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





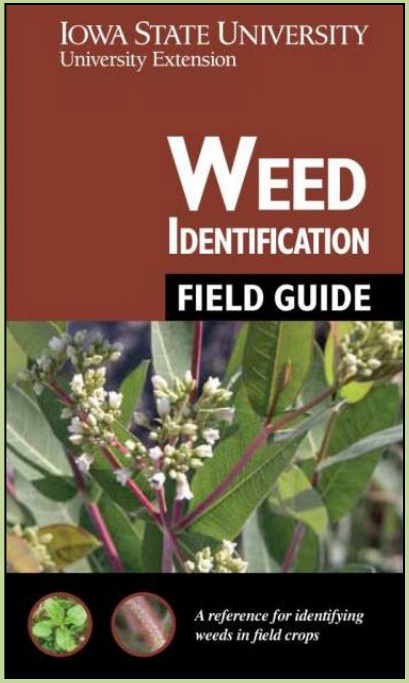


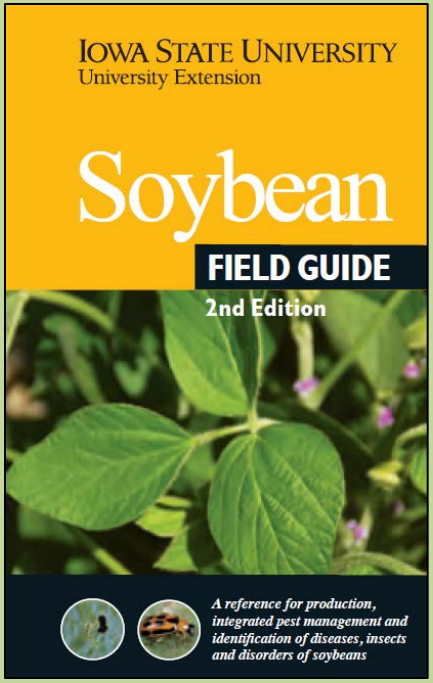
Know common problems

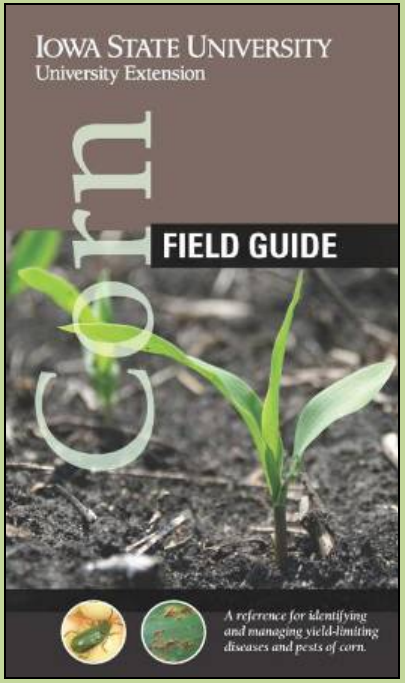
Know common problems

Assemble references

- Books
- Publications
- Etc.



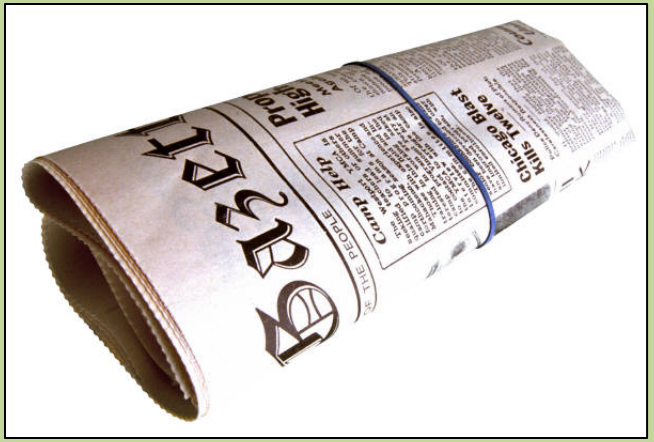




Know common problems THIS year

- Keep up on the news
  - Local agribusiness
  - Internet
  - Print media
  - Word of mouth

