



Japanese Beetles in Hops in the Northeast

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Figure 1. Japanese beetle damage

The Japanese beetle (*Popillia Japonica*) can be a significant economic pest in Northeastern hopyards. Japanese beetles begin to show up in Vermont at the very end of June or early July, and are most active on warm, sunny days. Japanese beetles can be found feeding on the fruits, flowers, and foliage of over 200 plants. Hop leaves damaged by Japanese beetles are skeletonized, with only the veins left behind (Figure 1). The adult is an oval-shaped beetle with a metallic green body, copper-colored elytra (hard front wings) and tufts of white hair along its abdomen (Figure 2). Japanese beetles overwinter in the soil as white C-shaped grubs, where they feed on the roots of many crops, though they are not known to cause significant damage to hops as grubs.

There are several conventional and OMRI approved chemicals that can be used to manage Japanese beetle adults in Northeastern hopyards. See Table 1 for a list of approved insecticides for Japanese beetles on hops in MA, NY and VT for 2012. This list is not exhaustive; please check with your local Extension service or Agency of Agriculture. When using a pesticide, be sure to read the label in its entirety. It is illegal to use a chemical in a site or on a pest for which it is not specifically labeled. Be sure to adhere to pre-harvest intervals and use proper personal protection equipment. It is always advisable to try out a new pesticide or tank mix on a few plants to evaluate a crop's reaction before spraying the whole yard. Also note that there are some varietal differences in reactions to certain pesticides.



Figure 2. Japanese beetle adult

Most insecticides will not only kill target pests, but can also be damaging to beneficial insect populations. When applying an insecticide in your hopyard, always be aware that eliminating beneficial insects can lead to secondary outbreaks, when a less abundant pest is given an advantage by removing its natural enemies.

The hop burr is very susceptible to mechanical damage during pesticide applications, so if at all possible, try to avoid spraying during burr development. Instead, spray just prior to flowering and use a product that is a very effective protectant with a long residual period.

In addition to chemical controls, biological control of Japanese beetle grubs can be very effective. There are several beneficial nematodes, which are commercially available, and applied as a soil drench. Another effective biological control of Japanese beetle grubs is the milky spore bacterium (*Bacillus papillae*), which comes in the form of a powder that can be applied to the soil.

UVM Extension helps individuals and communities put research-based knowledge to work.

Any reference to commercial products, trade names, or brand names is for information only, and no endorsement or approval is intended.

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Table 1. Approved insecticides on hops in MA, NY, and VT for 2012

