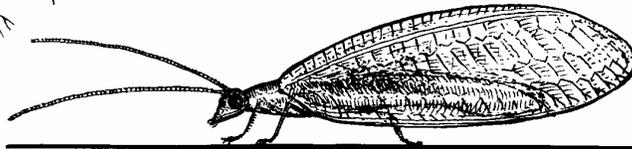
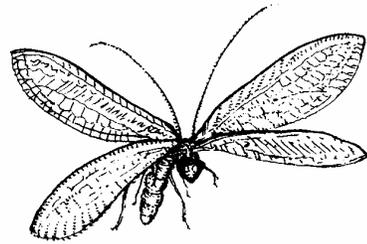


S I N C E 1 9 5 0

CATALOG OF BENEFICIALS

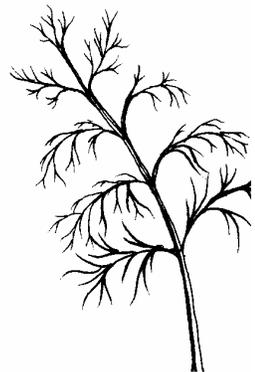


RINCON-VITOVA

I N S E C T A R I E S , I N C .

www.rinconvitova.com

TOWARDS ECOLOGICALLY-BASED AGRICULTURE WHERE BENEFICIAL
ORGANISMS ARE RELEASED AND ENCOURAGED TO CONTROL PESTS



I feel privileged to be here with Deke, my dad, the 'deep ecologist', wondering about the world's problems. We consider it a privilege to partner with you towards a society tuned in with nature..

We have good biological pest control programs that should be used more. There are so many around us who have not heard about the biological approach. We love to serve all of you from gardeners to animal breeders and especially family farmers. My grandfather Walter Q. lost the farm in York, Nebraska in the 1920's. Deke became a professional

entomologist, but growing up with him meant we worked in the garden and enjoyed our own fresh fruit and vegetables.

We see that the centrality of agriculture and the necessity to conserve nature are facts of life. Bahá'u'lláh declared them among spiritual principles to guide us towards an ideal society. He wrote, "The fundamental basis of the community is agriculture, tillage of the soil."

Deke recently wrote to a friend who had just bought a farm. Here are some excerpts.


Letter from Deke to a Friend


Here are some steps for transitioning from the conventional chemical farm paradigm to sustainable ecologically based biological control.

You have the resources available to restore the organic content of the soil. All you have to do is begin the process of applying the compost and compost teas that can be made from available waste products. The compost teas are probably the most important and economical way of transporting the soil food web to your soil-building program. Naturfarm people applied compost teas through the sprinkling system every time they irrigated and used it as a spray to control pests. (Concentrate of

the teas can be applied by dripping it into the flood irrigation as well). They also spread compost directly on the soil...whenever they prepared the soil for the next crop.... The soil microbes feed on the organic matter. Applying it...following harvest would work to decompose the roots and stubble, thereby, raising the organic level of the soil and feeding the soil food web microorganisms that feed nutrients to the plants. The organic matter is contained in the bodies of microbes, so you are building life in the soil.

You can experiment, particularly with the symbiotic mycorrhizae (endo and ecto). We can provide a number of easy to use microbial products to insure the presence of a broad diversity of microbes. Many natural enemies, birds and larger organisms, farm equipment and the wind will spread them throughout the farm and the ones that survive will do the work. Other natural areas, such as old growth forests, prairies and farms that have

not been sterilized by synthetic chemical pesticides and fertilizers are reservoirs of the soil food web of microbes. When it's working, microbes spread to every root hair, feeding nutrients as the plant needs them. You can't duplicate it any other way than building up all the trophic levels of bacteria and microbes. Conventional chemical farming shuts it down. The easiest way to build back the soil food web is to feed it.[and minimize] compaction. It was not long after the experiment began before one could feel the difference.... The beds were more soft and aerated and one could smell the Actinomycetes so typical of good soil.

I would provide refuges for the natural enemy complex, where practical, around the edges of the market crops. Naturfarm had more refuges of alfalfa strips than was probably necessary. I would make them diverse and sustainable--full of blossoms that attract pollinators and beneficials. The plants should be more attractive to pests than the market crop being grown. Weed management was the largest production cost. But many non-noxious so-called weeds make good companion plantings so long as they can be managed.

The only pest control was using sprays of compost teas that acted as both a fungicide and aid to insect pest control. It was not perfect at the beginning but as time passed the balance of nature seemed to take charge and solve the problems. Using the D-Vac to monitor the good bug to bad bug ratio gave me the insight to detect the progress of biological control on weekly visits. Argentine



Continued on page 18

Table Of Contents		Page		Page
A Note from Jan; A Letter by Deke	2	Receiving and Payment Information		22
Snail & Slug Control	3	Beneficial Mites		23
Beneficials for Fly Control	4	Beneficial Nematodes		26
Cockroach, Ant, and Flea Control	7	Pathogens & Antagonists		27
Beneficial Insects for Plant Pest Control	9	Botanicals		28
(alphabetic order by Genus name)		Monitoring Tools		29
Lacewing, <i>Chrysoperla carnea</i> , <i>C. rufilabris</i>	10	Pheromones, Kairomones, Aggregation		30
<i>Rhyzobius lophanthae</i> , (Hard) Scale Destroyer	15	Lures - Attract, Trap, Confuse		31
<i>Trichogramma spp.</i>	16	Bioapplicator & Release Supplies		31
Flies for pollination, pet food	17	Inoculants		32
Insect Habitat Plant Seeds	17	Barn Owl & Bat Houses		34
Deke's letter continued	18	D-Vac Vacuum Insect Net		35
Services, Consulting	18	Books, Photos, Insect Sample Packs		36
Our Team And Our Catalog	19	Insect Sample Pack Selection List		37
Price and Order Information	20	Index – look up pests to find controls		38
Shipping Information	21	Web Resources		40

New for 2005

MSTRS Pheromone lures for mating disruption – new membrane technology that allows large capacity lures that release pheromone over a full month. Since you use only 7-10 per acre, labor costs are cut by about 80%. See page 30 for these and other products for attracting pests and beneficials.

Insect Biodiversity Analysis – rent a D-Vac 122 insect vacuum for the season, vacuum samples from your weedy borders, habitat plantings and crop, send them to us for analysis. We will tell you the approximate ratio of good bugs to bad and advise strategies for improving the balance. See services, pg 18 and web for details.

Snail & Slug Control

BENEFICIAL	TARGET PEST, USE	CODE	QUANTITY	PRICE	
Sluggo slug and snail bait in small pellets with iron phosphate	slug, snail use 1 lb/1 K ft ² , repeat about every 2 weeks til slugs and snails decline	SLUGGO2.5	2.5 pound	22.00	
		SLUGGO	5+ jugs 25 pound 2+ bags	18.50 68.00 59.00	
Snail Barr – copper strips, 3 inch wide with cuts to form tabs, bend up tabs to assemble physical barrier	to exclude, repel snails, slugs they won't cross a copper barrier copper clips to secure strips	SB20	20 feet	18.00	
		SB100	100 feet	59.00	
		SB500	500 feet	192.00	
		SBCLP	100 clips	8.90	
Predatory Decollate snail					
<i>Rumina decollata</i> Decollate Snail predatory snail hides in mulch, doesn't climb, In CA, So Cal only – So of Tehachapi Mtn – other states OK	Brown garden snail, eggs, small snails, injured adults, also feed on decomposing plant material, a small release multiplies for several years	100/backyard 1K/acre	DS100	100/cup	29.00
				2+ cups	19.00
			5+ cups	12.30	
			10+ cups	10.00	
		DSGAL	1 gallon	190.00	
			3K snails /gal	2+ gallons	175.00/gal
	5+ gallons	165.00/gal			

Sticky Cards for Monitoring We carry two styles of sticky cards, the economy STY100 (Olsen) and a five-pack unit (Seabright). Olsen's are sticky on both sides with peel-off coverings and Seabright's open up so two non-sticky backs are together. For monitoring, hang every 250 square feet or horizontally over pots to trap

emerging fungus gnats. Yellow attracts many insects including whitefly, winged aphid, shore fly, fungus gnat, leafminer, thrips. If beneficials are caught in yellow traps, then blue is better for monitoring thrips. Note counts weekly and keep records to observe trends. See page 29 for selection.



Beneficials for Fly Control

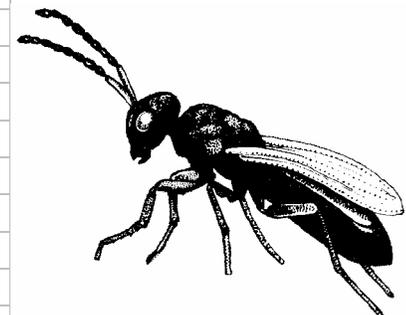


Search And Destroy Control For Flies

Start regular releases of parasitic wasps when flies appear in spring so colonies can reproduce and build up on the first generations of flies. Regular fly parasite releases during the warm months combined with optional trapping of adult flies and minimizing fly breeding habitat constitute an effective, economical fly control program.

Good early fly control is easier than attacking a population that has gotten out of control. Prolific and adaptable *Muscidifurax raptorellus* is mixed with hardy *Spalangia cameroni* in a ratio appropriate for your climate. Durable release stations now available to protect fly parasites (see page 5).

BENEFICIAL	TARGET PEST	CODE	QUANTITY	PRICE
Fly parasites Fly control  <p>Fly parasite emerging from fly pupae</p>	Filth breeding flies housefly, stable fly, lesser housefly	FP5	5,000/bag	26.00
			2+ bags	15.00
			5+ bags	9.00
			10+ bags	7.20
		FP10	10,000/bag	29.00
			2+ bags	18.00
			5+ bags	12.50
			10+ bags	10.50
			20+ bags	9.00
		FP50	50,000/bag	55.00
			2+ bags	44.00
			5+ bags	40.00
			10+ bags	38.00
			20+ bags	36.00

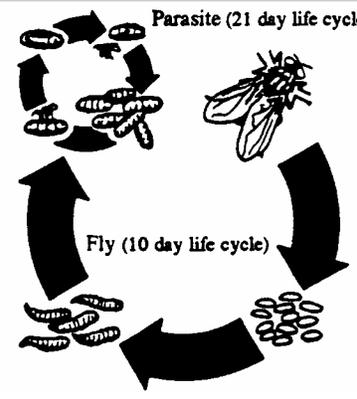


fly parasite wasp
actual size is approximately 1/10 inch

Fly Parasite Schedules

Arrange for shipments every 1, 2, 3 or more weeks through the fly season. Choose between two levels of price savings—schedules of at least 4 shipment dates and schedules of at least 16 shipment dates. Feel free to increase or decrease number of bags and adjust shipping dates as needed.

CODE	QUANTITY	PRICE
FP5 X4 4 or more shipments	5,000/bag	19.00
	2+ bags	12.50
	5+ bags	7.50
FP5 X16 16 or more shipments	5,000/bag	16.00
	2+ bags	11.40
	5+ bags	6.80
	10+ bags	5.30

CODE	QUANTITY	PRICE		CODE	QUANTITY	PRICE
FP10 X4 4 or more shipments	10,000/bag	22.00		FP50 X4 4 or more shipments	50,000/bag	49.00
	2+ bags	16.00	2+ bags		42.00	
	5+ bags	11.00	10+ bags		38.00	
		9.30			36.60	
		8.40			20+ bags	35.00
FP10 X16 16 or more shipments	10,000/bag	20.00	FP50 X16 16 or more shipments		50,000/bag	46.00
	2+ bags	14.50			2+ bags	41.00
	5+ bags	10.50			10+ bags	37.00
		9.00				35.70
	20+ bags	8.00			20+ bags	34.50
40+ bags	6.90	40+ bags	32.00			

“Considering everything, we would hazard an estimate that there are probably as many insects that are entomophagous [that eat other insects] as there are prey or host insect species, i.e. several million natural species.”

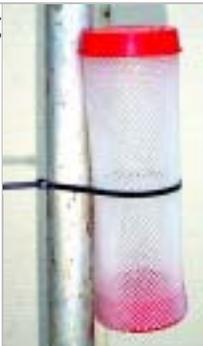
DeBach & Rosen, 1991

Estimating Number of Fly Parasites to Order

An FP10 unit contains a minimum of 10,000 fly pupae from which a minimum 20,000 adult parasites will emerge. Factors affecting recommended release rate: numbers of flies, amount and wetness of manure or other organic matter for fly breeding, temperature, humidity, naturally-occurring beneficial controls, incoming migrations and use of bait traps. Starting guidelines are based on 500 to 1,000 parasites per large animal per month depending on concentration or amount of manure. Use two parasites per small animal per month. Double up when fly problems are severe and cut back when the parasites are well-established and weather is cooler and drier.

Schedules and numbers of units used in some typical fly season programs: (1 unit = 1 FP10)

Area	Rate	Frequency	Amount suggested
Stables	100 parasites/horse	every 2-4 weeks	1-4 units/mo for up to 30 horses
Feedlots	250 parasites/head	every 1-2 weeks	7-10 units/wk for 1,000 head
Dairies	200 parasites/cow, 1,000/calf	weekly	5-7 units/wk for 100 cows
Poultry breeders	6 parasites/bird	weekly	5 units/wk for 10,000 breeders
Poultry layers	4 parasites/bird	weekly	1 unit/wk for 10,000 layers
Compost	500-1,500 parasites/cubic yd	monthly	5-15 units/mo for 100 cubic yards

Fly Parasite Release Station polypropylene plastic mesh cylinder to safely hold fly parasites for release, can be hung with bail, strapped onto a pipe or hung on a screw, hang 3-5 ft above ground. Place small handful of FP in each container each shipment, when full, empty and start over	place around fly breeding sites, near where fly maggots found, every 100 ft or so, 5-10/ac, protects from predators, birds, being trampled under foot, helps you get the most from your fly parasites – FP emerge over 3 week period		FPRS	set of 5	26.50
			holds 1	2+ sets	16.50
			FP10,	5+ sets	11.75
			18 oz	10+ sets	9.50
				20+ sets	8.20

OTHER ORGANISMS FOR FLY CONTROL

BENEFICIAL	TARGET PEST	RATE	CODE	QUANTITY	PRICE
<i>Carcinops pumilio</i> hister beetle, adult	fly eggs, small fly larvae, establish in manure pits in poultry houses	10K/pit	HISTER1	10,000 beetles	700.00
Hister House – hister beetle traps, set on manure piles, collect, move to new pile	for collecting/moving predatory beetles when cleaning out or setting up a new poultry house	100–300/ manure pit	HISTERH	100 traps	200.00
				2+ units	193.00
				5+ units	184.00
				10+ units	177.00
<i>Ophyra</i> , <i>Hydrotaea aenescens</i> predatory fly, pupa, adults don't bother animals	fly larvae in wet manure away from light, larvae feed on house fly larvae	10K/1K ft ² manure	OPHYRA	10,000 pupae	43.00
				2+ tubs	30.00
				5+ tubs	23.00
				10+ tubs	20.00
<i>Steinernema feltiae</i> beneficial parasitic nematode needs moisture and media temp over 55°F	filth breeding flies, maggot, pupa stage	1 million per 50 sq. ft. 1 billion per acre	NESF25 NESF100 see nematode section for other sizes	25 million	39.00
				100 million	86.00
				2+ pouches	79.00
				5+ pouches	72.00

Traps and Lures for Flies and Yellow Jackets

Final Flight Fly Trap reusable plastic quart jar, attracts, comes with lure	flies outdoors, with lures, holds 5K flies		FTFF	trap & 1 lure	8.35
				10+ units	7.10
				24+ units	6.75
Final Flight Fly Lure , fly sex attractant plus feeding stimulants	mix pack in water in FTFF		FTL	pack of 3 lures	8.35
				6+ units	7.85
				10+ units	5.75
			FTL-CS	bag of 72	113.00

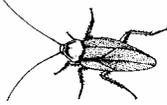
Traps and Lures for Flies and Yellow Jackets, continued

ITEM	DESCRIPTION	CODE	QUANTITY	PRICE		
Sagebrush Traps Metal outdoor "solar-powered", screen cone design, bait recipes included catches flies or yellow jackets, depending on bait, price includes freight. Fly bait: molasses 1:3 with water or use fly attractants. Yellow jacket bait: meat scraps	hangs from wire 6" dia, 10" h 	FTH1	1 hanging trap	38.00		
			2+ traps	30.50		
			5+ traps	26.60		
		FTS3	1 large standing	43.00		
			2+ traps	37.00		
			5+ traps	33.00		
		FTS5	fits over drum	inquire		
		Rescue Fly Attractant feeding and sex attractants	potent, fast acting, just add water,	FTAR	3/pack	5.75
					2+ pack	5.00
Z-9 Sex Pad, fly lure, pure muscalurefly sex attractant, NO odor,	flies, house, false stable, males only, use with the Wet Tablet for attraction of females, use in any trap	Z9PAD	10/pack	49.00		
			2+ packs	37.00		
			10+ packs	29.00		
Wet Tab, fly lure, food grade material - no sex pheromones, very low odor - can be used inside	flies, best, most versatile food lure, fits in any trap, wet tablet before use	FLYTAB	10/pack	49.00		
			2+ packs	37.00		
			10+ packs	27.00		
Rescue Big Bag Fly Trap add water and hang, disposable, no touching bait or flies, use where you need fast, short term control	flies, house, false stable, blow, blue bottle, green bottle, flesh, face flies, etc., double capacity of standard bag, holds to 40K flies	FTBB	1 dozen	83.00		
			2+ dozen	74.00		
			4+ dozen	69.00		
Insect-A-Peel Magnum Trap, 6 inch diameter tube insects stick to surface, fresh section rolled into place, attracts from 360°, 30 inch long trap section, combine with lures for more effect	flying insects, fly, whitefly, moth, etc., sticky trap, supply reel of 6" dia tube of sticky plastic film, pull off one reel, roll onto a take-up reel,	TSMAG	standing trap	68.20		
			3+ traps	51.70		
			5+ traps	48.40		
Insect-A-Peel Hanging Magnum Trap, hanging version of above	for hanging under eaves, in barns or greenhouses	THMAG	hanging trap	58.30		
			3+ traps	40.70		
			5+ traps	37.40		
Insect-A-Peel Magnum Supply Reel, 50 ft roll, 6 inch diameter, yellow with printed flies as attractant	reel of sticky material for magnum traps, lasts about a year, also grid pattern	RMAGS	reel	51.70		
			3+ reels	38.50		
			5+ reels	34.65		
			10+ reels	31.90		
Insect-A-Peel Hanging Mini Trap, 3 inch diameter, 15 inch trap length	small version of trap for confined areas or low numbers of flies	THMINI	small hanging	56.10		
			3+ traps	38.50		
			5+ traps	34.10		
Mini Supply Reel, 25 ft roll, 3 inch diameter, yellow with printed flies as visual attractant	replacement reel of sticky tube for hanging mini trap	RMINS	mini reel	46.20		
			3+ reels	31.90		
			5+ reels	28.05		
			10+ reels	25.85		
Rescue Yellow Jacket Trap lures wasps into trap where they dry up, lasts several seasons, Reusable	proven cone design, pheromone bait that attracts dozen+ species of biting wasps, start early in spring to catch young queens	YJTR lures available	each	19.00		
			6+ traps	13.00		
			12+ traps	11.50		
			5+ pack	28.50		



