A Guide to Problem Diagnosis in the Field

Date: 9th April 2015

There are many experienced agronomists and farmers who effectively diagnose crop problems based on years of field experience.

Inexperienced people are often lack experience or a mentor who can show them the ‘tricks of the trade’ that are needed to get the best out of diagnostic decision aids

Unfortunately, a paddock often has a number of problems, and may even have several problems in the same area. As well, a combination of factors can contribute to a plant symptom. For example, an apparent nutrient deficiency, may be induced by other factors such as root disease, nematodes or herbicides

Tips below summarise an effective method for identifying problems in the field using a method that has been used for years in training courses with the title ‘Detective Doug’.

This method in conjunction with our crop diagnosis tools will maximise the chance of successful diagnosis, and fast-track learning.

# Field diagnosis tips

## Don’t jump to conclusions; use all sources of evidence.

When presented with a problem, most people quickly form an opinion based on their existing knowledge and observations or opinions of others. This often biases the investigation and causes them to miss clues that don’t fit their opinion. This is particularly relevant when there are symptoms from more than one cause, and where a symptom may be induced by another factor such as root pruning. Ensure that you keep an open mind and follow the points below to avoid the wrong diagnosis.

## Compare plants from good and poor areas to determine which symptoms are relevant

Plants often have a range of symptoms, some of which may not be relevant to the main problem, or indicate that there is more than one problem affecting them. Always compare plants from good and poor areas to detect symptoms that are associated with the poor growth. It is also important to do this when plant testing to verify a diagnosis.

## Check the whole paddock for paddock clues

Paddock clues arise from plant growth patterns that are due to variations in soil type and from management effects from a range of activities in crop and pasture production. Searching a paddock for variation is a valuable way of confirming or eliminating possible causes of problems. Some examples of variation include the effects caused by herbicide use, sowing, topdressing overlaps, soil type, cultivation or old windrows

This is important to these for two reasons;

1. These clues are very useful in differentiating between problems with similar plant symptoms (e.g. water logging vs. nitrogen deficiency)
2. Changes in patterns across the paddock can indicate that there may be more than one problem present.

## Always check plant roots

This is a critical but frequently neglected check that is often avoided because it can take time and preparation. Use a spade to keep roots intact as possible – never pull the plant out of the ground. Best results come from washing the roots out with a hose or bucket of water, but carefully shaking the plant and spraying roots using a spray bottle is also useful.

## Double check management records, diagnostic tests

If possible, check paddock management records. To confirm a problems use tests for problems such as nutrient deficiencies, soil acidity or other soil constraints, or nematodes

Important disclaimer

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

Copyright © Western Australian Agriculture Authority, 2014