



Making Decisions Based on Weed Scouting in Corn

Weed management starts and ends with scouting. Timely scouting allows the farmer to know what species of weeds are in the field, where they are, and how severe the infestation is within the field. Regardless of which weed management tool is used, all tools become less effective as weeds increase in size; the adage “scout early and often” is certainly true. The key to successful weed control and scouting is proper weed species identification. Many weeds look similar, but each species may require vastly different management tactics. Weed identification resources are available at [Weed Identification](#).

What is the best sampling method for assessing weed populations?

While scouting for weeds can provide accurate and timely information, there is no single scouting strategy that is best for all situations. Therefore, the scouting program should be dynamic and flexible. Adaptive scouting tactics should be used that build on previous information and experience within a field. Any scouting method needs to identify the weed species present, weed size, growth stage, weed type (annual, perennial, grass, or broadleaf), known or potential herbicide resistance, and the severity of the infestation.¹ An effective scouting program is essential for monitoring weed populations throughout the growing season.

There are many specific applications and general tools available for smartphones and tablets that can help support weed scouting. Climate FieldView™ can be used to drop geo-referenced pins. Imagery—which is provided for any of the user’s mapped fields—can be used to identify potential trouble spots and weed variability across a field, allowing more targeted scouting. For example, dark green imagery can indicate areas of possible weed pressure where scouting should be considered.

When should scouting be conducted?

- Scouting prior to planting helps determine what type of burndown herbicide or tillage program should be used. Additionally, scouting prior to planting can help determine if a tank mix product is needed to provide early season residual control.
- Scouting after planting assesses the effectiveness of the weed control strategies used prior to planting and can help determine if a follow-up herbicide application is necessary.

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What are some of the scouting methods?²

Random grid assessment. The random grid assessment is a relatively quick scouting method which works best for perennial weeds. This scouting method can be used to map the locations and areas of weed patches. The steps to conduct this method are as follows:

1. Drive or walk in a grid pattern through the field or fields and stop only where weeds are present. Using a utility vehicle can help speed up the process.
2. Once a patch of weeds is located, the area of the patch can be estimated by driving around its perimeter or by estimating it visually. Taking an image of each patch can help quantify the weed density.
3. Record the location of each patch. Using GPS or an app like Climate FieldView™ helps preserve the precise location of each weed patch. Alternatively, a rougher estimate of the position can be determined by counting rows or using a measuring device.
4. Geographic Information System (GIS) software can then be used to determine the percent of the field infested by weed patches and the size of the individual patches to help monitor changes in the size of the weed patches over time.

To scout an irregularly shaped field or a large field, consider first splitting the field into smaller areas of similar topography. The advantages of using the random grid assessment scouting method are its speed and ease of use. The disadvantage of this method is that using it may not allow the scout to see smaller, annual weeds.²

Grid sampling assessment. The grid sampling assessment is a more time-consuming scouting method than the random grid assessment, but the grid sampling assessment can provide more specific information. When using this scouting method, data are collected on a uniformly spaced grid coordinate system. To use this method, walk or drive through the field to each grid square. At each location, either record the weed density or whether weeds are present or absent. There are several ways to record weed density:

1. Quantitative. Record the actual weed density for each species by counting all the weeds in the grid square, which can be time consuming under high populations.
2. Semiquantitative by species. Count the weeds up to a set number (e.g. 20) for each species. This counting method reduces the time involved in sampling, and from a practical sense there is not a difference between 20 weeds per square foot and 50 weeds per square foot.
3. Semiquantitative by group. Group the weeds together by type—such as grass versus broadleaf or small-seeded versus large-seeded broadleaf—and count the weeds of each type. This weed density-determining method can be less time consuming, but it provides less specific information.
4. Qualitative. Assess if weeds are present or absent at a given point in the grid. This method is quick, but it provides no specific information.²

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Does scouting pay off?

The short answer is yes. A scouting study conducted in North Carolina on peanut fields evaluated the time needed to estimate weed population densities and the effectiveness of herbicide recommendations made using four different methods: the windshield method, in which weed density estimates were made from the edge of the field; whole-field method, in which estimates were made based on walking the field; range method, in which weed densities were rated on a 1 to 5 scale at six locations in the field; and actual counts, in which weeds were counted at six locations in the field.³

Each scouting method required a different investment of time and produced different results. Scouts identified more weed species using the whole-field method than the other methods. Compared to actual counts, the windshield, whole-field, and range scouting methods tended to slightly overestimate weed density at low densities and substantially underestimate weed density at high densities. The windshield scouting method took the least amount of time to complete (6 min per field), but also resulted in the greatest average loss. Finally, the count method had least economic risk of the four methods.

Sources:

- ¹ Scouting for weeds. Getting Rid of Weeds (GROW.org).
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- ² Clay, S. and G. Johnson. Scouting for weeds. Potash & Phosphate Institute. Site-Specific Management Guidelines. SSMG-15.
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- ³ Robinson, B.L., Moffitt, J.M., Wilkerson, G.G., and Jordan, D.L. 2007. Economics and effectiveness of alternative weed scouting methods in peanut. Weed Technology, 21: 88-96.
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Legal Statements

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The recommendations in this material are based upon trial observations and feedback received from a limited number of growers and growing environments. These recommendations should be considered as one reference point and should not be substituted for the professional opinion of agronomists, entomologists or other relevant experts evaluating specific conditions.

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