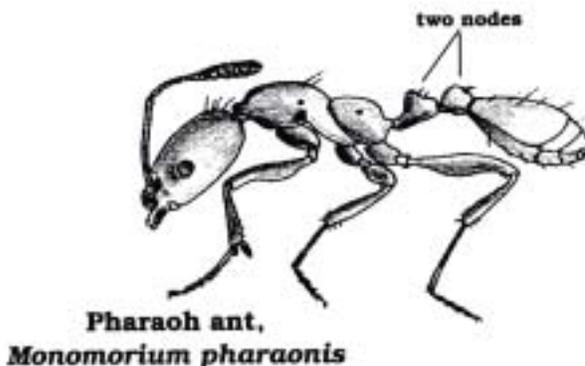
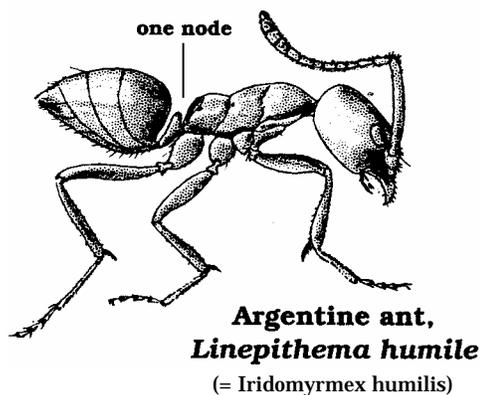
Cockroach, Ant, & Flea Control



BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
Anastatus tenuipes cockroach parasite, parasitic wasp, from PNE, Inc	brownbanded cockroach  <small>drawing from BIRC</small>	sold as part of a program, inquire	ANAS	100/unit	28.00
				2+ units	18.00
				5+ units	11.00
				10+ units	8.50
Aprostocetus hagenowii cockroach parasite parasitic wasp, from PNE, Inc.	cockroaches: American, Smokybrown, Australian, Brown, Oriental, Harlequin, Florida, <i>E. biolleyi</i> .	sold as part of a program	APROS	1,000/unit	91.00
				2+ units	81.00
				5+ units	48.00
				10+ units	46.00
Comperia merceti cockroach parasite, <i>parasitic wasp</i> , from PNE, Inc.	brownbanded cockroach  <small>UC Calif Ag photo</small>	sold as part of a program	COMP	5,000/bag	26.00
				2+ units	16.50
				5+ units	9.90
				10+ units	6.70
Cockroach Biocontrol Workshop Video & Manual from workshop held 3-1-01	8 hr video, 4 VHS tapes, workshop describing how to set up a cockroach biocontrol program in your company		ROACH	set of 4 VHS tapes	60.00

ITEM	TARGET PEST, USE	CODE	QUANTITY	PRICE
Boric Acid , technical powder recipe sheet available	use in ant baits, mix your own for \$2/gallon, dust area for cockroaches	BOR4	4 oz	4.90
		BOR16	16 oz	12.00
Ant Bait with 3% boric acid, low risk material	ants, place in ant bait station	BORICQ	quart	12.00
		BORICG	gallon	33.00
Soil Conditioner Auntie Fuego, compost tea, molasses, humic acid, orange oil, by Garden-Ville	dilute 4-6 oz/gal, drench ant mounds or spray area where ants present	AUNTQ	1 quart	14.00
		AUNTG	1 gallon	40.00
			2+ gallon	30.00
Boric Acid , technical powder recipe below	use in ant baits or dust areas for cockroaches	BOR4	4 oz	4.90
		BOR16	16 oz	12.00
NIBAN granular bait with boric acid for structural use	ant, cockroach, cricket, mole cricket, silverfish	NIBAN	5 pound	59.00
			2+ bottles	49.00
Advance granular ant bait abamectin, a bacterial toxin from <i>Streptomyces avermitilis</i>	ant, fire ant and other protein feeding ants	ADVAN	2 pound	59.00
			2+ jars	50.00
			5+ jars	42.00
Ant Café Vials small ant bait station, tie to wall, post, fence	2 oz polypropylene, snap lid top, can be locked with cable tie	ANTCAFEV	24/bag	19.50
			5+ bags	16.00
Ant & Roach Buffet bait station for 1-3 baits for ants, roaches, 2 of ½ oz sections, one 3 oz section	ant, roach bait station with 3 bait compartments, weather resistant polypropylene	ANTBUF	20/bag	28.00
			5+ bag	24.00
			10+ bag	21.50
Ants-No-More Bait Station 4 oz cup atop a stake with child resistant lid	ant bait station with 2 sections for 1-2 baits, spill resistant, 4 oz volume	ANTSNO	2/pack	7.50
			6+ packs	7.00
			12+ packs	6.00
Bug and Slug Rock Café camouflaged plastic bait station looks like 5"x7"x2.5" rock	ant, roach, slug or snail bait dispenser, with latch to secure lid	BUGROCK	each	6.00
			6+ rocks	5.50
			12+ rocks	5.00
Ant Pro Bait Station high volume dispenser, great for garden, orchard, or commercial, home 1/500 ft ² , ag 2-4/acre	ant bait station, 20 oz, PP screw lid container, stake for stabilizing, screw to deter tampering 	ANTPRO	each	25.00
			5+ station	23.00
			10+ station	21.00

BENEFICIAL	TARGET PEST, USE	CODE	QUANTITY	PRICE
Bug Arrest , mixture of digestive enzymes that disable insects, mites on pets, spray on animal, massage in, brush, rinse	lice, flea, ear mite, skin mite - on animal - dust mite, ant, roach, fly - around home, for insects on plants mix 1 oz/16 oz water	ARREST	32 oz botl	15.50
		ARRESTG	gallon	49.00
			2+ gallon	39.00
Stikem special nonpoisonous pest glue, high tack formula, traps flying or crawling insects	for making sticky bands or sticky cards, apply to 2 inch bands of plastic wrap or duct tape around tree trunks, sticky band stops all crawling insects	STKM1	1 pound	12.50
			2+ pounds	10.30
		STKM7	7 lb (gal)	55.50
Tangle-Trap Insect Trap Coating spray adhesive for traps, not shipped by air	for making sticky traps, covers 6.5 ft ² , stays sticky until covered with bugs or debris	TANGLA	10 oz can	30.00
			3+ cans	16.00
			5+ cans	12.75
Silent George Roach trap 2 plastic traps with 4 replaceable glue panels, comes in brown, ivory, white plastic, packs of 12 replacement panels	detect, remove cockroaches, other pests, safe around food use for German, brownbanded, nymphs of American, Oriental, traps and panels are same price, combine for price breaks	GEORG1 2 traps/pack	1 pack	7.00
			5+ packs	6.80
		GEORGS 12 replacement glue panels/pack	10+ packs	6.20
			48+ packs	4.10
AgriSense Lo-Line trap paperboard with sticky area, feeding attractant pellet, folds to tent, economical style, 78¢/trap	monitor, remove cockroaches, silverfish, can hold 90 American, 200 German roaches	LOLINE	200/case	157.00
			2+ cases	144.00
AgriSense Detector trap smaller than Low-Line less expensive, 22¢/trap	monitor, remove lower populations of cockroaches, silverfish	DETECT	600/case	146.00
			2+ cases	134.00



Illustrations courtesy of Bio-Integral Resource Center (BIRC), publisher of IPM Practitioner and Common Sense Pest Control Quarterly – good sources of user friendly, scientific information for least-toxic pest management. (510)524-2567 www.birc.org

Ant Bait Recipe

Boric Acid Syrup (3% boric acid in 25% syrup by weight)

- 1 Cup sugar
- 2 Cups water
- 2 tablespoons boric acid

Mix and stir to dissolve. Use a plastic jar or tub with about 1/8 inch holes around top edge so ants can get in, but not bees and butterflies. Place some excelsior, wood shavings,

dry grass, or styrofoam packing material in the jar to provide pathways for the ants to climb down to the syrup. Pour a small amount of syrup into the jar and set upright. Secure it so that dogs, cats and kids can't get into it. Refill liquid once a week or as needed until few ants are seen collecting bait or the bait stops disappearing.

Our Mission

Our mission is to promote biological solutions for pest problems. We offer knowledge, organisms and other resources to control pests biologically and naturally in safe ways for people and the environment. Our vision is ecologically-based pest management where beneficial organisms are released or encouraged to control pests.



Beneficial Insects for Plant Pest Control



BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Anisopteromalus calandrae</i> parasitic wasp	weevils in stored grain	1/20 ft ³	ANISOP	200/bottle	32.00
				2+ bottles	20.00
				5+ bottles	12.70

BIOCONTROL OF APHIDS involves Aphidius and Aphelinus, the general aphid predators, Aphidoletes and Hippodamia (convergent lady beetles) and the Aphid Lion (green lacewing larvae). Aphidoletes are effective at very low rates when used proactively at low levels of aphids. If aphids increase, put out lacewing at least twice. In cold weather (before it is warm enough for lacewing eggs to

hatch) lady beetles can lay eggs and eat some. Sudan, rye, barley, or radish borders are early hosts for aphids that attract naturally occurring beneficials. Insect Food and new Pred-A-Lure (page 30) draw predators to lay eggs. Small flowers attract lacewing adults and other beneficials. They live longer and lay more eggs with nectar, pollen or honeydew.

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Aphelinus abdominalis</i> Aphid Parasite parasitic wasp	aphids, especially peach, GH potato	2-5/100 ft ² 1 wk I, 2-4 X	APA250	250 vial	62.00
				2+ vial	52.00
				5+ vials	47.00
<i>Aphidius colemani</i> Aphid Parasite parasitic wasp	aphids: melon/cotton, green peach, other	500-3K/acre 1 wk I, 2-3 X	ACOL1	1,000/vial	58.00
				2+ vials	49.00
				5+ vials	43.50
				10+ vials	42.00
<i>Aphidius ervi</i> Aphid Parasite parasitic wasp	aphids: potato, GH potato, pea, green peach (preference order)	1-5/100 ft ² 1 wk I, 3-6 X	AERVI	250/vial	62.00
				2+ vials	54.00
				5+ vials	47.00
				10+ vials	45.50
<i>Aphiline ACE mix</i> <i>Aphelinus abdominalis</i> , <i>Aphidius colmani</i> , <i>A. ervi</i> 2:1:1 ratio of three wasps	aphids, 25 different species	1-5/10 ft ² 1 wk I, 2-4 X	ACE5	500/bottle	57.00
				2+ bottles	49.50
				5+ bottles	42.90
				10+ bottles	41.00
<i>Aphidius matricariae</i> Aphid Parasite no diapause tolerates low night temps. 50° F (10° C)	aphid: green peach & 40 other species, not cotton or potato, seeks scattered colonies	500-3K/acre 1 wk I, 2-3 X	AM500	500/bottle	46.50
				2+ bottles	36.50
				5+ bottles	30.00
				10+ bottles	28.00
<i>Aphidoletes aphidimyza</i> Aphid Predator predatory midge, pupae diapause daylight < 16 hours, temperatures < 54° F (12° C) supplemental light helps may colonize and appear year after year at first sign of spring aphids in protected orchards and gardens	aphids: row crops, trees, greenhouse, larva predator, use with lacewing and ladybugs	250/acre 2 wk I, 2-4 X 1-6/plant 2-5/tree New finding! excellent as preventative at low levels of aphids & predators	AA250	250/tray	29.50
				2+ trays	19.00
				5+ trays	12.50
			AA1	1,000/tray	40.00
				2+ trays	31.00
				5+ trays	23.00
			AA3	3,000/vial	54.00
				2+ vials	45.00
				5+ vials	39.00
				10+ vials	36.70
				20+ vials	34.50
				20+ vials	34.50
<i>Aphytis melinus</i>, Armored scale parasite -- See with other scale controls on page 14					
<i>Atheta coriaria</i> predatory beetle rove beetle	shore flies, fungus gnats, WF thrips, build up in soil under greenhouse benches	1/10 ft ² (m ²) 1 wk I, until rate achieved	ATHET	100/vial	35.00
				2+ cups	24.00
			ATHET5	500/vial	82.00
2+ cups	70.00				



BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Bracon hebetor</i> parasitic wasp, larval parasite	caterpillars, moth larvae, 50/bottle	1 pair/10 ft ² if < 10 larve/10 ft ²	BR1	50/vial	32.00
<i>Cotesia plutellae</i> Diamondback Moth Parasite parasitic wasp	diamondback moth	1K-3K/acre	PLUTE1	100/bottle	39.00
				2+ bottles	28.00
				5+ bottles	19.00
				10+ bottles	17.00

LACEWING -- "The Aphid Lion" -- Our Most Cost-Effective General Predator

Rincon-Vitova produces green lacewing in life stages and packaging for every situation. All species of lacewing larvae eat all life stages of all kinds of prey. Plant insect-attracting seed mixes—Beneficial Blend and our exquisite Insect-A-Flora—to keep lacewing adults and other beneficial insects in the area.

LACEWING EGGS

<i>Chrysoperla carnea</i> <i>Chrysoperla rufilabris</i> [R] Aphid Lion 1,000 eggs/unit	all soft-bodied insects, mites, mite eggs, whitefly, mealybug, thrips, scale crawler, small caterpillar, aphid, lerp psyllid tiny larvae eat mites, mite eggs, insect eggs, start eating aphids at 7 days old	1K+/ 2,500 ft ² 2-30K/acre 2 wk I, 2-4 X	LWS1	1,000/bag	6.00	
				5+ bags	5.60	
5,000 eggs/unit packed in bags with rice hulls 	lacewing larva, 3 rd instar 	1/20 pest 2/ft ² GH	LW5	10+ bags	4.60	
				20+ bags	3.50	
				40+ bags	3.00	
				5,000/bag	29.00	
10,000 eggs/unit packed in bags with rice hulls	lacewing larva, 3 rd instar	1K/euc tree for lerps	LW10	2+ bags	19.00	
				5+ bags	12.50	
				20+ bags	9.50	
				40+ bags	8.30	
Lacewing eggs, bulk (minimum order 5,000)			LWBULK	5,000+	5.50/K	
Save by sharing plans early!				10,000+	3.70/K	
LWBULKAD 1 month advance notice	300,000 +	1.60/K		 LW eggs as laid	20,000+	2.90/K
	500,000+	1.45/K			50,000+	2.10/K
	1 million+	1.25/K	100,000+		1.85/K	
				500,000+	1.75/K	
				1 million+	1.40/K	

LACEWING EGGS ON CARDS

NEW! Half the usual eggs! LW eggs (2,500) on cards 30 hangable units/card 83 eggs/hangable unit	 hangable unit or tab	hang 1-2 units/bush 1-5 units/tree 1-2 units/trellised tomato 2 wk I, 2-4 X	LWC2.5	2,500/ card	20.00
				2+ cards	18.00
				5+ cards	11.90
				20+ cards	8.50
LW eggs (5,000) on cards 30 hangable units/card 167 eggs/hangable unit	Eggs glued on black cards with diet for 1 st instars, perforated into 30 tabs, ea 0.75 by 2.2 inch, with hook for hanging on twigs.	Do not use if any ants are present.	LWC5	5,000/ card	30.00
				2+ cards	21.00
				5+ cards	15.00
				20+ cards	13.00
LW eggs (10,000) on cards 30 hangable units/card 333 eggs/hangable unit Eggs/unit = minimum average.			LWC10	40+ cards	11.00
				10,000/card	40.00
				2+ cards	28.00
				5+ cards	22.00
				20+ cards	19.00
				40+ cards	18.00

LACEWING LARVAE, ADULTS AND PUPAE

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE		
Lacewing larvae ready to feed on pests as soon as they hit the plant 	500 larvae, standard vertical honeycomb, remove organdy mesh from a few cells, turn over, tap onto plants	100/tree 20/bush  lacewing larva, 1 st	LWLAR	1 unit	30.00		
				2+ units	21.00		
				5+ units	15.00		
				10+ units	13.00		
				20+ units	12.00		
				30+ units	11.00		
LW Larvae in bottles <i>C. rufilabris</i> , rice hulls/food	1,000 larvae/bottle, minimum 2 bottles 1 wk notice		LWBOT	2+ bottles	21.50		
				5+ bottles	15.60		
				10+ bottles	13.80		
				20+ bottles	12.00		
				50+ bottles	11.00		
Lacewing adults >50% females 	release in trees, greenhouse, early spring 	200-500/acre 1-3/200 ft ² GH	LWA1	100/unit	50.00		
				2+ units	39.00		
				5+ units	30.00		
				100/tree	LWA250	250/unit	72.00
						2+ units	65.00
						5+ units	56.00
Lacewing pupae, >50% females 	call 2-3 weeks ahead	200-500/acre 1-3/200 ft ² GH	LWPUP	500/unit	53.00		
				2+ units	43.00		
				5+ units	33.00		

MEALYBUG (MB) BIOCONTROLS – Crypts work in warm, humid high MB levels. Lacewing perform in more varied conditions. Where Crypts fly to windows, use lacewing. Rhyzobius eat (but do not reproduce on) MB. Leptomastix wasps complement use of predators against citrus MB only. You can start with Beauveria (Botanigard) or Neem oil before biocontrols. Heterorhabditis nematodes (26) attack root MB in soil.

<i>Cryptolaemus montrouzieri</i> Mealybug Destroyer predatory beetle prefers 60-90° F, 70-80% RH	mealybug, scale, aphid, adult & larvae both feed on all stages of mealybug, larva looks like a giant mealybug, do not refrigerate, hold at room temp. or 50° F	5/plant 2-5/yd ² 1K-2K/acre  1-2 X, inoc	CR100	100/tube	39.50			
				2+ tubes	29.50			
				5+ tubes	21.50			
				10+ tubes	19.00			
			Discount for schedule 8+ shipments (X8)			CR250	250/tube	57.00
							2+ tubes	48.50
						CR250X8	5+ tubes	44.00
							10+ tubes	40.50
							250/tube	50.00
							2+ tubes	45.00
CR2500	5+ tubes	40.50						
	2,500/tub	344.00						
	2+ tubs	339.00						
<i>Cryptolaemus larvae</i> predatory beetle larvae	science educators' favorite		CRLAR50	50/tube	48.00			
				2+ tubes	37.00			
				5+ tubes	26.50			
<i>Leptomastix dactylopii</i> Citrus Mealybug Parasite wasp prefers 78° F, 60-65% RH	highly effective on citrus mealybug, 3 rd instar and adult only	1-2/10 ft ² 5/plant	LEP100	100/vial	60.00			
				2+ vials	49.00			
				5+ vials	41.00			

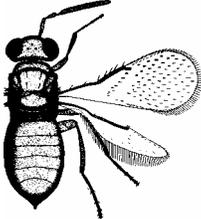
"When we try to pick out anything by itself, we find it hitched to everything in the universe." John Muir

Leafminer Biocontrols – The parasites *Dacnusa* and *Diglyphus* parasitize species damaging many greenhouse crops. *Dacnusa* is less effective as temps get above 70°F. A product with a *Dacnusa*:*Diglyphus* 225:25 mix is also available. *Dacnusa* has advantages during the winter in colder glasshouses, but as it gets warmer it is necessary to get an early inoculation of *Diglyphus*. It will increase rapidly in presence of host and warm temps.

