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Agriculture and Natural Resources

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Blue Alfalfa Aphid/Weevil Management in Alfalfa IREC Field Tour

June 2, 2015 10 a.m.

Intermountain Research and Extension Center

2816 Havlina Road

Tulelake, California

See the latest research results

and discuss insect control strategies.

For questions, please call: Steve Orloff 530/842-2711

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RECS

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Alfalfa

Identifying Aphids

On this page

Four aphids commonly cause damage in alfalfa hay. Cowpea aphid is the only black aphid in alfalfa and may occur whenever alfalfa is actively growing. Pea aphid and blue alfalfa aphid are similar looking, both green in color (except for the pink pea aphid biotype), and are a problem primarily in the spring. Spotted alfalfa aphid is a yellow, hot-weather aphid and is a problem only on a few cultivars. Aphids in alfalfa have many natural enemies. Also see the key to aphids common to alfalfa.

Aphids

Blue alfalfa aphid
Identification tip: A large green aphid with long legs and antennae that closely resembles the pea aphid. The blue alfalfa aphid is more damaging to alfalfa.

Blue alfalfa aphid antennae
Identification tip: Blue alfalfa aphid antennae are uniformly brown.

Cowpea aphid adult (black) and nymphs (gray)
Identification tip: The cowpea adult is the only black aphid found infesting alfalfa; it is relatively small and shiny. Nymphs are slate gray; the appendages are whitish with blackish tips.

Pea aphid
Identification tip: A large aphid with long legs and antennae. Most common form is green. Distinguished from blue aphid by antennae.

Pea aphid antennae
Identification tip: Antennae have narrow dark bands at the tip of each segment. (Those of the blue alfalfa aphid are uniformly brown.)

Pink pea aphid
Identification tip: A pink biotype of the pea aphid is sometimes seen.

Spotted alfalfa aphid
Identification tip: A small, pale-yellow or grayish aphid with four to six rows of spined black spots on its back.

Alfalfa

Blue Alfalfa Aphid and Pea Aphid

Blue alfalfa aphid: *Acyrthosiphon kondoi*
Pea aphid: *Acyrthosiphon pisum*

(Reviewed 11/06, updated 4/08)

In this Guideline:

DESCRIPTION OF THE PESTS *(View photos to identify aphids)*
The pea aphid and the blue alfalfa aphid are large green aphids with long legs, antennae, cornicles, and cauda. They are very similar in appearance but can be distinguished from each other by examining the antennae: the antennae of the pea aphid has narrow dark bands at the tip of each segment, whereas those of the blue alfalfa aphid are uniformly brown.

A pink biotype of the pea aphid has recently been found in the central valley of California, including Fresno, Kings, Tulare, Yolo and Sacramento counties. Except for its pink color, it is identical in appearance to the green biotype. The pink biotype causes similar damage to the green pea aphid and management practices are the same, but some studies have suggested it may be partially resistant to parasitization by *Aphidius ervi* and may also circumvent some of the pea aphid resistance bred into many alfalfa cultivars.

Both the blue alfalfa aphid and the two strains of the pea aphid prefer cool temperatures (optimal temperature for development of blue alfalfa aphid is 60°F) and reach damaging levels in spring, but blue alfalfa aphid is more tolerant than pea aphid of cool temperatures and appears earlier in spring. Pea aphid often reoccurs in fall as well. Both species may be present in alfalfa fields at the same time as the alfalfa weevils. The blue alfalfa aphid prefers the plant terminals while pea aphid is usually more generally distributed. Both species prefer the stems to the leaves.

DAMAGE

These aphids feed on alfalfa and inject a toxin that retards growth, reduces yield, and may even kill plants. Damage can also reduce the alfalfa's feed value. A black fungus, sooty mold, grows on the honeydew excreted by the aphid reduces palatability to livestock. Damage is more severe on short hay than on taller alfalfa for both species. The toxin injected by the blue alfalfa aphid is more potent than that of the pea aphid.

MANAGEMENT

Using resistant varieties of alfalfa and encouraging populations of natural enemies are very important in managing blue alfalfa aphid and pea aphid. It is important to distinguish these two species because blue alfalfa aphid causes more damage than pea aphid, and the two species have different treatment thresholds. Natural enemies, especially lady beetles, are monitored along with the aphids to determine the need for treatment. Aphids frequently become problems when their natural enemies are disrupted by weevil sprays. Border harvesting or strip cutting can be important for preserving natural enemies.

Resistant Varieties

Planting alfalfa varieties resistant to blue alfalfa aphid and pea aphid has been the most effective means of controlling aphids in alfalfa. Prolonged periods of below-normal temperatures, however, may lower resistance to blue alfalfa aphid injury and result in some crop injury. Studies in the eastern U.S. have shown that the pink biotype of the pea aphid easily overcame resistance in a number of cultivars with the exception of CUF 101. When selecting varieties, consult your farm advisor for information on resistant varieties suited to your area, or check the the current leaflet *Winter Survival Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties* (PDF) from the National Alfalfa Alliance Web site. Additionally, a yearly alfalfa variety report can be found at http://alfalfa.ucdavis.edu.

Biological Control *(View photos online)*

The most significant aphid predators are several species of lady beetles, including *Hippodamia convergens* and *Coccinella septempunctata* that attack and consume both of these aphid species; treatment thresholds for pea aphid are based on the number of lady beetle adults and larvae present. Green lacewings can also be important in regulating aphids and many other predators including bigeyed bugs *(Geocoris* spp.), damsel bugs *(Nabis* spp.), and syrphid fly larvae also play a role. The major parasite of the pea aphid is *Aphidius smithi* while the parasite *A. ervi* attacks both species. However, several studies have suggested that the pink biotype of pea aphid shows signs of partial resistance to *A. ervi.* Large golden-brown aphid mummies on the upper surfaces of leaves indicate parasitization. When parasites are present, be careful when treating for aphids and other insects. Parasites frequently provide adequate control. Aphids may also be controlled by a naturally occurring fungal disease, which is most prevalent during cool, rainy, or foggy weather.

Cultural Control

Use border-strip cutting during harvest to help maintain populations of parasites and predators within the field. (For more details, see BORDER-STRIP HARVESTING.)

Organically Acceptable Methods

The use of resistant varieties, biological control, and cultural control are acceptable to use on an organically certified crop. Organically certified insecticides such as azadirachtin (Neemix), neem oil (Trilogy), and pyrethrin (PyGanic) are registered for use on alfalfa to control aphids. Studies conducted in California, however, have shown that at best they provide some suppression of populations but do not control them.