Integrated Crop Management NEWS



Know common problems for each time of year

Timeline for common corn diseases

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

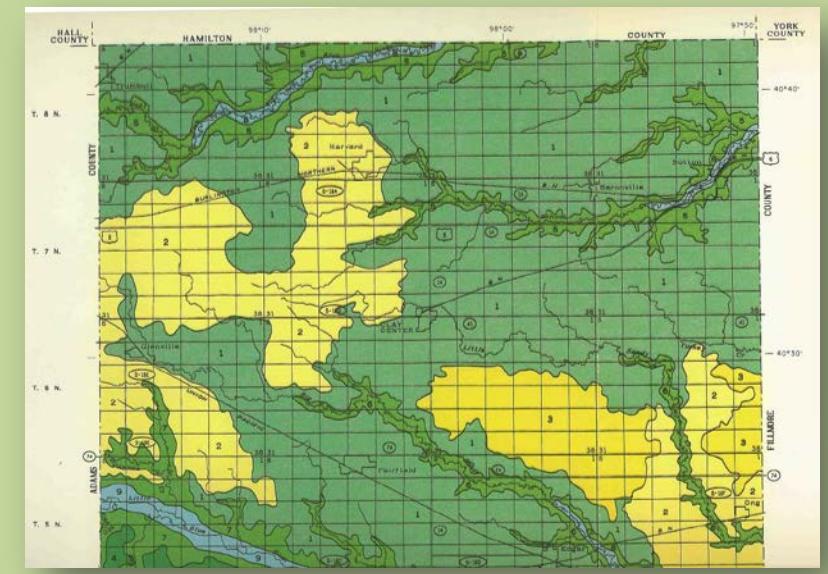
Map fields

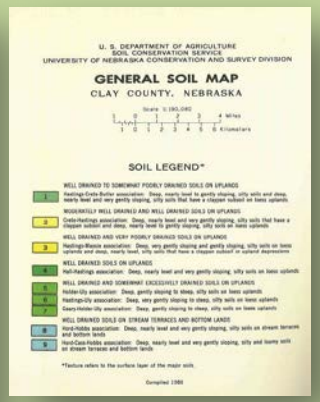
- Aerial photographs
- Map from plat book or Google™ Maps

Collect information

Map fields

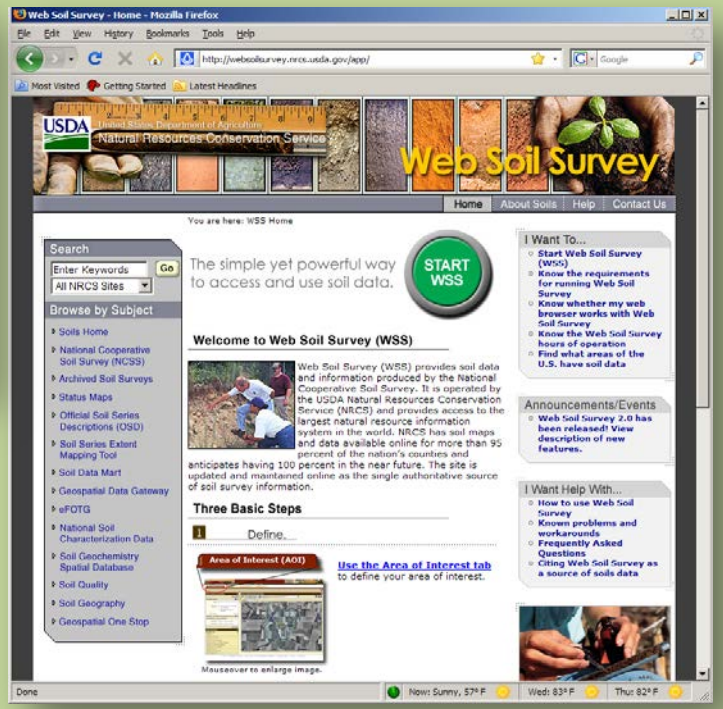
- Soil map (printed soil survey or download)




U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF NEBRASKA CONSERVATION AND SURVEY DIVISION

GENERAL SOIL MAP
CLAY COUNTY, NEBRASKA

SOIL LEGEND*



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/variety information**, including disease resistance
- Current **soil test** information (e.g., soil fertility, pH)
- **Soil** moisture and compaction

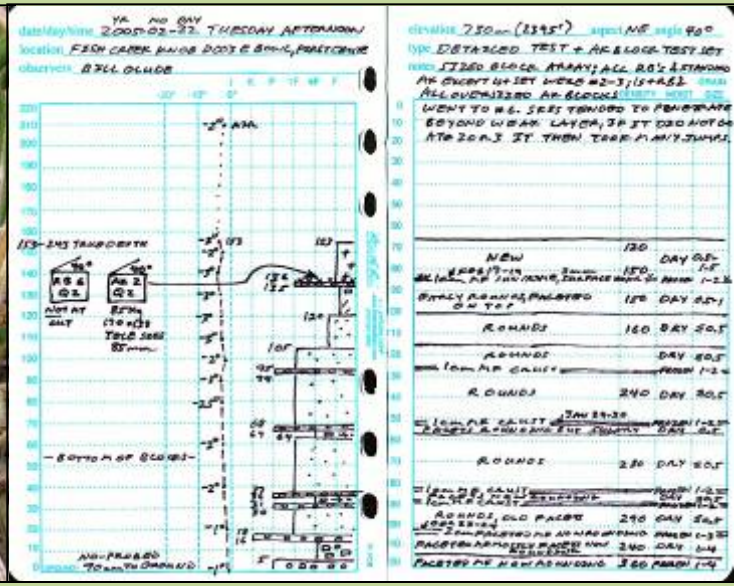
Collect information

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**?

