Scouting Fields
Overview

1. Do your homework
2. Basics of scouting
3. Help! I still don’t know
Know what “healthy” looks like

• What does a normal plant look like?
  – Above ground
  – Below ground
  – On the inside

• A sick plant is less productive and often gives indicators (e.g., color or growth) called “symptoms.”

• If you know what a healthy plant looks like, you can recognize when there is a problem.
Know common problems
Know common problems
Know common problems

Assemble references

• Books
• Publications
• Etc.

[Images of books and publications]
Know common problems THIS year

- Keep up on the news
  - Local agribusiness
  - Internet
  - Print media
  - Word of mouth
Know common problems for each time of year

Timeline for common corn diseases

Corn growth stage:

Seedling blights
Anthracnose leaf blight
Eyespot
Common rust
Gray leaf spot (GLS)

GLS; Common rust; Northern corn leaf blight
Anthracnose top dieback
Stalk rots; Ear rots
Basics of scouting

- Accurately estimate crop plant health, stand, growth stage and populations of any pests present

- Pest identification and/or diagnosis of the cause of crop injury
First steps of scouting

- Gather equipment
- Contact grower
  - Let them know when you are coming
  - Ask if there are any special instructions
  - Spend time with them
- Collect information about the field/season – learn the field history
Equipment needs

- Field maps
- Field guides
- Paper and pen to take notes
- Safety glasses
- Hand lens
- Pocket knife/scissors
- Sampling bags/envelopes
- Old newspapers/paper towels
- Sharpies
- Ice chest
- First aid kit
- Water
- Digital camera
Collect information

Map fields

- Aerial photographs
- Map from plat book or Google™ Maps
Collect information

Map fields

- Soil map (printed soil survey or download)

http://websoilsurvey.nrcs.usda.gov/app/
Collect information

Consider recent weather

• Environmental stresses may damage soybean and corn directly or make them more susceptible to some diseases.
Collect information

Collect background information for the field

- **Previous crops**, adjacent crop and non-crop areas
- **Chemicals used** on or near the crop including herbicides, fertilizers, fungicides and insecticides; indicate when applied, how applied, rate of application, weather conditions during and following application
- **Planting date**, depth, and seedbed conditions
- **Hybrid/variet information**, including disease resistance
- **Current soil test** information (e.g., soil fertility, pH)
- **Soil** moisture and compaction
Collect information

Questions for the end of the season

• How are plants standing?
• What does the ear/pods look like?
• What is stalk strength and health of root system?
• Yield, why good or bad?
• How was weed control?
Basics of scouting

1. Look at the BIG picture (field level)
2. Look at the little picture (plant level)
3. Record information
1. Look at the BIG picture (field)

i. Is the problem scattered randomly through the field or occurring in a pattern?

ii. Is the problem more prevalent along a fence, field edge, entrance of a field or along a waterway?

iii. Is the problem in the affected area more severe in certain soil types, low areas or on exposed slopes?

iv. Does the pattern correspond to tillage, planting, spraying, harvesting or other field activities?

LOOK FOR PATTERNS
Look for patterns

Random

Aggregated

T. Allen, Miss. St.
Look for patterns

Aggregated

Aggregated

Slope

© Marlin E. Rice
Look for patterns

Repeated

Equipment can often cause patterns that are repeated across fields.

For example, spray overlap every time the booms overlapped, compacted areas every "x" rows from combine tires the prior fall, etc..
Scouting patterns

- Transect
- Zig-zag
- Diamond
2. Look at the little picture (plant)

Check individual plants for symptoms and signs

i. **Compare** damaged plants with healthy plants.

ii. **Check the entire plant and environment around it**, including leaves, stems, roots, internal tissues, soil, pests not directly on plant, competition, etc.

iii. A **small hand lens, a pocket knife, a trowel, a shovel and the field guides** are valuable tools.
Check individual plants
Look at more than one plant

Aim to assess a minimum of 50-100 plants
Scouting patterns

• Sampling patterns should be modified to account for variation in a field.

• Random problem (e.g., some insects)
  – Fewer stops
  – More plants assessed at each stop

• Aggregated (e.g., soilborne disease)
  – More stops (some in and out of problem areas)
  – Fewer plants assessed at each stop
If possible, identify problem

• After scouting field, identifying patterns, identifying plants that do not appear normal, etc. – use all the available information to identify the problem(s).
3. Record information

i. Check the prevalence and severity of the problem.
   • How often does the problem show up?
   • How damaging is the problem?
Assessment methods

- **Incidence** = % plants diseased
- **Severity** = % tissue diseased
Foliar disease severity (%)

Gray leaf spot

Corn.Pro, Nutter, ISU
Stalk disease severity value

A 5 is a 4 that is lodged due to stalk rot.

UNIVERSITY OF ILLINOIS
(0-5) STALK ROT RATING SCALE

R. Hines, UIL
Recording information

- Field notebook
- Clipboard with spreadsheet

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Stumped?

If you are unsure of the problem or want a second opinion, you can send samples to Plant Diagnostic Clinics.
Information on submitting samples
If unsure of the cause of the problem, symptomatic specimens can be sent to the ISU Plant and Insect Diagnostic Clinic.

ISU Plant and Insect Diagnostic Clinic
Iowa State University
327 Bessey Hall
Ames, IA 50011

pidc@iastate.edu
http://www.ent.iastate.edu/pidc/
Ph: 515-294-0581
Submitting plants

• Provide plenty of fresh material. When possible, send the entire plant, including roots.
Submitting plants

• Include enough plant material to show a range of symptoms.
Submitting plants

• Provide appropriate background information for the field.
Submitting plants

• Wrap specimens in dry paper towels or clean newspaper *(do not add moisture)*, then securely wrap sample.
Submitting plants

• Other tips
  – Do not send in dead tissue (the sample below is a problem).
  – Include photos when possible.
What next

• Diagnosing a problem and properly recording this information can help with the next steps.
  ✓ Management decisions, either for this year or subsequent years, can be implemented.
  ✓ Proper identification can help pick the correct management strategy.
  ✓ Realizing what can happen if the problem is not addressed.
Summary

• Do your homework.
• Scout the field.
• Can’t diagnose the problem? – Ask for help!