Monitoring and Treatment Decisions

Start to monitor fields in February for blue alfalfa aphid and pea aphid and continue monitoring through spring. In fall resume monitoring pea and blue alfalfa aphids by combining with cowpea monitoring as described in APHID MONITORING.

If natural enemies fail to keep the aphid populations in check, an insecticide treatment may be necessary. Economic treatment thresholds for both aphids are as follows (if both species are present, use the blue alfalfa aphid treatment levels):

Plant height	Pea aphids	Blue alfalfa aphids
Under 10 inches	40 to 50 per stem	10 to 12 per stem
10 to 20 inches	70 to 80 per stem	40 to 50 per stem
Over 20 inches	100 + per stem	40 to 50 per stem

Common name (trade name)	Amount/Acre**	R.E.I.+ (hours)	P.H.I.+ (days)

The following materials are listed in order of usefulness, taking into account efficacy and impact on natural enemies and honey bees. When choosing a pesticide, also consider environmental impact. Not all registered pesticides are listed. Always read label of product being used.

A. CHLORPYRIFOS*

(Lorsban) 4EC 0.25–0.5 pt 24 7

MODE OF ACTION: An organophosphate (Group 1B)[1] insecticide.

COMMENTS: Do not make more than 4 applications/year or apply more than once per crop cutting. Do not apply when bees are present. Avoid drift and tailwater runoff into surface waters. Certain formulations emit high amounts of volatile organic compounds (VOCs); use low-VOC formulations (PDF). **Regulations affect use for the San Joaquin Valley from May 1 to October 31, 2015 and 2016.** Review the Department of Pesticide Regulation's updated fact sheet (PDF).

B. DIMETHOATE 2.67EC Label rates 48 10

MODE OF ACTION: An organophosphate (Group 1B)[1] insecticide.

COMMENTS: Check label to see if product allows only one application per year or per cutting. Do not apply when bees are present.

** See label for dilution rates.

Restricted entry interval (R.E.I.) is the number of hours (unless otherwise noted) from treatment until the treated area can be safely entered without protective clothing.

+ Preharvest interval (P.H.I.) is the number of days from treatment until the field can be grazed or cut. In some cases the R.E.I. exceeds the P.H.I.; the longer of these two intervals is the minimum time that must elapse before harvest may take place.

* Permit required from county agricultural commissioner for purchase or use.

1 Modes of action are important in preventing the development of resistance to pesticides. Rotate chemicals with a different mode-of-action group number, and do not use products with the same mode-of-action group number more than twice per season. For example, the organophosphates have a group number of 1B; chemicals with a 1B group number should be alternated with chemicals that have a group number other than 1B. Mode of action is assigned by IRAC (Insecticide Resistance Action Committee). For additional information, see their Web site at http://www.irac-online.org/.

Precautions

PUBLICATION

UC IPM Pest Management Guidelines: Alfalfa
UC ANR Publication 3430

Insects and Mites

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Aphidius spp.

Scientific name: *Aphidius* spp.

Phylum: Arthropoda
Class: Insecta
Order: Hymenoptera
Family: Aphidiidae

Common hosts: Green peach aphid, melon aphid, pea aphid, and many other species, mostly aphids.

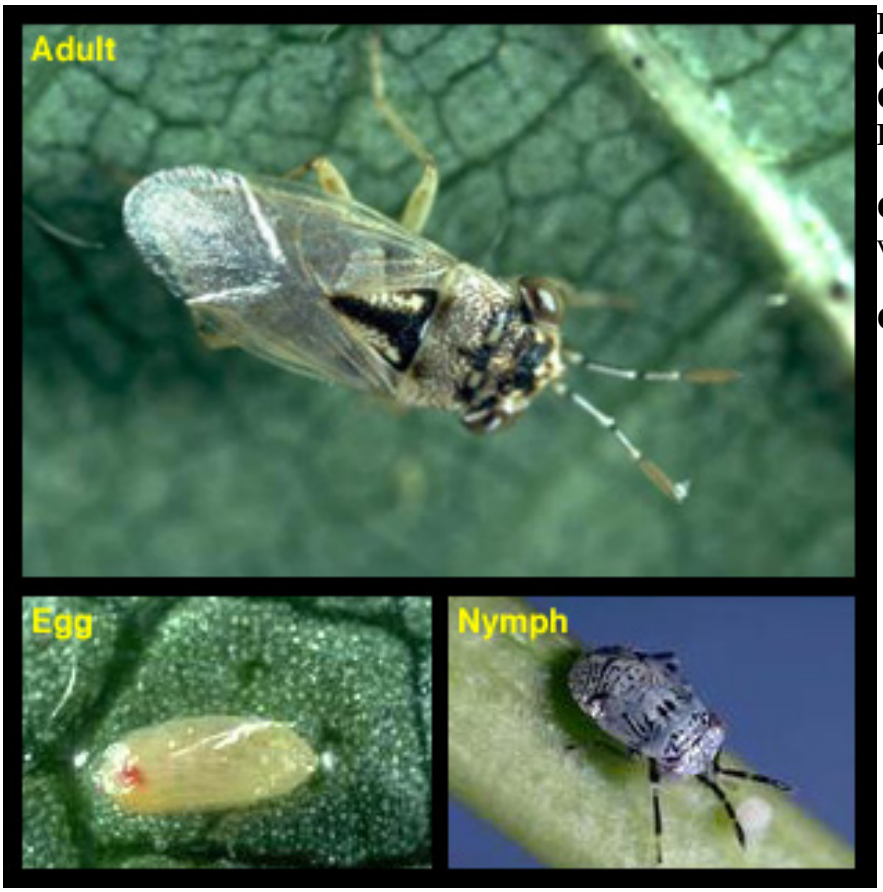
Commercially available: Some *Aphidius* species are available commercially.

DESCRIPTION

Aphidius adults are small wasps, typically less than 1/8 inch (3 mm) long. During their larval stage, most *Aphidius* feed within the body of an aphid. Complete metamorphosis takes place within the host. The female wasp lays an egg in an aphid. When the egg hatches, the wasp larva feeds inside the aphid. As the larva matures the aphid is killed and becomes slightly puffy or mummified, usually turning tan or golden in color. The adult parasite chews its way out of the mummy leaving a hole. The genus *Aphidius* contains many species that provide biological control of aphids in agricultural crops, greenhouses, urban landscapes, and home gardens.