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Dacnusa sibirica</i> Leafminer Parasite parasitic wasp	leafminer – cooler temp	500-2K/acre 1/10 miners 1 wk I, 3-5 X	DA250	250/unit	50.00
				2+ bottles	39.00
				5+ bottles	32.00
<i>Diglyphus isea</i> Leafminer Parasite parasitic wasp	leafminer, 2 nd , 3 rd instar – in hot temp	500-1K/acre 1-2/100 ft ² 2 wk I, 2-3 X	DIG250	250/bottle	73.00
				2+ bottles	63.00
				5+ bottles	56.00
				10+ bottles	52.00

WHITEFLY BIOCONTROLS – General predators used most are *Delphastus* and green lacewing. *Dicyphus* is used in tomatoes; not gerberas, but can damage fruit and flowers if insects not present. Inoculative releases in hot spots take 3 weeks to yield 100 times more beetles. Lacewing are more affordable in inundative numbers and control other pests besides whitefly. *Encarsia formosa* does best on Greenhouse whitefly (GHWF), *Trialeurodes vaporariorum*; does not do so well on silverleaf/sweet potato WF (*Bemisia*). *Eretmocerus* does best against *Bemisia*, woolly, citrus and bayberry whitefly, and will parasitize GHWF. GHWF adults are white, wings together. *Bemisia* adults are yellow, wings slightly apart showing abdomen and at an angle to leaf surface. A fringe rings the edge of white GHWF nymphs and no eye spots are visible; *Bemisia* nymphs are yellow with no fringe; eye spots are visible. GHWF lays eggs in circular patterns; *Bemisia* singly. High populations may be reduced with Botanigard, soap, neem, or Hot Pepper Wax before introducing biocontrols.

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE			
<i>Delphastus catalinae</i> (= <i>D. pusillus</i>) Whitefly Predator predatory beetle no diapause active >54° F (12° C)	whitefly – for high WF density 	1-2/100 ft ² 1 X inoc	DE100	100/bottle	38.00			
				2+ bottles	26.50			
				5+ bottles	19.50			
						DE1K	1,000/bottle	105.00
							2+ bottles	98.00
							5+ bottles	91.00
10+ bottles	86.00							
<i>Encarsia formosa</i> Greenhouse Whitefly (GHWF) Parasite parasitic wasp strip = 10 units of 100 parasitized scale glued on perforated cards with hooks yields 1K parasitic wasps no diapause, inactive < 54° F (12° C) loose parasitized scale in increments of 1,000, lower cost, better and quicker distribution from a shaker Our producer Applied Bio-Nomics produces and ships without interim storage and we ship the day we import. The result is optimum searching ability and success at low levels of whitefly!!	Greenhouse whitefly (WF), attacks 2 nd instar proactive 8 to 10 weeks covers susceptible stage silverleaf WF less preferred host low pest density only	1-5/10 ft ² 1 wk I, 4-6 X 2-4/ ft ² GH 8/ tom.plant	EN1	1 strip	16.00			
				2+ strips	14.00			
				5+ strips	9.50			
				10+ strips	7.00			
				40+strips	4.80			
				100+strips	4.50			
	 	loose scale in bulk minimum 5,000 = 1 ml drawing CA-DPR		EN1X4 4 or more shipments	1 strip	13.50		
					2+ strips	11.00		
					5+ strips	7.40		
					10+ strips	5.90		
					40+ strips	4.50		
					100+ strips	3.80		
					ENBULK	5K+	8.00/K	
10K+	6.50/K							
40K+	4.50/K							
100K+	4.20/K							
ENBULKX16	5K+	6.30/K						
	10K+	5.00K						
	40K+	4.20/K						
	100K+	3.80/K						

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE	
<i>Dicyphus hesperus</i> Dicyphus predatory bug, esp. on tomato	whitefly larva, aphids, red spider mites, moth eggs, leafminer, thrips	500/acre inoculative early	DICY250	100/bottle	86.50	
				2+ bottles	78.00	
				5+ bottles	70.00	
<i>Eretmocerus californicus</i> (= <i>E. eremicus</i>) Bemesia Parasite, parasitic wasp  Eretmocerus (ER) cards 16 separate blister-pack cards each with 500 parasitized scale yields 8K parasitic wasps Save on more effective schedules of 4 or more shipments	silverleaf, sweet potato whitefly (Bemesia), woolly, citrus, bayberry, lesser extent greenhouse whitefly for low pest density use proactively for 4 to 10 weeks—covers susceptible larval stage	5-20/10 ft ²	ER3	3,000/bottle	50.00	
				2+ bottles	43.50	
				5+ bottles	36.20	
				10+ bottles	34.30	
			ER3X4 4 or more shipments	3,000/bottle	43.50	
				2+ bottles	39.00	
			ER10	10,000/bottle	105.00	
				2+ bottles	103.00	
			ER10X4 10 or more shipments	10,000/bottle	102.00	
				2+ bottles	98.00	
				5+ bottles	93.00	
			ERCARDSX4 5K/set of 10	1 set	71.00	ERCARDS 500/card=5K
2+ sets	66.30	2+ sets		72.00		
5+ sets	63.50	5+ sets		65.80		
		10+ sets		63.00		
Encarsia/Eretmocerus, <i>Eretmocerus eremicus</i> & <i>Encarsia formosa</i> together on cards, 250 mix/card, 40 cards, 10,000 total	for mixed greenhouse and sweet potato whitefly 2 nd to 4 th instar larvae		ENERCD	10,000/set 40 cd	109.00	
				2+ sets	100.00	
				5+ sets	91.40	
			4 or more shipments	ENERCDX4	10,000/set 40 cd	97.00
					2+ sets	94.00
		5+ sets	89.00			
<i>Eretmocerus mundus</i> Bemesia Parasite, parasitic wasp for low pest density, use proactively for 4 to 10 weeks, to cover larval stage 60 wasps/card, 5 cards/strip	Bemesia and other whitefly 2 nd 3 rd instar, under Mediterranean conditions	1-6/10 ft ² 1 wk I, 4-10 X	EMCARD3 10 strips	3,000/set	68.50	
				2+ sets	56.00	
			EMCARD15 50 strips	15,000/set	230.00	
				2+ sets	217.00	
		4 or more shipments	EMCARD3 X4	3,000/set	57.00	
				2+ sets	51.00	
			EMCARD15 X4	15,000/set	211.00	
				2+ sets	208.00	
		5+ sets	202.00			
<i>Feltiella acarisuga</i> Spider Mite Predatory midge * includes Ovi-Stim food	2-spot spider mite (TSSM) tomato, straw- berries, greenhouse	250-1K/acre 1 wk I, 3 X	FEL250	250/unit	84.00	
				2+ units	74.00	
				6+ units	59.00	
<i>Franklinothrips</i> <i>orizabensis</i> Scirtothrips Predator	scirtothrips pest on avocado	250/acre, 2X March and April	FRANK	100/bag	48.00	
				2+ bags	34.00	
				5+ bags	26.00	
				10+ bags	24.00	
				50+ bags	21.50	
<i>Goniozus legneri</i> Navel Orangeworm Parasite parasitic wasp	navel orangeworm, carob moth	1K/acre 1 yr I, 2-3 X	GO1	5+ units (min)	32.00	
				20+ units	28.00	
				50+ units	25.00	

“...in the garden of thy heart, plant naught but the rose of love.” Bahá’u’lláh

BENEFICIAL			TARGET PEST		RATE/FREQ	CODE	QUANTITY	PRICE				
<i>Hippodamia convergens</i> Ladybird Beetle Convergent Ladybug predatory beetle adults migrate to mountain valleys to hibernate where they are collected and refrigerated until sold Laboratory reared Hippodamia available in units of 50 for \$40.00			aphids, soft-bodied insects & scale, adults and larvae are both predatory, adults active early spring better in greenhouse than outdoors release in evening, sprinkle area with water, place on pests attract ladybugs with Insect Food and NEW! Predalure pg		1/ft ² GH ½-1 gal/acre 1-2 X release, monitor, release again if needed	LB500	500/unit	13.00				
							2+ units	11.00				
							5+ units	7.00				
							10+ units	4.50				
							20+ units	3.15				
						LB2K	2,000/unit	16.00				
							2+ units	14.70				
							5+ units	9.50				
							10+ units	6.90				
							20+ units	5.50				
						LB4.5K	4,500/½ pint	19.00				
							2+ ½ pint	16.00				
							4+ ½ pint	11.40				
8+ ½ pint	9.40											
LB18K			18,000 (qt)	42.00	LBHG half-gallon of ladybugs	36,000 (½ gal)	68.00	LBG gallon of ladybugs	72,000 (gal)	80.00		
quart of ladybugs			2+ ½ qt	31.00					2+ ½ gal	59.00	2+ gallons	71.00
			4+ ½ qt	25.00					5+ ½ gal	56.30	5+ gallons	66.00
			8+ ½ qt	23.00					10+ ½ gal	55.00	20+ gallons	63.50
			20+ ½ qt	21.00					10+ ½ gal	52.00	40+ gallons	61.50



***Leptomastix dactylopii* Citrus Mealybug Parasite – See after Cryptolaemus on page 11**

<p>SCALE BIOCONTROLS –<i>Rhyzobius lophanthae</i> and green lacewing favor soft scale if not too sticky. <i>Cybocephalus</i> is more specialized for certain scale. <i>Cryptolaemus</i> eat scale, but need mealybug to lay eggs. <i>Metaphycus helvolus</i> attacks certain soft scale, but is expensive and challenging to grow. We may be losing availability. <i>Aphytis melinus</i> attacks</p>	<p>certain armored scale, but may not attack all species in a family. Use of appropriate species in sufficient numbers in regular releases can suppress or control infestations in two to three months. Then, one to three releases per year should maintain control. Hot Pepper Wax sprays may help clean up some scale problems.</p>
---	--

BENEFICIAL		TARGET PEST		RATE/FREQ	CODE	QUANTITY	PRICE	
<i>Aphytis melinus</i> Golden Chalcid parasitic wasp parasitizes 2 nd and 3 rd instar female; 2 nd and pre-pupal male; host feeds other stages		armored scale, California red, citrus red, oleander, San Jose, ivy, walnut, Dytyospermum, and citrus yellow scale		5K-10K/acre 1-2/ft ² GH 5-10/plant 1 wk I, 3 X	AP5	5,000/cup	32.80	
						2+ cups	21.50	
						5+ cups	13.90	
						AP10	10,000/cup	38.00
							2+ cups	28.70
5+ cups	20.90							
<i>Cybocephalus nipponicus</i> predatory beetle		Euonymus scale, San Jose scale		colony	CYBO100	100/bottle	47.00	
						2+ bottles	38.00	
						5+ bottles	32.00	
<i>Metaphycus helvolus</i> Black Scale Parasite parasitic wasp (availability challenged)		black scale, hemispherical scale, nigra scale – soft scale (in order of preference), 1 st and 2 nd instar larvae		5/10 ft ² 5-10/plant 1K–5K/acre	MH100	100/cup	55.00	
						2+ cups	44.00	
						MH200	200/cup	70.00
							2+ cups	58.00
							MH500	500/cup
2+ cups	95.00							

“What we wish to emphasize...is that pesticides often cause actual pest increases rather than controlling them, and more and more frequently are creating new pests of species that formerly were innocuous rarities. Although the idea may at first sound counter-intuitive, it can easily be demonstrated experimentally in the field.” Paul Debach and Rosen, 1991.

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Rhyzobius lophanthae</i> (= <i>Lindorus lophanthae</i>) Scale Destroyer predatory beetle 	hard scale soft scale until honey- dew forms, will eat some mealybug, other small insects, prefers 60-77° F, 20- 90% RH larvae, adult both predators	3-5/plant 20-40/tree 1-2 K/acre 3 wk I, 2 X 3-6/10 ft ² GH	RZO50	50/vial	41.00
				2+ vials	31.00
				5+ vials	24.20
				10+ vials	21.80
			RZO100	100/vial	56.00
				2+ vials	47.00
				5+ vials	41.20
				10+ vials	38.40
			RZO250	250/vial	94.00
				2+ vials	88.00
				5+ vials	84.00
				10+ vials	81.00
<i>Orius insidiosus</i> Minute Pirate Bug predatory bug 	thrips & other soft- bodied insects	250-5K/ac 1-2/40 ft ² 1-4/plant	OR500	500/bottle	56.00
				2+ bottles	46.70
				5+ bottles	40.00
				10+ bottles	36.00
<i>Pediobius foveolatus</i> parasitic wasp 6 mummies = 1 unit = 120+ wasps does not overwinter	Mexican bean beetle larvae, timing critical, larvae must be present	unit/400 ft ² , 100/acre	PED100	6/unit	35.00
				2+ units	22.50
				5+ units	14.30
				10+ units	12.80
<i>Pentalitomastix plethoricus</i> Navel Orangeworm Parasite	navel orangeworm, pink bollworm, codling moth, other moths	1K/acre 1 mo I, 2-3 X	PENTA	10+ capsules	6.50
				20+ capsules	5.30
				40+ capsules	4.60
<i>Podisus maculiventris</i> Spiny Soldier Bug predatory bug eggs	beetle grubs, MX bean beetle, CO potato beetle, caterpillars, looper, web, armyworm, hornworm	1-10/plant, distribute in crop to min cannibalism	PODEGG	250/bottle	58.00
				2+ bottles	47.00
				5+ bottles	39.00
				10+ bottles	36.50
<i>Rhyzobius lophanthae</i>, Scale Destroyer -- See above after other biocontrols for scale pests.					
<i>Rodolia cardinalis</i> Vedalia beetle, Cottony cushion scale predator	cottony cushion scale as available from summer field collection	colony of 20	VEDALIA	each	4.50
<i>Stethorus punctillum</i> Spider Mite Destroyer, predatory beetle no diapause, active >54° F (12° C) 	spider mites esp. cucumber, pepper (not on tomato)	200-500/acre low level preventive	ST100	100/vial	51.00
				2+ vials	40.00
				5+ vials	33.00
				10+ vials	29.50
<i>Tenedera aridifolia sinensis</i> Praying Mantis egg case with 50-250 eggs avail Feb-June 	insects – general predator, hobby, education use, hatch at 70-90° F, 40-95% RH, tie on bush above ground	3 cs/5K ft ² 1-100 cs/acre	MANT	1 egg case	4.50
				3+ cases	4.20
				10+ cases	3.90
				20+ cases	3.30
				50+ cases	2.70
<i>Xylocoris flavipes</i> Warehouse Pirate bug	beetle larvae, moth eggs in stored grain	1-20/ft ³ of grain	XYLO100	100/vial	29.00
				2+ vials	19.00
				5+ vials	11.50

TRICHOGRAMMA WASPS

Parasitic Wasps Kill Moth Eggs

This very tiny wasp lays its egg in the eggs of moths. Available on hanging cards or loose. Release when you see moths laying eggs that will become pest caterpillars. See NEW! pheromone monitoring traps and lures on page 30 for tracking presence of many moth species.

Monitor to detect moth flight before egg-laying and call to arrange shipments. Continue to release increasing numbers when possible as moths increase. Important for high parasitism are frequent and well-distributed releases and

protection from ants and earwigs. Trichos normally contribute around 75% decrease in caterpillars, higher when frequent releases are started early. Best used in combination with other measures, including lacewing releases and conservation of natural predators. See pheromone traps and lures on page 30 for monitoring and mating disruption.

Two month advance notice necessary to assure larger quantities. Discounts available for larger advance agreements.

Rate/Freq: ¼ card to 2 cards per acre depending on crop. For corn and tomatoes, use 1/10 card per acre per week. If your order stays cold, you can store part for release every 3-4 days over a 2-week period.

BENEFICIAL	TARGET	CODE	
<i>Trichogramma pretiosum</i>	many species in row crops, vineyards	TP1	
<i>Trichogramma brassicae</i>	many including European cabbage butterfly	TBR1	
<i>Trichogramma platneri</i>	orchards, more common West of Rockies	TPL1	
<i>Trichogramma minutum</i>	orchards, forests, cranberries	TM1	
			

BENEFICIAL	QUANTITY	PRICE	QUANTITY	PRICE
<i>Trichogramma spp.</i>  all species same price 100K parasitized eggs/card	card	33.00	100,000 loose	32.00
	2+ cards	23.50	2+ units	22.50
	5+ cards	15.50	5+ units	14.50
	10+ cards	13.00	10+ units	12.00
	40+ cards	11.00	40+ units	10.00
	80+ cards	10.50	80+ units	9.50
Trichogramma Card Cut card into 30 hangable tabs, and hang tabs on or near plants to be protected.		Each unit or tab has a built-in hook that fits over a quarter-inch stem.		

Schedules	4+ shipments	8+ shipments	100K Loose
BENEFICIAL	QUANTITY	PRICE/CARD	PRICE/UNIT
Discounts for orders on a schedule for <i>Trichogramma spp.</i> [TBR1, TM1, TP1, TPL1] ➤Plan Ahead<	card or 100K loose	25.00	18.00
	2+ cards	17.00	13.00
	5+ cards	13.00	11.40
	10+ cards	11.90	10.80
	20+ cards	11.40	10.50
	40+ cards	10.80	10.20
	80+ cards	10.20	9.85
			10 wk advance notice to plan production

“A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community.” Aldo Leopold



FLIES FOR POLLINATION & ART



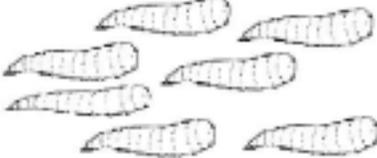
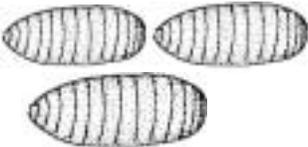
FLIES AS POLLINATORS

Pollination is now a limiting factor for fruit and vegetable production in some areas. We supply for cage and enclosed pollination. The flies are left in the cages where they die in a few days – there is no chance for them to carry pollen to other plants.

FLIES AS PERFORMANCE ARTISTS

We are trusted by Hollywood agents that source animal actors for movies and TV. We custom pack houseflies and train handlers to guarantee flies as needed for the duration of taping. Our houseflies have been a feature of fine art pieces for the duration of gallery shows.

