

THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Know Your Crop

Taking a close look at your crop can help identify yield-robbing problems

One key to high yields is an effective combination of weed, insect, and disease management as well as tillage and equipment management. Getting up close and personal with your crop throughout the growing season can provide invaluable insight into problems. Scouting reports should also be the cornerstone of the crop management plan for the next growing season.



Weed scouting through the 4th or 5th leaf stage of recommended for corn.

General scouting tips

Crop scouting for weeds, insects, and diseases is a long-accepted practice that should be done thoroughly. The following information provides some basic guidelines for pest and disease crop scouting.

Key 1: Be prepared to monitor the crop on a regular basis. Recommendations follow for different types of scouting:

- **WEEDS:** Scout pre-plant, from emergence through 4th or 5th leaf stage (when broadleaf and grass is less than 1½ inches tall), and at the end of the season. A fall survey will provide an overview of the field's problems and is a valuable tool in planning for the following year's herbicides.
- **INSECTS:** Field corn is generally checked twice, at emergence and at silking. Combine your early season check with your plant population assessment and weed scouting trips.
- **DISEASES:** Monitoring for diseases can be combined with weed and insect scouting.



Applying insecticide while planting can be an effective management technique.

Key 2: Know the economic injury level (break-even point based on economic factors) for treatment and also the economic threshold (infestation level at which control becomes beneficial). Be able to apply these to individual situations.

- **WEEDS:** Pre-plant sprayer applications and post-planting applications can be critical to achieving a clean field. A properly planned pre-plant application can prevent expensive weed management later in the season.
- **INSECTS:** Consider applying an insecticide while planting or spraying to

save an extra pass to control insects.

- **DISEASES:** Timely fungicide applications during certain stages of plant growth are beneficial to control certain diseases.

Key 3: Know the history of your fields and consider the impact of details such as herbicides applied the previous year on findings this year.

- **INSECTS:** Fields planted in corn-following corn are more susceptible to corn rootworm. Careful monitoring is called for.

Key 4: Know the characteristics of a healthy crop, then look for signs of crop damage such as thinning, stunting, early dying, discoloration, damaged stems or leaves, or missing portions of leaves or stems. Each disease and insect will cause a specific damage to a crop, so it is also important to be familiar with the symptoms of a wide variety of infestations and diseases. Understand the pests and their lifecycles.

Key 5: Analyze the weather, crop stage, weed development, and pest biology so scouting occurs at the right time.

Key 6: Walk across the field in a zig-zag, M-, or W-pattern and collect random samples. Concentrate efforts in areas where the pest, disease, or weed problem is most likely to occur. General guidelines hold that about 50 acres should be scouted at a time. Divide those acres into different zones if they have been under different management practices.

- **INSECTS:** Avoid sampling 100 to 150 feet from the edge of the field where insect populations may not be representative of the field. Be aware that different sampling methods are appropriate for different pests.
- **WEEDS:** The intensity of weed infestation can be rated using the following scale from the Michigan State University Field Crops Scout Manual.

- None - No weeds present.
- Few - Weeds present but very few plants within the field. Enough plants to produce seed but not enough to cause significant economic loss in the current year.
- Common - Plants dispersed throughout the field, an average of no more than 1 plant per 3 feet (.91m) of row, or scattered spots of moderate infestation.
- Abundant - Fairly uniform concentrations across field. Average concentrations of no more than 1 plant per foot (.30m) of row or scattered spots of severe infestations.
- Extreme - More than 1 plant per foot (.30m) of row for broadleaf weeds and 3 plants per foot of row for grasses, or large areas of severe infestations.
- DISEASE: Look for plants with premature yellowing or senescence.

Key 7: Record keeping is perhaps the most important step in crop scouting. Records should include: the field location; how the samples were collected; record of data collected at each site; plant counts; row spacing; stage of crop development; and crop damage, if it is present. Remember, use clear language so you can benefit from the report year after year.