Bigeyed bugs

Scientific name: *Geocoris* spp.



Phylum: Arthropoda
Class: Insecta
Order: Hemiptera
Family: Lygaeidae

Common Prey: Predaceous on a wide variety of small insects

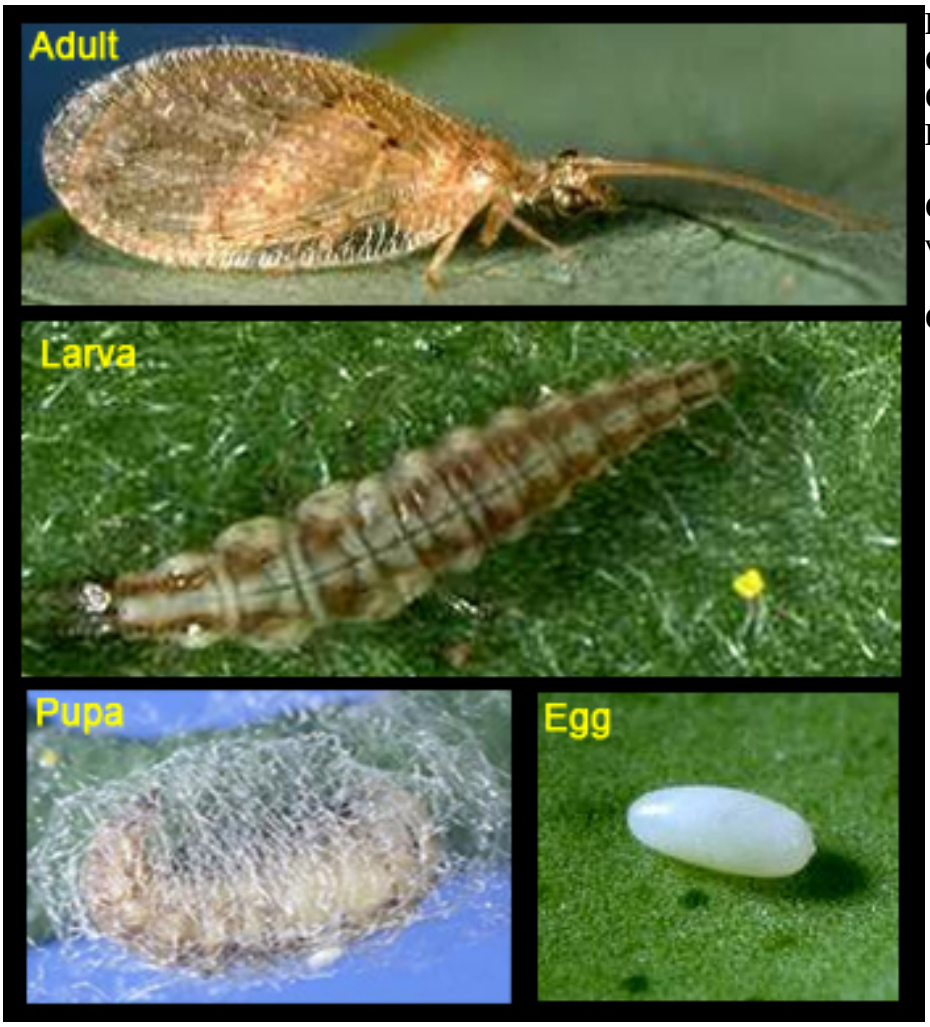
Commercially available: No

DESCRIPTION

Bigeyed bug adults and nymphs are oval, somewhat flattened, about 4 mm (1/6 of an inch) long, usually brownish or yellowish, and have a wide head with prominent bulging eyes. Bigeyed bugs can be confused with other hemipterans in the same family (Lygaeidae) as well as insects in the Miridae family. Other Lygaeids are more slender and have smaller eyes when compared to *Geocoris* spp. Bugs in the Miridae family do not have their eyes spaced widely apart, generally have longer antennae and only have one or two closed cells in the tip of their forewings. Bigeyed bugs undergo incomplete metamorphosis with 5 nymphal instars. Females lay oblong, pale-colored eggs singly on leaf surfaces which develop reddish eyespots shortly after being laid. Bigeyed bugs are common on low-growing plants including many field and row crops in which they stalk their prey. Their widely separated eyes give them an extensive field of vision for spotting their prey which includes insect eggs, other bugs, small caterpillars, flea beetles, and mites.

Brown lacewings

Scientific name: *Hemerobius* spp.



Phylum: Arthropoda
Class: Insecta
Order: Neuroptera
Family: Hemerobiidae

Common prey: Predaceous on a wide variety of small insects

Commercially available: No

DESCRIPTION

Adult brown lacewings are soft-bodied insects with four membranous wings and light brown bodies. Adults fly predominately at night and are often seen when drawn to lights. Brown lacewings are less common than green lacewings, and adults are about half the size, measuring approximately 1 cm (3/8 inch) long. Females lay their tiny, oblong eggs singly on their side onto plant tissues. Brown lacewing eggs look similar to syrphid fly eggs but are smoother and have a small protrusion on one end. Lacewings undergo complete metamorphosis with eggs hatching about 4 days after being laid and larvae developing through three instars before pupating. The larvae are creamy-brown with dark reddish-brown stripes and spots and move their heads from side to side when walking. Larvae look like tiny alligators, they are flattened, tapered at the tail, have distinct legs and prominent mandibles with which they attack their prey. Pupation occurs in loosely woven, spherical, silken cocoons attached to plants or under loose bark. Both adults and larvae prey upon a wide variety of small insects including mealybugs, psyllids, thrips, mites, whiteflies, aphids, small caterpillars, leafhoppers, and insect eggs.

Convergent lady beetle

Scientific name: ***Hippodamia convergens***

Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Coccinellidae

Common prey: Predaceous on aphids and occasionally other soft-bodied homopterans. Used for aphid control in roses. Can be important in every crop with aphid pests.

Commercially available: Yes

DESCRIPTION

Lady beetles are easily recognized by their shiny, convex, half-dome shape and short, clubbed antennae. Most lady beetles, including this species, are predaceous as both larvae and adults. Young lady beetle larvae usually pierce and suck the contents from their prey. Older larvae and adults chew and consume their entire prey. Larvae are active, elongate, have long legs, and resemble tiny alligators. Many lady beetles look alike and accurate identification requires a specialist.

