

Active Ingredient (example)	Efficacy	Considerations for Risk				Cost (\$/A) gal = 0.01 A	1
		Disruption to IPM	Environmental Safety	Applicator Safety	Consumer Safety		
<i>Physically deter insects from causing damage</i>							
kaolin clay (Surround)	highly effective; rough on spray equipment/plants	can interfere w/ predation	low	eye irritation, respiratory risks	low	\$50-100 <i>not including equipment costs</i>	
<i>Chemically deter insects from causing damage, using odors</i>							
botanical oils (thyme, geraniol, rosemary, garlic, cold-pressed neem)	negligible	can interfere w/ predation	unknown	eye irritation, respiratory risks	unknown	\$50-500 <i>daily application</i>	
<i>Physically harm soft insect bodies, making them sick or killing them</i>							
soaps/salts (M-Pede, Safer)	effective w/ early intervention	minimal	low	low	low	\$57 - 116 <i>weekly application</i>	
mineral/paraffinic oil (SuffOil, JMS Stylet Oil, TriTek)	effective w/ early intervention	minimal	low	low	low	\$20-40 <i>weekly application</i>	
clarified neem oil	effective w/ early intervention	minimal	low	low	low	\$40 - 192 <i>weekly application</i>	
cold-pressed neem oil (EcoWorks, Debug, Rango)	effective w/ early intervention	minimal	unknown	unknown	documented margosa oil poisoning (unknown concentration)	\$44 -90 <i>weekly application</i>	
diatomaceous earth	not appropriate for most crop systems	can interfere w/ predation	unknown	eye irritation, respiratory risks	none	-	

The use of specific brand or trade names in this article is for educational purposes only. UNH does not support the use of one product over others of similar composition, nor does it guarantee the efficacy or quality of any product. The user is responsible for applying pesticides only as directed on the label and in compliance with the law. Product availability is subject to change depending on registration status in the State of New Hampshire and other factors.

active ingredient (example)	Efficacy	Disruption to IPM	Environmental Safety	Applicator Safety	Consumer Safety	Cost (\$/A)
<i>Broad-spectrum insect growth regulators that slow population growth</i>						
azadiractin (Molt-X, Azaguard)	effective w/ early intervention; immature forms only	may affect resident predator populations	low	negligible	negligible	\$40 - 100 <i>weekly application</i>
azadiractin + pyrethrins (Azero): see pyrethrins for risk considerations						\$18 - 54 <i>weekly application</i>
IRAC 15 novaluron, diflubenzuron (Rimon, Dimilin)	effective w/ early intervention; immature forms only	may affect resident predator populations	low	negligible	negligible	\$14 - 28
IRAC 16 buprofezin (Centaur/Applaud)	good option for mealybug & scale in perennial crops	may affect resident predator populations	low	negligible	negligible	???
<i>Broad-spectrum stomach poisons that kill herbivorous insects</i>						
IRAC 5 spinosad (Entrust/Blackhawk), spinetoram (Radiant/Delegate)	highly effective	moderate	low	negligible	negligible	Entrust \$40-160 Radiant \$20-80
boric acid	effective in baits	-	-	-	-	-
<i>Selective stomach poisons that only kill target insects</i>						
Bacillus thuringiensis subsp. kurstaki (Dipel)	highly effective on target organisms	low	low	negligible	negligible	\$10-40

active ingredient (example)	Efficacy	Disruption to IPM	Environmental Safety	Applicator Safety	Consumer Safety	Cost (\$/A)
<i>Broad-spectrum neurotoxins w/short residual life</i>						
IRAC 3 pyrethrins (Pyganic 1.4/5.0)	moderately effective with frequent use	moderate; acutely toxic, short residual	low	moderate	negligible	\$16-65
<i>Selective neuro/muscle poisons that only kill target insects</i>						
IRAC 28 chlorantraniliprole (Coragen)	highly effective on target organisms	low	low	low	negligible	\$10 - 60
<i>Biocontrol agents (live organisms or products of organisms) that can be applied like pesticides</i>						
<i>Beauveria bassiana</i> (BotaniGard, Mycotrol)	moderately effective in some situations	low	low	negligible	negligible	\$260 - 1080
	<i>B. bassiana</i> + pyrethrins (BotaniGard MAXX): see pyrethrins for risk considerations					\$20 - 140
<i>Bacillus thuringiensis</i> (Dipel)	highly effective on target organisms	low	low	negligible	negligible	\$10-20
<i>Chromobacterium substugae</i> (Grandevo)	moderately effective in some situations	low	low	negligible	negligible	\$25 - 90
heat-killed <i>Burkholderia</i> (Venerate)	moderately effective in some situations	low	low	negligible	negligible	\$30 - 160
entomopathogenic nematodes	highly effective in some situations	low	low	negligible	negligible	\$70-140