



Economic Threshold For Weeds

Compiled by David R. Pike
Dept. of Agronomy

Pesticide Impact Assessment Program Report

Weed competition is a major source of crop loss throughout Illinois. Although this fact sheet is based on sound scientific principles much is still to be learned about weed and crop interference. As you read through the examples and the table of data provided remember that the information presented is based on long term averages. Variations in the local environment (soil factors or weather) will always have an impact on weed-crop interference. Therefore, some judgement should be used in applying these principles.

In general, it is well to remember that conditions which slow crop growth, such as wet and cool weather may increase weed interference. Because postemergence herbicide treatment slows weed growth relatively quickly and permits the crop to obtain an advantage (more sunlight or soil moisture), the crop will usually recover from weed competition rather quickly if other conditions are not limiting.

Formula For Calculating Economic Treatment Threshold

Steps

Determine the expected yield level of the crop assuming weed free conditions. Enter this figure on line one of the form on the reverse side of this page.

Survey the field two weeks after planting and estimate the average number of weeds based on 100 feet of row.

From the appropriate field corn or soybean chart on the reverse side, find each weed and the approximate number of weeds per 100 feet of row, then read the corresponding percent yield reduction from the left column of the chart.

Sum up the percent yield reductions for all weeds, multiply the percent yield reduction by the expected yield, and enter figure next to the example on line two of the form.

Calculate the expected cost of loss without treatment by multiplying the bushels lost by the expected price per bushel and enter on line three.

Calculate the cost of herbicide and application treatment and enter figure on line four.

Subtract the cost of treatment from the cost of loss to obtain your net gain. Enter the answer on line five.

If your net gain from treatment exceeds \$0.00 then treatment may be justified. If pre-plant incorporated or preemergence treatments are characteristically used on this field do not consider weed seed buildup as significant. If the weeds in your field are not on the list feel free to compare it to a weed on the list with similar leaf density and height characteristics.

Competition In Field Corn

Percent Corn Yield Reduction	Cocklebur or Giant Ragweed	Velvetleaf or Morning-glory	Smartweed or Jimsonweed	Pigweed or Lambs-quarters	Shattercane (2-3/clump)	Giant Fox tail (5-8/clump)	Nutsedge
Weeds Per 100 Feet Of Row							
1%	4	6	10	12	6	10	400
2%	8	12	20	25	12	20	800
4%	16	25	40	50	25	50	800+
6%	28	50	60	100	50	100	800+
8%	34	75	70	125	75	150	800+
10%	40	100	80	150	100	200	800+

Competition In Soybeans

Percent Soybean Yield Reduction	Cocklebur or Giant Ragweed	Velvetleaf or Morning-glory	Smartweed or Jimsonweed	Pigweed or Lambs-quarters	Shattercane (2-3/clump)	Giant Fox tail (5-8/clump)	Vol. Corn (10/clump)
Weeds Per 100 Feet Of Row							
1%	1	8	2	2	2	5	1
2%	2	16	4	4	5	10	2
4%	4	24	6	6	8	17	3
6%	6	32	10	10	11	25	4
8%	8	40	15	15	14	32	5
10%	10	50	20	20	17	40	6

Example:

For our example we use 28 cocklebur (6%) and 50 pigweed (4%) per 100 feet of corn row. These numbers are indicated on the chart by a blue box. Now follow the below example to calculate your threshold point.

	Corn Example	Your Trial
Expected Yield	100 bu/acre	1) _____
Percent Loss	6% + 4% = 10%	
Bushels Lost	(100 bu)(10%) = 10 bu	2) _____
Expected Cost of Loss	(10 bu)(\$2/bu) = \$20.00	3) _____
Cost of Herbicide and App.	\$12.00	4) _____
Net Gain of Treatment	\$20.00 - \$12.00 = \$8.00/acre	5) _____

Note: Treatment costs can include the cost of the herbicide, surfactant, fuel and equipment, and the operator's time for product purchase, equipment setup, and application. Also included in this figure should be a factor for failure to obtain 100 percent control of the weeds, because weeds which are not killed may result in some yield loss. This latter factor can be rather large if weeds are difficult to control, i.e. under stress from drought, cold or wet weather, or if the weeds are 'off the label' in regards to size.

To obtain more information contact David Pike • University of Illinois, Cooperative Extension • e-mail:
DPike@piked2.agn.uiuc.edu

The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

You have reached the end of this publication.
If you would like to review the document, click
on the ◀, ◀◀, or ◀◀◀ buttons.

To return to the main list of publication cat-
egories, click on the button to the right.

**publication
categories**

3