Trade Name	EPA Reg. No.	Active ingredient	Resistance Group	OMRI approved	Target Pest					Registered for Hops		
					Japanese Beetle	Aphids	Leafhoppers	Caterpillars	Mites	MA	NY	VT
Admire Pro Systemic Protectant	264-827	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Alias 4F (MANA) Insecticide	66222-156	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
AmTide Imidacloprid 2F Insecticide	83851-12	Imidacloprid	4		x	x	x			Y	Y	Y
Aza-Direct Biological Insecticide	71908-1-10163	Azadirachtin	un	x	x	x	x	x	x	Y	N	Y
AzaGuard Botanical Insecticide/Nematicide	70299-17	Azadirachtin	un	x	x	x	x	x	x	Y	Y	Y
AzaMax	71908-1-81268	Azadirachtin	un	x	x	x	x	x	x	Y	N	Y
AzaMax AG 0.6	71908-5-81268	Azadirachtin	un	x	x	x	x	x	x	N	N	Y
Azatrol EC Insecticide	2217-836	Azadirachtin	un	x	x	x	x	x	x	Y	Y	Y
Azera Insecticide	1021-1872	Azadirachtin, Pyrethrins	un, 3A		x	x	x	x	x	Y	Y	Y
Bifen 25% EC	83520-4	Bifenthrin	3A		x	x	x	x	x	Y	N	N
Bifenthrin 2 EC	2749-556	Bifenthrin	3A		x	x	x	x	x	Y	Y, Restricted E	Y
Bifenthrin 2EC AG	66330-336	Bifenthrin	3A		x	x	x	x	x	Y	Y, Restricted E	Discontinued
Bifenture 10DF Insecticide/Miticide	70506-227	Bifenthrin	3A		x	x	x	x	x	Y	N	N
Bifenture EC	70506-57	Bifenthrin	3A		x	x	x	x	x	Y	N	N
Bon-Neem Insecticidal Soap	70191-1-4	Potassium salts of fatty acids	18	x	x	x	x	x	x	Y	N	Y
Brigade 2 EC Insecticide/Miticide	279-3313	Bifenthrin	3A		x	x	x	x	x	Y	Y, Restricted E	Y
Brigadier Insecticide	279-3332	Bifenthrin, Imidacloprid	3, 4A		x	x	x	x	x	Y	Y, Restricted E	Y
Concern(R) FTE, FTE(R) Insecticidal Soap	70191-1-50932	Potassium salts of fatty acids	18	x	x	x	x	x	x	Y	N	N
Ecozin Plus 1.2% ME	5481-559	Azadirachtin	un	x	x	x	x	x	x	Y	Y	Y
Evergreen Crop Protection EC	60-6 1021-1770	Pyrethrins	3A		x	x	x	x	x	Y	Y	Y
Fanfare TM 2EC	66222-99	Bifenthrin	3A		x	x	x	x	x	Y	Y, Restricted E	Y
Imidacloprid 4F	264-783-66222	Imidacloprid	4		x	x	x			Y	N	Discontinued
Impulse 1.6 FL	42750-109	Imidacloprid	4		x	x	x			Y	Y, Restricted C	N
Macho 2.0 FL	42750-110	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Malathion 5	9779-5	Malathion	1B		x	x	x	x	x	Y	N	Y
Malathion 57 EC	34704-108	Malathion	1B		x	x	x	x	x	Y	Y	Y
Malathion 57%	67760-40-53883	Malathion	1B		x	x	x	x	x	Y	N	Y
Malathion 5EC	66330-220	Malathion	1B		x	x	x	x	x	Y	Y	Y
Malathion 5EC Insecticide/Miticide	19713-217	Malathion	1B		x	x	x	x	x	Y	Y	Y
Malathion 8 Aquamul	34704-474	Malathion	1B		x	x	x	x	x	Y	Y	N
Malice 75 WSP	34704-1009	Imidacloprid	4		x	x	x			N	N	Y
Mallet 75 WSP Insecticide	228-588	Imidacloprid	4		x	x	x			Y	Y	Y
Martin's 57% Malathion	769-620-53883	Malathion	1B		x	x	x	x	x	Y	N	Y
Midash 25C AG Insecticide	83529-4	Imidacloprid	4		x	x	x			Y	Y, Restricted C	N
Molt-X	68539-11	Azadirachtin	un	x	x	x	x	x	x	Y	Y	Y
Montana 2F Insecticide	83100-7-83979	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Montana 4F Insecticide	83100-21-83979	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
M-Pede Insecticide Miticide Fungicide	10163-324	Potassium salts of fatty acids	18	x	x	x	x	x	x	Y	Y	Y
Naturalis L	53871-9	Beauveria bassiana	*	x	x	x	x	x	x	N	N	Y
Nuprid 1.6F Insecticide	228-488	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Nuprid 25C Soil/Foliar Insecticide	228-572	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Discontinued
Nuprid 4F Max Insecticide	228-528	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Pasada 1.6F	66222-228	Imidacloprid	4		x	x	x			Y	N	Y
Platinum	100-939	Thiamethoxam	4A		x	x	x			Y	Y, Restricted C	Y
Prey 1.6 Insecticide	34704-894	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Provado 1.6 Flowable Insecticide	264-763	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
PyGanic Crop Protection EC 1.4 II	1021-1771	Pyrethrins	3A	x	x	x	x	x		Y	Y	Y
PyGanic Crop Protection EC 5.0 II	1021-1772	Pyrethrins	3A	x	x	x	x	x	x	Y	Y	Y
Pyrene Crop Spray	432-1033	Piperonyl butoxide, Pyrethrins	3A		x	x	x	x		Y	Y	Y
Pyreth-It Formula 2	499-475	Pyrethrins	3A		x	x	x	x		Y	N	Y
Pyronyl Crop Spray	655-489	Piperonyl butoxide, Pyrethrins	3A		x	x	x	x		Y	Y, Restricted H	Y
Sherpa Insecticide	34704-983	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y
Sniper	34704-858	Bifenthrin	3A		x	x	x	x	x	Y	Y, Restricted E	Y
Surround WP	61842-18	Kaolin Clay	25	x	x	x	x	x		Y	Y	Y
Tombstone	34704-912	Cyfluthrin	3A		x	x	x	x		Y	Y, Restricted E	Y
Tombstone Helios Insecticide	34704-978	Cyfluthrin	3A		x	x	x	x		Y	Y, Restricted E	Y
Widow Insecticide	34704-893	Imidacloprid	4		x	x	x			Y	Y, Restricted C	Y

un = compounds of unknown or uncertain mode of action

* Fungal pathogen of insects