Scout training 2025

Last updated June 3rd, 2025

Resources/Quick links

- If you have any questions, comments, or concerns about the scouting method or Open Crop Manager please email Miranda DePriest at mnd20@psu.edu.

- Open Crop Manager can be found at open-crop.vmhost.psu.edu

- The [Collaborator Resource folder](#) has training guides and videos, as well as extension resources like fliers

<mark>Note for Miranda</mark>

Send Collaborator Resources folder to the room:
https://drive.google.com/open?id=1rGqZmdxQYYPd2TxSaeSL1Gr3NoQGUxdO&usp=drive_fs
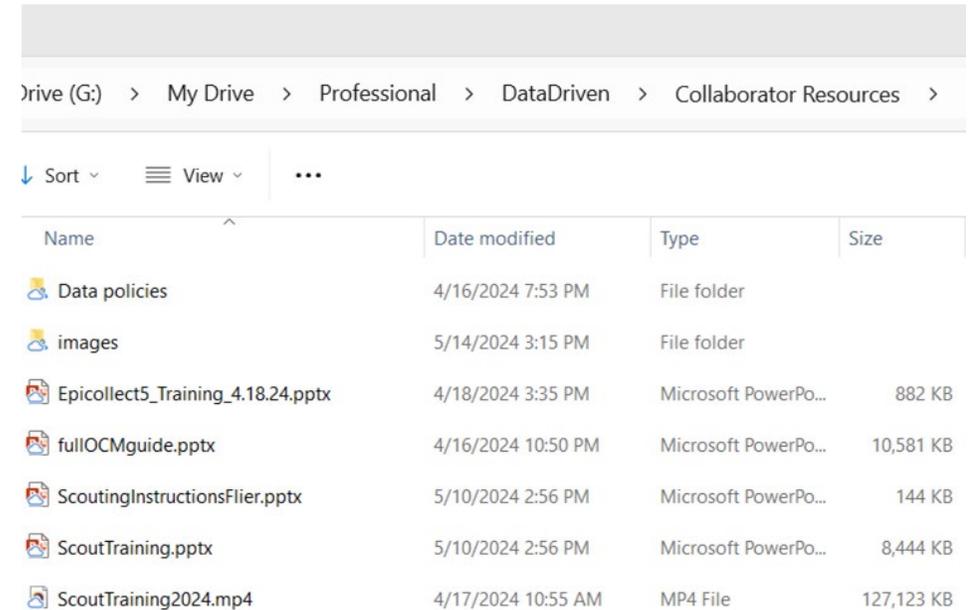
The Collaborator Resources folder

Contains:

- this presentation
- instructions for installing the OCM mobile app
- data privacy policies
- and more

Found here:

https://drive.google.com/drive/folders/1rGqZmdxQYYPd2TxSaeSL1Gr3NoQGUxdO?usp=sharing

Status update

To collect data, you can:

- Use OCM through your mobile device's browser (open-crop.vmhost.psu.edu)

- Download and use the OCM mobile app in *beta* following these instructions:
  - [Apple users](#)
  - [Android users](#)

- Use the Epicollect5 app
  - Instructions for Epicollect5 can be found here

About Open Crop Manager (OCM)

- Data platform

- Base for future value-adding tools

- Central repository of field data
 - This is where we can store everything
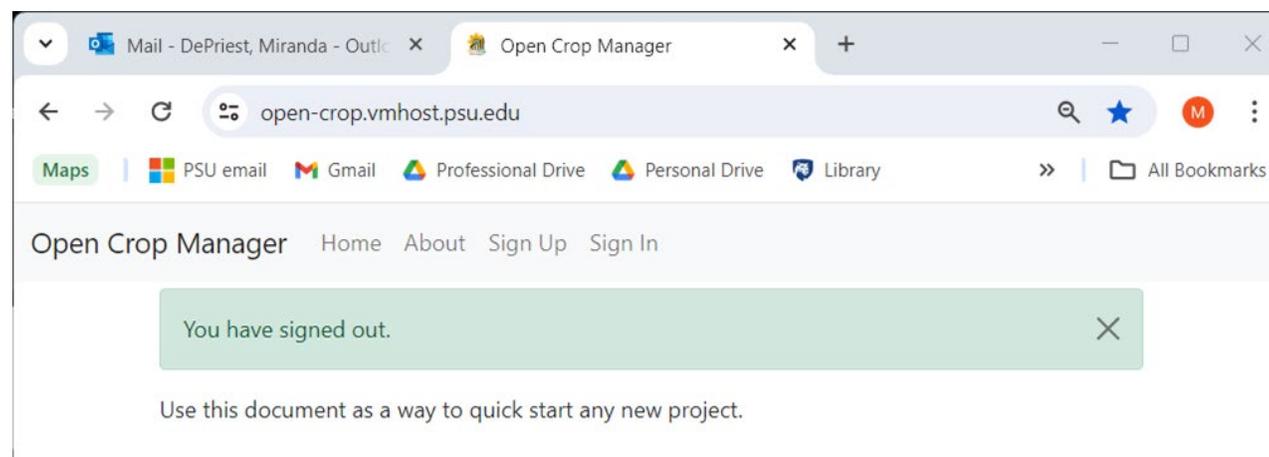

open-crop.vmhost.psu.edu

The kinds of data we collect

- Scouting reports
  - These are georeferenced field condition reports taken *throughout* the growing season
  - You list your location, the current growth stage, any stressors found, and any beneficials found while you are in the field

- Production surveys
  - One production survey is filled out per field year
  - You record details like seed choice, yield outcome, pesticides used, etc.
  - You can fill this out in OCM browser OR mobile app, or you can request a production survey sheet from Miranda DePriest (mnd20@psu.edu)