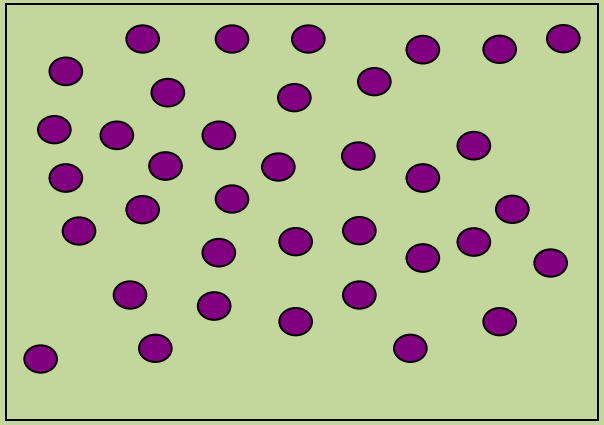
iii. Is the problem in the affected area more severe in **certain soil types**, **low areas** or on **exposed slopes**?

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

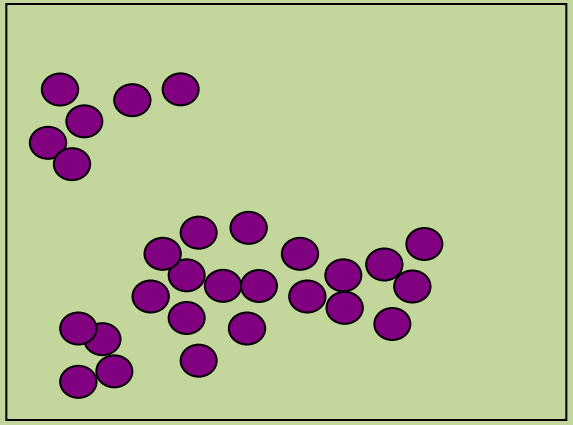
LOOK FOR PATTERNS

Look for patterns

Random



Aggregated



Look for patterns

Aggregated

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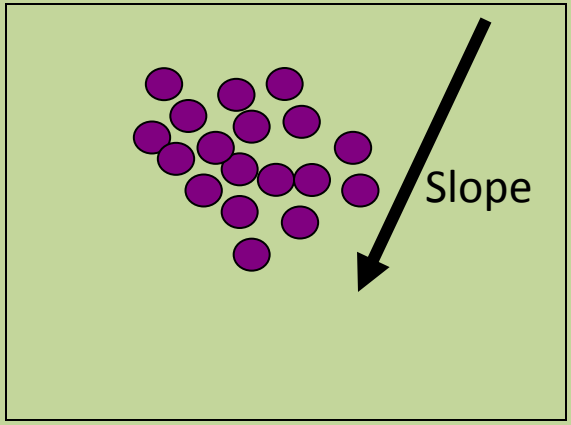
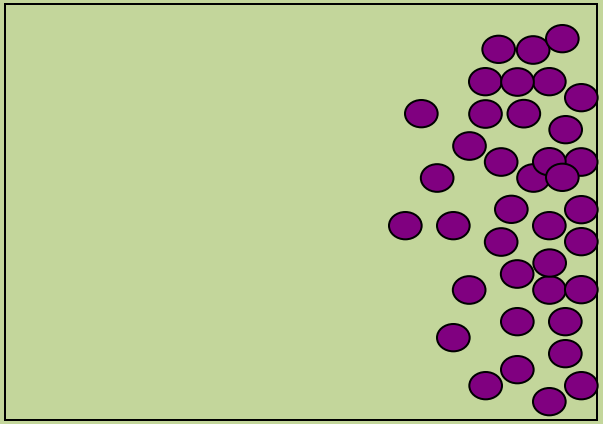
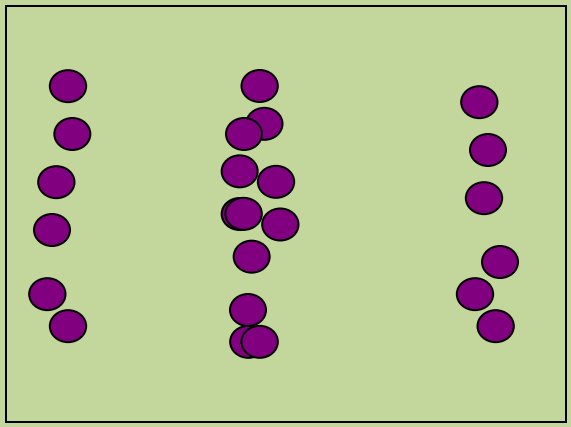