Tools for better scouting in your region

"It's always a good idea to be familiar with key insects and injury symptoms for your area," says Mike Gray, an entomologist at the University of Illinois.¹

Check with a university agriculture extension service in your area or local seed and chemical outlets for updated scouting guides and publications. Fees for these guides are minimal and they provide valuable information specific to

your region. For example, the University of Illinois offers a 240-page spiral-bound publication that covers insects, weeds, diseases, nutrient deficiencies, herbicide injury, and other crop problems. It includes color photos, line drawings, and scouting worksheets and guidelines.

To supplement a guide with even more current information, look for weekly pest-update newsletters. Many states publish these during the growing season. Taking advantage of this resource will ensure scouting is based on trends for the current growing season. Links for some states are listed here:

- [University of Illinois](#)
- [Iowa State University](#)
- [University of Kentucky](#)
- [University of Minnesota](#)
- [University of Nebraska](#)
- [Ohio State University](#)
- [Purdue University](#)
- [South Dakota State University](#)

Finally, consider attending a workshop or seminar on scouting taught by professionals. You'll learn up-to-date scouting techniques and become educated on current pest, disease, and weed trends, as well as treatment options. Check with a university or ag extension close to you.

Assessing crops for poor equipment performance

While scouting, check your crop stand. Density of

If scouting for weeds, diseases, and insects reveals plant populations significantly different than expected or emergence issues, planter and

stand is one indicator of crop health.

[Click here](#) for an estimating tool.

attachment performance may be to blame. Research indicates that corn yields could increase as much as 15 bushels per acre simply by improving performance, so observing the crop as it emerges and evaluating problem spots is an important management task.

Check rows for excessive and large residue in seed trenches. When properly used, residue managers eliminate planter bounce and hairpinning, two factors that can contribute to problems with seed placement and seed-to-soil contact.

Coulter blade selection has an enormous impact on emergence and root development. The proper coulter blade will ensure ideal seed-to-soil contact and fracture soil crusts directly around the seedling for excellent closure. Through coulter tillage techniques, the capacity of the soil to hold moisture is improved, aiding germination and uniform emergence.

Seeds planted too deep or shallow due to poor planter adjustments will also contribute to emergence problems or uneven growth. If scouting reveals seeds that have swelled but not sprouted, they may have been planted too shallow. Nodal roots developing above ground also point to shallow planting. These roots are exposed to more environmental conditions and have a higher probability of encountering disease and nutrient deficiency.

Seeds that emerge and are leafing out underground could be the result of too deep a placement. No emergence could also be the result if seeds are planted too deep. As a rule of thumb, corn should be planted about 1¾ to 2 inches deep. This depth will need to be adjusted depending on soil moisture.

If scouting reveals evidence of poor seed-trench closing, poorly adjusted or poorly selected closing wheels could be to blame. If the seed trench is not closed properly, all previous efforts to improve yield are jeopardized. There are a wide variety of closing products currently available on the market to

prevent such misfortune. Spike closing wheels and drag chains are two popular choices.



Spike closing wheels fracture the soil and aid with effective seed trench closing.

Effective closing wheels gently firm the soil around the seed, leaving loose soil above the seed for ideal seed-to-soil contact, eliminating soil crusting and air pockets, and providing for fast, even emergence. Improperly adjusted closing wheels could cause sidewall compaction and uneven stands. Adjust the spring pressure on the closing wheels according to soil type and moisture.

If scouting reveals evidence of compaction, spike closing wheels are again an effective option to combat that problem.

Smooth wheels set with too much downforce will pack the soil over the seed. In no-till and min-till situations, the soil of the sidewall must be loosened. Spike closing wheels fracture the soil, but even with the right closing wheel, downforce should be adjusted to account for soil type and condition.

Scouting for success

Thorough and well-executed crop scouting is always a good investment. Producers who know their crops benefit from improved weed, insect, and disease control, an understanding of opportunities for improved equipment performance, and the development of accurate records of each fields' history. When these benefits come together with good management, improved yields are the result.

1. [http://www.agweb.com/article/Tips for Crop Pests and Scouting 193603/](http://www.agweb.com/article/Tips%20for%20Crop%20Pests%20and%20Scouting%20193603/)

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