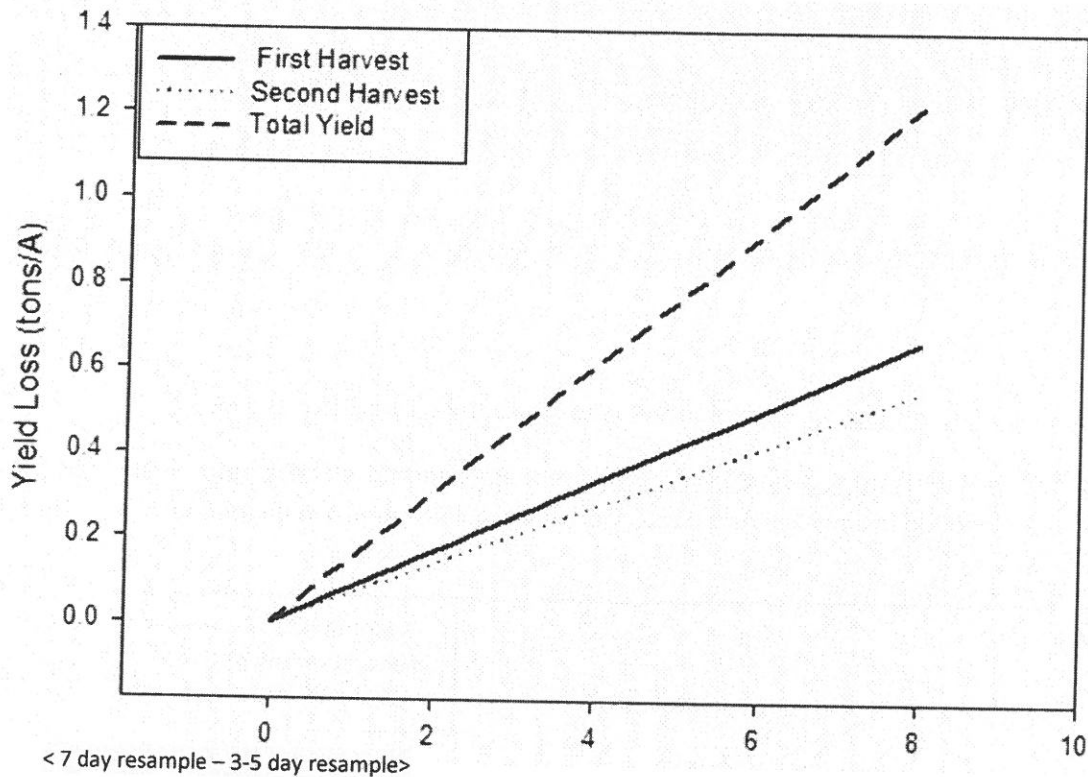


Visit High Plains Integrated Pest Management at: <http://wiki.bugwood.org/HPIPM:Crops> for detailed information on sampling methods, biological, cultural, and chemical control options.



< 7 day resample – 3-5 day resample>

Number per stem (bucket method) or

Number per sweep (total number collected by 10 -180 degree sweeps divided by 10)

10 20 40 60 80 100

Sweeping will give most reliable results if restricted to calm, clear days (or evenings) with no more than a gentle breeze. Do not sweep when the foliage is damp or wet from rain or dew. Sweep vigorously, but not so vigorously that large quantities of alfalfa are torn off by the net. Video of the technique: <https://utahpests.usu.edu/html/video-fact-sheets#alfalfa-weevil>

The economic injury level (EIL) is often expressed mathematically by the formula:

$$EIL = \frac{C \times N}{V \times I}$$

where:

- "C" is the unit cost of controlling the pest (e.g., \$20/acre)
- "N" is the number of pests injuring the commodity unit (e.g., 800/acre)
- "V" is the unit value of the commodity (e.g., \$500/acre)
- "I" is the percentage of the commodity unit injured (e.g., 10% loss)

For the example given above, the economic injury level would equal 320 insects per acre:

$$\text{EIL} = \frac{20 \times 800}{500 \times 0.1} = 320$$

Lygus and alfalfa plant bug can also be sampled with a sweep net using the same sweep technique during bloom and seed maturation in alfalfa grown for seed.

http://wiki.bugwood.org/HPIPMLyigus_and_Alfalfa_Plant_Bugs

***Economic Threshold:** During bloom and seed maturation insecticide treatment is warranted when lygus bug populations (adults plus nymphs) reach 4 or more bugs per sweep (180 degree sweep) when buds or blooms are present. The presence of early instars indicates that hatch is well underway. Insecticides should not be applied before this time, as many lygus are in egg stage which are protected (within the plant) from insecticide applications. Later, as seeds mature, the threshold increases and 10-15 bugs per sweep can be tolerated. Late-season lygus bug sprays are not justified. Action thresholds resulting from the University of Wisconsin research range from 3-5 bugs/pendulum sweep (nymphs + adults of both species combined). If the alfalfa plant bug is the dominant species, the threshold should be lowered to 2-3/sweep. Four or five 10 sweep samples should be collected from each field.*

Grasshoppers can be sampled with the net to determine species and development, use visual density estimates see the “Square foot job aid” it explains how.

Table 1. Treatment thresholds for immature and adult grasshoppers (from University Minnesota)

Rating	Immatures/yd ²		Adults/yd ²	
	Margin	Field	Margin	Field
Light	25-35	15-25	10-20	3-7
Threatening	50-75	30-45	21-40	8-14
Severe	100-150	60-90	41-80	15-28
Very Severe	200+	120+	80+	29+

Treat crop borders when immatures are small and numbers are moderate. Timing of grasshopper control depends on the potential for crop loss, crop value, size (stage) of grasshoppers present. Grasshopper control is most effective before the insects become large nymphs or adults, as these stages are more mobile and more difficult to control.

Chemical control may be justified when adult grasshopper populations are threatening, according to the population densities shown in Table 1. Re-infestation originating from outside the field may occur after 10 to 14 days. Use the higher dosages for adults, lower for the more immature. Sufficient gallonage is important.

See “A Guide to Grasshopper Control in Cropland” from UN-L

<http://www.ianrpubs.unl.edu/pages/publicationD.jsp?publicationId=574> for more information.