Look for patterns

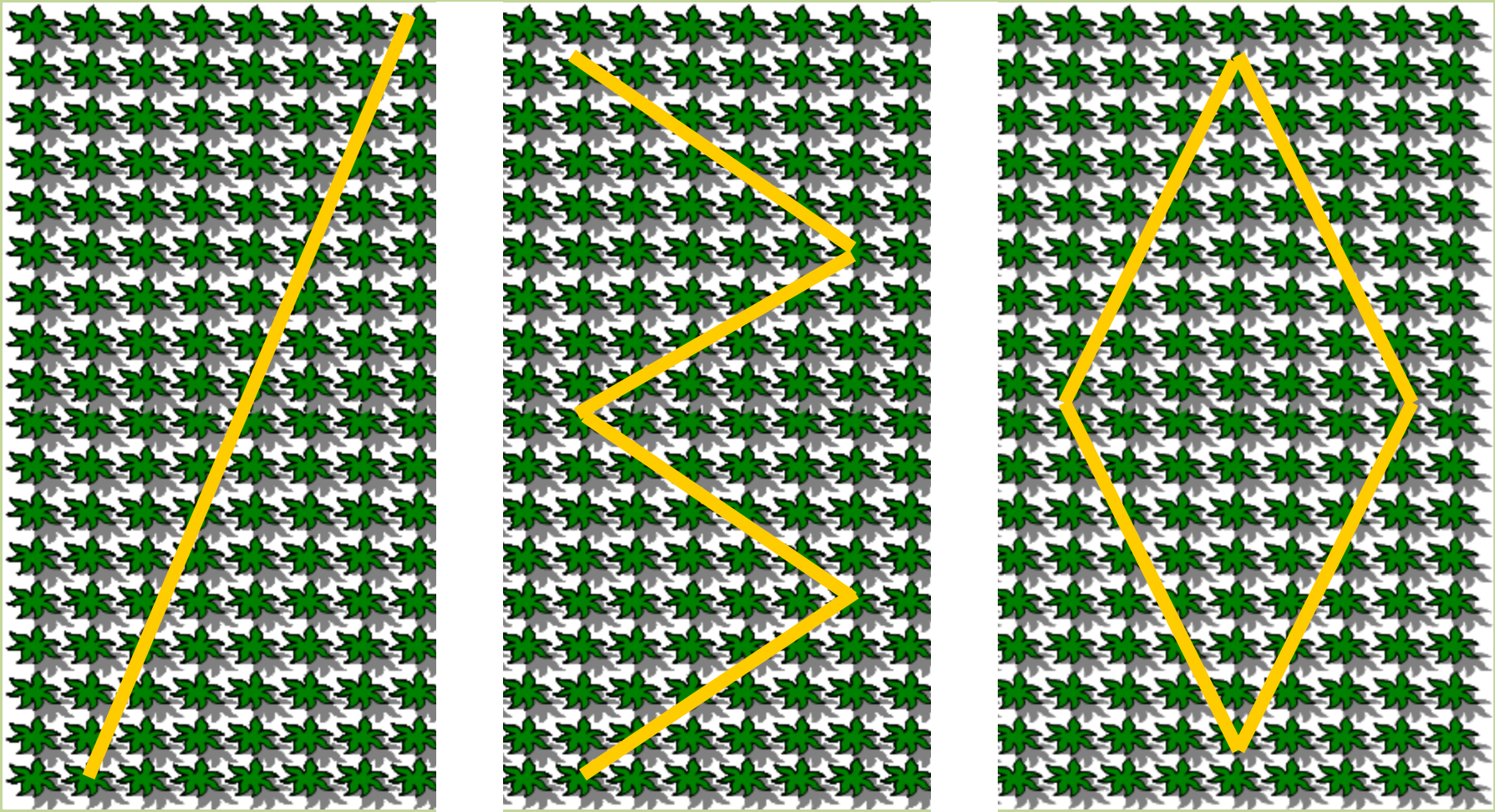
Repeated



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

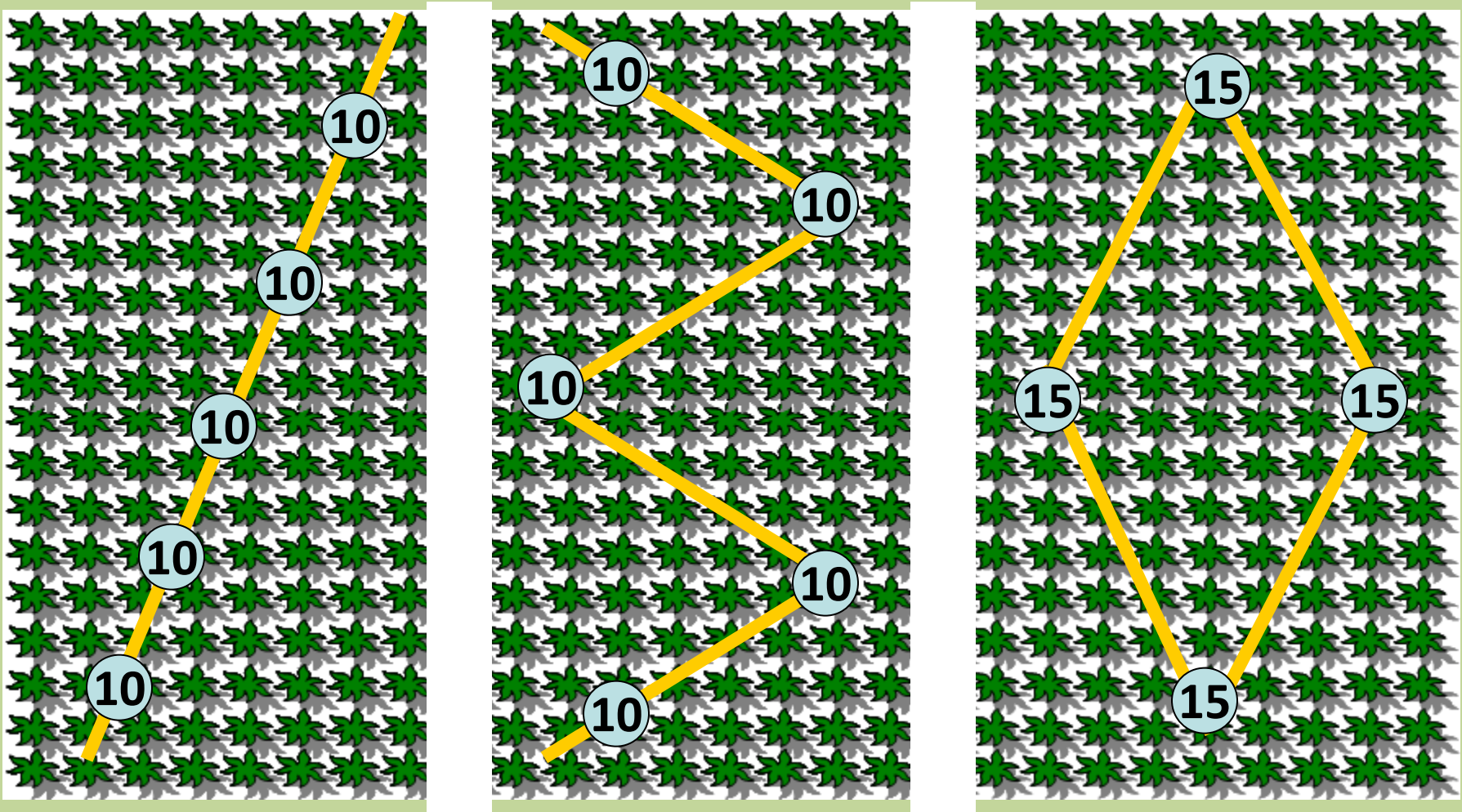