- Field location
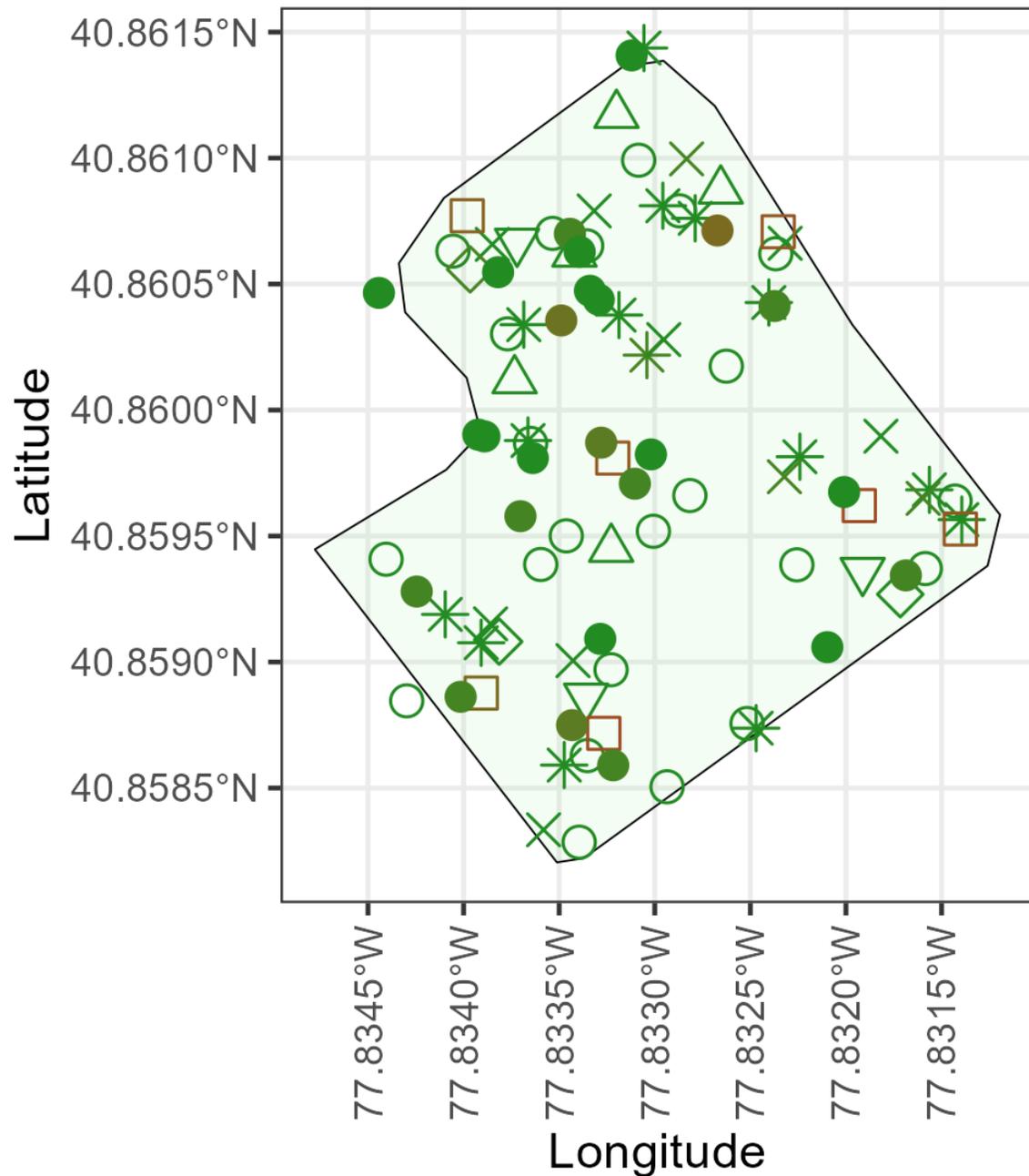 - You can upload a .kml file to OCM or you can create one in OCM

Top 10 Reported Diseases in 2024
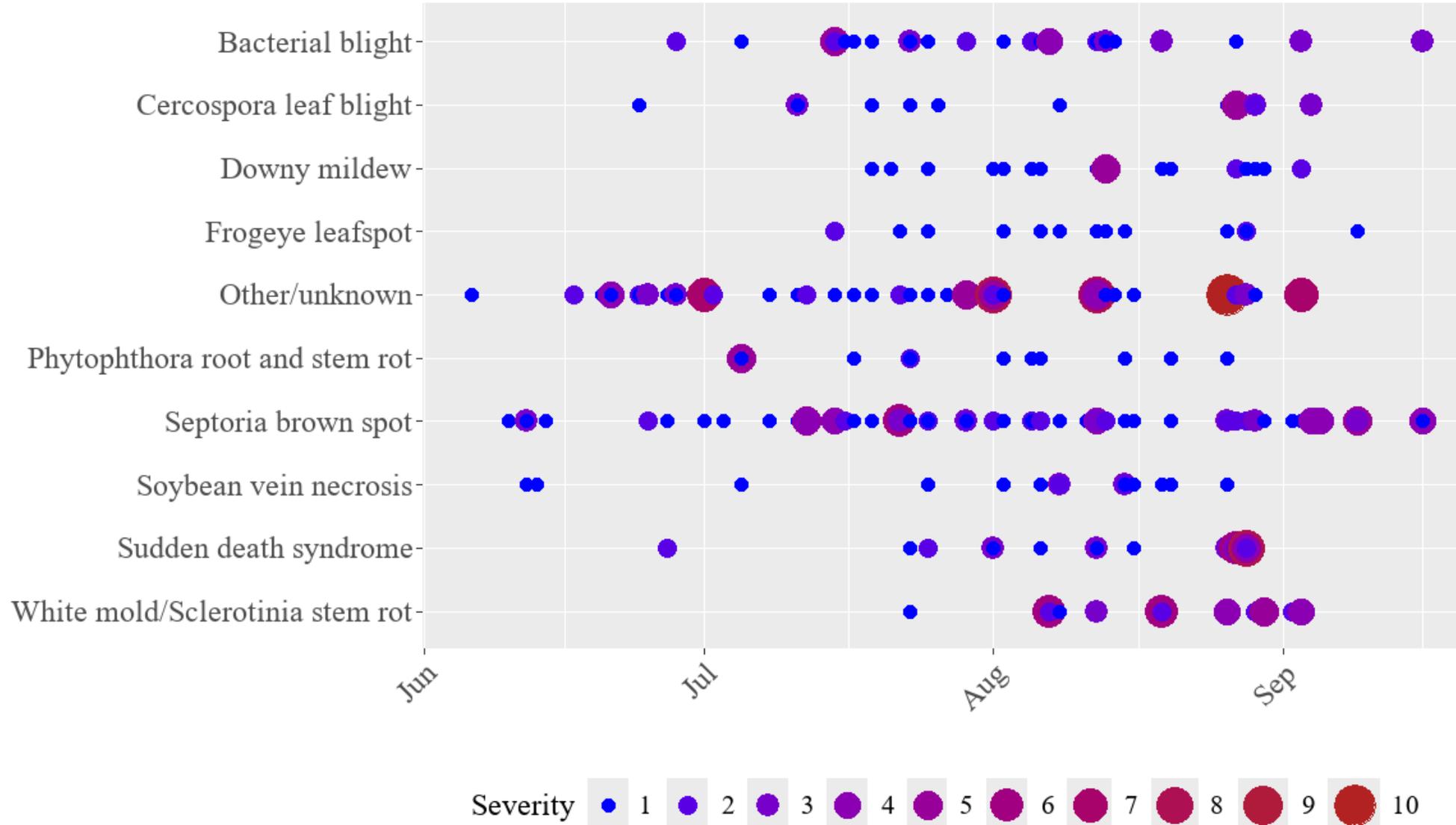
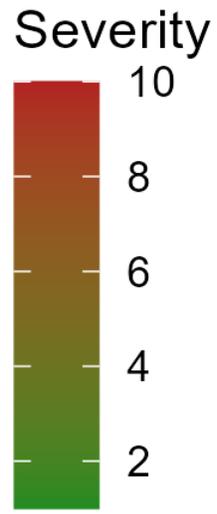10 most reported abiotic stressors, diseases, pests, and weeds