Adult convergent lady beetles measure 4-7 mm (<1/4 inch) long and have orange to red forewings, with up to 13 black spots; however, many individuals have fewer spots and some have none. The thorax is black with two converging white lines inside and a white margin. The elongated larvae grow up to 7 mm (1/4 inch) long and are blackish with orange spots. Eggs are oblong, yellow, measure about 1 mm (1/25 in) in length and are laid on end in groups on leaves and stems near aphids. Pupation occurs in sheltered places on stems or other substrates. Convergent lady beetles undergo complete metamorphosis and have one or two generations per year.

Both adults and larvae of *H. convergens* feed primarily on aphids and occasionally on whiteflies, other soft-bodied insects and insect eggs. In California, many *Hippodamia* species overwinter in large aggregations in the Sierra Nevada. In the spring, adults fly down from the mountains to coastal and valley areas. Commercially available *Hippodamia* are collected at overwintering sites and can be bought and released. Unfortunately, lady beetles have the tendency to disperse once they are released, even if food is abundant. Although they are extremely important natural enemies of aphids, their propensity to disperse makes it difficult for them to be used in inoculative or inundative biological control programs.

Damsel bugs

Scientific name: *Nabis* spp.

Phylum: Arthropoda
Class: Insecta
Order: Hemiptera
Family: Nabidae

Common prey: Predaceous on a wide variety of small insects

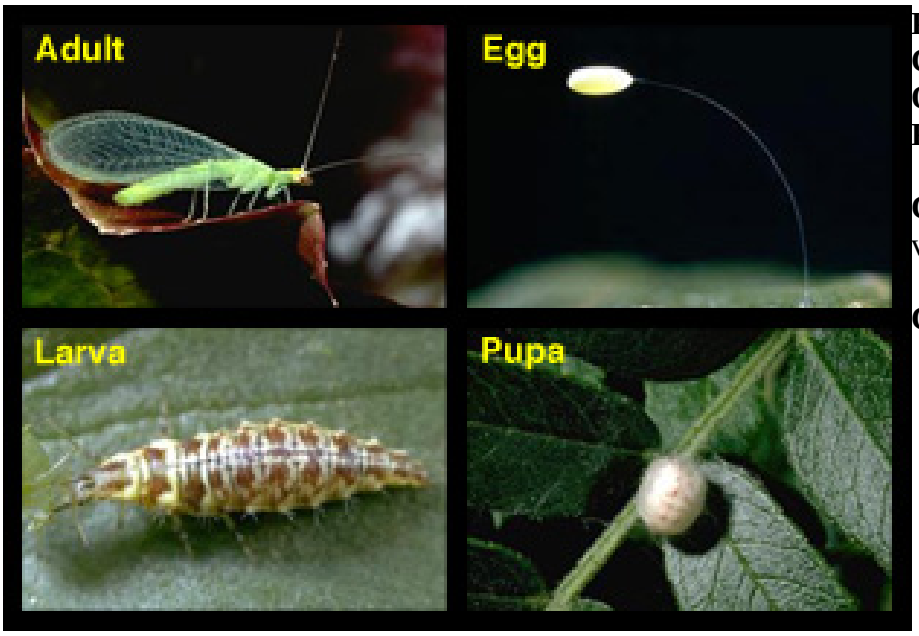
Commercially available: No

DESCRIPTION

Adult damsel bugs are slender insects that are mostly yellowish, gray, or dull brown, measure about 10 mm (2/5 inch) in length, and have elongated heads and long antennae. Damsel bugs undergo incomplete metamorphosis with nymphs that look similar to adults. Both adults and nymphs move rapidly when disturbed. Females insert their eggs into plant tissues where they are difficult to detect. Damsel bugs are generalist predators appearing later in the season than some other predators. Damsel bugs are common on many plants including row and tree crops where they prey upon thrips, mites, aphids, other bugs, small caterpillars, and leafhoppers.

Green lacewings

Scientific name: *Chrysopa* spp., *Chrysoperla* spp.



