

Alfalfa Weevil, Kevin Wanner and Emily Glunk

Alfalfa weevil is the key insect pest of alfalfa, causing variable levels of economic damage across Montana each growing season. After mating the female weevils lay their eggs in alfalfa stems, and newly emerged larvae crawl up to the developing terminal buds where they chew small “pin” holes in the leaves. The larvae develop through four instar stages (Figure 1); the larger 3rd and 4th instar larvae feed openly on unfurled leaves and cause the largest economic loss. Severe feeding damage will give the field a “frosted” appearance. Mature larvae develop into the next generation of adults that leave the alfalfa field to find overwintering sites. In Montana there is one generation per year. The majority of crop damage occurs prior to the first cutting as a result of feeding by larger larvae. Management decisions are based on surveying the number of weevils to determine if their population will exceed the economic threshold, the point that warrants action to be taken.

Alfalfa weevil sampling should begin in the spring when the stand is about 8 to 10 inches tall. Weevil populations can be estimated using sweep nets (net with a 15 inch diameter, can be purchased online) or by shaking alfalfa plants in a bucket. An average of 20 alfalfa weevil larvae per sweep meets the economic threshold for action. Ten sweeps are taken at each of 3-5 sites in a field (30-50 sweeps per field) and the total number of weevil larvae counted to determine the average per sweep. An alternative is to cut 10 stems from each of 3-5 different sites in a field (30-50 stems per field) and shake the stems in a bucket to collect the larvae. An average of 1.5 – 2.0 larvae per stem meets the economic threshold for action. To get an accurate average more samples are required for larger fields. A minimum of three samples are recommended for fields up to 20 acres, four samples for fields up to 30 acres and five samples for larger fields. Based on historical weather data, sampling for alfalfa weevil in Montana typically begins between May 24 and June 16, depending on the location and the seasonal weather (Table 1).

Table 1. Typical dates that alfalfa weevil monitoring begins in Montana.

Sidney	Glasgow	Lewistown	Kalispell	Dillon	Bozeman	Red Lodge
24 May	29 May	13 June	7 June	10 June	8 June	16 June

When the economic threshold has been met (more than an average of 20 larvae per sweep or 1.5-2.0 larvae per stem) action is required to preserve yield. If stand growth is sufficient early harvesting is the most effective and economic action. If early harvesting is not an option then an insecticide can be used to reduce weevil populations below economically damaging levels. Additional management information including insecticide options is listed online in the High plains IPM guide:

http://wiki.bugwood.org/HPIPM:Alfalfa_Weevil

Additional video resources:

Bucket sampling method: <https://www.youtube.com/watch?v=PkxHJLd3G5s&t=28s>

Sweep net sampling: <https://www.youtube.com/watch?v=hVDgA7DWh0c>

Figure 1. Life cycle of the alfalfa weevil.

Adults mate early
in the spring



Larvae develop through
four instar stages



4th instar larvae feed
openly on the leaves



Skeletonized leaves produce
a frosted appearance



Alfalfa Weevil



> 20 larvae per sweep exceeds the
economic threshold for treatment