FLIES For Pollination And Reptile, Amphibian Food

INSECT	USE	CODE	QUANTITY	PRICE
Fly Adults (<i>Musca domestica</i>) 	photo shoots, movies, pet food	FLY5A	5,000/jar	38.00
			2+ jars	25.00
			5+ jars	16.00
			10+ jars	13.00
Fly larvae (maggots) 	photo shoots, pet food, put in cage with baby mantis, what isn't eaten pupates, emerges as food for larger mantis	FLYMAG	5,000/tub	30.00
			2+ tubs	18.00
		FLYMAG30	30,000/quart	49.00
			2+ quarts	35.00
		FLYMAG120	120,000/gallon	110.00
			2+ gallons	96.00
Fly pupae (<i>Musca domestica</i>) 	pollination, esp. onions, carrots, broccoli reptile food—can be held in fridge - delay emerge schedules for 4 shipments- inquire about more breaks	FLY5	5,000/ bag	28.00
			2+ bags	18.00
		FLY10	10,000/ bag	35.00
			2+ bags	21.00
		FLY5X4	5,000/ bag	19.00
			2+ bags	12.00



Insect Habitat Plant Seeds

Beneficial Blend, Wildflowers, Perennials that Attract Beneficials, Repel Gophers

PRODUCT	USE	CODE	QUANTITY	PRICE
Beneficial Blend Seed Mix Annual white clover, Yellow sweet clover, Cilantro (coriander), Parsley, Caraway, Fennel, Mustard, White yarrow, Cosmos, Dwarf white alyssum, Annual baby's breath, Tall white alyssum, Tidy tips, cereal rye grass, barley	attract, feed beneficial insects, provide ground cover unused areas, deter weeds 	BB1	1 pound	7.00
			5+ pounds	6.30
		BB50	50 lb. bag	176.00
			2+ bags	166.00
Insecta-Flora Mix Wildflower mix with arroyo lupine, alyssum, bachelor buttons, birdsfoot trefoil, calendula, CA poppy, Chinese houses, crimson clover, goldfields, W. marsh-rosemary, yarrow, Gopher Stopper® clover	attract, feed pollen, nectar, protect beneficial insects with beautiful flowers, now with Gopher Stopper® sour clover 1.25 lb/5K ft ²	FLORA3	3 g 25 ft ²	3.50
		FLORA1	1 oz 250 ft ²	4.75
		FLORA16	1 lb 4K ft ²	15.00
Insecta-Flora Mix Low , mostly under 1 foot tall, great under trees or for a meadow of flowers, row ends	plants 25 ft ²	FLLO3	3 g packet	3.50
		FLLO1	ounce	4.75
		FLLOLB	pound	15.00
Insecta-Flora Mix Tall to 3 feet, use for dividers in rows, perimeter plantings, along fences, around pumps	plants 25 ft ²	FLHI3	3 g packet	3.50
		FLHI1	ounce	4.75
		FLHILB	pound	15.00
Gopher Stopper® clover , sour clover, <i>Melilotus indica</i> add to habitat mixes or cover crops to repel gophers, 18" high	repels gophers, high level of coumadin anticoagulant, 3 lb/acre, 1 oz/1K ft ²	GOPHROZ	ounce	3.90
		GOPHRLB	pound	15.00
			10 + pounds	9.00
Road Show low growing mix to plant in roads, box row, edge row, lawn, stands traffic, reduces dust, helps beneficials	plants 25 ft ²	ROADOZ	1 ounce	4.50
		ROADLB	pound	16.80
Perennial Hedgerow Seed , native mixture for Southern (HEDGES) or Northern (HEDGEN) California	oz plants 500 ft row	HEDGENOZ	1 ounce	4.10
		HEDGESOZ		
	lb plants 1,700 ft ² use 26 lb/acre	HEDGEN	pound	16.50
		HEDGES	2+ pounds	14.70



Letter from Deke to a Friend, continued from page 2



ants were the biggest problem for creating “hot spots” of pests by interfering with the aphid populations’ natural enemy complexes....

The first year I used the “Cycle Vac” in the strips of alfalfa to remove the cucumber beetles. It seemed as if the whole area was providing the adults that concentrated on the irrigated plants when all the foothills dried up. We harvested the adult beetles in large numbers collected from the uncut alfalfa strips. Even these cucumber beetles eventually came under biological control from a tachinid fly, *Celatoria diabrotica*, and many soil predators, such as those belonging to Staphlinidae (rove beetle), Anthicidae (hooded beetle), Therivid (stilleto) fly, and Malachiidae (Collops). Black flea beetles are also prey for this complex of predators whose larvae live in the duff and soil around the crown of the roots. Corn earworm was a problem partly due to the sequence of plantings...

One thing that I am fairly sure of is that events never happen the same as one would like to believe. These are holistic complex systems and they do not lend themselves to the kind of linear scientific models proposed by many researchers. Monitoring and timely decision-making cannot be replaced with blanket calendar programs. The “if in doubt spray” paradigm should be reversed to “if in doubt don’t spray - but look at it tomorrow”. Soft pesticides and other processes should also be avoided if possible. Ant management is a necessity.... You have to protect your natural enemy complex by keeping the beneficial insects fed in refuges on your farmscape with managed living refuge plantings. Too many of your neighbors will kill natural enemies with their conventional chemical controls.

It may take three or four years. Let us know if there is any way we can assist to speed up the transition processes.

For full text go to rinconvitova.com, Dietrick Papers



Services



RVI offers consultation, custom rearing, and training in many aspects of insect ecology and insectary development.

SERVICE	NOTES	CODE	QUANTITY	PRICE
Insect Diversity Analysis D-Vac 122 insect vacuum rental, vacuum samples from crop, borders, habitat plantings, send for analysis to learn species present and ratio of good bugs to bad with suggestions for improving the balance, more on our web site www.rinconvitova.com reports faxed, emailed, or verbal	D-Vac Rental, by month	DVACR	month	100.00
	Insect Diversity Analysis reports on arthropods present and balance of pests to beneficials, consulting with you about crop stage, weather, soil and surrounding foliage.	IBA1	each	100.00
			12+ samples	75.00
			24+ samples	60.00
clean samples with debris		IBACLN	each	20.00
			12+ samples	15.00
Consulting and training, first hour	insectary technology, enhancing habitat foodweb	CS100	hour	170.00
Additional hours		CS150	hour	48.00
Consulting per acre		CS200	acre	25.00
Insect identification, basic		ID100	each	30.00
Custom packaging your package, label	Sizes, carriers, life stages	HA-100	inquire	inquire

“Pests are often mistakenly sprayed at a time when their natural enemies would have controlled them completely within a few days and before damage resulted. Such procedure invariably has a greater adverse effect on the parasites and predators than on the pest, with the consequence that the pest rapidly increases again and requires another treatment. The mere fact that 90 or 95 percent of the pests are killed—by whatever means—has a seriously upsetting effect on the attainment or maintenance of natural balance.” DeBach & Rosen, 1991.

Our Team & Our Catalog



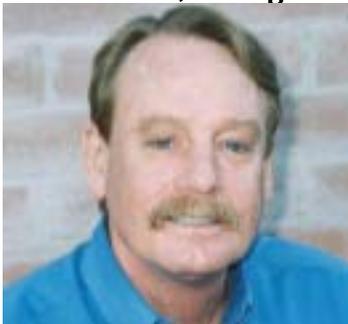
Everett (Deke) Dietrick, Entomologist, Founder, President

"EBPM starts with practical strategies that restore soil and aerial foodweb biodiversity. Then, we observe and manage natural enemies to take care of pests and diseases. Nature may need a boost with beneficial insect releases or microbial inoculants, especially in the transition from chemical to biological."
bugnet@rinconvitova.com



Jan Dietrick, Manager

"We want to work with you to solve pest problems safely. As a customer you help us continue our 50 years of pioneering leadership as a voice and a source for biological control by natural enemies. We have a wonderful team ready to serve you. The know-how and products for biocontrol are right here!"
bugnet@rinconvitova.com



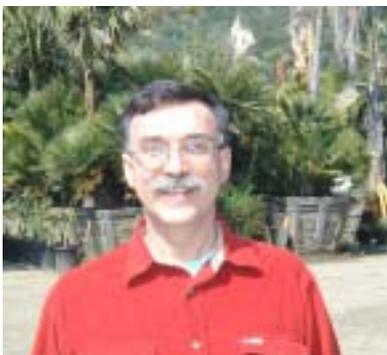
Steve Chapman, Fly Control Consultant

"Because every operation is different, I use a hands-on approach to determine proper application rates for your facility throughout the season. I successfully implement fly control programs throughout the country using this approach. Change scheduled amounts with just a phone call. I stay in contact to fine tune your fly control program."
800-365-2847 (BUGS) chaprswc@msn.com



Luis Zaragoza, Production and Shipping Supervisor

"Quality and accuracy are essential in our industry. Our production and shipping teams are here for you. We want to grow our business and depend on you to tell your friends and neighbors about us. Llamame con tus preguntas técnicas."
luis@rinconvitova.com



Ron Whitehurst, Customer Service and Urban Consultant

"Our products are compatible with safe school IPM programs and we're getting new public gardens and other facilities up and running. This is in addition to long-standing programs for row crops, cotton, corn, grapes and tree crops from avocados to kiwis to stone fruits to walnuts. We continue to make great strides to assure unmatched quality."
ron@rinconvitova.com

Catalog Notes

"BENEFICIAL"

Within each section biocontrol organisms are listed in alpha order by scientific name, with common name(s) and brief description in the left-hand column.

"TARGET PEST"

Look up the pest you want to control in the index on pages 39 and 40 for the pages where control solutions are listed. Current indexing and info is at rinconvitova.com.

"RATE/FREQ"

The column in between TARGET PEST and ITEM CODE gives a range of rates and frequency for release that covers variation among crops, ecology of pests and naturally occurring beneficials. The code "2wk I, 2-4 X" means at 2 week intervals make 2 to 4 treatments. This information will help you estimate costs of different strategies. For low pest numbers, with moderate beneficial numbers, use the low rate. For high pest numbers, with low beneficial numbers, use the high rate. In a new situation, start heavy, then decrease the rate for the next release, especially if you see beneficials. Study the situation before you order -- consider the potential benefits of naturally occurring parasites, predators, diseases, antagonists, and weather and cultural practices.

"CODE"

Grey boxes around two adjacent ITEM CODES indicates they have the same price and quantity breaks.

Technical Support

We are interested in your situation (garden, farm, feedlot, orchard, landscape, greenhouse or interior). Sometimes we can suggest other biocontrol and cultural options, give you more ideas what to expect, and help you avoid mistakes. Bulletins on a wide range of topics are available at rinconvitova.com, on CD-Rom and by FAX or mail, such as about beneficials, pests and strategies in various crops. Many are included in the Biological Technical Manual listed on page 36.

Hablamos español

Es para nosotros, un placer servirle.



Price and Order Information



Plan Ahead

An order or schedule of shipments can be set up from phoned orders—FAX or email orders are welcome. Annual purchase agreements and advance deposits help us plan large orders to ensure timely delivery. For large quantities, a month advance notice is good, two is better, even more allows better discounts for Trichogramma and green lacewing. Call well ahead also for a particular life stage. rinconvitova.com has current availability and price.

Price Breaks for Multiple Items

2+ quantity breaks when ordering 2 or more items.
 5+ quantity breaks where offered when ordering 5 or more items.
 10+ quantity breaks where offered when ordering 10 or more items.

Institutional Discounts

If you will spend more than \$2,000 in the year, tell us your needs and we will quote prices for the season.

How to Order

By phone, fax or e-mail, we are ready to work out details and shipping options. Our toll-free 800-248-BUGS enters on four phone lines. For a quick response when we're on other lines, give a detailed message. Your name or company name, phone & fax numbers or email address helps us respond to your inquiry.

Multiple Shipments on a Schedule

Regular releases sometimes make a better biocontrol program. We have discounts for multiple shipments of fly parasites, Trichogramma, Encarsia, Eretmocer, Cryptolaemus and flies for pollination. You can request an increase or decrease in shipments before regular order deadlines shown in the table.

Shipping Addresses

UPS charges \$10 for address errors, so help us get it spelled exactly right in our database!

Minimum Order \$25.00

If items total less than \$25 (not including freight charges), a \$4.00 handling charge will be added.

Order and Cancellation Deadlines

Order by Wednesday	<i>Aphidius ervi</i>
	<i>Aphelinus abdominalis</i>
	Aphiline ACE mix
	* <i>Dicyphus hesperus</i>
	<i>Dacnusa siberica</i>
	<i>Diglyphus isaea</i>
	* <i>Eretmocer spp</i>
	* <i>Trichogramma brassicae</i>
	* <i>Trichogramma minutum</i>
Order by Thursday 11:00 AM Pacific Time	<i>A. fallacis, A. cucumeris & A. andersoni</i>
	<i>Aphidius colemani</i>
	<i>Aphidius matricariae</i>
	<i>Aphidoletes aphidimyza</i>
	<i>Atheta coriaria</i>
	<i>Cryptolaemus montrouzieri</i>
	<i>Delphastus pusillus</i>
	<i>Dicyphus hesperus</i>
	<i>Encarsia formosa</i>
	<i>Eretmocer californicus</i>
	<i>Eretmocer mundus</i>
	<i>Feltiella acarisuga</i>
	<i>Hypoaspis miles</i>
	<i>Orius insidiosus</i>
** <i>Phytoseiulus persimilis</i> (vials & on bean leaves)	
<i>Stethorus punctillum</i>	
shipped Tues or Wed	<i>G. helveolus</i>
inquire about ship date	other organisms not listed

Order 1 Day Ahead (sooner is better)	<i>A. cucumeris</i> – small order
	Encarsia - small orders
	Fly parasites
	Green lacewing
	<i>Hippodamia convergens</i>
	predatory mites & mixes
	<i>Rhizobius lopanthae</i>
	Trichogramma (10 days notice helps, esp for loose)
	Nematodes –small orders of Sc, Sf, Hb, Hi and Hm
	Mon for shipping on Tues Tues for shipping Wed or Wed for shipping Thurs—call early and we may be able to send it the same day (first come, first served to the limits of production)

"The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction." - Rachel Carson, 1954

ORDER LINE 800-248-2847 (BUGS) Mon-Fri 8-5 Pacific



Shipping Information



Availability of Insects and Mites

We and our network of insectaries plan months ahead for insect production to meet the demand at specific times of year. For larger lacewing orders, we give a discount for advance orders and availability is more assured with advance notice. Migratory habits and the weather affect availability of ladybugs.

Shipping Live Organisms

Organisms are shipped from different suppliers on different days of the week as shown on the Order and Cancellation Deadline chart. We order quite a few organisms from other insectaries on Friday and receive them and ship them on Tuesday. For highly perishable organisms, we arrange for producers to ship direct to you MTW. We prefer not to ship perishable items on Thursday to avoid accidental weekend layovers in the UPS or FedEx truck.

Transit Times and Freight Charges

There are services guaranteeing delivery at 8 AM, 10 AM, 5 PM or 7 PM next day, 10AM, 5 PM, 7 PM second day, and 7 PM third day. Charges depend on which insectary is shipping, distance, size of box and weight of cool packs (also used as warm packs to freezing areas). We mostly charge actual freight determined when box is weighed, but can give a quote. We can charge your UPS or FedEx account.

Report Late Delivery Right Away

Report problems within a half day of expected arrival so we can track it. We care about your order and want you to receive it in a timely manner.

Drop Shipments and Handling Charges

We send some perishable organisms and larger quantities direct from producer to assure quality and some of those handling charges are additional.

Our Packaging is Simple

Our packaging is simple and mostly biodegradable. We'd like to minimize use of foam boxes. When returned, we re-use them.

"We have nice customers. They often call us because they are conscientious about nature and children. Sometimes they actually apologize for bugging me with so many questions and special requests, but that's why I'm here!"

orderdesk@rinconvitova.com



June Northrup, Customer Service

FREIGHT SERVICE OPTIONS

GUARANTEED OVERNIGHT SERVICES

UPS Early AM or FedEx AM starting at \$43

For when you want to release organisms on delivery day, 8 AM deliveries are available to many areas.

UPS Next Day/FedEx Priority starts \$16.00 UPS*

Mites, adult beetles in vials and some adult parasitic wasps should stay cool. Use this service when weather is hot or freezing and/or 7 pm is too late to receive.

UPS Next Day Saver or FedEx Standard up to 3 or 4:30 in some areas - starting at \$15.00 UPS*

For perishable organisms (mites and the adult stages of beetles and parasitic wasps) when weather is mild.

US Postal Service Express Mail at \$19.35*

The Post Office is a safe place to hold a shipment til you get there. For emergency end of the week orders, a mail person may deliver Sat and Sun for no extra charge. We add \$4.00 handling for using US Mail.

GUARANTEED SECOND DAY SERVICES

UPS 2nd Day AM (by 10 am) starting at \$10.00*

For organisms that can travel 2 nights, but need to be released by end of 2nd day or when no one is available to receive the box towards the end of the 2nd day.

UPS 2nd Day / FedEx 2nd Day starts \$8.50/\$8.80*

When you want organisms emerging from egg or pupa in transit or ready to emerge soon, 2-day transit is fine. OK for fly parasites, green lacewing eggs, Trichogramma, and normally Aphidoletes, Encarsia, Eretmocerus and some predatory mites, such as Cucumeris and Hypoaspis. 2-day service may not be a good idea in freezing weather or when it is hot and you do not want insects already emerged on arrival.

GROUND SERVICES

UPS GROUND by 7 pm starting at \$4.80*

Much of California, Arizona, Nevada is served the next day or second day up to 7 PM by UPS Ground. Otherwise, we only use "Ground" for non-perishable products that can travel 3 to 5 days. If your home is at your business location, even if the box is addressed to your business, UPS charges \$1.15 more for residential address and \$1.75 for deliveries to rural zip codes.

US PRIORITY MAIL starting at \$5.35

Ladybugs in half gallons and gallons are often sent Priority Mail. However, there is no guarantee and no tracking system. We add \$4.00 handling for using US Mail.

*cost for 1 lb to Zone 2 (900-921 & 923-935 zip codes)



Receiving and Payment Information



Arrange for your Delivery

If you use FedEx, get a release signature on file to have packages left if no one is home. For UPS, leave a signed note for the driver. We do not accept responsibility if there is nobody to receive your delivery.

Shipping Confirmations and Tracking

We appreciate our customers who take good notes about what they ordered. Confirmation with tracking number can be sent by email. If calling for tracking, state account name, courier and ship date, and your fax or email address for reply.

Check Your Order on Arrival

Check your order and read instructions for care on the container and/or product information sheet. Hold perishable items as suggested. Insects and mites in their packaging need some air circulation; avoid covering openings in containers or putting containers in a plastic bag. Paper bags are best.

Report Problems Immediately

Notify us if you question the quality of the insects. After business hours, leave a recorded description of the problem.



Payment

Check, money order, Mastercard, Visa, American Express and Purchase Order (no C.O.D.). Customers with credit pay on receipt of invoices. Interest on balances past due. CA sales tax 7.25%.

Our Holiday Gift Catalog is on the Website

Fine Print

Success cannot be assured when using beneficial organisms and natural products. Rincon-Vitova makes no warranties or guarantees as to results. The purchaser and/or user waives and releases Rincon-Vitova Insectaries, Inc. and its employees, and agents from all injuries, damages, and liabilities arising, if any, because of the use of these products or their handling.

Feedback

Let us know how the products and beneficials work for you. We want to hear so we know what works and learn new strategies.

