

IPM Threshold Guide for Agronomic Field Crops

ECONOMIC THRESHOLD –

Level of pest activity when control action is suggested to prevent economic injury

ALFALFA INSECTS

ALFALFA WEEVIL

Begin sampling when feeding damage is noticed

Record # of larvae/30 stem sample

Determine average plant height in inches (based on \$100/ton hay value & \$10.00 spray cost/A)

12-18" - > **60** larvae/ **30** stems.

18-24" - > **75** larvae/ **30** stems.

> **24"** - > **80** larvae/ **30** stems or **cut**.

POTATO LEAFHOPPER

Sample with 15" sweep net, measure stem height:

< **3"** stem ht. – **20** per **100** sweeps or **0.2** per sweep

4-6" stem ht. – **50** per **100** sweeps or **0.5** per sweep

7-10" stem ht. – **100** per **100** sweeps or **1.0** per sweep

10-14" stem ht. – **200** per **100** sweeps or **2.0** per sweep

PEA APHID

50 aphids per sweep or **5-10** per plant

SOYBEAN INSECTS

DEFOLIATION & STAND

REDUCTION

Seedlings - **30%** defoliation or **25%** stand Reduction

Vegetative stages - **30%** reduction

Bloom through pod fill - **15%** defoliation

Full green bean to **50%** leaf drop - **35%** defoliation

EARLY SEASON DEFLOIATORS – BEETLES

Defoliation threshold & > **5** larvae per **ft.** of row

LATE SEASON DEFOLIATORS -- WORMS & BEETLES

Defoliation threshold & **5** larvae per **ft.** of row

SPIDER MITES

> **50%** of plants with stippling on **1/3** of leaves and **50** mites per leaflet

THRIPS - drought stressed - **8** per leaflet

POTATO LEAFHOPPER

Drought stressed - **4** per sweep

Non-stressed - **8** per sweep

CORN EARWORM

Drop cloth or Sweep net

Narrow rows - **1** per ft. of row or **3** per **25** sweeps

Wide rows - **2** per ft. of row or **5** per **25** sweeps

CORN INSECTS

CUTWORM

1-2 leaf - **10%** damaged plants

3-4 leaf - **5%** damaged & 4 larvae per 100 plants

WHITE GRUB

Heavy soils - **2** per **sq. ft.**

Sandy soils - **1** per **sq. ft.**

WIREWORM - **1** per bait station

SLUG - spike to 3 leaf - **5** per plant

STALKBORER

4%, **6%** or **10%** damaged at the 2, 3 or 4 leaf stage

ARMYWORM

35% of plants > **50%** defoliated & larvae < **3/4"**

EUROPEAN CORN BORER

Not irrigated - **80%** infested with live larvae

Irrigated - **50%** infested with live larvae

CORN ROOTWORM

1 Western or **2** Northern per plant

SMALL GRAIN INSECTS

CEREAL LEAF BEETLE

Wheat - 1 larvae per flag leaf

Oats - 2 larvae per flag leaf

GRAIN APHID

Tillering - **150** aphids/row ft. & < **1** predator/**50** aphids

Heading - **25** aphids/head & < **1** predator/**50** aphids

GRASS SAWFLY

0.4 larvae/ linear row ft. & larvae > $\frac{3}{4}$ inches

TRUE ARMYWORM

Wheat - **2-3**/linear row ft. & larvae < $\frac{3}{4}$ inches

Barley - **1**/linear row ft. & larvae < $\frac{3}{4}$ inches

WEEDS OF FIELD

CROPS

ANNUAL WEEDS

per **25 sq. ft.** to cause **10%** loss:

	<u>Drilled</u>	<u>Row</u>
Cocklebur	1	3
Jimsonweed or Velvetleaf	1.5	3
Pigweed, Lambsquarters or Morningglory	3	5
Annual grasses	5	20

PERENNIAL WEEDS

% of field infested:

Light	< 5%	Heavy	< 30%
Moderate	< 10%	Severe	> 30%

NOXIOUS WEEDS

No threshold, eliminate all

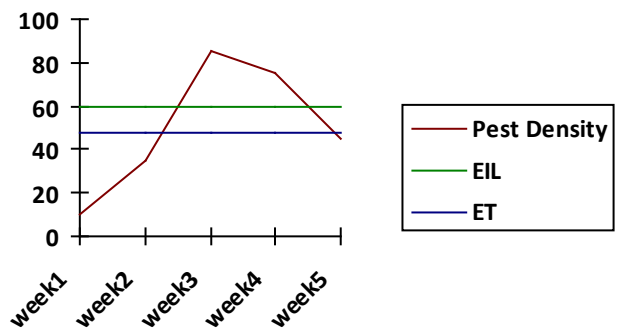
IPM DEFINITIONS

Economic Injury Level - EIL

“The lowest pest population density that will cause economic damage. At the EIL the Cost of Control = Benefit of Control.”

Economic Threshold (Action or Treatment Threshold) - ET

“The density of a pest at which control measures should be implemented to prevent an increasing pest population from reaching the EIL -- ET is generally 80% of the EIL.”



EIL = Pest Density (P)

$$P = \frac{C}{V \times D} \quad \begin{array}{l} C = \text{Cost of Control} \\ V = \text{Value of Crop} \\ D = \text{Damage} \end{array}$$

Note: At EIL Benefit = Cost; B=C

Compiled R. D. Myers 2000; Updated 2009; Updated 2017.
Compilation and layout assistance by Carol Jelich, Master Gardener, Anne Arundel County.

This reference was adapted from the University of Maryland and Delaware Cooperative Extension Filed Crop and Vegetable IPM Pest Management Manuals.

Reviewed by Galen Dively, Terrance Patton, and Sandra Sardenelli
University of Maryland, College Park.

The University of Maryland Cooperative Extension's programs are open to all regardless of race, color, religion, age, national origin, sex, or disability.