Phylum: Arthropoda
Class: Insecta
Order: Neuroptera
Family: Chrysopidae

Common prey: Predaceous on a wide variety of small insects

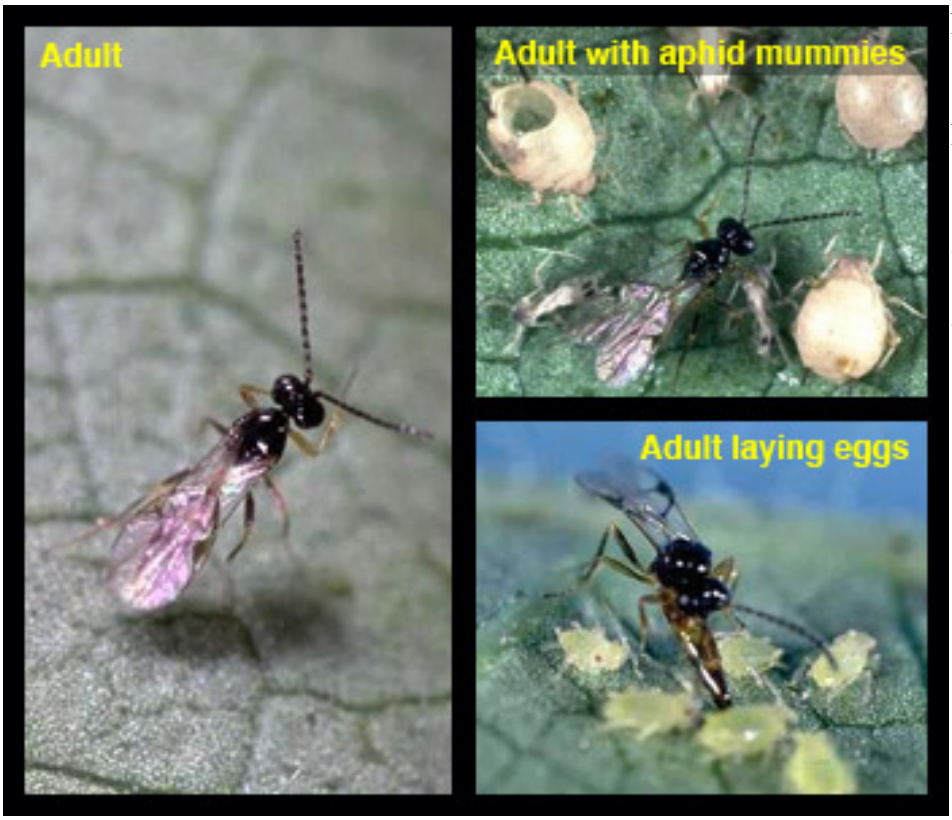
Commercially available: Yes

DESCRIPTION **Life cycle**

Green lacewings are generalist predators and are commonly found in agricultural, landscape, and garden habitats. Adult green lacewings are soft-bodied insects with four membranous wings, golden eyes, and green bodies. Adults often fly at night and are seen when drawn to lights. Some species of green lacewing adults are predaceous, others feed strictly on honeydew, nectar, and pollen. Females lay their tiny, oblong eggs on silken stalks attached to plant tissues. Depending on the species, eggs are laid singly or in clusters, each on an individual stalk. Eggs are green when laid, then darken before hatching. Lacewings undergo complete metamorphosis with eggs hatching about 4 days after being laid, and larvae develop through three instars before pupating. Larvae, which are pale with dark markings, look like tiny alligators. Larvae are flattened, tapered at the tail, measure 3-20 mm (1/8 to 4/5 of an inch) long, have distinct legs, and possess prominent mandibles with which they attack their prey. Larvae prey upon a wide variety of small insects including mealybugs, psyllids, thrips, mites, whiteflies, aphids, small caterpillars, leafhoppers, and insect eggs. Pupation occurs in loosely woven, spherical, silken cocoons attached to plants or under loose bark. All stages of lacewings can survive mild winters and can be found throughout the year in many agricultural areas of California. Green lacewings are commercially available and are among the most commonly released predators. For information on a less common lacewing group, see brown lacewing.

Lysiphlebus testaceipes

Scientific name: ***Lysiphlebus testaceipes***



Phylum: Arthropoda
Class: Insecta
Order: Hymenoptera
Family: Aphidiidae

Common hosts: Cotton/melon aphid and many other aphid species in the genera *Brachycaudus*, *Macrosiphum*, and *Myzus* on many plants

Commercially available: Yes

DESCRIPTION Life Cycle

The *Lysiphlebus testaceipes* adult is a tiny, less than 0.118 inch (3 mm), slender, dark greenish to black wasp. The female wasp lays an egg inside the aphid. The developing offspring feeds grows inside the aphid, killing it and causing it to transform into a brown mummy. *L. testaceipes* overwinters as a larva or pupa inside aphid mummies. At maturity, the adult wasp exits through a hole it cuts in the top of the mummy. The developing offspring feeds grows inside the aphid, killing it and causing it to transform into a brown mummy.

Development from egg to adult takes about 14 days at 70°F. The easiest way to detect this parasite is to look for brown mummies on aphid infested leaves.

Minute pirate bugs

Scientific name: *Orius* spp. and *Anthocoris* spp.

Phylum: Arthropoda
Class: Insecta
Order: Hemiptera
Family: Anthocoridae

Common prey: Predaceous on a wide variety of small insects. Used in greenhouses for controlling thrips.

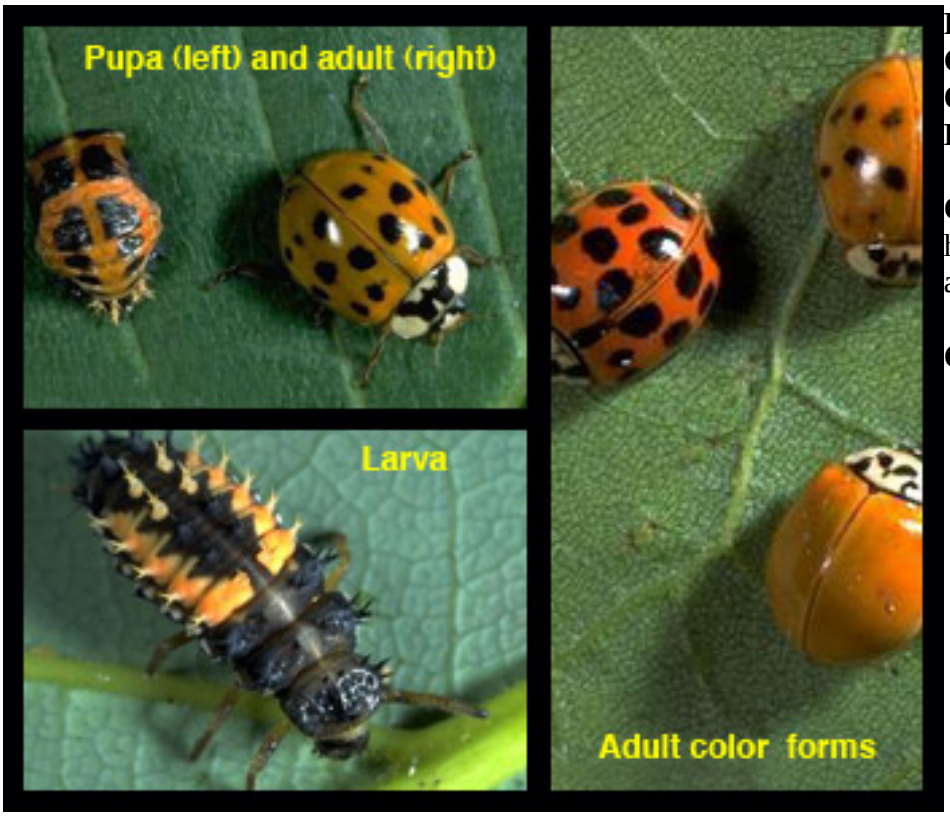
Commercially available: Yes (*Orius* spp.)

DESCRIPTION

Adult minute pirate bugs are small, 2-5 mm (1/12 to 1/5 inch) long, oval, black to purplish with white markings, and have a triangular head. Adults can be confused with plant bugs in the family Miridae, which are generally larger, have longer antennae, and only have one or two closed cells in the tip of their forewings. Minute pirate bugs undergo incomplete metamorphosis, and nymphs are usually pear-shaped and yellowish or reddish brown with red eyes. Eggs are inserted into plant tissues where they are difficult to detect. Developmental time for minute pirate bugs is very short, only 3 weeks from egg to adult. They are generalist predators and are often the first and most common predaceous insects to appear in the spring. Minute pirate bugs are common insect predators in many crops including alfalfa, corn, small grains, cotton, soybeans, and tomatoes as well as on ornamentals and landscapes. Adults and nymphs feed on insect eggs and small insects such as psyllids, thrips, mites, aphids, whiteflies, and small caterpillars. Commercially available Orius spp. are sometimes released in greenhouses to control thrips.