Mailing Our Catalog

We mail our catalog to people who call, attend conferences with us and belong to organizations that promote ecologically based pest management. We do not sell our customer mailing list. Call to stop future mailings.

Graphic Art Credits

Cover by Allison Mia Starcher. Fly parasite emerging by Max Badgeley. Carcinops by IPM Labs. Cockroach in IPM Practitioner XXIII(3) March 2001. Comperia in California Agriculture 34:8-9 Aug-Sep 1980, p17, Jack Kelly Clark. Lacewing Marlatt, USDA, in Metcalf and Metcalf Destructive and Useful Insects: their habits and control, 1993. Encarsia on Suppliers of Beneficial Organisms in North America, 1994 edition cover. Eretmocerus Clausen and Berry, 1932. Trichogramma life stages from van den Bosch & Hagen, 1966, Nematode-infested larva at USDA Nematode Lab website. Nosema locustae life-cycle M & R Durango, Mycorrhizas in Ecology of Soil-Borne Plant Pathogens 1964 p221. Other graphics property of Rincon-Vitova.



Bertha Zaragoza
Customer Service
orderdesk@rinconvitova.com

RINCON-VITOVA INSECTARIES, INC.

PO Box 1555, Ventura, CA 93002-1555
108 Orchard Dr., Ventura, CA 93001-1243
GPS Coordinates: W119° 17' 30" N34° 18' 30"

800-248-2847 805-643-5407

Fax 805-643-6267

e-mail bugnet@rinconvitova.com

web www.rinconvitova.com



Rex Meach
Customer Service
delivery@rinconvitova.com

"We are eager to serve you in every way we can! Perhaps you have friends and neighbors who would like our catalog."

We Appreciate Your Business

Entire contents Copyright 2005 Rincon-Vitova Insectaries, Inc. All rights reserved.
No part of this publication may be reproduced in any form without written permission from the publisher

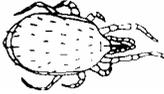
"Would you like to be our partner promoting biocontrol by natural enemies? Consider a tax deductible donation to the Dietrick Institute for Applied Insect Ecology. Call me to discuss arrangements."



Release mites soon after receiving. Hold at 50° F (10° C) (in foam box with cold pack) for up to 5 days.

Thrips Biocontrols - For Western flower thrips and onion thrips in nurseries and greenhouses, first apply Hypoaspis and Cucumeris in loose bran to seedlings. Hypoaspis attacks immature stages in soil, Cucumeris attacks thrips only on leaves. In wetter media (rock wool), Hb nematodes attack pupating thrips better than Hypoaspis. Apply more Cucumeris when plants are set out. Work towards a 1:1 ratio of Cucumeris and thrips. In crops with a low tolerance for thrips damage—cucumbers and peppers—one round of slow-release hangable sachets of Cucumeris protects flowers and fruit for six to eight weeks. Orius works on thrips in the flowers, but use only when thrips are present and under control and when day length exceeds 16 hours.

KEY TO ITEM CODE: PM – predatory mites
P, F, C, O, L, H, A – indicates species
BL – shipped on bean leaves
– quantity in thousands (K)

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<p><i>Amblyseius cucumeris</i> (= <i>Neoseiulus cucumeris</i>) predatory mite, thrips predator in bran carrier</p> <p>specify fast release for quicker control, or slow release for prevention</p> <p>no diapause</p>	<p>Western flower thrips, onion thrips, (lesser extent cyclamen, broad mites) 66-80° F, 65-72% RH survives on pollen</p> <p>start when thrips population low</p> <p>place fast release at base of plant, hang slow release touching plant</p>	<p>10-100/plant 1-30/ft² 1 X wk, 3-6 X</p> 	AC1-F fast release	1,000 /bag	5.00
				2+ bags	4.50
				5+ bags	3.80
				10+ bags	3.10
			AC1-S slow release	20+ bags	1.80
				100+ bags	0.75
			AC50 bulk fast release, liter	50,000/tube	40.00
	2+ tubes	29.00			
	5+ tubes	23.00			
	15+ tubes	18.50			
	25+ tubes	17.50			
<p>Sachet (bags) with hanger contain aprox 1,000 mites, all stages. Mites exit over 6-8 week period to suppress thrips</p>	<p>where bran carrier is a negative for thrips on plants with no pollen, esp. cucumbers, peppers, ornamental baskets</p>	<p>bag/1-5 plant 1-4 X/mo replace 2 mo hang on plant</p>	AC260-S 260K mites/cs	260 sachet/cs	102.00
				2+ cases	96.00
				5+ cases	88.00
<p><i>Hypoaspis miles</i> predatory mite lives in top layer of soil</p> <p>no diapause continue to feed, reproduce >54° F (12° C)</p>	<p>fungus gnat larvae, western flower thrips pupae (WFT), springtail for house plants, GH, mushroom production, mites on tarantula, lizard, bees(?), uses pollen</p>	<p>3-6 l/acre 1 1/K ft² 2 X/mo, 2-5 X</p>	HY.5LTR	7,500/½ liter	33.00
				2+ ½ liters	24.50
				5+ ½ liters	17.50
				10+ ½ liters	16.00
			HYLTR	15,000/liter	38.00
				2+ liters	28.50
				5+ liters	21.50
	10+ liters	20.00			
<p><i>Amblyseius andersoni</i> newly available predator</p>	<p>spider mites, thrips, gall mites, fruit tree red spider mite Panonychus ulmi on apples and pears, bud mites and eriophyiid (rust) mites</p>	<p>not yet determined</p>	PMA1 handling charges apply*	1,000/bottle	38.00
				2+ bottle	25.00
				5+ bottle	17.80
			PMA2	2,000/bottle	46.00
				2+ bottle	33.50
				5+ bottle	27.00
	15+ bottle	23.50			

Biocontrols for Two-Spotted Spider Mite and other Plant-Feeding Mite– Persimilis and Fallacis are the most aggressive predatory mites for two-spotted spider mite (TSSM) as long as conditions are not too hot or dry. Fallacis also eats other mites. The other predatory mites or mixtures are better suited for warmer, dryer or less dense pest conditions. Making early, proactive releases to achieve a predator to prey ratio of 1:10 ensures control in a reasonable time. Stethorus, Feltiella, and green lacewing on pages 10, 13, 15 are also used against mites. Using more than one predator adds diversity and stability to your biocontrol program.

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Phytoseiulus persimilis</i> available carriers are: - corn grit - vermiculite Avoid releases in temperatures below 45° F. or above 85° F and during dry windy conditions. no diapause, inactive < 54° F (12° C) high reproductive rate enables it to overcome its slower reproducing host in a relatively short time	Two Spotted Spider Mites (TSSM), Tetranychidae prefers mild temp (50-80° F) high humidity (60% RH+), ideal 70°-85° F. (20-30° C.) at 70% RH higher humidity, misting, favors predator over pest aggressive and economical predator for mite clean up, does best on dense, low growing plants not in hot greenhouses not in dry interior valleys	1-3/m ² 1-14/10 ft ² 20K-40K.acre 1 X wk 1/10 mites  (vials more compact for shipping)	PMP1 handling charges apply	1,000/bottle	33.00
				2+ bottles	23.00
				5+ bottles	15.40
				10+ bottles	13.10
			PMP2V	30+ bottles	11.40
				2,000/bottle	38.00
				2+ bottles	28.00
				5+ bottles	22.20
			PMP2B	20+ bottles	16.70
				80+ bottles	15.20
				2,000/bottle	35.00
				2+ bottles	24.40
PMPBL2.5	5+ bottles	16.50			
	20+ bottles	12.70			
	80+ bottles	11.45			
	2,500/tray	50.00			
Tri-Pak: Persimilis 2K, Amblyseius fallacis 2K, Stethorus punctillum 100, usually has some Feltiella	mixture of mite predators for mixed mites, mixed plants and challenging situations		PMPFBL4	5+ trays	33.00
				20+ trays	29.00
				1 tray	64.80
				2+ trays	56.80
<i>Amblyseius fallacis</i> (=Neoseiulus fallacis) field mite predator, diapause light < 16 hours, temp < 54° F (12° C) supplemental light helps	spider mites, two spotted spider mite, Pacific mite, European red mite, Bank's grass mite, overwinters in cold (early, late season) in mint, hops, berries, fruit tr.	3/10 ft ² 1 wk I, 3 wk 1/ft ² GH 1/plant GH	PMF1 handling charges apply*	5+ trays	49.00
				30+ trays	44.70
				1,000/bottle	33.00
				2+ bottle	22.00
<i>Amblyseius fallacis</i> (=Neoseiulus fallacis) on bean leaves field mite predator all life stages along with a food source overwinters in cold	spider mites, two spotted spider mite, Pacific mite, European red mite, Bank's grass mite, for cooler temperatures (early, late season) in mint, hops, berries, fruit trees	3/10 ft ² 1 X wk, 3 wk 1/ft ² GH 1/plant GH	PMFBL1	15+ bottle	12.80
				30+ bottle	11.50
				80+ bottle	10.75
				2,500/tray	50.00
<i>Neoseiulus californicus</i> (=Amblyseius californicus) californicus warm (50° - 105°F) humid (40% - 80% RH) conditions, also tolerates low humidity	Pacific, cyclamen, TSSM, good for lower spider mite densities, survives on pollen, on strawberry, corn, grapes, roses, vegetables, ornamentals, interiorscapes	2/ft ² 4/plant 10K/acre	PMC1 handling charges apply*	2+ trays	41.00
				5+ trays	35.00
				20+ trays	31.00
				1,000/bottle	33.00
<i>Neoseiulus californicus</i> (=Amblyseius californicus) californicus on bean leaves with all life stages along with a food source, spider mites			PMCBL5	2+ bottles	22.00
				5+ bottles	15.40
				15+ bottles	12.80
				30+ bottles	11.50
<i>Neoseiulus californicus</i> (=Amblyseius californicus) californicus			PMCBL10	80+ bottles	10.75
				5,000/bag	72.00
				2+ bags	66.00
				5+ bags	59.00
<i>Galendromus pyri</i> (=Typhlodromus pyri)	mites, eriophyiid mites, rust, European red, bud	2K-5K/acre early	PMPY1 breaks same as PMC1	10,000/bag	122.00
				2+ bags	119.00
				5+ bags	112.00
				40+ bags	100.00

BENEFICIAL	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
<i>Galendromus occidentalis</i> (= <i>Metaseiulus occidentalis</i>) (= <i>Typhlodromus occidentalis</i>) western predatory mite diapause cold temperature tolerates dry conditions (<30% RH) does not do well in cool coastal areas, use in GH only if plants maintained about 30% RH	mites, eriophyiid mites, two spotted spider mite, Russet mites, prefers warm weather (80-110° F) on bean leaves with all life stages along with a food source, spider mites	2K-5K/acre early 2/sq ft. 1/5 mites	PMO1 handling charges apply*	1,000/bottle	34.00
				2+ bottles	24.00
				5+ bottles	16.10
				20+ bottles	13.10
				80+ bottles	11.50
			PMOBL5 handling charges apply*	5,000/bag	73.00
				2+ bags	66.00
				5+ bags	59.00
			PMOBL10 handling charges apply*	10,000/bag	122.00
				2+ bags	116.00
5+ bags	108.00				
10+ bags	100.00				
<i>Mesoseiulus longipes</i> (= <i>Phytoseiulus longipes</i>) longipes, used in interiors with <i>N. californicus</i>	spider mites, prefers humid 50% RH+, but tolerates dryer (40% RH at 70° F), and hotter than <i>P. persimilis</i>	2K-20K/acre 3/ft ² GH	PML1 handling charges apply	1,000/bottle	33.00
				2+ bottles	22.00
				5+ bottles	15.40
				15+ bottles	12.80
				80+ bottles	9.70
<i>Galendromus helveolus</i> penetrates the dense, protective Persea mite webbing	Persea mite, avocado brown mite, six spotted mite, aggressive predator of Persea mite on avocados release: place in bag, staple on leaf	100/tree 5K-10K/acre 3 mo to colonize	PMH1 handling charges apply*	1,000/bottle	40.00
				2+ bottles	30.00
				5+ bottles	22.00
				15+ bottles	19.40
				80+ bottles	17.50
Mixtures of mites (50% each of two species, ie. 1:1 ratio)					
<i>G. helveolus</i> with <i>N. californicus</i>	Persea mite (avocado), survives on pollen, feeds on all stages of Persea mite	100/tree 5K-10K/acre 3 mo to colonize	PMHC1 handling charges apply *	1,000/bottle	36.00
				2+ bottles	26.00
				5+ bottles	19.00
				15+ bottles	16.00
				30+ bottles	14.80
				80+ bottles	14.30
<i>G. occidentalis</i> with <i>M. longipes, etc</i> tolerates dry conditions (<30% RH)	mites, eriophyiid mites, two spotted spider mite, Russet mites, prefers warm weather (80-110° F) depends on mix	2K-5K/acre early 2/sq ft. 1/5 mites	PMOL1 PMOC1 PMOP1 handling charges apply*	1,000/bottle	33.50
				2+ bottles	22.80
				5+ bottles	15.70
				15+ bottles	13.70
				30+ bottles	12.30
				80+ bottles	11.00
<i>N. californicus - M. longipes</i> - PMCL1 <i>N. californicus - A. fallacis</i> - PMCF1 <i>N. californicus - P. persimilis</i> - PMCP1 <i>A. fallacis - P. persimilis</i> - PMFP1 <i>M. longipes - P. persimilis</i> - PMLP1		2K-5K/acre early 2/sq ft. 1/5 mites	PMCL1 PMCF1 PMCP1 PMFP1 PMLP1 handling charges *	1,000/bottle	33.00
				2+ bottles	22.00
				5+ bottles	15.40
				15+ bottles	12.80
				30+ bottles	11.50
				80+ bottles	10.75

* Handling charges for starred predator mites:				Advantage of mite mixtures - Mixes of Californicus with other species increases the likelihood of the presence of predatory mites. It persists at lower densities than the other predator mites since it can survive on pollen. Mixing Persimilis with Fallacis, Occidentalis, or Longipes takes advantage of each mite's food and habitat preferences. Persimilis with californicus [PMCP1] achieves control sooner than one species alone.
1-6 bottles	6.50	23-76 bottles	4.25	
7-22 bottles	3.50	77+ bottles	6.00	

Beneficial Nematodes

NEMATODES -- Kill Larvae Of Pests In Lawns And Soil, Including Fleas!

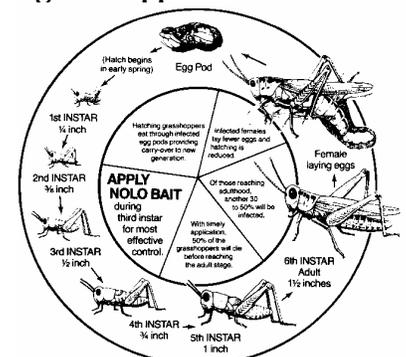
BENEFICIAL	CODE	TARGET PEST
<i>Heterorhabditis bacteriophora</i> (= <i>H. heliothedis</i>), Hb	NEHB (5-100)	cucumber, scarab, Japanese, flea beetles, chafer, thrips, white grub, corn root worm, billbug, CO potato beetle, black vine weevil, root mealybug
<i>Heterorhabditis indica</i> more heat tolerant, Hi	NEHI (5-100)	root mealybug, grubs more virulent than Hb
<i>Heterorhabditis marelatus</i> more cold hardy, Hm	NEHM (5-100)	black vine weevil white grubs more virulent than Hb
<i>Steinernema carpocapse</i> (= <i>Neoaplectana carpocapse</i>), Sc	NESC (5-100)	flea, codling moth, cutworm, leafminer, armyworm, sod web worm, mole cricket, caterpillars in lawn, codling moth on tree trunks, field bins, cold tolerant
<i>Steinernema feltiae</i> (= <i>Neoaplectana feltiae</i> , = <i>Steinernema bibionis</i>), Sf	NESF (5-100)	fungus gnat or fungus fly, shore fly, fruit fly, plant parasitic nematode, root- knot nematode

use at rate of 1 million per 60 ft², 1 billion per acre, for pretreating potting soil 1-2 million per yd³
Store in a refrigerator at 40 - 45° F until release. Sponges good for 4 weeks or more, pouches 2 weeks

PACK SIZES AND QUANTITY BREAKS	<i>Heterorhabditis species</i>		 nematodes leaving dead insect larva USDA Nema Lab photo	<i>Steinernema species</i>	
	CODE	PRICE		CODE	PRICE
5 million/sponge	NEHB5	27.50		NESC5	27.50
2+ sponges	NEHI5	18.30		NESF5	17.00
5+ sponges	NEHM5	12.70			12.00
10+ sponges		10.40			10.00
20+ sponges		9.20			8.90
10 million/sponge	NEHB10	32.00		NESC10	32.50
2+ sponges	NEHI10	20.50		NESF10	21.90
5+ sponges	NEHM10	15.60			15.40
10+ sponges		13.30			13.20
20+ sponges		12.30			12.10
25 million/sponge/pouch	NEHB25	37.00		NESC25	39.00
2+ sponges	NEHI25	27.40		NESF25	29.30
5+ sponges	NEHM25	20.40		sponge or pouch	22.50
10+ sponges		18.00			20.00
50 million/sponge/pouch	NEHB50	48.00		NESC50	60.00
2+ sponges	NEHI50	35.90		NESF50	48.00
5+ sponges	NEHM50	27.60		sponge or pouch	40.00
100 million	NEHB100	63.00		NESC100	86.00
2+ pouches	NEHI100	55.00		NESF100	79.00
5+ pouches	NEHM100	46.50			72.00
10+ pouches		44.00		69.00	
20+ pouches		42.50		67.50	
200 million	NEHB200 pouch	100.00	NESC200 pouch	146.00	
2+ pouches	NEHI200	92.50	NESF200	144.00	
5+ pouches	NEHM200	86.00		136.00	
500 million	NEHB500	337.00	NESF500	143.00	
2+ pouches		327.00		131.00	

QUANTITY	CODE	PRICE		CODE	PRICE
syringe, 3 pack, 5 ml	NEHBSYR	34.00		NESCSYR	37.80
2+ packs	NEHISYR	24.00		NESFSYR	27.50
5+ packs	NEHMSYR	18.60			21.30
10+ packs		16.50			18.60
50 million pack	LARVANEM	50.00		ENTONEM	39.00
2+ pack	Larvanem, Hb	36.50		Entonem, Sf	28.00
5+ pack		28.50			22.00
10+ pack		25.00			18.60