Pennsylvania 2024
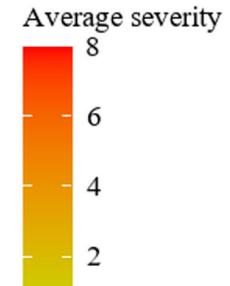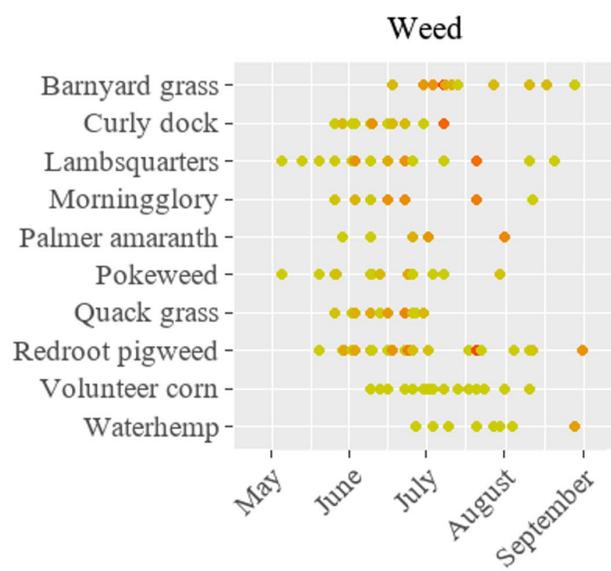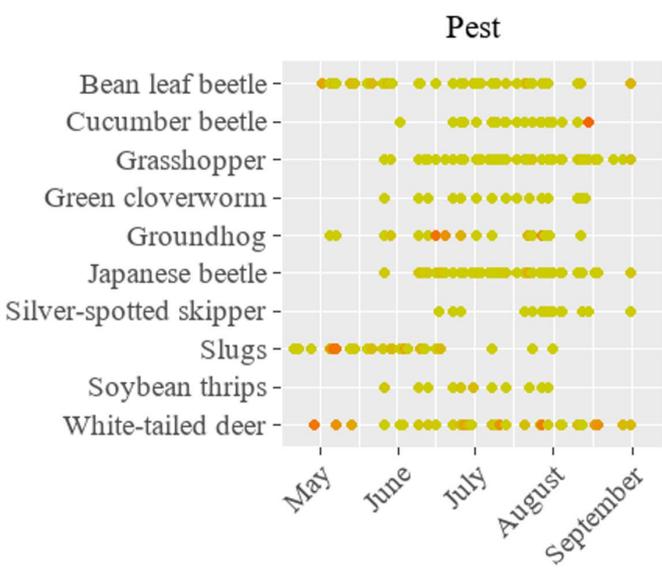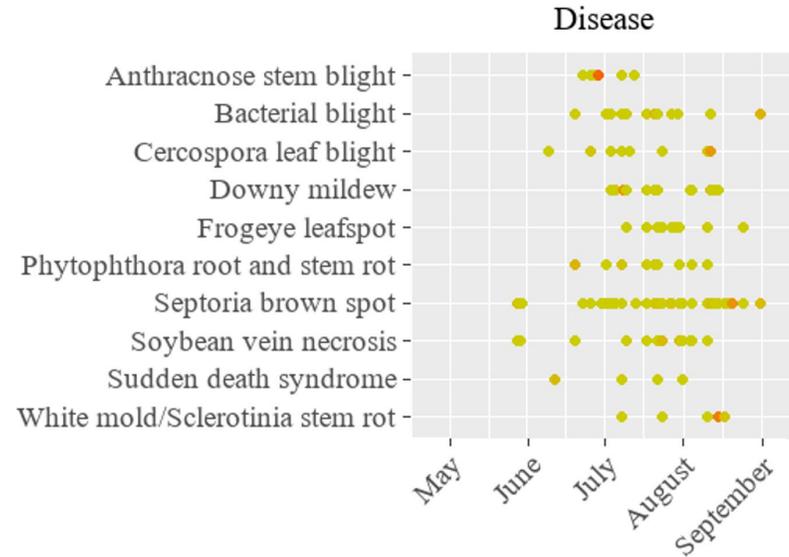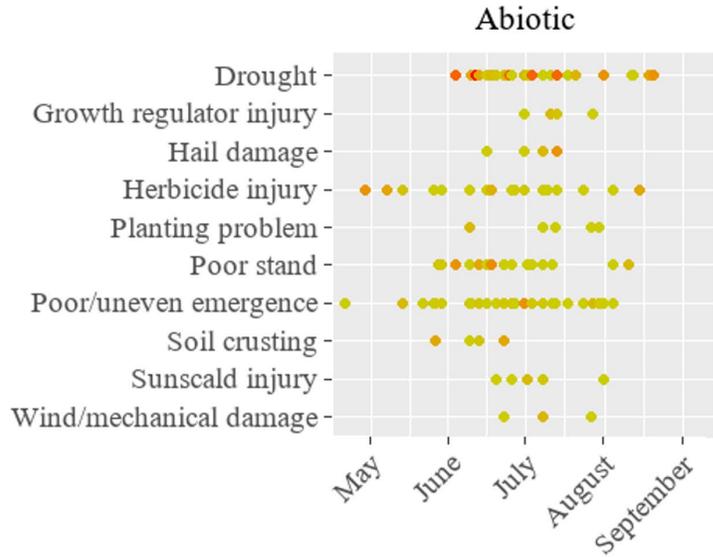
Field-year: 33A - 2023