i. **Compare** damaged plants with healthy plants.

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.

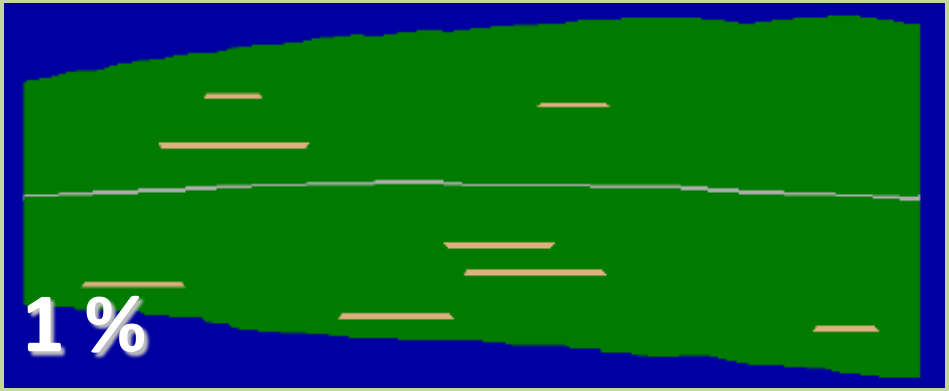
- How often does the problem show up?
- How damaging is the problem?