PATHOGENS AND ANTAGONISTS


PRODUCT	USE	CODE	QUANTITY	PRICE
NOLO Bait <i>(Nosema locustae)</i> pathogen, best on 3 rd instar nymph, 	for grasshopper biocontrol 	NO01LB	2+ pound	23.00
			5+ pound	17.00
		NO05LB	5 pound	55.00
		NO05LB	2+ 5 pound	43.00
		NO10LB	10 pound	69.00
			2+ 10 pound	59.00
		NO25	25 pound	92.00
	2+ bag	84.00		
	4+ bag	77.50		
Semaspore Bait <i>(Nosema locustae)</i> pathogen of grasshopper	for grasshopper control, 3rd instar nymph, 1 lb/acre, 12 flakes/ft²	SEM01LB	1 pound	31.80
			2+ pound	20.60
			5+ pound	14.30
		SEM05LB	5 pound	51.00
			2+ 5 pound	39.00
		SEM50	50 pound	111.00
			2+ 50 pound	98.00
Mycotrol O <i>Beauveria bassiana</i> fungal pathogen, spores in liquid, OMRI listed	whitefly, aphid, thrips, plant bug, mealybug, soft bodied sucking insects	MYCTROQT	quart	69.00
		MYCTRO	2 gallon	325.00
Botanigard 22WP <i>Beauveria bassiana</i> fungal pathogen, spores in dry granules	whitefly, aphid, thrips, plant bug, mealybug, soft bodied sucking insects	BOTGD1	1 pound	73.00
		BOTGD3	3 pound	180.00
Botanigard ES <i>Beauveria bassiana</i> fungal pathogen, spores in liquid, same as Mycotrol ES	"	BOTGDQ	quart	69.00
			4+ quart	55.00
Mosquito Dunks floating donuts with Bt israeliensis now also in granular "bits" form for faster release	mosquito larvae 1 per 100 sq. ft of water surface per month	DUNKS6	6 donuts	16.00
		DUNKS20	20 donuts/pk	38.00
			5 packs	19.70 ea
			50 packs	14.95 ea
		MOSBITS	36 oz jar	17.00
MOSBITS20	20 pound	103.00		
DUNK+BIT	2 dk + 8 oz bits	20.00		

PRODUCT	USE	CODE	QUANTITY	PRICE
Vectobac or Aquabac Bacillus thuringiensis israelensis, Bti, granules	mosquito larvae in water 2.5 to 10 lb/acre depending on vegetation	VECTO	40 lb bag	124.00
Gnatrol Bacillus thuringiensis israelensis, Bti, liquid	fungus gnats in greenhouses, spray on soil	GNAT2.5	2.5 gallon	94.00
		GNAT30	30 gallon	819.00
Milky Spore bacteria <i>Bacillus popilliae</i> spores in dry material	Japanese beetle grubs in lawn, soil areas, 1 tsp every 4 feet on grid pattern or 10 oz/2,500 ft ²	MILKY10	10 ounce can	48.00
		MILKY40	40 ounce can	95.00
Gemstar LC nuclear polyhedrosis virus limited availability not avail in CA	corn earworm, cotton bollworm, tomato fruitworm, <i>Helicoverpa zea</i> , tobacco budworm, <i>Heliothis virescens</i> 8 – 10 oz/acre	GEMSTAR	2.5 gallon	294.00
Spod-X, nuclear polyhedrosis virus	beet armyworm, 1.7 – 3.4 oz/acre not avail in CA	SPODX	quart	125.00
Dipel DF <i>Bacillus thuringiensis</i> kurstaki strain natural	moth larvae, caterpillar ½ - 2 lb/acre, 1-4 tsp/gal, 0.5-2 lb/100 gal	DIPEL	1 pound bag	36.00
			2+ bags	26.50
			5+ bags	19.50



Botanicals

US EPA made a list of materials that can be used as pesticides without need to register them under FIFRA. These are referred to as 25b active and 4a inert minimal risk materials. Some of these exempt materials are: cinnamon oil, corn gluten meal, garlic, garlic oil, eugenol, 2-phenethyl, putrescent whole egg solids, sesame oil, sodium lauryl sulfate (soap in shampoo), and white pepper. Orange oil is not on these lists but is on the GRAS list.

We carry products containing these low risk materials to help you put together an IPM program with low toxicity to humans. Use them to knock down large populations of pests before introducing beneficial insects. Using them on a regular basis will disrupt your insect ecology. See our web page for more information and recipes for making low-risk pesticides.

Natural Materials For Biologically-Based IPM And IPPM

PRODUCT	DESCRIPTION	CODE	QUANTITY	PRICE
Dr. Bronner's Soap (Lavender or Peppermint) 1.5 tsp./quart water	aphid, whitefly, spider mite, spray once a week until pests are gone	DBSQ	1 quart	33.00
		DBSG	1 gallon	52.00
Hot Pepper Wax Kills, repels insects 8 oz/gallon water	aphid, whitefly, spider mite, thrips, soft bodied insects, leafhopper, scale 	HPWP	16 oz (pint)	30.00
		HPWQ	1 quart	36.00
		HPWG	1 gallon	48.00
		HPW5G	5 gallon	149.00
		HPWHOSE	40 ounce & sprayer	30.00
Hot Pepper Wax hose end sprayer with 40 oz HPW	40 oz refill for hose end sprayer 	HPW40	40 oz refill	25.00
Garlic Barrier 10:1 dilute 1:10 to spray		repels many insects 	GARBARQ	1 quart
Garlic Barrier 100:1 dilute 1:100 to spray	GARBARG		1 gallon	89.00
Kaliente – capsaicin (hot pepper), garlic and zinc rated 20K Scovall heat units	GARBAR55		55 gallon	2600.00
	many soft bodied insects 16 oz/acre in low volume water with a sticker	KAL25	2.5 gallon jug 2+ jugs	134.00 122.00

PRODUCT	USE	CODE	QUANTITY	PRICE
Hot Sauce Animal Repellent , hot pepper extract, 2.5% capsaicin, can mix with Vapor Guard or NuFilm	repels deer, elk, rabbits, meadow voles, pine voles, squirrels, 6-8 oz/100 gal. water, or 1 Tbs/6 gal.	HOTS	2 quart	124.00
Burn Out , weed control, vinegar and lemon juice	spray on weeds, to cover, contact herbicide	WEED	24 ounce	18.00
		WEED2.5	2.5 gallon	95.50
Orange Oil contact insecticide used 10% conc on hard surfaces, dilute for 'plant wash' (equal parts orange oil and Dr. Bronner's soap diluted 1:40 to 1:60)	insects, kills, repels (2-3 oz/gal) with a little soap, test to make sure it doesn't burn leaves, for drenching ant hills use 4-6 oz/gal with 2 oz detergent	ORANGE	quart	19.80
		ORANGEG	gallon	46.00
Orange Guard food grade insecticide from oil of orange peels ready to use	insects, ant, cockroach, flea kills and repels – qt spray bottle, gallon, & spray attachment	ORANGDQ	quart	12.00
		ORANGDG	gallon	20.00
		SPRAYAT	sprayer	3.70
Neem oil 100% oil from neem tree <i>Azadiracta indica</i> dilute 1:40 parts water with soap or detergent	insects, mites, fungicide, antifeedant, use 3 oz (6 Tbs)/gal water or 2 tsp/pint water, once a week, 2-3 X	NEEMHP	half pint	18.00
		NEEMQ	quart	48.00
		NEEMG	gallon	118.00
Nemastop plant extract, fatty acid, no known phytotoxicity	plant feeding nematodes, 26 oz/ac veg, 87 oz/ac turf	NEMAS5	5 gallon	560.00
GC Mite botanical miticide, oil of cottonseed, clove, garlic, OMRI, exempt	mites, thrips, aphids, 1% solution, 1.5 oz/gal, 7+ day cycle	GCMITE1	gallon	66.00
			2+ gallon	47.00
FOSPHITE , SAR activator, potassium phosphite, stimulates plants to fight disease, esp water molds like phytophthora	resistance to pests disease, foliar 1-2 qt/ac or 2-4 tsp/gal, drench 1-2 qt/100 gal or 2-4 tsp/gal	FOSPHITE	gallon	53.00
			2+ gallon	41.00



Monitoring Tools

PRODUCT	USE	CODE	QUANTITY	PRICE	
Blue Sticky Cards (5/pack) 4 X 12 inch	thrips, leafminer also available in yellow	STB5	pack of 5	6.30	
			5+ packs	5.70	
			10+ packs	5.20	
Yellow Sticky Cards 3 X 5 inch and 6 X 12 inch	aphid, whitefly 3 X 5 thrips, leafminer, gnat, fruitfly, leafhopper, frog hopper 6 X 12	STY25	bag of 25	17.80	
			STY100	box of 100	52.00
			STY1000	box of 1,000	275.00
			STY6X12	box of 50	93.00
Sticky Ribbon	"	STYRIB	100 ft X 6 in	45.00	
Hopper Finder yellow sticky banner 1,500 ft x 6 in	aphid, whitefly, thrips, leafminer, gnat, fruitfly, leafhopper, frog hopper	STYBAN	1,500 ft X 6 in	57.50	
			2+ banners	52.50	
Magnifying lens (10X)	get up close and personal with small creatures	ML100	each	12.80	



Pheromones, Kairomones, Aggregation Lures



New Low Cost Slow Release--Attract, Confuse, Trap
Insects are drawn by different scents like children drawn in from play by the aroma of chocolate chip cookies in the oven. Pheromones are scents used primarily for mating and food locating. In rubber or gels they release small amounts over 1-3 months. We now offer pheromone lures for monitoring over 100 pests. Some can also be used for mass trapping or to stimulate aggregations. See more at rinconvitova.com. Many other moth scents available on request.

Growers large and small can now get more cost-effective mating disruption in large and small plantings from California peaches to Iowa corn to New Jersey cranberries.

A small bag hung on a stick evenly emits pheromone by a new Metered Semiochemical Timed Release System (MSTRS™) for 60 days.as part of programs against Oriental Fruit Moth, European Corn Borer, Blackheaded Fireworm and Sparganothis fruitworm. Place at 4-7 bags per acre with higher density in grassy areas where ECB mate. Trials show half as much damage as untreated controls using this simple ECB mating disruption.

These products use synthetic chemicals, but they are used in small amounts, usually not in contact with the crop, and so are allowed in organic farming. Lures can be stored in the freezer to maintain high potency.

PRODUCT	TARGET PEST	RATE/FREQ	CODE	QUANTITY	PRICE
SmarTrap , moth trap & 2 lures, draws moths with blue LED light and kairomones, holds moths in 1 way entry, lasts 60 days	lures moths in groups, 25+ kinds, looper, cutworm, armyworm, fruitworm, yellow floral lure or green sweet lure	covers 150 ft ² replacement lures avail	SMARTRAP	each	38.00
				2+ traps	28.00
				5+ traps	20.00
MSTRS Mating Disruption Lures high capacity timed release in small bags, pheromone lasts longer, less labor cost	Oriental Fruit Moth (OFM), European Corn Borer (ECB) Blackheaded Fireworm (BHF) Sparganothis fruitworm (SS)	4-7 units/ acre, more in grassy perimeters lasts 60 days	MS-OFM MS-ECB MS-BHF MS-SS	1 lure	33.00
				2+ bags	23.00
				5+ bags	17.00
				25+ bags	11.70
				100+ bags	10.10
Chem-Tica 4-week Pheromone Lures-Grp 1 powerful attraction for monitoring low pest levels	Artichoke plume moth Beet armyworm Cabbage looper Diamond back moth Omnivorous leaf roller Orange tortrix Tobacco budworm	with Delta or wing traps on periphery, min 3 per block	LURE1	25 lures	60.00
				2+ bags	49.50
				5+ bags	44.00
				10+ bags	41.50
Chem-Tica 4-week Pheromone Lures-Grp 1 monitor moth flight	Codling moth 4 week, 10X Oriental fruit moth 2 weeks before expected moth flight	mating disruption pheromone also available	LURE1	25 lures	60.00
				2+ bags	49.50
				5+ bags	44.00
				10+ bags	41.50
Chem-Tica 8-week Pheromone Lures-Grp 2 powerful attraction for monitoring low pest levels	Codling moth 8 week Oblique banded leafroller Oriental fruit moth 8 week Peach twig borer Tomato pinworm	lure lasts 8 weeks!	LURE2	25 lures	75.00
				2+ bags	64.50
				5+ bags	59.70
				10+ bags	57.20
Chem-Tica 4-week Pheromone Lures-Grp 3 monitor scale	California red scale San Jose scale	place 5-6 ft high, 2 ft in from outer branches	LURE3	25 lures	82.00
				2+ bags	72.00
				5+ bags	67.50
				10+ bags	65.00
Chem-Tica 4-week Pheromone Lures-Grp 4 monitor fruit flies	Apply maggot fly Cherry fruit fly Olive fly Walnut husk fly	with Delta or McPhail traps	LURE4	25 lures	65.00
				2+ bags	54.50
				5+ bags	48.90
				10+ bags	46.50
Wing traps with sticky inserts (extra inserts available) for pheromone lures, monitoring, 10 pack		with Groups 1 & 2 lures	TRWNG10	10/box	45.00
				2+ boxes	37.00
Delta traps with sticky inserts (extra inserts available) for pheromone lures, monitoring, 10 pack		with Group 4 lures	TRDEL10	10/box	37.00
				2+ boxes	28.00

PRODUCT	RATE/FREQ	CODE	QUANTITY	PRICE
Unitrap 3-piece green molded plastic for monitoring without need of sticky inserts	300 ft apart	TRUNI4	4 traps/box	62.50
			2+ boxes	57.00
			5+ boxes	51.50
McPhail trap 2-piece plastic holds liquid for monitoring olive fly, might help mass trap from a few trees	ask about fly lures	TRMCP4	4 traps/box	62.50
			2+ boxes	57.00

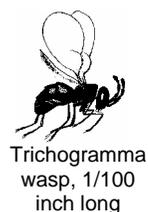
Kairomones are feeding attractants that draw pests to plants and predators to pests. Aggregation scents bring beneficials together – like ladybugs that hibernate in masses. Pred-A-Lure is another new product with feeding attractant for beneficials that is placed near the plants to be protected.

Pred-A-Lure kairomone lure 2 phenylethanol	attracts beneficials, including lacewing, lady beetles & syrphid flies	2-3 bags/acre, lasts 4 weeks	PREDALURE	bag of 5	41.00
				5+ bags	22.00
				10+ bags	19.50
Beneficial Bug Booster kairomone lure in pump spray btl, 2 phenylethanol	attracts beneficials: lacewing, lady beetles & syrphid flies	spray area with pests weekly	BOOSTER	8 oz bottle	12.50
				2+ bottles	9.50

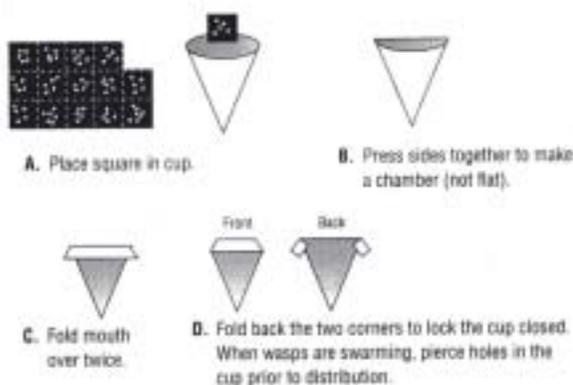


Biocontrol Applicator and Insect Release Supplies

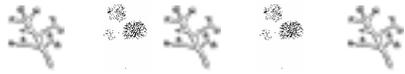
PRODUCT	USE	CODE	QUANTITY	PRICE
Rincon-Vitova's Backpack Biocontrol Applicator Bubbler Attachment Kit	to modify a Maruyama backpack mister-duster	BPA2	each	76.00
Smucker's Bio-Carrier dry powder Add water to make	sticker for spraying lacewing eggs, Tricho, etc. on plants	BC100D	gallon	29.00
			2+ gallons	24.00
		BC500D	5 gallon	62.00
Gilmour Hose End Sprayer quart bottle, attach to hose, spray	apply nematodes, microbes, botanicals	HOSERG	each	26.00
Paper wedge cups	for mite, Tricho release, fill, fold, staple to leaves	AJ200	each	0.03
		AJ300	case of 5,000	110.00
Rice hulls, Wheat Bran , specify which carrier	carrier for lacewing eggs, mites	CARRIER	pound	2.40
		CARRIER25	25 pound	20.20
Insect Food we use this to feed our adult lacewing	attract lacewing, ladybugs to feed on pests	IF6OZ	6 ounce	5.90
		IF1	pound	9.40



Trichogramma Packaging



Trichogramma card with 100,000 parasitized eggs, can be cut into 30 tabs, each with a hook for hanging. Card is 4 X 11 inch, each tab is 3/4 X 2 inch.

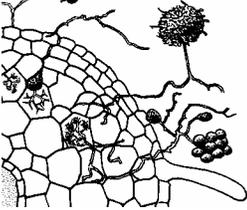


Inoculants



Inoculants From Mycorrhizal Applications— Mycorrhizal Fungi To Re-Establish Your Soil Food Web

Endomycorrhizae help **all plants** that originated in the temperate and subtropic areas. Plants **not** helped are: heath, pine, oak, birch, sedge, rush, orchid, protea, mustard (crucifers), carnation, beet (Chenopods), cabbage, eucalyptus. Ectomycorrhizae help most of the rest, and work with the endomycorrhizae.

