



Advanced Crop Advisors Workshop

Fargo Holiday Inn – February, 2019

David Willis, CPCC-I
dave@cropnet.com

CSI: Crop Detective

In my experience there are two basic field investigation protocols: normal field scouting and issue oriented, problem solving diagnostics. The general approach for each of these is the same, with normal field scouting spread over a growing season, while incident investigation is usually more narrowly focused.

1. Start with a wide area assessment.
 - a. For general field scouting this means creating a detailed field and crop condition report early in the season, which for our field crops requires an ATV. Any potential issues, for example spoil dirt, low areas and adjacent crops, need to be noted at this time along with any current problems, such as stand issues. Ideally use a scouting software package.
 - b. When investigating a specific crop issue look around, to see if it may be influenced by something nearby. For herbicide drift cases it is critical to pinpoint the source.
2. Note details.
 - a. As the season progresses your field scouting focus will move from the field to plants. It is critical to make detailed notes of your field visits, whether or **NOT** you see anything that needs attention (weeds, insects, etc.)
 - b. In order to diagnose a specific problem, you will need to uncover clues which you will use to determine the underlying cause
3. Evaluate.
 - a. Depending on the crop, field visits later in the season will likely be targeted to check for specific things, whether that is growth stage or a particular pest.
 - b. To diagnose a particular problem, you will need to note the particular symptoms and/or signs which characterize it in detail. This necessarily means you will compare these details to crop plants which appear normal.
4. Identify and Recommend.
 - a. If your scouting uncovers a problem which requires treatment, recommend treatment.
 - b. Depending on your role when diagnosing a problem, you will need to identify the particular issue, quantify its extent and place a value on the problem and/or recommend a solution.

Some general notes on examining crops and diagnosing crop problems:

Field Scouting:

A good scouting program results in an accurate description of a field, with all necessary detail depicted over time.

If you are providing crop consulting services on a field, you will need a scouting program. The purpose of the scouting is to provide you with the information you need to make any required application recommendations for nutrients, pesticides or other crop inputs. These recommendations need to be made in a timely manner to give the grower adequate lead time to get his/her work done.

Consideration of these requirements will lead to a different scouting program for each crop. It is necessary to develop a targeting field scouting program, as opposed to a calendar one, to best utilize resources and contain costs. Each crop will need a different schedule based on its planting date, local seasonal development and active pests.

Forensic agronomy requires good diagnostic skills. Diagnosis generally follows this order:

Establish the facts. This is often the most time consuming and expensive part of the process. Historical and physical data need to be collected, collated and reviewed. Be systematic and detailed. Follow established methodology whenever possible.

Once you have all available facts in hand they need to be assembled into a coherent picture. This should describe the problem in detail and allow you to determine what it is. This can also take some time depending on the complexity of the problem. You may need to consult publications, review pertinent research or consult with colleagues to help make your determination.

After your determination you will likely have to propose a remedy. If this is a real-time investigation there may still be some possibility of remedial action. If this is an after-the-fact investigation you will likely have to place a dollar value on the problem. This may require some checking of historical crop prices.

Final Note:

Diagnosis of crop problems is a skill that highly values intimate knowledge of the plant, the environment, the pest or abiotic condition and their interaction. It places a premium on observational skills and sensitivity to minute details. It is a test of one's ability to integrate knowledge from several specialty fields into a whole picture. It also helps to have an historical knowledge of the area, crop practices and past agronomic issues.