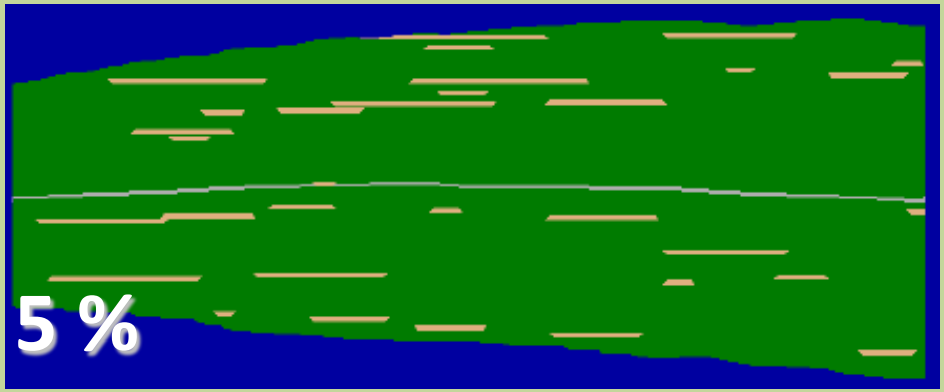
Assessment methods

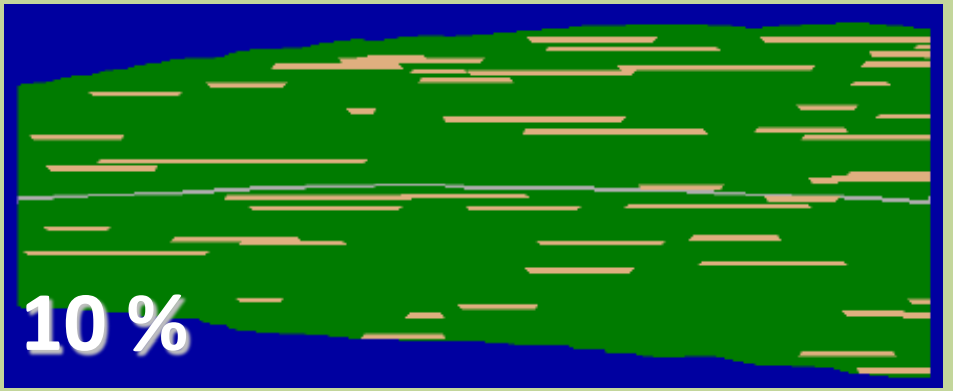
- **Incidence** = % plants diseased
- **Severity** = % tissue diseased

Foliar disease severity (%)

Gray leaf spot







Corn.Pro, Nutter, ISU

Stalk disease severity value

R. Hines, UIL

Recording information

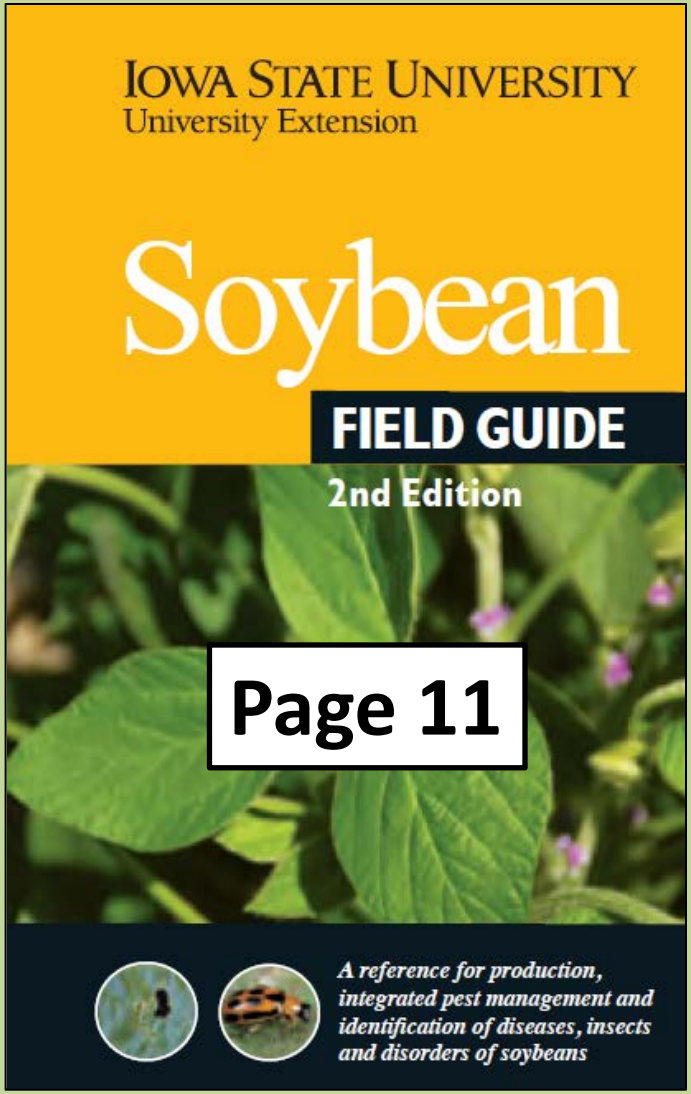
- Field notebook
- Clipboard with spreadsheet