PRODUCT	CONTAINS	USE	CODE	QUANTITY	PRICE
Endo/Ecto mycorrhizal Inoculant 3 species of endo, 5 ecto spores 	<i>Glomus intraradices</i> , <i>G. mosseae</i> , <i>G. aggregatum</i> , <i>Rhizopogon villosulus</i> , <i>R. luteolus</i> , <i>R. amylopogon</i> , <i>R. fulvicleba</i> , <i>Pisolithus tinctorius</i> , <i>Trichoderma koningii</i> , <i>T. harzianum</i> , beneficial bacteria, root stimulants, min 44 endo spores/g	use ½ Tbs on 1 gal transplants, 1 Tbs on 5 gal plants, use ¼ tsp on small plants and cuttings, dust on seeds, bury in holes around established plants	ENDOLB	1 pound	32.00
				2+ pound	22.00
				5+ pound	15.20
				10+ pound	13.00
				25+ pound	12.00
				50+ pound	11.00
				100+ pound	10.75
Endo/Ecto "Soluble" mixes with water	13 species, helps most plants	nursery, wide variety of plants, ½ lb/100 gal	MYCOR1	1 pound	62.00
				5+ pounds	45.00
				10+ pounds	42.00
Ectomycorrhizal Inoculant , 4 species of ecto-mycorrhizal fungi, mix 1 g with 12 oz water to obtain 2.3 x 10 ⁶ spores/ml	<i>Pisolithus tinctorius</i> , 3 <i>Rhizopogon</i> spp., 1tsp/5 seedlings, 2 tsp/5 trees 2-4 ft, 4 tsp/5 trees 4 ft +	mix with water and spray on root balls of transplants or over root zone on established plants, use as root dip for seedlings, root dip 1 tsp/2 cups water	ECTO G	1 gram	6.00
				5+ grams	5.40
				10+ grams	3.90
				100+ grams	1.65
				1K+ grams	1.33
5K+ grams	1.30				

PRODUCT	USE	CODE	QUANTITY	PRICE
Actino-Iron Action-Iron in CA <i>Streptomyces lydicus</i> soil amendment	root colonizing bacteria that protects and mobilizes nutrients, esp iron, with chelated iron and humates, use 1 lb to 3 ft ³ soil (30 quart)	ACTINO1	pound	9.00
			5+ pounds	8.00
		ACTINO50	50 pounds	124.00
Micro108 <i>Streptomyces lydicus</i> , soil inoculant	soluble form of Actino-Iron microbe, 6 oz/100 gal water, use 1 gal/ft ³ soil or 16 of 6 inch pots	MICRO108	18 ounce jar	138.00
			2+ jars	123.00
			5+ jars	115.00
Superzyme 1-0-4 , <i>Bacillus</i> spp., <i>Pseudomonas putida</i> , and <i>Trichoderma</i> spp.	root diseases, increase root system, plant strength, vigor, foliar 5-10 lb/ac, soil 1-2 lb/ac, trans 1.5 oz/gal, seed 1-2 lb/5 lb seed	SUPRZYME	10 pound bag	102.00
			2+ bags	84.00
			5+ bags	77.00
Pond Kleen bacteria that biodegrade wastes in ponds with fish, water works	reduce algae, scum, sludge and foul odors in ponds – 1 lb/100K gal, 3 lb/ac-ft, apply monthly, use 2-3 X recommended amount. for faster results	PONDKL2	2 pound	32.00
			2+ units	19.50
		PONDKL10	10 pound	60.00
Microp Cyanophyta, Chlorophyta algae, nitrogen fixing, 5 X 10 ⁷ cells/g	cover top 1 inch of soil surface with algae – mini cover crop under crop canopy – in moist soil, use ½ lb/15K ft ²	MICROP	½ pound	33.00
			2+ units	21.00
Microp 4XL Cyanophyta, Chlorophyta algae, nitrogen fixing, 640 cells/g (bulk avail) also salt tolerant strain	micro green manure crop or cover crop, cover top 1 inch of soil surface with algae – use 1 oz/ac	MICROP5	5 pound	93.00
			MICROP4XL	4 pound
			5+ units	213.00

Inoculants continued				
PRODUCT	USE	CODE	QUANTITY	PRICE
Bac Pack LG <i>Pseudomonas cepacia</i> , nitrogen fixing, (bulk avail)	colonize plant roots, improve health, vigor, use 1.6 oz/gal for rt dip	BACPACP	pint	40.00
		BACPACG	gallon	130.00
Biozome , archea bacteria, mix of primitive bacteria that digest petroleum and petrochemicals	clean up soils that are polluted or with pesticide residue, improve plant growth, 1 oz/30 ft ² , 1 tsp in planting hole	BIOZOME2	2 lb jar	36.00
			2+ jars	19.00
		BIOZOME25	25 lb bag	104.00
Serenade , <i>Bacillus subtilis</i> strain QST 713, 5 X 10 ⁹ cfu/g, broad spectrum preventive for many plant diseases	plant diseases: fire blight, scab, powdery mildew, gray mold, downy mildew, blights, leaf spots 4-10 lb/acre, at 7 - 10 day interval	SERENA	24 lb bag	164.00
			2+ bags	154.00
			5+ bags	148.00
RootShield granules biological fungicide, EPA Reg. <i>Trichoderma harzianum</i> strain T-22, 10 ⁷ cfu/gram, 1.5¢/6in pot	inhibits root diseases: rhizoctonia, fusarium, pythium, sclerotinia, etc., earlier maturity, mix 1-1.5 lb/cubic yard soil	ROOTG40	40 lb bag	350.00
			2+ bags	337.00
			5+ bags	330.00
PlantShield drench <i>Trichoderma harzianum</i> strain T-22, 10 ⁷ cfu/g, forms water suspension,	foliar for Botrytis (grey mold) powdery mildew, downy mildew, repeat 2 week interval, drench for root diseases, 8 oz/100 gal drench, or dip cuts dry, or in mix of 1lb/5 gal water	ROOTD3	3 pound	170.00
			2+ unit	160.00
Mycostop Biofungicide (<i>Streptomyces griseoviridis</i>) plants often respond with increased vigor and yield. safe to apply. OMRI listed. 10 ⁸ cfu/g refrigerated shelf life 1 year Best for hydroponic and small orifice emitters	seed coat, transplant, drip, for inhibiting disease, controls or suppresses many root rot and wilt pathogenic fungi, Pythium, Fusarium, Alternaria, Phomopsis, Rhizoctonia, Phytophthora, Botrytis. drench 1-2 g/100 ft ² seed 2-8 g/kg, dip 0.01%	MYCO1	1 gram	10.90
			2+ grams	10.40
			5+ grams	9.70
			20+ grams	7.30
		MYCO5	5 gram	42.50
			2+ units	39.00
			5+ units	30.70
		MYCO25	10+ units	29.30
			25 gram	143.00
Mycostop Mix , Biofungicide (<i>Streptomyces griseoviridis</i>) OMRI listed. 10 ⁹ cfu/g refrigerated shelf life 1 year	New formulation. Best for drench and seed treatment applications. Will slowly plug 150-200 mesh screens.	MYCOMIX	25 gram packet	113.00
			2+ packet	102.00
			5+ packet	94.00

Bacteria from Natural Resources Group -- Probiotic Technology		CODE	QUANTITY	PRICE
Activate 1001 <i>Bacillus chitinosporus</i> degrades chitin, 10 ¹⁰ cfu/g	for antagonism of nematodes, soil insects, 50 g/acre/crop, 2-4 appl	ACT1	1 gram	3.80
Activate 1003 <i>B. laterosporus</i> , 10 ¹⁰ cfu/g	stimulates plant growth, 50 g/ac/crop	ACT3	10+ g	3.20
Activate 1005 <i>Bacillus subtilis</i> inhibit mold, fungus, 10 ¹⁰ cfu/g, enhance seed germination, growth	Rhizoctonia, Pithium, Fusarium, Phytophthora, use at planting, emergence, foliar, 50 g/ac/crop	ACT5	50+ g	1.30
Activate PMSLA 5 <i>Bacillus spp. B. pumilus, megaterium, subtilis, licheniformis amyloliquefaciens</i> , 10 ¹⁰ cfu/g	stimulate root growth, resistance to pathogens, decrease nematodes	ACT PMSLA	100+ g	1.00
Activate 2001 3 <i>Bacillus spp. B. licheniformis, B. chitinosporus, B. laterosporus</i> 10 ¹⁰ cfu/g	pathogenic mold, nematodes, increase plant vigor, increase yield, 50-100 g/ac/crop	ACT21	500+ g	0.75
Activate 2004 4 <i>Bacillus sp B. parabrevis, B. subtilis, B. licheniformis, B. amyloliquefaciens</i> 10 ¹⁰ cfu/g total	pythium, other pathogens, 50-100 g/ac (1.75-3.5 oz) per crop cycle with food (Wake Up) thru drip or injection	ACT24	1,000+ g	0.70
Activate 2005 4 <i>Bacillus spp., B. brevis, subtilis, licheniformis, amyloliquefaciens</i> , 10 ¹⁰ cfu/g	Pithium other pathogens, use at planting, emergence, 100 g/ac/crop	ACT25	5,000+ g	0.61

Inoculants continued					
PRODUCT	USE	CODE	QUANTITY	PRICE	
Jump Start <i>B. megaterium</i> , <i>B. licheniformis</i> , stimulate root growth	digest stubble, harvest residue, herbicides, stimulate other microbes, release nutrients	JMPST	pound	29.00	
Aquatreat dry bacillus bacteria plus nutrients	digest manure in lagoons, brew 24 hr, apply to lagoon or manure	AQUAT	pound	22.00	
Wake Up Organo bacterial nutrients, to start bacteria growing, germinate spores	mix 1lb/20 gal water with bacteria, aerate 4-16 hr, apply	WAKUP	pound	18.60	
Aquacomp 101 Soluble , boost number and diversity of microbes in compost tea, contains kelp and fish	compost tea nutrients, add 1 lb/20 gal, 2-4 hrs before end of tea cycle	AQUAC	pound	16.80	
Promot MZM seedling inoculant by JH Biotech, <i>Trichoderma harzianum</i> , <i>T. koningii</i> fungus	for antagonism of pythium, rhizoctonia, fusarium, phytophthora, plant root pathogens, 1 pound/acre		PROMO1	2 pound	42.00
				5 pounds	68.00
			PROMO22	22 pound	310.00
SoilGard microbial fungicide <i>Gliocladium virens</i> fungus	inhibits of Rhizoctonia, Pythium, Fusarium, Sclerotinia, Sclerotium mix 1 lb/yard soil	SOILGD	7.5 lb bag	90.00	
			2+ bags	79.00	
Chitin , dry, ground crab shell, mix in soil or compost tea	food for food for <i>B. chitinosporus</i> which feeds on nematodes	CHITIN	1 pound	11.00	
			5+ pound	8.20	
Yucca Extract , <i>Yucca schidigera</i> , fungal food, also use in compost tea	wetting agent, soil penetrant, root stimulant, 1 lb/100 gal water, apply foliar to half acre	YUCCAE	3 pound box	75.00	
Soluble Humate fungal food also use in compost tea	biostimulant promotes fast development of absorbing roots, 1/2 lb/100 gal water, apply foliar to 1 acre	HUMATE	3 pound box	60.00	



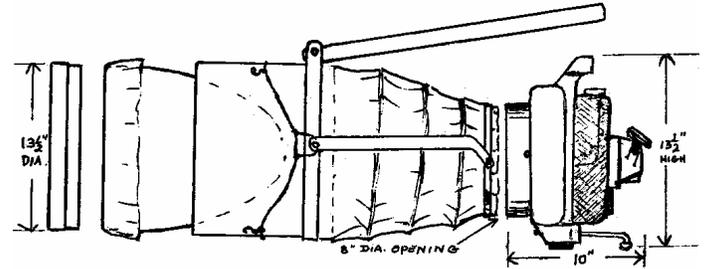
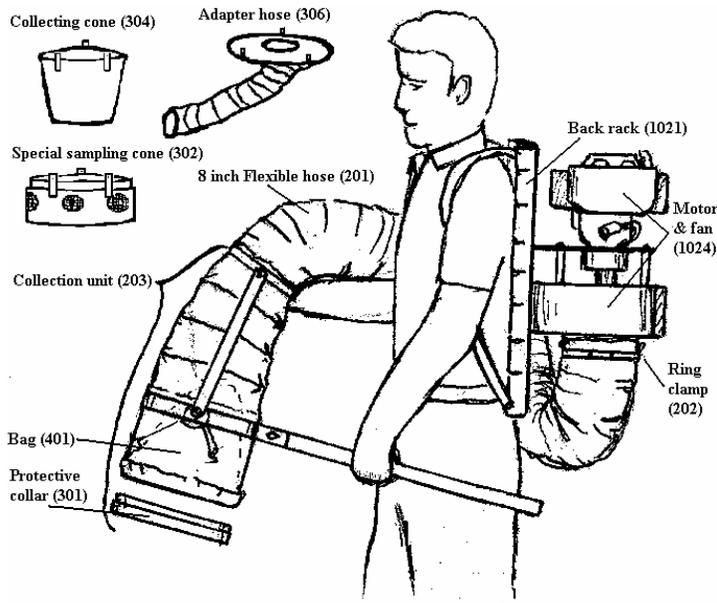
Owl & Bat Houses



PRODUCT	USE	CODE	QUANTITY	PRICE
Owl House for barn owls <i>Tyto alba</i> , field tested designs, exterior plywood, small, TREE-mount, 14W x 14D x 20H	gopher control, 1 owl family can eat 3,000 rodents a year, in CA 70% are gophers	OWLTT	each	120.00
Owl House , large POST mount for FIELD or vineyard, 24W x 24D x 15H	diagrams and pictures available	OWLP	each	175.00
Owl House , Post or wall mount near your home or office, DECORATIVE trim, 20W x 20D x 16H		OWLD	each	150.00
Owl House plans for barn owl nest boxes	plans and instructions for building a nesting box for owls	OWLPLAN	each	3.75
Bat House nursery, 3 chambers made of exterior plywood or pine 32" H x 11"W x 8.5" D	Home for about 200 bats with room for raising young	BATNUR	each	105.00
Bat House single chamber built of cedar and exterior plywood, 29"H x 18"W x 1.75"D BCI Certified Batchelor pad	home for about 50 insect devouring bats: mosquitoes, moths,	BATBAT	each	37.80
Bat House Builder Manual Merlin D. Tuttle, Donna L. Hensley, 2000	3 sets of plans and details for building, mounting, and attracting bats	BATMAN	each	6.40

D-Vac Vacuum Insect Net

The advantage of the D-Vac vacuum sampling is the more complete extraction of tiny species and immature forms of even the larger insects. Insects of low body mass simply do not enter conventional sweep nets that build up an overflow of air pressure as the air is sent through the net. Approach the plant as quickly as possible using a swinging motion to surprise and thereby catch a larger proportion of the quick flying species and the ones that tend to drop or to hold on vigorously if they are warned of the approach of the collector opening. This method is very useful for assessing the ratio of predators and parasites to pests.

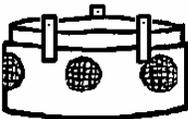


The hand-carried Model 122 is used for taking quick samples for field checking because of its simplicity and compact design. It has an Echo air-cooled 2-cycle, 1 horsepower motor and Revcor fan, a metal collection unit with a square foot opening and protective collar, a collecting cone, 4 nylon organdy collecting bags and a medium mesh screen sieve bag for separating samples by size. It weights approximately 23 lb. (10.5 kg). The airstream can reach approximately 280 cu. ft./min.

The backpack collector Model 24 is used for heavy-duty sampling where large numbers of samples or long continuous samples are needed. It can be used with the Special Collecting Cone (#302) for "square foot" ground samples and with the 4 in. Adapter Hose (#306) for more concentrated suction.



The D-Vac nylon organdy bag holds all tiny forms including Trichogramma and mymarid wasps while allowing the air to be pulled through the cloth.

PRODUCT	USE	CODE	QUANTITY	PRICE
D-VAC Vacuum Insect Net Model 122 (Hand-Carry)	field sampling	DVAC	1 Model 122	720.00
D-VAC Vacuum Insect Net Model 24 (Backpack Model)	international standard for insect sampling	DVAC24	1 Model 24	1900.00
Nylon organdy bag, muslin cuff – insect collecting net	replacement bag, short-term insect storage	D401	1 bag	10.00
Medium mesh sieve bag	screen out large insects	D402	1 sieve	9.00
Collecting unit 13.5 in. dia cylinder		D203	1 unit	250.00
Fiberglass Collar	protective collar	D301	1 collar	32.00
Special sampling cone, 1 ft ² opening 	ground surface, screened opening for turf sampling	D302	1 sampling cone	79.00
Collecting cone 1/2 ft ² opening		D303	1 collecting cone	35.00
Collecting cone 1/3 ft ² opening		D304		
Collecting cone 1/4 ft ² opening		D305		
Adapter hose 4 inch diameter 	turf samples	D306	1 hose	75.00



Things We Do To Keep Insect Samples Alive During Educational Exhibit

Keep cool: Keep in foam box with cold packs when not showing. Rotate in and out of cool box, pull out what you want to show, leave in box during breaks. Have back-up supply of frozen cold packs. At the end of the day place the insects in the box with fresh cold packs. Wrap ice packs in newspaper and place crumpled newspaper over cold pack so insects do NOT contact frozen cold packs.

Air circulation: Use adequate size display containers with openings covered with nylon organdy held on with rubber bands, or glued over hole in lid. If inside of jar has condensation, take the top off and replace with a paper towel held on with a rubber band, until the jar clears.

Watering: Drop a couple drops of water into ladybug cartons and on paper towel in adult lacewing container. A wet cotton pad or ball can be dropped into display containers before transferring insects.

Feeding: Try to collect pests to feed them! Or, for beetles, wasps, midges and lacewing, give a tiny bit of honey, but not enough to get wings stuck. With a toothpick, put thin streaks of warm honey on side of

container or on decorative foliage in display jar or terrarium. Also, streak honey on packing material in holding containers

Captions and photos: Most people do not read labels we provide on or near containers, but they love our composite captioned photos of different life stages and then seeing the same thing alive. Have copies of our bulletins to give out—can be downloaded from website.

Materials needed:

- toothpicks
- water bottle
- honey
- paper towel or napkin
- rubber bands
- two cool boxes, one for insects one for extra cold packs
- selection of insects and mites-see page 37 for list
- optional: larger clear plastic jars, terraria, nylon organdy to cover openings
- optional: captioned photos on a poster or feltboard
- sense of humor

"Bug Samples", Captioned Display Photos and Viewers For Classrooms

ITEM	CODE	QUANTITY	PRICE
Beneficial insect samples - 7 species from list of 12 - see selection list on next page	IS100	pack of 7	88.00
Insect Samples – additional items from Group 1	ISADD	each	11.00
Insect Samples – additional items from Groups 2, 3, and 4	ISADD	see selection list page 37	
Beneficial insect photos set of 10 captioned and laminated 8 X 10" color photos, some show multiple life stages, request or download order list of over 30 selections	PHO	5+	10.00
		10+	8.75
		20+	7.75
World's Best Bug Viewer (2X+2X) 6 ounce clear plastic cup with two lenses, one flips over the other for total 4X magnification, a great hit with children from 3 to 8 years old	BV1	each	7.75
		5+	6.75
		20+	4.00
		50+	3.50

Our Favorite Books

ITEM	DESCRIPTION	CODE	PRICE
Applied Bio-nomics Biological Technical Manual	the manual we use	AB1	30.00
Biological Pest Management in Interior Plantscapes	classic indoor protocols, color photos	IB100	20.00
Good Bugs for Your Garden , by Allison Mia Starcher describes beneficials attracted to different garden plants	informative, small book delightful drawings	BOOK	11.00
Compost Tea Manual , Dr. Elaine Ingham, for large and small scale tea brewing	recipes for brews with dif bacteria to fungi ratios	COMP	30.00
Cockroach Biocontrol Workshop Video the latest, best information on setting up a biocontrol program for cockroaches with appropriate IPM methods in your company or institution	8 hr video, 4 VHS tapes workshop held 3-1-01	ROACH	60.00
Cockroach Biocontrol Workshop Manual	accompanying manual	ROACHM	10.00
RVI biocontrol info on CD-ROM	all our bulletins, more	CD	5.00
Organic Farm Sign – Please do not spray, 12 x 18 inch heavy weight aluminum	weather resistant, black on yellow	SIGNO	36.00
		2+ signs	26.00



Insect Sample Pack Selection List



Form also available on website: FAX to 805-643-6267 with shipping and payment information.