How the data is used

- Information from scouting reports, the production survey, and the field location are used for developing value-adding tools

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- Some of the tools we are working on:
  - A yield-predicting simulation tool

RMSE=264 kg/ha
MAE=204 kg/ha
r^2=0.92
n=4970

Predicted yield (Mg/ha)

Actual soybean yield (Mg/ha)

How the data is used

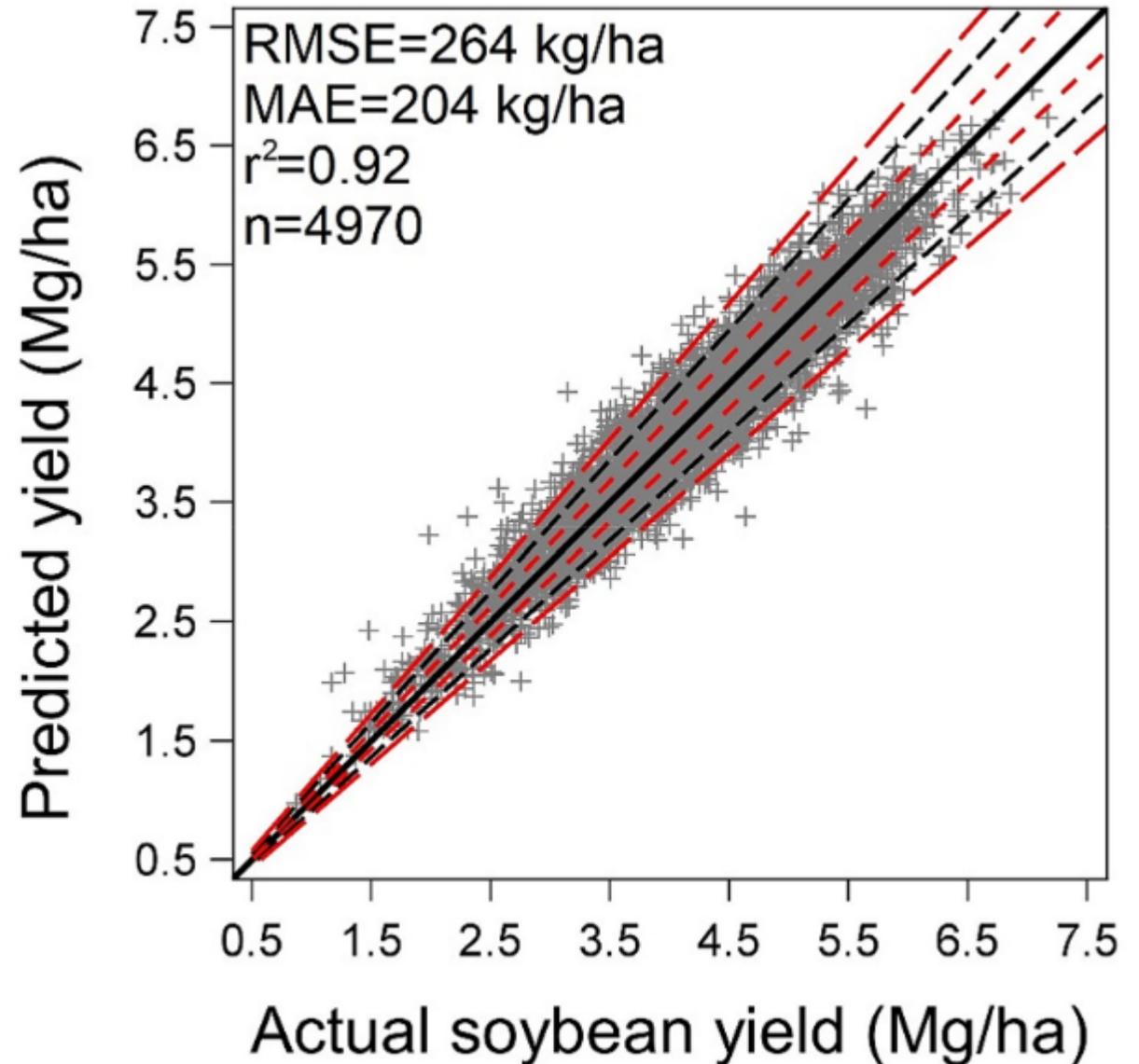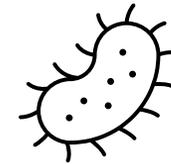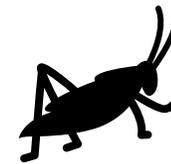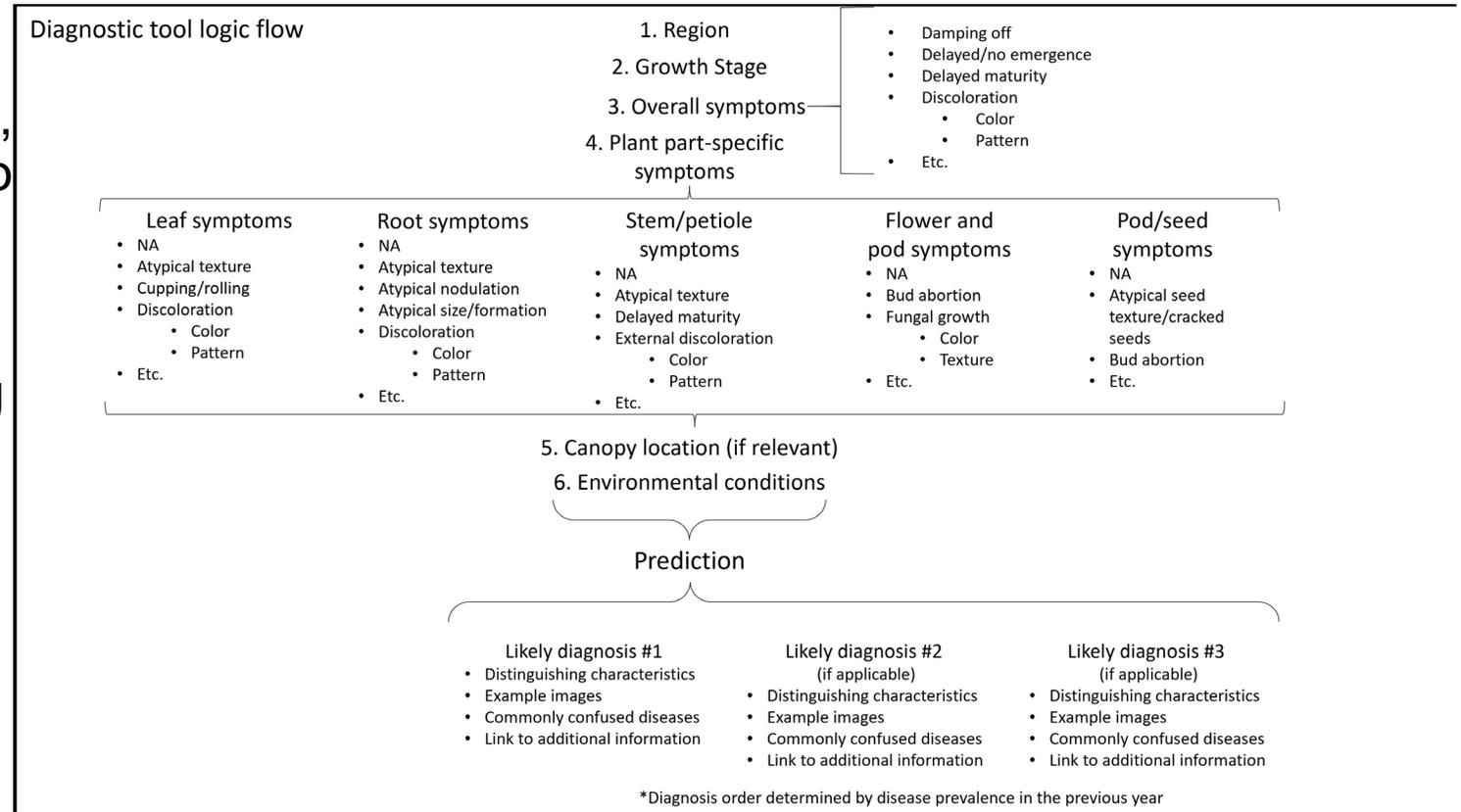- Information from scouting reports, the production survey, and the field location are used for developing value-adding tools

- Some of the tools we are working on:
  - A yield-predicting simulation tool
  - Stressor-occurrence alerts

How the data is used

- Information from scouting reports, production survey, and the field lo used for developing value-adding

- Some of the tools we are working
  - A yield-predicting simulation tool
  - Stressor-occurrence alerts
  - Diagnostic resources

Diagnostic tool logic flow

1. Region
2. Growth Stage
3. Overall symptoms
4. Plant part-specific symptoms

- Damping off
- Delayed/no emergence
- Delayed maturity
- Discoloration
  - Color
  - Pattern
- Etc.

Leaf symptoms
- NA
- Atypical texture
- Cupping/rolling
- Discoloration
  - Color
  - Pattern
- Etc.

Root symptoms
- NA
- Atypical texture
- Atypical nodulation
- Atypical size/formation
- Discoloration
  - Color
  - Pattern
- Etc.

Stem/petiole symptoms
- NA
- Atypical texture
- Delayed maturity
- External discoloration
  - Color
  - Pattern
- Etc.

Flower and pod symptoms
- NA
- Bud abortion
- Fungal growth
  - Color
  - Texture
- Etc.

Pod/seed symptoms
- NA
- Atypical seed texture/cracked seeds
- Bud abortion
- Etc.

5. Canopy location (if relevant)
6. Environmental conditions

Prediction

Likely diagnosis #1
- Distinguishing characteristics
- Example images
- Commonly confused diseases
- Link to additional information

Likely diagnosis #2 (if applicable)
- Distinguishing characteristics
- Example images
- Commonly confused diseases
- Link to additional information

Likely diagnosis #3 (if applicable)
- Distinguishing characteristics
- Example images
- Commonly confused diseases
- Link to additional information

*Diagnosis order determined by disease prevalence in the previous year

Data privacy

- The data collected can be shared with collaborators, **with the informed consent of the grower.** Any data shared in communications (publications, talks, posters) will have the grower's ID and location obscured

- For more information about the OCM data protection policies, please see the resources here or visit the Collaborator Resources folder

Data timeline

Beginning of the growing season:

1. Create an account

2. Determine your user type

3. Add your field(s)

4. Add collaborators to your fields

Throughout the growing season

1. Add scouting reports periodically

    1. Ideally, add 1 scouting report per 5 acres every 2 weeks

At the end of the growing season

1. Fill out the production survey and submit a yield file*, if possible

Create an account

- Go to open-crop.vmhost.psu.edu/accounts/signup/

Getting started

Once you have an account, you can be added to existing fields and you can create scouting reports.