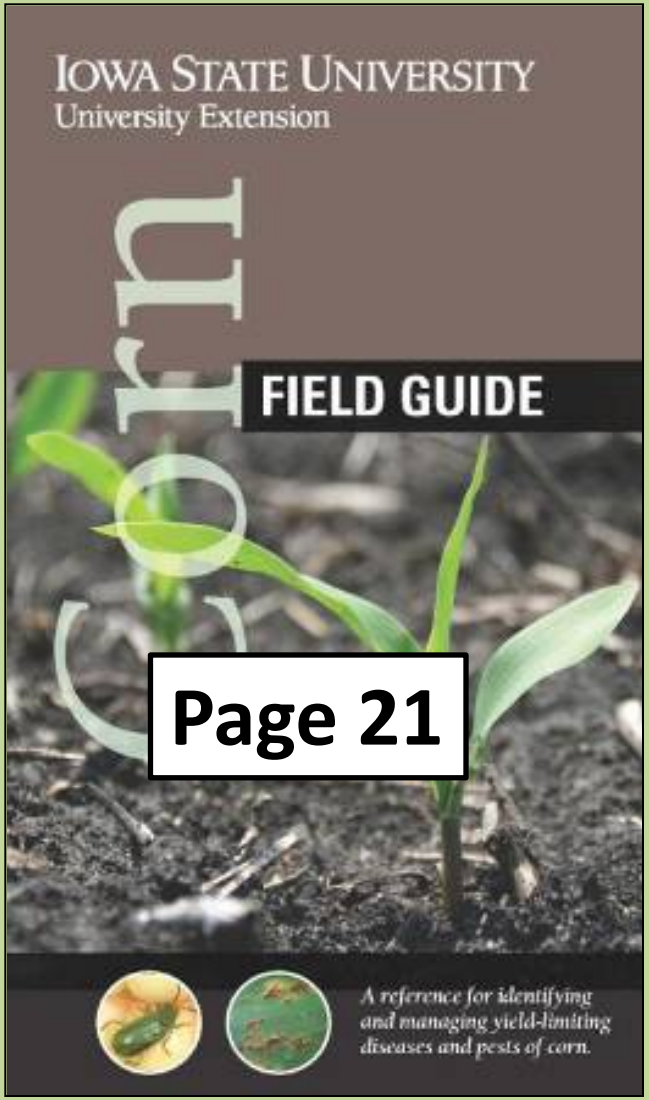
		Damage severity (%)									
Field	**Stop**	1	2	3	4	5	6	7	8	9	10
1	1										
1	2										
1	3										
1	4										
1	5										
1	6										
1	7										
1	8										

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





ISU Plant and Insect Diagnostic Clinic

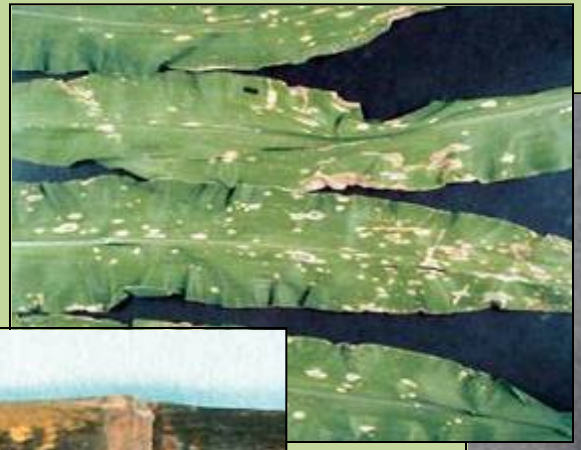
If unsure of the cause of the problem, symptomatic specimens can be sent to the ISU Plant and Insect Diagnostic Clinic.

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.