Must be ordered by Thursday noon for shipment following Tuesday

Group 1: Check seven (7) from following table for IS100 pack:	\$88.00	
1. Lacewing (<i>Chrysoperla</i> spp.): adults (30); eggs (100+); larvae (30)		
2. Ladybugs (<i>Hippodamia convergens</i>) (250)		
3. <i>Rhyzobius</i> (= <i>Lindorus</i>) <i>lopanthe</i> (15)		
4. Trichogramma (1 square plus 50+ adults)		
5. Fly parasitoids (500)		
6. <i>Amblyseius cucumeris</i> (1,000)		
7. <i>Encarsia formosa</i> (10 squares=1 000)		
8. Decollate snails (<i>Rumina decollata</i>) (15)		
9. Beneficial parasitic nematodes (5 million)		
10. Praying mantis egg case (seasonal)		
11. <i>Aphidoletes aphidimyza</i> (250)		
12. <i>Phytoseiulus persimilis</i> (500)		
Add \$11 per item for more than seven items from group 1		

Group 2: Items below may be added to IS100 pack for extra charge shown:		
1. <i>Amblyseius fallacis</i> (1,000)	\$13	
2. <i>Aphidius colemani</i>	34	
3. <i>Aphytis melinus</i> (5,000) (seasonal)	12	
4. <i>Amblyseius andersoni</i> (1,000)	15	
5. <i>Cryptolaemus montrouzieri</i> (100)	24	
6. <i>Delphastus pusillus</i> (100)	15	
7. <i>Eretmocerus eremicus</i> (3,000)	29	
8. <i>Hypoaspis miles</i> (12,500)	12	
9. <i>Orius insidiosus</i> (250)	32	
10. <i>Stethorus punctillum</i> (50)	15	
11. Beneficial parasitic nematodes (5 million)	12	
12. <i>Aphidius matricariae</i> (500)		

Group 3: Pest pack (all 3 items below):	\$13	
Houseflies (<i>Musca domestica</i>) (1,000)	5	
Grain Moth (<i>Sitotroga cerealella</i>) (1,000)	5	
Oleander scale (<i>Aspidiotus hederae</i> or <i>A. nerii</i>) on squash (50)	5	

Group 4: Separate drop ship freight charge:		
<i>Pediobius foveolatus</i> (6 mummies=120 wasps)	16	
<i>Podisus maculiventris</i> (250 eggs)	37	

Option 5: Use clear containers, labels appropriate for educational exhibit	\$ 6	
Subtotal for items from groups 2, 3, 5		
Total Sample Pack (\$88 plus subtotal)		

"It is variously estimated that from less than one percent to perhaps two percent of phytophagous insects that are potential pests ever achieve the status of even minor pests. By and large, this is due to natural enemies. However, only field ecologists or naturalists who have made detailed studies can fully appreciate the fact." DeBach & Rosen 1991



Index



2-phenylethanol, Pred-A	30	<i>Beauveria bassiana</i> , fungus	27	Compost Tea inoculant	34	foliar inoculant	33
Action-Iron	32	beet armyworm, virus	28	<u>Compost Tea Manual</u>	36	food for insect predators	31
Activate series inoc	33	beetles, predatory	11-15	consulting and training	18	Fosphite	29
Adapter hose 4", D-Vac	35	Bemesia Parasite	13	copper barrier for snails	3	<i>Franklinothrips</i>	
Advance, ant bait	7	Beneficial Blend Seed	17	corn cob grit	31	<i>orizabensis</i>	13
aerobic organisms	32	BENEFICIAL MITES	23	corn earworm, virus	28	fruitfly	26
aggregation	30	BENEFICIAL NEMATODES	26	corn rootworm	26	fungal inoculant	32
AgriSense Lo-Line trap	8	Beneficial Bug Booster	30	<i>Cotesia plutellae</i>	10	fungi, beneficial	32
algae inoculant, Microp	32	Big Bag Fly Trap	6	cotton aphid	9	fungus gnat destroyer	23,26
<i>Amblyseius andersoni</i>	23	billbug	26	cotton bollworm	16,28	fungus inhibitors	33
<i>Amblyseius californicus</i>	24	Bio-Carrier, Smucker's	31	cotton bollworm virus	28	<i>Galendromus helveolus</i>	25
<i>Amblyseius cucumeris</i>	23	Biocontrol Applicator	31	Cottony cushion scale	15	<i>Galendromus occidentalis</i>	25
<i>Amblyseius fallacis</i>	24	Biodegrading bacteria	33	<i>cranberry fireworm</i>	16	Galendromus pyri	25
American cockroach	7	biofungicide	32	<i>Cryptolaemus</i>	14	Garden-Ville Products	7
amphibian food	17	Bio-Integral Resource Ctr	8	<i>montrouzieri</i>		Garlic Barrier repellent	28
<i>Anastatus tenuipes</i>	7	<u>Biological Pest Management</u>	36	custom packaging	18	GC Mite	29
<i>Anisopteromalus calandra</i>	9	<u>in Interior Plantscapes</u>		cutworm	16,30	Gemstar LC	28
Ant & Roach Buffet	7	<u>Biological Technical</u>	36	<i>Cybocephalus nipponicus</i>	12	Giant whitefly predator	10
Ant Bait, recipe	7,8	<u>Manual</u>		cyclamen mite	23	<i>Gliocladium virens</i>	33
Ant Café bait station	7	Biologically Integrated	34	<i>Dacnusa sibirica</i>	12	<i>Glomis intraradices</i> Inoc	32
ant repellent	8	Organics		dampoff, Mycostop	33	<i>Goniozus legneri</i>	14
Ants-No-More, bait statn	7	Biostimulant	32	DBM diamond back moth	10,16	<u>Good Bugs for Your Garden</u>	36
<i>Aphelinus abdominalis</i>	9	Biozome archea bacteria	33	deadlines for orders	20	gopher control, owls	34
aphid biocontrols	11	black scale	14	Decollate snails	3	gopher repellent clover	17
aphid lion	10	black vine weevil	26	<i>Delphastus catalinae</i>	12	Gopher Stopper® clover	17
Aphid Parasites	9	blight	33	delta trap for insects	30	grasshopper pathogen	27
Aphid Predators	9-14	BOOKS	36	Detector trap, AgriSense	8	green lacewings	10,11
<i>Aphidius colemani</i>	9	boric acid	7	diamondback parasite	10,16	green peach aphid	9
<i>Aphidius ervi</i>	9	boric acid syrup, recipe	8	<i>Dicyphus hesperus</i>	13	greenhouse whitefly	12,13
<i>Aphidius matricariae</i>	9	BOTANICALS	28	Dietrick Institute for	22	grub destroyer	26
<i>Aphidoletes aphidimyza</i>	9	<i>Bracon hebetor</i>	10	Applied Insect Ecology		habitat plant seed	17
Aphiline ACE mix	9	Bradysia spp, Sf	26	<i>Diglyphus isea</i>	12	Harlequin cockroach	7
<i>Aphytis melinus</i>	14	bran, wheat	31	Dipel DF, Btk	28	hedgerow seed mix	17
<u>Applied Bio-nomics</u>		broad mites	23	Dr. Bronner's Soap	28	<i>Heliocoverpa zea</i>	16,28
<u>Biological Technical</u>		Brown cockroach	7	dung beetles	5	<i>Heliolithis virescens</i>	16,28
<u>Manual</u>	36	brown garden snail	3	D-VAC INSECT NET	35	<i>helveolus</i> mite	25
<i>Aprostocetus hagenowii</i>	7	brownbanded cockroach	7	EBPM	2	<i>Heterorhabditis</i> spp.	26
AquaBac	28	Bt israeliensis	27,28	Ectomycorrhizal Inoculant	32	<i>Hippodamia convergens</i>	14
Aquacomp 101 S	34	Bug and Slug Rock Café	7	Educational Materials	36	hister beetles & traps	5
archaea bacteria	33	Bug Arrest	8	<i>Encarsia formosa</i>	13	honeycomb larval units	10
armored scale	14,15	Bug Viewer, Worlds Best	36	Encarsia-Eretmocerus mix	12	Hopper Finder	29
armyworm controls	15,16	Burn Out, weed control	29	Endomycorrhizal Inoculant	32	hose end sprayer	31
asparagus beetle	11	<i>californicus</i> mite	24	Entonem, nematodes	27	Hot pepper extract	28
<i>Atheta coriaria</i>	9	<i>Carcinops pumilo</i>	5	<i>Eretmocerus</i> spp.	13	Hot Pepper Wax	28
attractant, beneficials	30,31	cards, lacewing	10	eriophyiid mite	25	Hot Sauce Animal Repell	29
attractant, pest, beneficial	30	Carob moth	13	European cabbage butterfly	16	housefly control	4
Auntie Fuego Soil Cond	7	caterpillar controls	15,16	European corn borer	30	humate	34
Australian cockroach	7	chafer	26	<i>Feltiella acarisuga</i>	14	<i>Hydrotaea aenescens</i>	5
avocado mite mix	25	chitin	34	field mite predator	24	<i>Hypoaspis miles</i>	23
<i>Azadiracta indica</i> neem oil	29	Chlorophyta algae	33	filth breeding flies	4	immune stim Fosphite	29
Bac Pack LG, Pseudomonas	33	<i>Chrysoperla carnea</i>	10	Final Flight Fly Trap	5	INOCULANTS	32
<i>Bacillus</i> spp soil inoculant	33	<i>Chrysoperla rufilabris</i>	10	Fire Ant Control	7	insect ecology, monitor	30,35
<i>Bacillus thuringiensis</i> k	28	citrus mealybug	11	flea destroyer	26	insect eggs	9-14
bacterial inoculant	33	citrus red scale	14	flea treatment, pets	8	Insect Food	31
bacterial nutrients, starter	33	clover	17	flower seed mix	17	INSECT HABITAT	17
bags, organdy net, D-Vac	35	cockroach bait, traps	7	FLY CONTROL	4	PLANT SEEDS	
bait for fly traps	5,6	cockroach parasite	7	fly egg predator	5	insect identification	18
Bait stations	7	cockroach wkshp video	7,36	fly lure	5,6	insect pathogens	27
barn owl nest box	34	codling moth controls	16,28	fly parasites	5	insect release supplies	31
barriers, Stikem	8	Coleomegilla attractant	30	Fly, pupae, adults	17	insect repellents	28
bat house and nursery	34	collecting unit, D-Vac	35	fly: fungus, shore, fruit	26	INSECT SAMPLE PACK	37
		<i>Comperia merceti</i>	7				

Insecta-Flora Mix	17	<i>Muscidifurax raptorellus</i>	4	<i>Pseudomonas cepacia</i>	33	stable fly	4
Insect-A-Peel	6	Mycorrhizal Inoculant	32	quantity price breaks	20	stable fly control	6
Interior Plantscapes	36	Mycorrhizal Root Dip	32	release stations, FP	5	Staff, RVI	19
IPM supplies	7	Mycostop Biofungicide	33	reptile food, flies	17	<i>Steinernema bibionis, Sf</i>	26
iron phosphate	3	Natural Resources Group	33	Rescue fly attract, traps	6	<i>Steinernema carpocapse</i>	26
Japanese beetle lure	30	navel orangeworm	15,16	Rescue traps	6	<i>Steinernema feltiae</i>	26
Jump Start, root growth	34	neem oil	29	<i>Rhyzobius lopanthae</i>	15	<i>Stethorus punctillum</i>	15
kairomones	30,31	Nemastop, stops		rice hulls	31	sticky card monitoring	29
Kaliente: garlic, pepper	28	nematodes	29	roach bait	7	sticky cards, yellow, blue	30
lacewing	10	Nemasys, nematodes	26	Road Show seed mix	17	sticky traps, roach	8
lacewing attractant	30,31	Nematodes, beneficial	26,27	Rock, bait station	7	Stikem glue	8
ladybird beetles	11-15	NIBAN ant bait	7	<i>Rodalia cardinalis</i>	15	<i>Streptomyces griseoviridis</i>	33
ladybug attractant	30,31	nitrogen fixing bacteria	32	rodent control, owls	34	<i>Streptomyces lydicus</i>	33
leafhopper	10,14	NOLO Bait	27	root dip, inoculant	32	stubble digester	34
	29	<i>Nosema locustae</i> bait	27	root inoculants	32	Superzyme 1-0-4	32
leafminer controls	12	nuclear polyhedrosis virus	28	root pathogens antagonist	32	sweet potato whitefly	13
LED light trap	30	Nutritional Lures	31	rooting cuttings, Promot	33	syringes, nematode applicator	26
lesser housefly control	4	<i>occidentalis</i> mite	25	root-knot nematode	26	Tangle Trap, spray glue	8
Letter from Jan, Deke	2,18	olive fly lure	30	RootShield	33	technical support	19
<i>Lindorus lophanthae, Rhyz</i>	15	onion thrips	23	rots, plant disease	32,33	<i>Tenodera aridifolia sinensis</i>	15
Lo-Line trap, AgriSense	8	Onthophagus spp	5	<i>Rumina decollata</i>	3	Termite nematode, Sc	26,27
<i>longipes</i> predatory mite	25	<i>Ophyra</i> fly predator	5	rust	33	thrips controls	10,13
lure	6,30	Orange Guard	29	Sagebrush fly traps	6		23,26
lygus bug	13	orange oil	29	sample pack, insect	37	tobacco budworm virus	28
maggots, fly	17	ORDER INFORMATION	20	San Jose scale	14,30	tobacco budworm, Tricho	16
magnifying lens	29	Oriental cockroach	7	SAR stimulate Fosphite	29	tomato fruitworm	16,30
mantis	15	oriental fruit moth OFM	16	scab	33	tomato pinworm	16,30
manual, bat house	34	<i>Orius insidiosus</i>	15	scale predator ,biocontrols	14,15	tools and equipment	30,35
Manual, IPM, biological	36	owl nest box	34	Sciarid flies, control	23,26	traffic seed mix	17
Maruyama Backpack	31	paper wedge cups	31	<i>Scirtothrips</i> control	13	Transplant inoculants	32-33
mating disruption	30	PATHOGENS &		screen sieve bag, D-Vac	35	Traps, fly, etc.	5,6
McPhail trap	30	ANTAGONISTS	27	seedling inoculant	32-33	Traps, roach, ant	8
mealybug destroyer	11	peach twig borer, PTB	16,34	Semaspore bait	27	Trichoderma spp.	33,34
mealybug predator	9	pecan shuckworm	16	semiochemical lures	30	<i>Trichogramma spp.</i>	16,31
<i>Melilotus indica</i> clover	17	<i>Pediobius foveolatus</i>	15	Serenade B. subtilis	33	Tri-Pak, mite control mix	24
melon aphid	9	<i>Pentalitomastix plethoricus</i>	15	sex attractant, fly	5,6,30	Troy Biosciences, traps	5,6
<i>Mesoseiulus longipes</i>	25	perennial shrub seed mix	17	shipping information	21	TSSM	23,24
<i>Metaseiulus occidentalis</i>	25	persea mite controls	25	shore fly	26,27	two-spotted spider mite	23,24
Mexican bean beetle parasit	15	<i>persimilis</i> mite	23,24	Silent George Roach Trap	8	Typhlodromus pyri	25
Micro 108 Soluble	32	pest glue, Stikem	8	Silverleaf whitefly	12,13	<i>Tyto alba</i> , owl nest box	34
Microbe inoculants	32	Pesticides, botanical	28	slug bait	3	unitrap for insects	30
microbial diversity	32	pet food	17	Sluggo	3	VAM Inoculant	32
Microp algae inoculant	33	pheromones	30	Smartrap LED moth trap	30	VectoBac	27
mildew	33	PHOTOS	36	Smokybrown cockroach	7	Vedalia beetle	15
Minimum Order, \$25	20	<i>Phytoseiulus longipes</i>	25	Smucker's Bio-Carrier	31	vetch seed	17
Minute Pirate Bug	15	<i>Phytoseiulus persimilis</i>	23	snail bait	3	video, cockroach wksp	7,36
mission, of RVI	14	<i>Pisolithus tinctorius</i> Inoc	32	Snail Barr - copper strip	3	vine mealybug	26
mite controls	23	plans, owl, bat houses	34	snail predator	3	virus pathogen products	28
mite mixes, advantage	25	plant bug	27	soap, Dr. Bronner's	28	Wake Up Organo	34
mite, persea (avocados)	25	plant parasitic nematode	26	sod webworm destroyer	26	Warehouse Pirate Bug	15
miticide, GC Mite	29	PLANT PEST CONTROL	9	Soil amendments	32-33	weed control	29
mold inhibitor	33	PNE Inc. beneficials	7	Soil Conditioner	7	weevil parasite	9,26
mole cricket	26	<i>Podisus maculiventris</i>	15	Soil Food Web analysis	3	Western flower thrips	23
MONITORING TOOLS	30,35	pollen substitute	31	soil food web inoculants	32	western predatory mite	25
monitoring traps, roaches	8	pollination, fly	17	soil predatory mite	23	Wet Tab	30
monitoring, sticky cards	29	Pond Kleen inoculant	32	SoilGard	33	wetting agent, yucca	34
Mosquito Dunks	28	potato aphid	9	solar-powered fly trap	6	Whitefly controls	10-13
mosquito predator, bats	34	Pred-A-Lure	30	soldier bug attractant	30	wildflower mix for insects	17
mosquito repellent	29	predatory beetles	11-15	sour clover	17	wing trap	30
moth egg parasite	16	predatory bugs	14-16	<i>Spalangia cameroni</i>	4	worm destroyer	15
moth predator, bats	34	predatory midges	9,13	spider mite control	28	worm, caterpillar control	16,30
moth trap, Smartrap	30	predatory mites	23-25		23,25	<i>Xylocoris flavipes</i>	15
MSTRS pheromone lures	30	preying mantis	15	spiny soldier bug	15,30	yellow jacket trap	6
<i>Musca domestica</i>	4,17	Promot seedling inoc.	34	Spod-X virus	28	z-9 Sex Pad, fly lure	30



Resources on Web



Rincon-Vitova Insectaries - world's oldest commercial insectary improved online catalog at www.rinconvitova.com

Features:

- How to select biocontrol organisms [by Pest](#) index to catalog
- Catalog of most of the biocontrol organisms available in US [Catalog](#)
- Detailed information on beneficial insects, nematodes, and mites, [Bulletins](#)
- Habitat enhancement to improve biocontrol [HABITAT SEEDS](#) from [Catalog](#)
- Biocontrol strategies to increase effectiveness of beneficial insects [Dietrick Papers](#)
- Links to our friends' sites that have a lot of useful information [Links](#)
- Deke's letters on current topics, kudos, blog [Deke's Letter](#)

Emphasis on programs that solve pest problems vs. one-shot products
 Download catalogs (Catalog of Beneficials, Gift Catalog, Fly Control Catalog)
 in pdf format, store on your hard disk or print out a copy.
 Ask about CD containing all of our informative bulletins, catalogs, resources.

What's in it for me?

- | | |
|--|--|
| Farmers | What are my options for this pest? |
| | How do I set up habitats for beneficial insects that solve my pest problems? |
| Gardeners | What can I do to control pests in my garden? |
| | How do I control ants around the house and garden? |
| Livestock yards, stables, chicken houses, compost yards | How do I control flies economically and ecologically? |
| Educators | Where do I find reference material on biocontrol? |
| | What can I use for resources for class activities? |
| Institutions | What products can we use in our IPM program? |

Call, fax, or e-mail to order. (No online ordering.)
We look forward to serving you. **Hablamos español**



PRESORTED STANDARD
 U.S. POSTAGE PAID
 SAN DIEGO, CA
 PERMIT NO. 2858