To prevent data collection without permission, only certain users can add fields. If you are someone responsible for managing field data (like pesticides used, planting dates, etc.) please email Miranda DePriest (mnd20@psu.edu) with the following information:
- Your name
- Your job title
- The owner of the field
- The email address of the owner of the field, if applicable

I will change your user type to allow you the ability to add/access certain types of data

Getting started

To check if you can add fields, go to My Fields and check for the orange New Field button. If it isn't there, you do not have the ability to add fields. Contact Miranda if you need this adjusted.

Add a field

- Found at OCM → My Fields → New Field

- Please add your fields ASAP. This will allow you to assign Scouting Reports to them.

Add a field

- Upload a .kml or create one using the polygon tool in the map

- Edit the field with the edit tool or start over with the trash tool

Add a collaborator to a field

- Available **only** to the manager(s) of a field (Grower or Researcher)

- Others can't assign Scouting Reports to your field until you add them to it.

- Found at OCM → My Fields → Add User to My Field

Add a collaborator to a field

- You can add another manager, or you can add a Scout.
  - The new co-manager can change the field's information, view all of the field's Scouting Reports, add new Scouts, and handle the Production Survey
  - New Scouts can assign Scouting Reports to your field.

- To see everyone added to your field, go to OCM → My Fields → [Name of field] → Users

Filling out the production survey

- The production survey can be filled out at open-crop.vmhost.psu.edu or you can download the production survey sheet here and send it to Miranda DePriest
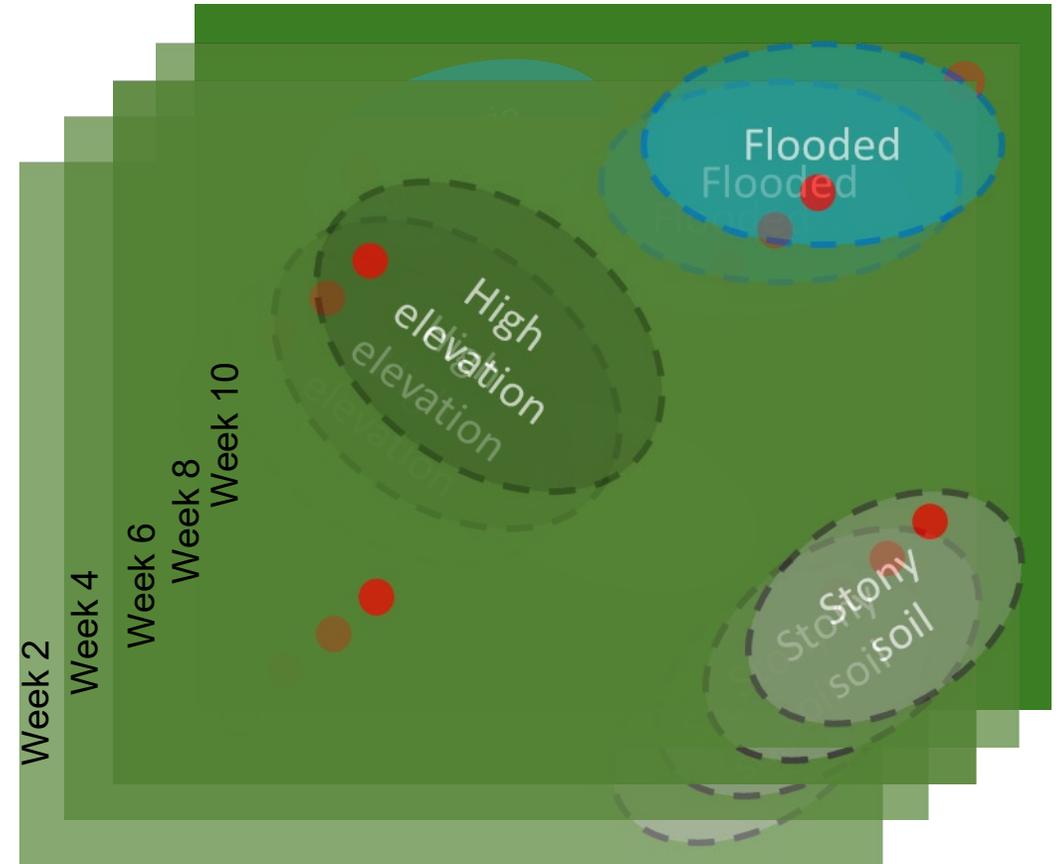
Scouting Reports

- The goal is to **represent the different regions/conditions *throughout* the field and *throughout* the growing season**

- **Multiple** Scouting Reports are completed **each time** you visit the field

- Ideally, one Scouting Report/5 acres every 2 weeks. Realistically, this depends on the time you have available. **Any reports are better than none.**

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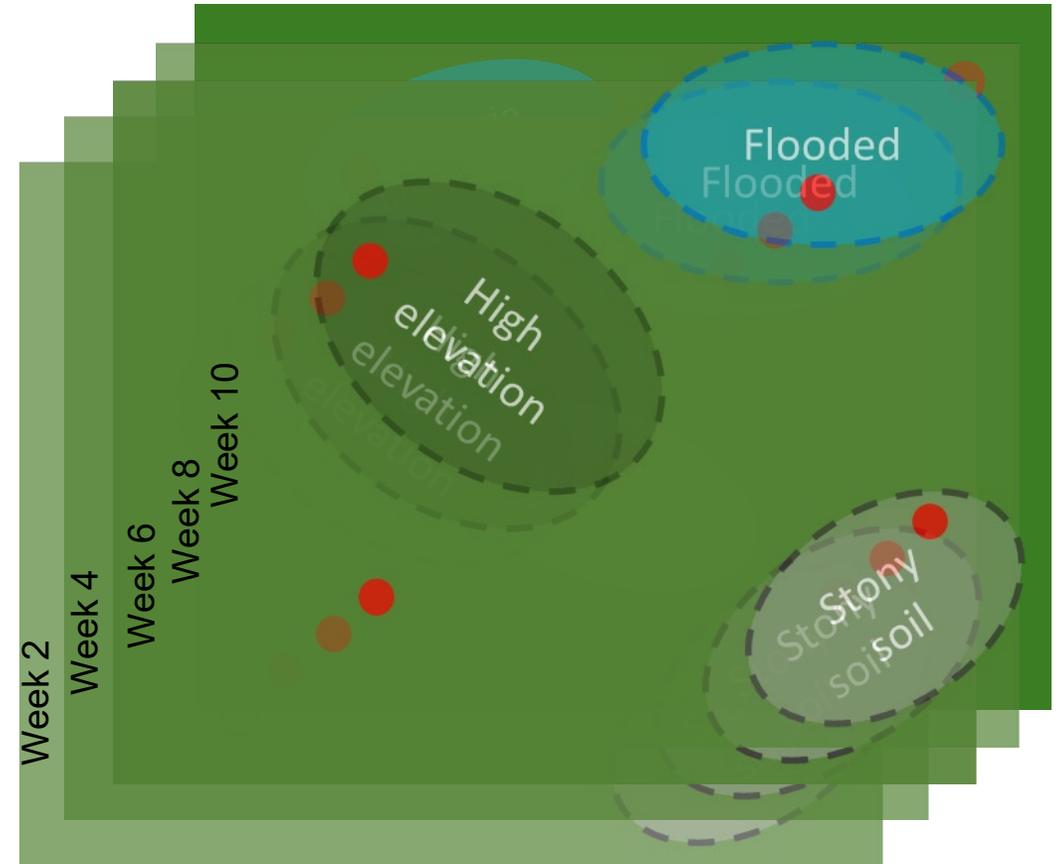
Scouting Reports