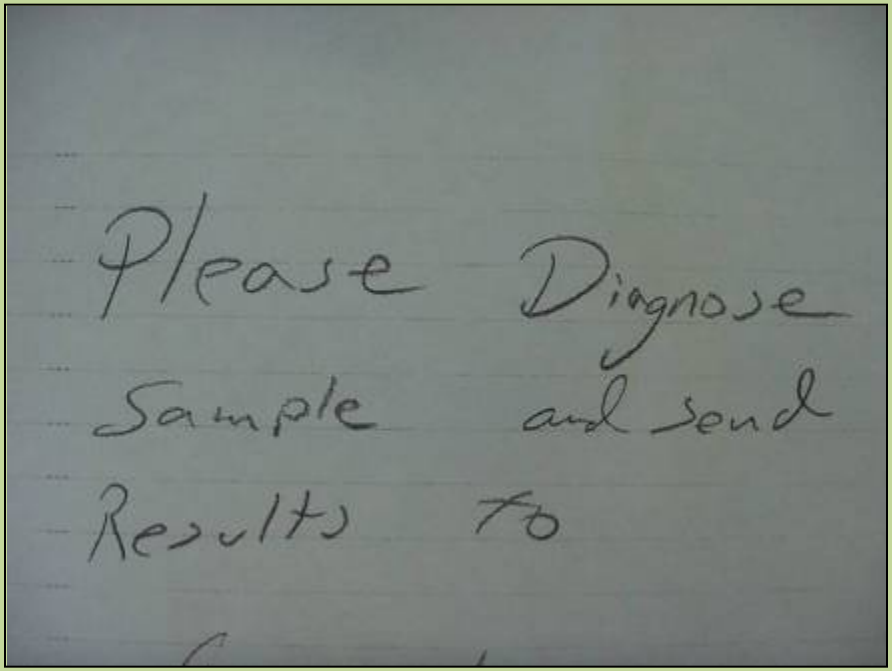


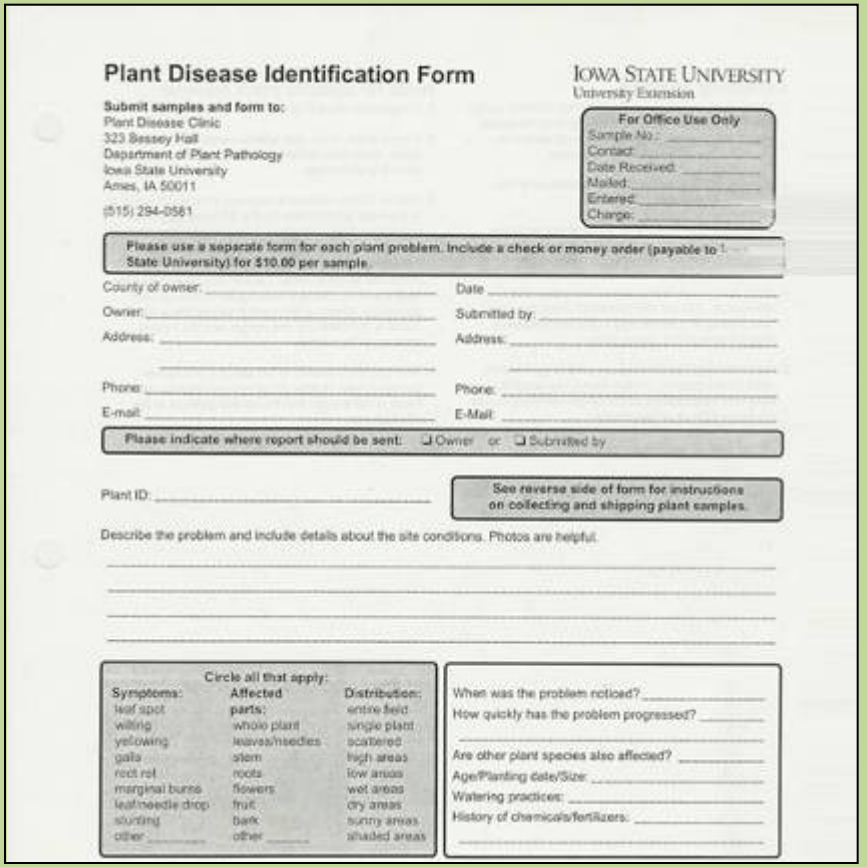
Submitting plants

- Include enough plant material to show a range of symptoms.

Submitting plants

- Provide appropriate background information for the field.





Plant Disease Identification Form

IOWA STATE UNIVERSITY
University Extension

Submit samples and form to:
Plant Disease Clinic
323 Bessey Hall
Department of Plant Pathology
Iowa State University
Ames, IA 50011

(515) 294-0581

For Office Use Only
Sample No.:
Contact:
Date Received:
Mailed:
Entered:
Charge:

Please use a separate form for each plant problem. Include a check or money order (payable to State University) for $10.00 per sample.

County of owner: _____ Date _____
Owner: _____ Submitted by: _____
Address: _____ Address: _____
Phone: _____ Phone: _____
E-mail: _____ E-Mail: _____

Please indicate where report should be sent: ❑ Owner or ❑ Submitted by

Plant ID: _____

See reverse side of form for instructions on collecting and shipping plant samples.

Describe the problem and include details about the site conditions. Photos are helpful.

Circle all that apply:

Symptoms:	Affected parts:	Distribution:
leaf spot	whole plant	entire field
wilting	leaves/needles	single plant
yellowing	stem	scattered
galls	roots	high areas
root rot	flowers	low areas
marginal burns	fruit	wet areas
leaf/needle drop	bark	dry areas
stunting	other _____	sunny areas
other _____		shaded areas

When was the problem noticed? _____
How quickly has the problem progressed? _____
Are other plant species also affected? _____
Age/Planting date/Size: _____
Watering practices: _____
History of chemicals/fertilizers: _____

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!