Multicolored Asian lady beetle

Scientific name: *Harmonia axyridis*



Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Coccinellidae

Common hosts: Many species of homopterous insects, especially aphids, but also psyllids and scales

Commercially available: No

Lady beetles are easily recognized by their shiny, convex, half-dome shape and short, clubbed antennae. Most lady beetles, including this species, are predaceous as both larvae and adults. Young lady beetle larvae usually pierce and suck the contents from their prey. Older larvae and adults chew and consume their entire prey. Larvae are active, elongate, have long legs, and resemble tiny alligators. Many lady beetles look alike and accurate identification requires a specialist.

DESCRIPTION

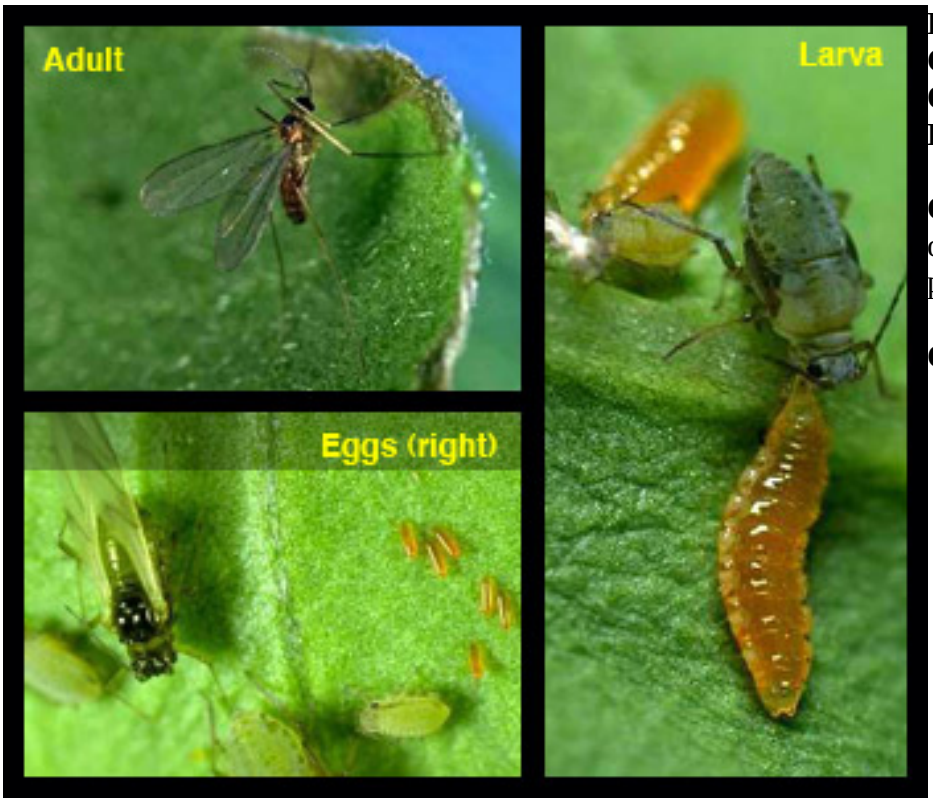
Adult multicolored Asian lady beetles are roughly 1/3 inch (8.5 mm) long. There are more than 100 forms with different spot patterns and colors. They are dome-shaped, yellowish-orange to red, with variable black spots or no spots on the wing covers. Deep orange is the most common color. Spots on the thorax form a W-shaped mark. Larvae resemble tiny alligators. The overall color of the fourth instar is mostly black to dark blue-gray, with a bright yellow-orange patch on the sides of abdominal segments 1 to 5.

Harmonia axyridis undergoes complete metamorphosis. It is believed that adult beetles overwinter in protected areas and mate in the spring. In some colder parts of the U.S. *Harmonia* overwinters in aggregations in attics and houses, becoming a nuisance pest, but this is not common in California.

During a lifetime a female will lay several dozen to several hundred eggs. Eggs often hatch in 3 to 5 days. The larval stage lasts from 12 to 14 days and the pupal stage, 5 to 6 days. There are several generations per year depending on temperature.

Predaceous midge (aphid midge)

Scientific name: ***Aphidoletes aphidimyza***



Phylum: Arthropoda
Class: Insecta
Order: Diptera
Family: Cecidomyiidae

Common hosts: Aphids, mites, and other small soft-bodied insects on many plants

Commercially available: Yes

DESCRIPTION

Adults are delicate flies with long, slender legs. They often stand with their antennae curled back over their head. Larvae have two projecting anal spiracles (small tubes) relatively close together at their rear ends.

Metamorphosis is complete. Eggs are orangish, oval, and only about 0.12 inch (3 mm) long. Larvae develop through three instars, are pale yellow to red or brown, and at maturity are about 2.5 mm (1/10 inch) long. Pupae are orange to brown, about 2 mm (1/12 inch) long, and occur beneath plants in litter where they may form cocoons made from soil particles, excrement, and aphid cast skins.

Soldier beetles, leather-winged beetles

Scientific name: Cantharidae family

Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Cantharidae

Common prey: For adults: aphids. For larvae: eggs and larvae of soil-dwelling beetles, butterflies, moths and other insects.

Commercially available: No

DESCRIPTION

Adults are long and narrow. Common species are often about 1/2 inch (13 mm) long with a red, orange or yellow head and abdomen and black, gray or brown soft wing covers. Adults are often observed feeding on aphids or on pollen or nectar on flowering shrubs and trees. Metamorphosis is complete. Larvae are dark, elongate, and flattened. They feed under bark or in soil or litter, primarily on eggs and larvae of beetles, butterflies, moths, and other insects. There are over 100 species of soldier beetles in California.

Sevenspotted lady beetle

Scientific name: ***Coccinella septempunctata***

Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family: Coccinellidae

Common hosts: Many species of aphids such as pea, cowpea, green peach, potato, corn leaf, and melon aphids

Commercially available: No

Lady beetles are easily recognized by their shiny, convex, half-dome shape and short, clubbed antennae. Most lady beetles, including this species, are predaceous as both larvae and adults. Young lady beetle larvae usually pierce and suck the contents from their prey. Older larvae and adults chew and consume their entire prey. Larvae are active, elongate, have long legs, and resemble tiny alligators. Many lady beetles look alike and accurate identification requires a specialist. *Coccinella* species are a major group of aphid-feeding lady beetles, with about 12 species of *Coccinella* occurring in the United States.