- Taking multiple scouting reports during each trip provides information about where stressors occur, when stressors occur, and what stressors potentially interact with

Scouting Reports

Instructions:

1. Determine the number of reports (n) you have time to complete
   - Each report takes ~5-10 minutes, depending on the height of the plants and the number of stressors

2. Mentally divide the field into n sections
   - Doesn't need to be precise

3. Walk a zig-zag pattern through each section, taking note of that area's conditions

4. Stop and make a report representing that section's conditions. Remember to look BELOW the canopy!

5. You DON'T need to visit the same spot each time.

n = 6
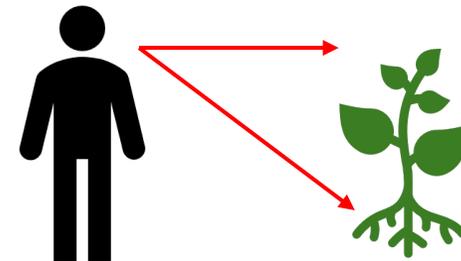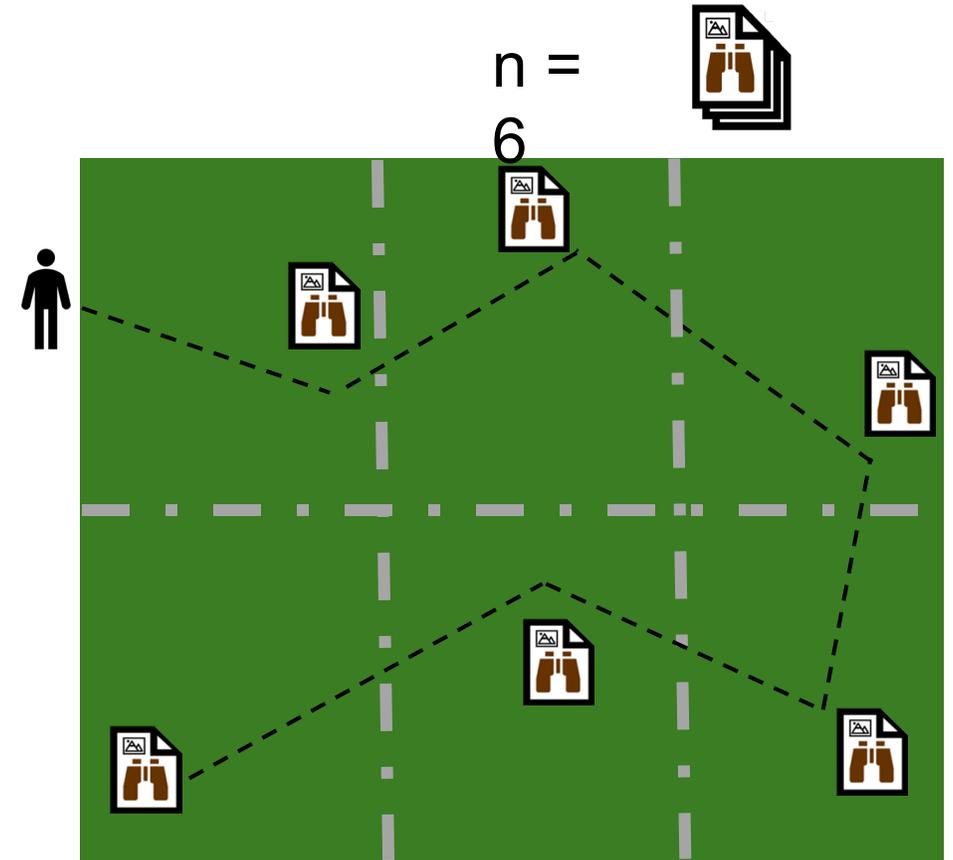
The importance of accurate coordinates
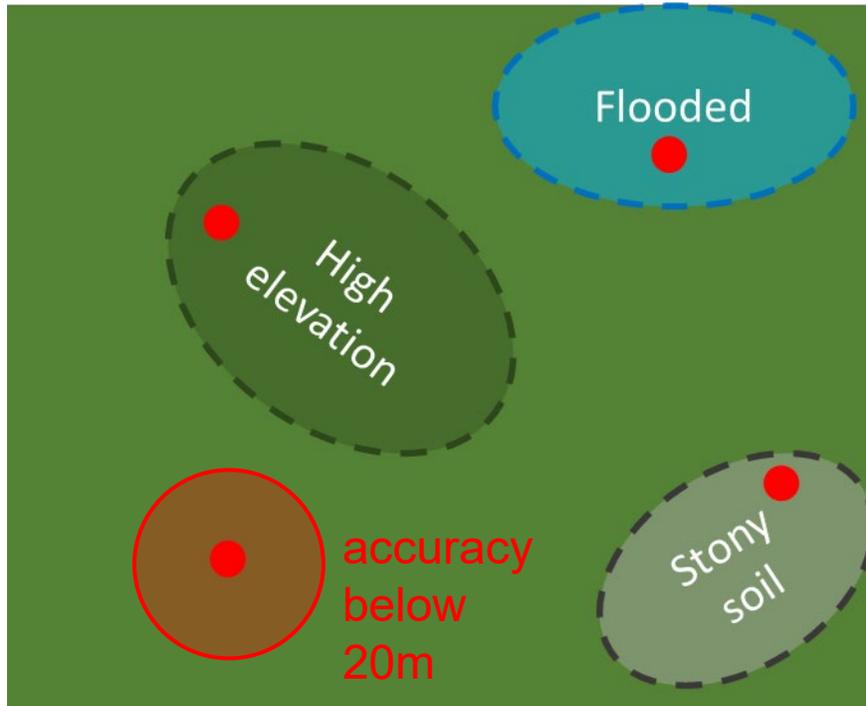
Accurate coordinates can help us understand relationships between field conditions and the stressors that occur
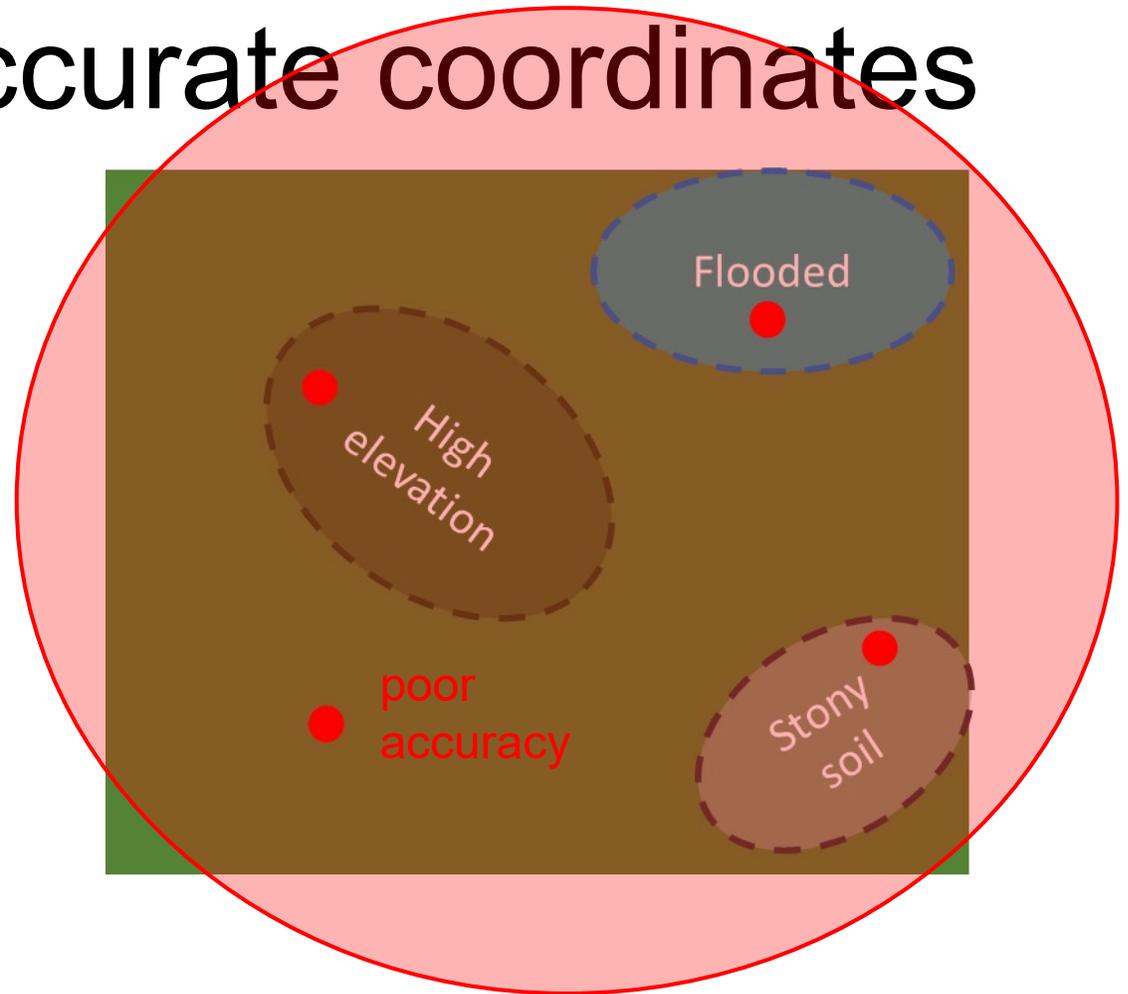
Inaccurate coordinates make it hard to understand these more precise relationships

