



## damage

Larval feeding results in:

- Reduced yield (1st cutting)
- Reduced plant vigor
- Delayed regrowth
- Decreased stand density



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### USDA-ARS Northern Plains Agricultural Research Laboratory

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# Alfalfa Weevil

*Hypera postica*



**SUMMER, FALL  
& WINTER**

Adults overwinter  
in litter, lay eggs  
in spring

1-2 weeks



**SPRING**

**LATE SPRING,  
SUMMER**



3-4 weeks



**life  
stages**



# Biology and Control of the Alfalfa Weevil in the MonDak

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**A**lfalfa is the second most important crop in Montana after small grains, and alfalfa weevil is the most serious pest of alfalfa in the High Plains region. The USDA-ARS-NPARL has been monitoring weevil populations since 2009, and last year (2012), represents the first year in which economic levels of weevils were observed in irrigated fields in the Yellowstone and Missouri river valleys (Figure 1).

Many growers noticed this pest last Spring when their fields started to turn grey, and there was much speculation as to what it actually is. In fact, the alfalfa weevil is a snout beetle in the family Curculionidae. The adults are brown with a very beetle like appearance (See front panel), that is easily recognized by most. However, it is the larvae (grubs) which are actually damaging in alfalfa fields. Larvae are about 1/20-3/8 inches long, depending on age, and later stages are bright green with a black head and a white stripe down the back.

During severe infestations, like we saw in 2012, weevil larvae can substantially defoliate plants resulting in severe first-cutting losses if not controlled. They can also retard post cutting re-growth and decrease stand density over the longer term. MSU extension has excellent information on how to monitor and manage this pest: <http://www.ipm.montana.edu/Training/PMT/2006/AlfalfaWeevil.pdf>

Due to its widespread economic impact across the US, alfalfa weevil was the target of a nation-wide biological control program carried out by the USDA in the 1980's. Five parasitoid wasp species that attack and kill weevils were released in the MonDak region, but almost nothing was known about whether they actually became established here and how important they are in keeping weevil numbers down.

We are currently determining which natural enemies (predators and parasitoid wasps) are dominant in Eastern Montana alfalfa fields and what management approaches might be useful in conserving and promoting these beneficial species to maximize biological control of weevils. Initial results indicate that at least two parasitoid wasps are present in the region and rates of parasitism are generally high (averages in 2009 and 2010 were 58% and 29% respectively), suggesting that parasitoids play an important role in keeping weevil numbers down in most years.

However, the dominant parasitoid, *Bathyplectes curculionis*, has a hard time keeping up (it kills relatively fewer weevil larvae) when their numbers are high (Figure 2a). A second parasitoid, *Oomyzus incertus*, does better under these conditions, but is much rarer, so does not fully compensate for the loss of activity by *B. curculionis* in years of high weevil density (Figure 2b). Future work will focus on how to augment numbers of these parasitoids, particularly the rarer wasp species.

