Natural Enemies, Pests They Control, and Scientific Names

New York State Integrated Pest Management Program

Arthropod and Nematode Natural Enemies

Can I buy them?	Found in NY?	If I want to conserve this beneficial arthropod…	(whose scientific name is…)	that helps me control…	I should look for these names on the compatibility apps:
yes	yes	aphid midges	*Aphidoletes aphidimyza*	aphids	*Aphidoletes aphidimyza*
some	yes	beetles that are predators (for example, rove beetles, ground beetles, and others)	Coleoptera is the scientific name of the insect group that includes all beetles. The following families are generally predatory: Coccinellidae (lady beetles), Carabidae (ground beetles), Staphylinidae (rove beetles), Cantharidae (soldier beetles), Melyridae (flower beetles)	many insect pests	*Coleoptera* is a beneficial insect listed on at least one compatibility app. However, some coleoptera are pests. And, since this is such a broad group, the compatibility information provided may not be correct for *all* beneficial beetle species.
	yes	hover flies, syrphid flies	*Syrphus* spp, and many, many others	aphids	*Syrphus* spp.; *Syrphus corollae*; *Episyrphus balteatus*
some	yes	lacewings	*Chrysoperla* spp. and some others	aphids, insect eggs, small larvae	*Chrysopa carnea = Chrysoperla carnea; Chrysoperla* spp.
some	yes	lady beetles	*Coccinellidae*	aphids, mites, small insects, insect eggs	Coccinelidae, *Coccinella 7-punctata*, *Hippodamia convergens*
some	yes	minute pirate bug	*Orius insidiosus*	insect eggs, small caterpillars, thrips, mites, aphids	*Orius laevigatus* may be a reasonable proxy; *Orius* spp.; *Orius insidiosus*
yes	yes	nematodes	*Steinernema* spp., *Heterorhabditis* spp.	thrips, fungus gnats, shore flies, some grubs	Nematodes (note that this is a very broad category and it's possible there are differences among species), *Heterorhabditis bacteriophora*, *Steinernema*, *Steinernema feltiae*, *Steinernema carpocapsae*

Can I buy them?	Found in NY?	If I want to conserve this beneficial arthropod…	(whose scientific name is…)	that helps me control…	I should look for these names on the compatibility apps:
some	yes	parasitoid wasp	*Aphidius* spp.	aphids	*Aphidius* spp., *Aphidius colemani*, *Aphidius matricariae*, *Aphidius ervi*
some	yes	parasitoid wasp	Eulophidae, *Diglyphus* spp.	leafminer larvae	*Diglyphus isaea*
yes	yes	parasitoid wasp	Braconids, *Dacnusa sibirica*	leafminers	*Dacnusa sibirica*
	yes	parasitoid wasp	Aphelinidae, *Aphelinus semiflavus*	aphids on potatoes	*Aphelinus abdominalis* or *Aphelinus mali* may be reasonable proxies
yes	yes	predatory gall midge	*Feltiella acarisuga*	spider mites	*Feltiella acarisuga*
some	yes	predatory mites	*Amblyseius* (= *Neoseiulus) fallacis*, *Typhlodromus* spp., and probably others	thrips, whitefly, pest mites; may vary among natural enemy species	*Amblyseius californicus*, *Amblyseius cucumeris*, *Amblyseius swirskii*, *Phytoseiulus persimilis* are sold commercially and may be good proxies for the pesticide compatibility of naturally-occurring predatory mites
yes	yes	spined soldier bug	*Podisus maculiventris*	many immature insects, including many species of caterpillars	*Podisus maculiventris*
some	some	trichogramma wasps	*Trichogramma* spp.	moth eggs	*Trichogramma* spp., *Trichogramma brassicae*, *Trichogramma cacoeciae*, *Trichogramma evanescens*, *Trichogramma pretiosum*

Other species of interest …

Can I buy them?	Found in NY?	If I want to conserve this beneficial insect…	(whose scientific name is…)	that helps me control…	I should look for these names on the compatibility apps:
yes	yes	bumble bee	*Bombus* spp.	NA - pollinator	*Bombus* spp., *Bombus terrestris*
yes	yes	European honey bee	*Apis mellifera*	NA - pollinator	*Apis*, *Apis mellifera*

Natural Enemies that are Pesticides (active ingredients are microorganisms, i.e., fungi, bacteria, viruses)

If I want to conserve this microbial natural enemy…	(whose scientific name is…)	that helps me control…	I should look for these names on the compatibility apps:
Bt	*Bacillus thuringiensis* (various strains are available, and they control different pests)	many caterpillars and some immature beetle and fly pests (target pest varies by strain)	*Bacillus thuringiensis*
entomopathogenic fungus	*Paecilomyces fumosoroseus = Isaria fumosorosea, Beauveria bassiana, Metarhizium anisopliae (= M. brunneum)* (various strains)	many insects (target pest depends on fungal species and strain)	*Paecilomyces (=Isaria) fumosoroseus*, *Beauveria bassiana*, *Metarhizium anisopliae* (= *M. brunneum*)
fungi that attack plant diseases	there are multiple species, including *Trichoderma harzianum* (several strains)	Plant pathogens (the target pathogen depends on the fungal strain)	*Trichoderma harzianum* T-22 is the only fungal natural enemy I found on these apps, so far. It is unlikely that its compatibility is representative of other fungi that are natural enemies.

Notes:

Different strains or populations of these natural enemies are sold by different companies and each population may differ from natural populations. Each company is most likely to report compatibility data that applies to their population. It's not perfect, but it's a start.

When the first word in the scientific name of an insect (e.g. Trichogramma) is followed by the designation 'spp.', it means multiple species that all belong to the same genus. Some compatibility information is given for only the larger group (e.g., *Aphidius* spp. or *Syrphus* spp.)

In these apps/websites, microbial active ingredient may be listed as the natural enemy (e.g., Paecilomyces fumosoroseus on Biobest website), but sometimes it's only listed as a pesticide active ingredient. For compatibility of biopesticides with chemical pesticides, you should start by reading the label, then seek information provided by the manufacturer.

Assembled by Amara Dunn, NYSIPM using information from Natural Enemies of Vegetable Insect Pests (Hoffman & Frodsham)

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