

Canola and pulse diseases after drought

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Key Points

- Often, the year after a drought has average to above average rainfall. Unfortunately, seasons that are good for yield are often conducive to diseases.
- Assess the risk for each paddock and select paddocks to minimise disease risk in 2007.
- Review crop performance and disease levels in 2006 crops for indications of disease risk.
- Do not sow a crop onto its own stubble and be careful of 2005 crop stubble which may not have broken down.
- Follow disease management guidelines
- Assess the effect of autumn rainfall on disease levels, review sowing time, control grass weeds, consider seed dressings, and select tolerant varieties.

How drought affects plant diseases

Drought reduces the break down of plant residues. This means that some disease inoculum does not decrease as quickly as expected, and will carry over for more than one growing season. The expected benefits of crop rotation may not occur.

Bacterial numbers decline in dry soil. Some bacteria are important antagonists of soil borne fungal diseases. These diseases can be more severe after drought.

Large amounts of seed produced in abandoned crops, or pinched seed from drought stress, will fall to the ground. If there are summer rains, large numbers of summer growing volunteers will provide a green bridge in autumn. Low stock numbers make it more difficult to control volunteers. These

volunteers provide a green bridge for rusts, viruses and virus vectors, and many other pathogens.

Other issues are:

- the weeds that harbour diseases are harder to kill.
- soil-water and nitrogen may be unbalanced. These are likely to impact on diseases in 2007 and beyond.

Canola

Blackleg

In 2006, trace levels of blackleg was observed in NSW, some disease was found in the high rainfall areas of Victoria and high levels were observed in South Australia.

Avoid sowing canola into canola stubble from 2005. Any remaining stubble will contain blackleg inoculum. Also, avoid sowing next to a 2005 crop because blackleg inoculum will blow from the stubble in an adjacent field. Canola sown into a failed canola crop that had blackleg in 2006 or next to these crops would also be at high risk of blackleg.

If sowing into a high risk area is the only option available, use all management precautions possible:

- Be aware of potential herbicide carryover from last year.
- Check for blackleg on remaining stubble including pieces beneath the soil. Plant resistance to blackleg is active in living plant tissue. Dead tissue (stubble) can be infected with blackleg.
- Choose a variety with a high blackleg resistance rating (7 or above).
- Use a fungicide with the fertiliser or a fungicide seed coating.
- Do not consider canola-on-canola in paddocks with more than 100 kg/ha of stubble.

Recent research on spore production from canola stubble has shown that even 100 kg/ha of stubble will produce moderate numbers of spores. There is typically more than 1,200 kg/ha of canola stubble present after the following cereal crop has been sown.

Sclerotinia

The risk from Sclerotinia remains unchanged for 2007.



Petal infestation in southern NSW during early flowering in 2006 was extremely low.

No Sclerotinia stem rot was recorded at the end of 2006. Sclerotinia stem rot levels have in general been low since 2002 due to dry finishes to the season but petal infestation during flowering has varied from year to year. Therefore, in 2007 the risk from Sclerotinia stem rot will depend on favourable seasonal conditions.

Pulses

Although very little fungal disease was observed on pulse crops in 2006, careful paddock selection is vital. Pulse crops in 2007 should be a minimum of 500 metres from the 2006 crop of the same pulse. Also, if possible, because there has been little break down of 2005 residues crops should be 500 metres from the 2005 crop.

Carefully match the species to the paddock. Consider soil pH, waterlogging risk and residual herbicides. Residual herbicides can damage the root system of pulses increasing disease, reducing plant densities, causing nutrient deficiencies and reducing crop performance.

Seed kept from drought affected crops may be of poor quality. Seed with reduced size, germination percentage or vigour produces weak seedlings which are more susceptible to disease. Conduct a germination test on all seed.

Narrow-leaf lupin seed also should be tested for cucumber mosaic virus and Albus lupin seed should be tested for bitter seed contamination.

Field peas

Do not sow field peas into a paddock which grew field peas in 2006. A 4-year break from peas is also desirable. The disease risk in 2007 is expected to be minimal.

New information on varieties with resistance to bacterial blight will be available early in 2007 to assist in choosing a suitable variety.

Ascochyta blight in chickpeas

Dry conditions in 2001 and 2002 did not favour Ascochyta, however, disease levels in 2003 were still high. The 2006 season was also not conducive to Ascochyta, but the risk is likely to be high. Remember, the year following a drought often has average or above average rainfall. Chickpea Ascochyta needs wet plants to infect and cause damage. Many farmers who plant chickpeas in 2007 will be new to the crop and managing Ascochyta will be an important part of producing a profitable crop.

Ascochyta survives on chickpea residue, infected seed and volunteer chickpeas over summer. If there has been enough rain to establish volunteer

chickpeas, some will carry Ascochyta. Destroy these volunteers as soon as possible and follow the Ascochyta management recommendations.

Despite the drought, virus levels in 2006 were high including Bean leaf roll virus in many pulses crops.

Beware the green bridge

Summer crops and weeds create a 'green bridge' from one winter crop to the next. This increases the risk of viruses, aphids and rusts increasing in number and infecting emerging winter crops. This is exacerbated in a drought by un-harvested small seed germinating summer.

If the start of the 2007 season remains dry, aphids, viruses and rusts will not be an issue because numbers will not have an opportunity to build up on volunteers and weeds. If there is a wet summer, monitor aphid numbers and consider using an insecticidal seed treatment.

There have been some changes in pesticide registration and you will need to check with local suppliers as to what is available in 2007 for aphid control.

Burning stubble to control disease

Burning stubble is not effective in reducing inoculum of some diseases. Diseases that survive at the base of stubble or in the soil may not be killed because temperatures at and below ground level are not hot enough.

Unknowns

There may be other and unexpected disease problems caused by the drought. For example, the high level of Rhizoctonia root rot in 2003 after the 2002 drought was unexpected. Please report any unusual disease development and this will add to our store of knowledge for future disease management.

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (December 2006). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.