Adding stressors to scouting reports

Unknown stressors

- If the stressor can't be identified, choose 'Other/unknown' and take a picture. Record any observations about the unknown stressor in the scouting report notes.

About severity ratings

The severity of a stressor is rated on a scale of 1-10

- 1 – the stressor is present, but impacts less than 10% of relevant plant tissues
  - If the stressor is present, it's *at least* a 1
- 2 – the stressor impacts 20% of relevant plant tissues
- …
- 10 – the stressor has/will eliminate 100% of relevant plant tissues

About severity ratings

Two general rules for severity ratings:

1. If the stressor results in plant tissue not being present (like poor planting, poor emergence, stunted growth), rate based on the amount of plant mass that *should* be there.

   Example: If the primary symptom of a stressor is stunted growth, rate based on the amount of tissue that should be there

2. If the stressor impacts existing plants, rate based on the % of relevant impacted tissues.

   Example: Rate a foliar disease based on the average % of leaf tissue impacted

Example 1

Healthy plant size

Unhealthy plant size

Severity: 4

Example 2

Healthy plant size

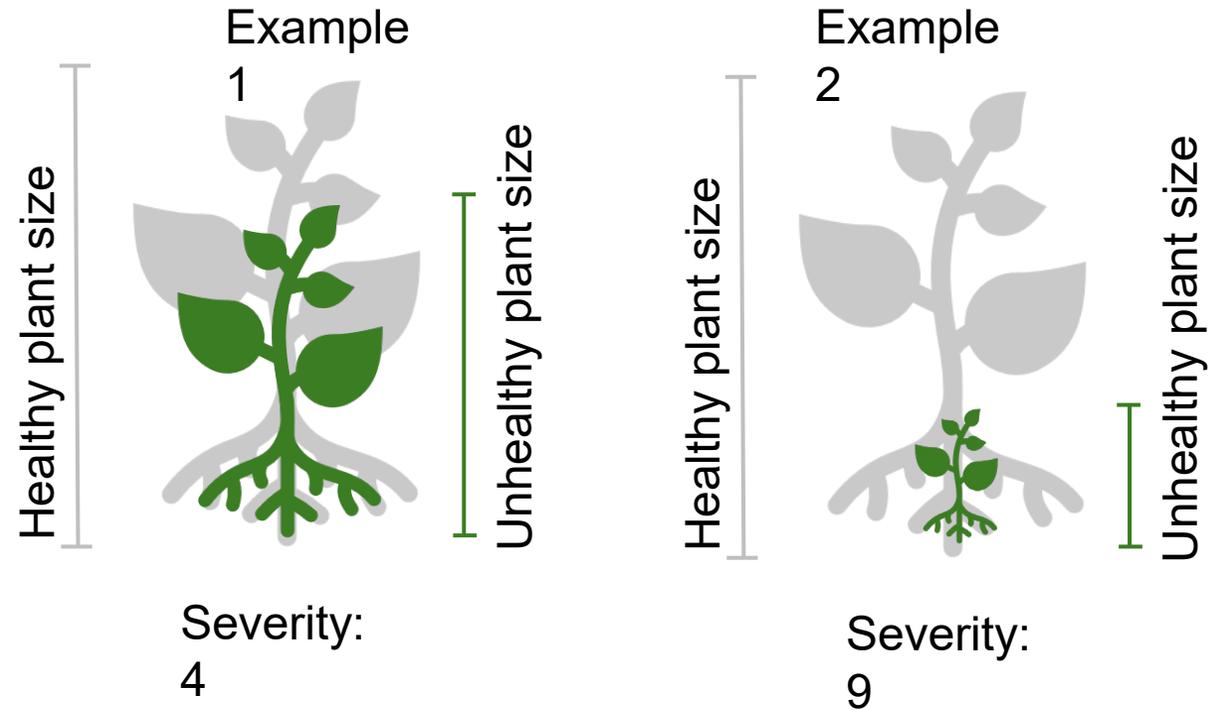Unhealthy plant size

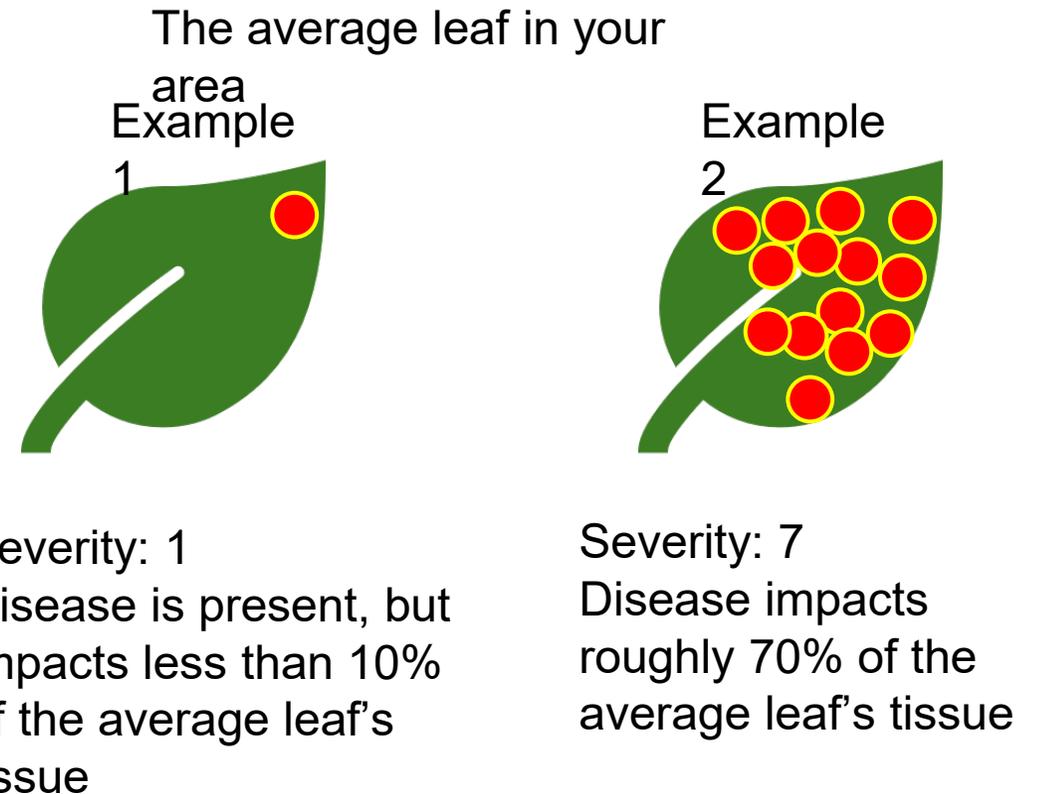Severity: 9