DESCRIPTION

The adult *Coccinella septempunctata* is relatively large, 0.28 to 0.31 inch (7-8 mm), and has a white to pale spot on either side of the head. Its thorax is black with white along the front margin. There are seven large black spots on its red or orangish wing covers, which may have some white near the front. Larvae are alligator shaped and range from 0.28 to 0.31 inch (7-8 mm) in length. Metamorphosis is complete. The pupal stage duration is temperature dependent, lasting between 3 and 12 days. Eggs are spindle shaped and small, about 0.04 inch (1 mm long).

C. septempunctata undergoes complete metamorphosis. In spring, overwintering adults emerge from protected sites near fields where they fed and reproduced in the previous season. After feeding on aphids, a female will start depositing eggs, generally laying them near prey, in small clusters on protected sites found on leaves and stems. In a one to three month period the female can lay from 200 to over 1,000 small (about 0.04 inch or 1 mm) eggs.

Spiders

Phylum: Arthropoda
Class: Arachnida
Order: Araneae

Common prey: Predaceous on a wide variety of insects and arthropods.

Commercially available: No

DESCRIPTION

All spiders are predaceous; they eat mainly insects, other spiders, and related arthropods. Some species capture prey in webs. Others stalk insects across the ground or vegetation or lay in wait and pounce on them. About 50 families of spiders occur in the U.S.

Spiders are classified in the arachnid group along with mites, and are very common invertebrates. Unlike insects, which have six legs and three main body parts, spiders have eight legs and two main body parts. Spiders try to avoid people and most are harmless to humans.

Syrphid, flower, or hover flies

Flies in the Syrphidae family, 1000 species in North America

Phylum: Arthropoda
Class: Insecta
Order: Diptera
Family: Syrphidae

Common prey: Predaceous on aphids and other small, soft-bodied insects.

Commercially available: No

DESCRIPTION

Syrphid flies are regularly found where aphids are present in agricultural, landscape, and garden habitats. Adults of this stingless fly hover around flowers, have black and yellow bands on their abdomen and are often confused with honeybees. Syrphid flies undergo complete metamorphosis with 3 larval instars. Females lay their whitish to gray oblong eggs, each measuring 1 mm (1.32 inch), singly on their sides usually near aphids or within aphid colonies. Larvae are legless and maggot shaped and vary in color and patterning but most have a yellow longitudinal stripe on the back. They can be distinguished from caterpillar larvae by their tapered head, lack of legs and their opaque skin, through which internal organs can be seen. Larvae vary in length from 1 to 13 mm (1/32 to 1/2 inch) depending upon their developmental stage and species. Pupa are oblong, pear-shaped, and green to dark brown in color. Pupation occurs on plants or on the soil surface.

Adult syrphid flies feed on pollen and nectar, while it is the larval stage that feeds on insects. Larvae of predaceous species feed on aphids and other soft-bodied insects and play an important role in suppressing populations of phytophagous insects. Larvae move along plant surfaces, lifting their heads to grope for prey, seizing them and sucking them dry and discarding the skins. A single syrphid larva can consume hundreds of aphids in a month. Not all syrphid fly larvae are predaceous, some species feed on fungi.

Blue Alfalfa Aphid Control Trial

Intermountain Research and Extension Center (IREC)

Steve Orloff and Rob Wilson

Treated April 17. Evaluated 3, 7 and 14 days after treatment taking 20 sweeps per plot.

	Product	Rate per A	
1	Untreated Check	---	---
2	F9047 (Stallion SC) + dimethoate	11.75 + 16	FL OZ/A
3	Warrior II + dimethoate	1.92 + 16	FL OZ/A
4	Lorsban Advanced	16	FL OZ/A
5	Cobalt Advanced	26	FL OZ/A
6	Sivanto	5	FL OZ/A
7	Sivanto	7	FL OZ/A
8	Sivanto	10	FL OZ/A
9	Sivanto + Lorsban Advanced	7 + 16	FL OZ/A
10	Lannate	32	FL OZ/A
11	Beleaf 50SG	2.8	OZ/A
12	Endigo ZCX	4.5	FL OZ/A
13	Transform	0.75	OZ/A
14	Transform	1	OZ/A
15	Transform + Lorsban Advanced	0.75 + 16	OZ/A + FL. OZ/A
16	Grandevo	3	LBS/A

Treatment	3 DAT	7 DAT	14 DAT
Sivanto 5 oz	178	44	21
Sivanto 7 oz	191	25	21
Sivanto 10 oz	193	39	17
Sivanto 5 + Lorsban Adv.	192	49	20
Transform 0.75 oz	201	42	19
Transform 1.0 oz	192	15	21
Transform + Lorsban Adv.	198	48	24
Endigo ZCX	86	29	30
Beleaf	326	90	31
Grandevo	388	202	247
Untreated	503	245	292
Cobalt Adv.	269	108	507
Lorsban Adv. 1 pt.	377	263	511
Warrior II + dimethoate	166	67	643
Stallion SC + dimethoate	191	82	821
Lannate 2 pts.	219	189	1142

