double Nickel LC (DN) is a formulation of *Bacillus amyloliquefaciens* strain D747. The bacteria is believed to act by competing for the same biological niche as *E. amylovora*, and via the production of antimicrobial metabolites which kill the pathogen. It is applied at bloom when blossoms are open to inhibit growth and kill the pathogen during this critical infection window. In this way, the product is a replacement for streptomycin.**

This biopesticide…

… is registered in NY _**X**__ yes ___ no

… label includes my pest _**X**__ yes ___ no

… label includes my crop _**X**__ yes ___ no

… label includes my setting _**X**__ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

> Time during the growing season:
> **Regalia: 7-14 days pre-bloom (at pink), then every 2 weeks**
> **DN: at bloom for blossom protection. May be applied every 7 days for shoot blight protection**
>
> Time of day: __**NA**_____
>
> Weather considerations: __**Double Nickel LC performs better when applied under warm, dry conditions (favors the colonization of the bacteria).**

The **re-entry interval (REI)** for this biopesticide is: ___**4 hours**_____

The **pre-harvest interval (PHI)** for this biopesticide is: __**0 days**_____

Any concerns with REI/PHI and application timing?

> **None**

[Type here]

How will you mix and apply the product?

Required **personal protective equipment (PPE)**: __Long sleeved shirt, long pants, shoes plus socks, waterproof gloves, protective eyewear for Regalia_____

Field application rate (per acre or per gallon):
Regalia: 1-4 qt/A
DN: 0.5-6qt/100gal (Cox trials: 1qt)

Volume (gallons per acre): __dilute = 400 gal/acre (2X = 200 gal/acre)_____

Does the spray **pressure** matter? If so, what should it be? __No_____

Should **adjuvant(s)** be used? If so, which? __
Regalia: It is recommended to be applied with Regulaid (48 fl oz/A)
DN: "Tank mix or rotate with copper-based fungicides at label rates for improved control." It is recommended to be applied with Cueva (2qt/A)

Are there any products this biopesticide is **not tank-mix compatible** with?
None – jar test recommended prior to use

What precautionary statements does the label have?

Regalia:
- Moderate eye irritant
- Do not apply directly to water

DN:
- Prolonged exposure may cause allergies
- Avoid: contact with eyes, clothing, breathing
- Do not apply directly to water

What are the potential impacts on **non-target organisms**?
None

How will you mitigate potential non-target effects?

What are the **storage conditions** the product needs?
Store in a cool dry place, avoid freezing
Max./min. temperature: _NA_____ Shelf life: Regalia: 3yr _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ___**Apple**_____

Setting: __**Orchard**_____

Target pest: _____***Erwinia amylovora*** **(fire blight)**_____

Biopesticide you would like to use in 2020: ____**Regalia**_____

How does this fit into your broader integrated pest management (IPM) plan:

> **Regalia is a formulation of *Reynoutria sachalinensis* (knot weed) plant extract. It acts by inducing host defenses. It must be applied prior to infection events, i.e. prior to bloom. This is used in replacement of streptomycin.**

This biopesticide…

… is registered in NY ___ yes ___ no

… label includes my pest ___ yes ___ no

… label includes my crop ___ yes ___ no

… label includes my setting ___ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: _____

Time of day: _____

Weather considerations: _____

The **re-entry interval (REI)** for this biopesticide is: _____

The **pre-harvest interval (PHI)** for this biopesticide is: _____

Any concerns with REI/PHI and application timing?

How will you mix and apply the product?

Required **personal protective equipment (PPE)**: _____

Field application rate (per acre or per gallon): _____

Volume (gallons per acre): _____

Does the spray **pressure** matter? If so, what should it be? _____

Should **adjuvant(s)** be used? If so, which? _____

Are there any products this biopesticide is **not tank-mix compatible** with?

What precautionary statements does the label have?

What are the potential impacts on **non-target organisms**?

How will you mitigate potential non-target effects?

What are the **storage conditions** the product needs?

Max./min. temperature: _____ Shelf life: _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ___**Apple**_____

Setting: __**Orchard**_____

Target pest: _____***Erwinia amylovora* (fire blight)**_____

Biopesticide you would like to use in 2020: ____**Regalia**_____

How does this fit into your broader integrated pest management (IPM) plan:

Regalia is a formulation of *Reynoutria sachalinensis* (knot weed) plant extract. It acts by inducing host defenses. It must be applied prior to infection events, i.e. prior to bloom. This is used in replacement of streptomycin.

This biopesticide…

… is registered in NY _**X**__ yes ___ no

… label includes my pest _**X**__ yes ___ no

… label includes my crop _**X**__ yes ___ no

… label includes my setting _**X**__ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season:
7-14 days pre-bloom (at pink), then every 2 weeks

Time of day: __**NA**_____

Weather considerations: __**NA**__

The **re-entry interval (REI)** for this biopesticide is: ___**4 hours**_____

The **pre-harvest interval (PHI)** for this biopesticide is: __**0 days**_____

Any concerns with REI/PHI and application timing?
None

[Type here]

How will you mix and apply the product?

Required **personal protective equipment (PPE)**: __Long sleeved shirt, long pants, shoes plus socks, waterproof gloves, protective eyewear_____

Field application rate (per acre or per gallon):
1-4 qt/A

Volume (gallons per acre): __dilute = 400 gal/acre (2X = 200 gal/acre)_____

Does the spray **pressure** matter? If so, what should it be? __No_____

Should **adjuvant(s)** be used? If so, which? __
Apply with adjuvant that improves spreading, not penetration
In Cox lab trials, it is applied with Regulaid (48 fl oz/A)

Are there any products this biopesticide is **not tank-mix compatible** with?
None – jar test recommended prior to use

What precautionary statements does the label have?
Moderate eye irritant
Do not apply directly to water

What are the potential impacts on **non-target organisms**?
None

How will you mitigate potential non-target effects?

What are the **storage conditions** the product needs?
Store in a cool dry place, avoid freezing
Max./min. temperature: _NA_____ Shelf life: 3yr _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)

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Crop: ____leafy greens_____

Setting: ____greenhouse_____

Target pest: _____aphids_____

Biopesticide you would like to use in 2020: _____Mycotrol_____

How does this fit into your broader integrated pest management (IPM) plan:

This biopesticide…

… is registered in NY _X_ yes ___ no

… label includes my pest _X_ yes ___ no

… label includes my crop _X_ yes ___ no

… label includes my setting _X_ yes ___ no

What is the **application timing** for this biopesticide (for target crop/pest)?

Time during the growing season: _____

Time of day: _____

Weather considerations: _____

The **restricted-entry interval (REI)** for this biopesticide is: _____

The **pre-harvest interval (PHI)** for this biopesticide is: _____

Any concerns with REI/PHI and application timing?

How will you mix and apply the product?

Required **personal protective equipment (PPE)** for mixing AND applying:

Application rate (i.e., per acre or per gallon):

Volume of water for application (gallons per acre):

Do you need to use any specific spray **nozzles** to apply this product?

Does the spray **pressure** matter? If so, what should it be?

Should **adjuvant(s)** be used? If so, which and how much?

Are there any products this biopesticide is **not tank-mix compatible** with?

What precautionary statements does the label have?

Signal word, potential human hazards:

Potential environmental hazards or effects on non-target organism:

How will you mitigate potential risks?

What are the **storage conditions** the product needs?

Max./min. temperature: _____ Shelf life: _____

References for more information on this biopesticide
(factsheets or usage guides, growers with experience using product, industry representatives)