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2. If the stressor impacts existing plants, rate based on the % of relevant impacted tissues.

   Example: Rate a foliar disease based on the average % of leaf tissue impacted

The average leaf in your area

Example 1

Example 2

Severity: 1
Disease is present, but impacts less than 10% of the average leaf's tissue

Severity: 7
Disease impacts roughly 70% of the average leaf's tissue
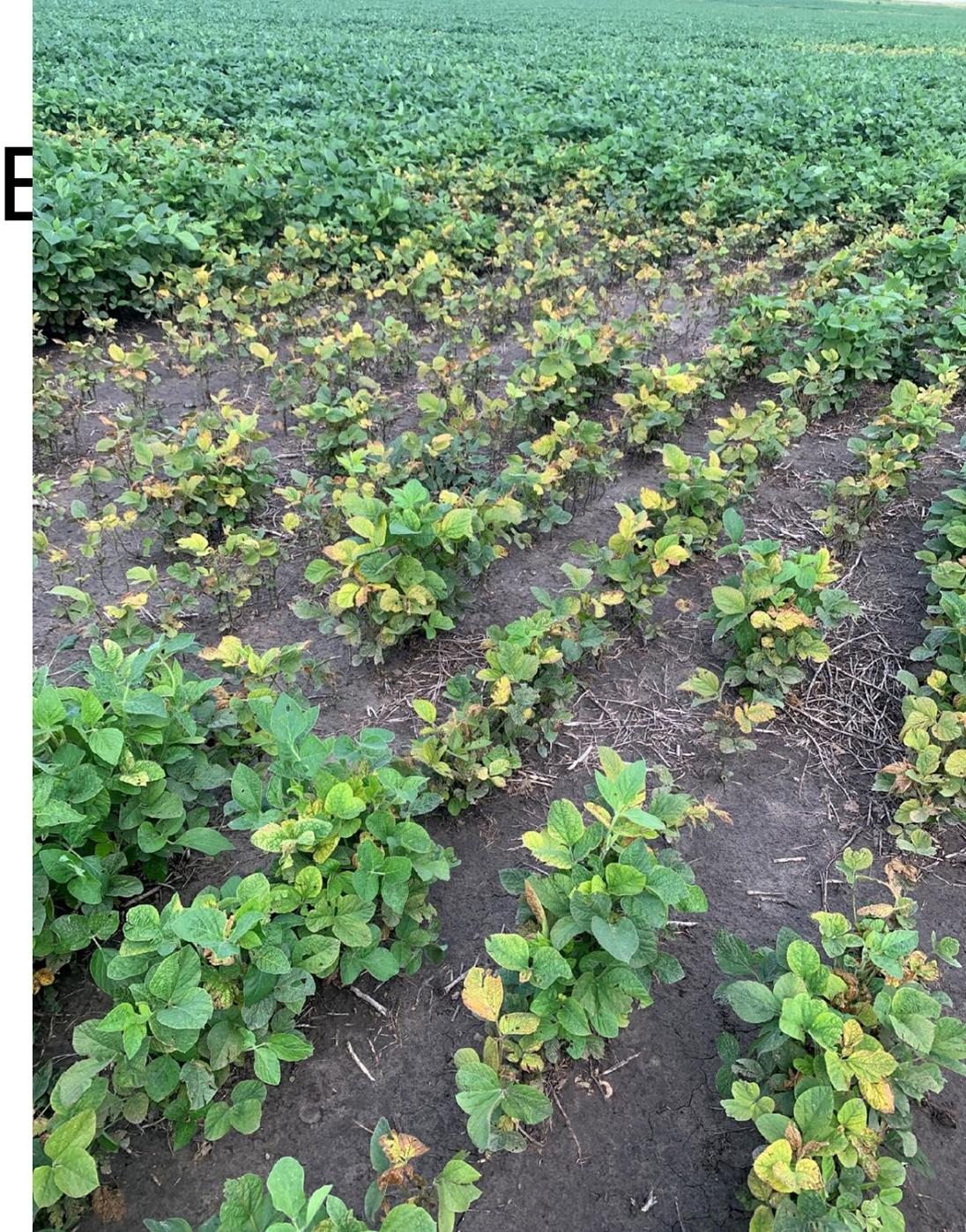
Examples

Rating: 1

Reason: Japanese beetle damage is present, but the average leaf has less than 10% of its tissue impacted

Examples

Rating: 9

Reason: The weed is so prevalent that very few soybean plants are present. Based on the soybean density in healthier parts of this field, ~90% of soybean plants that could have existed here do not.
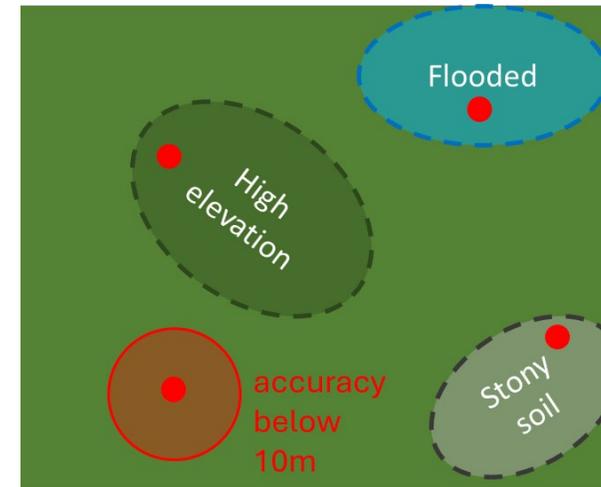
E

Poor emergence rating: 1

Disease rating: 4

Reason: In this quadrant of the field, roughly 10% of planned soybeans failed to emergence. Of the soybeans that did emerge, the disease impacted ~40% of the average leaf area.

Summary

- Create an account

- If you manage field data, email Miranda at mnd20@psu.edu with the information found on slide 7

- Set up your field information now

- Represent the different areas in your field

- Always update coordinates

- Leave notes/pictures on unknowns