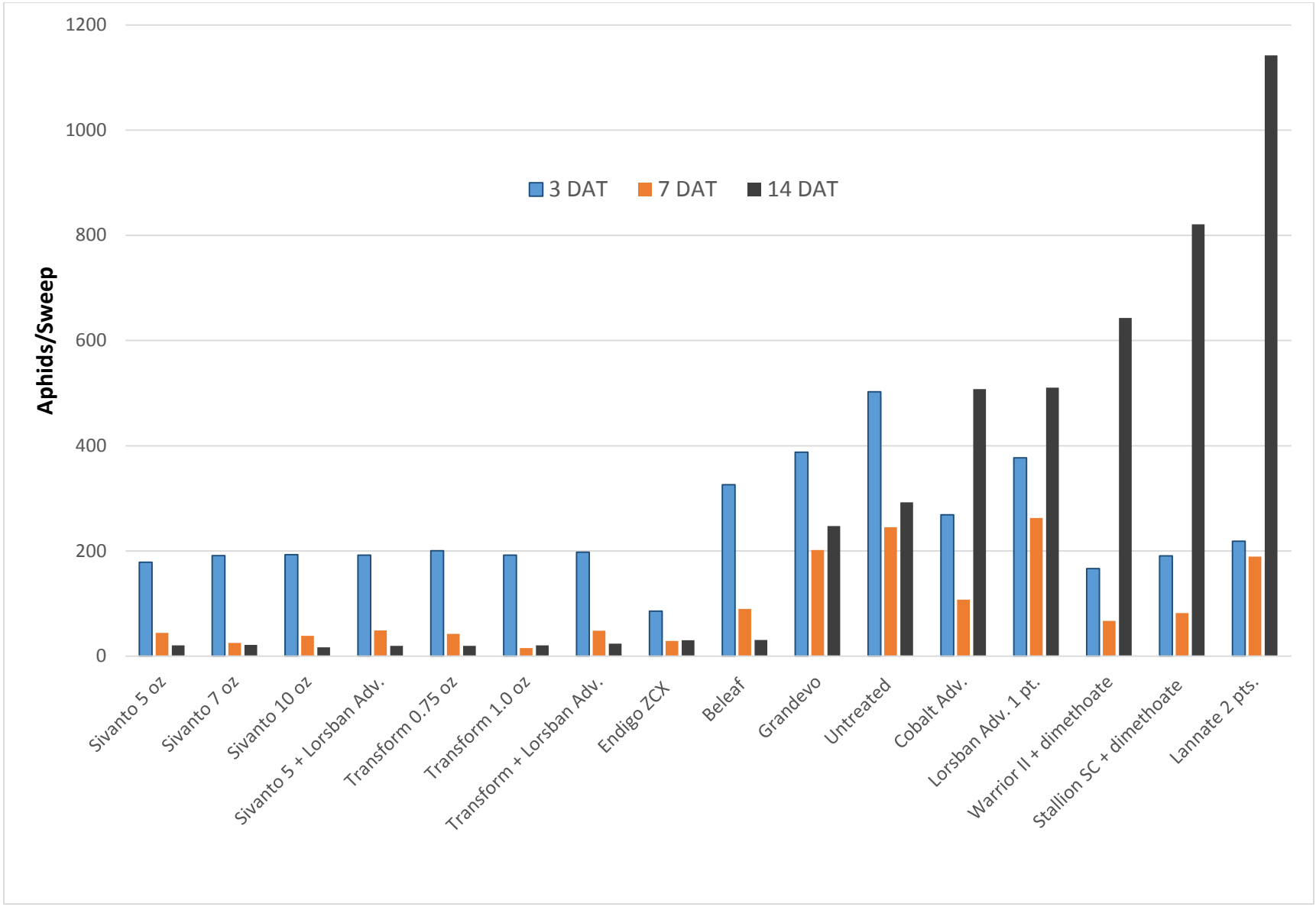


Figure 1. Effect of insecticide treatment on the number of blue alfalfa aphid per sweep 3, 7 and 14 days after treatment.

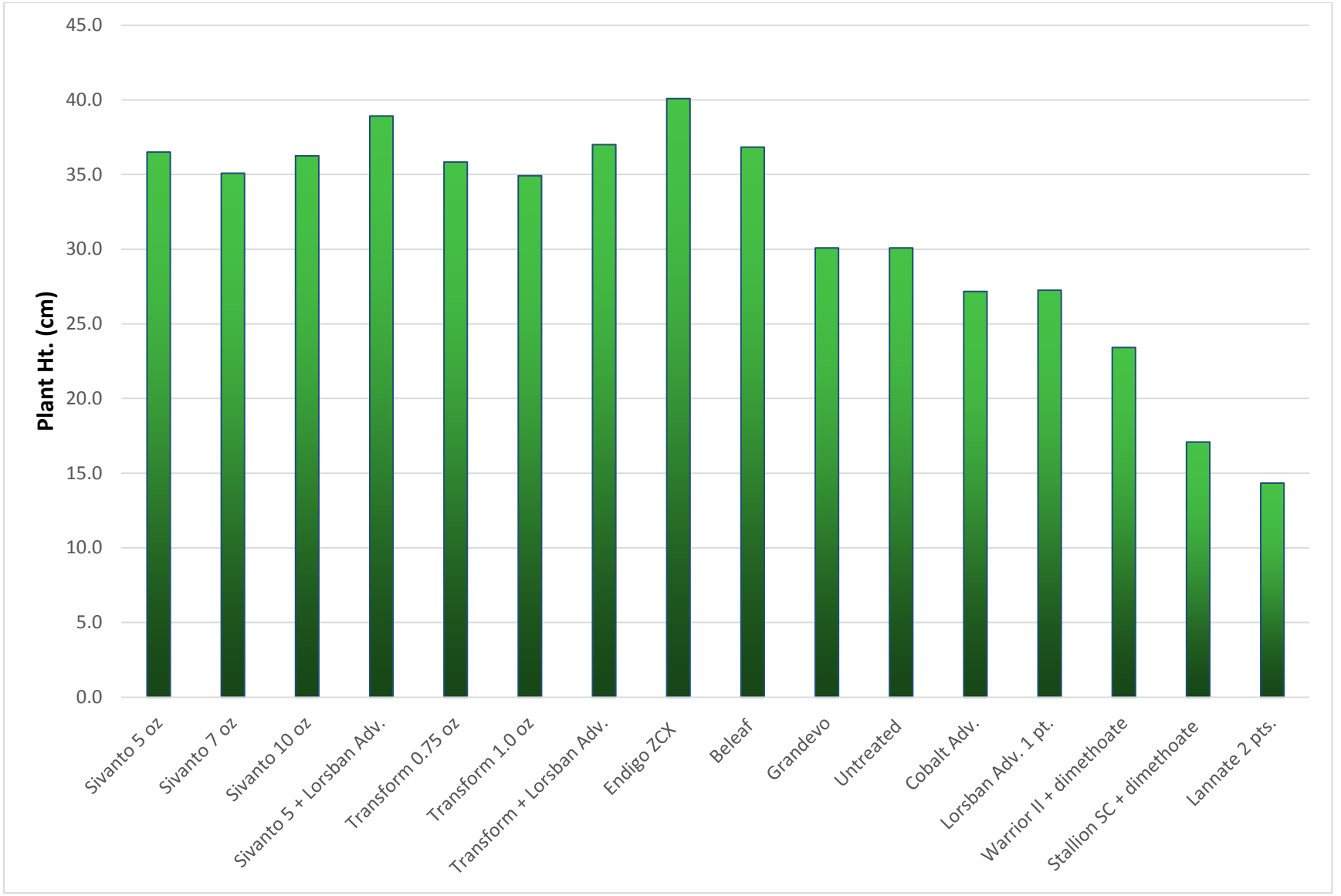


Figure 2. Effect of insecticide treatment on alfalfa height (5/26/15).