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# Summer paddock survey finds fungal and bacterial diseases decreased but not eliminated (<https://communities.grdc.com.au/field-crop-diseases/summer-paddock-survey/>)

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Summer crop paddocks across northern New South Wales, southern Queensland and central Queensland, were surveyed to monitor the fungal and bacterial diseases present in the 2017-2018 summer cropping season. The season was unusually hot and dry, which in most cases, led to reduced fungal and bacterial diseases, but did not eliminate all of them. In some cases, these conditions actually favoured the development of disease, for example charcoal rot in sorghum. Observations for maize, mungbean, peanut, sorghum, soybean and sunflower are given below.

## Maize

Most maize paddocks surveyed were free from disease except for:

- *Fusarium* species affecting 10% of the crop with stunted growth;
- Low levels of boil smut;
- Low levels of cob tip rot

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The most significant damage in maize crops observed was caused by hail last November 2017, near Norwin and Bongeem in southern Qld, followed by insect damage in some maize paddocks.



Figure 1 Boil smut in maize cob (Photo D.L. Adorada).



Figure 2 Cob tip rot in maize (Photo D.L. Adorada)

## Mungbean

Due to the dry conditions, fewer mungbean crops were planted than expected. The diseases that were most commonly observed were:

- Tan spot was found in low to moderate incidences (1-30%) in southern Qld and moderate to high (20-60%) in northern NSW.
- Halo blight was found in southern Qld at a low to high incidences (1-60%) and moderate to high levels (20-60%) in northern NSW.
- Powdery mildew was present in some crops surveyed towards the end of the season, with 10-30% plants affected, with at least 50% leaf area affected.
- High incidence ( $\geq 70\%$ ) of Fusarium wilt in irrigated mungbean crops in northern NSW and in southern Qld were reported, and it was estimated that yield losses were higher than 80%. Fusarium wilt was found in central Queensland at a low incidence ( $< 1\%$ ).
- Charcoal rot was found at low incidence (1-20%), generally present in the earlier planted crops that have endured moisture and heat stress.
- Sclerotinia rot was found in southern Qld at a low incidence ( $< 5\%$ ).

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Figure 3 Halo blight disease signs on mungbean (Photo A.H. Sparks).



Figure 4 Tan spot signs on mungbean (Photo D.L. Adorada)



Figure 5. Powdery mildew on mungbean (Photo A.H. Sparks)

## Peanut

Low levels of fungal diseases were observed in peanut, whilst no bacterial diseases were found.

- Peanut kernel shrivel (PKS) at low levels was observed in the Bundaberg region. The causal agent(s) still remain undiagnosed, and is currently being investigated by USQ and DAFQ researchers under a GRDC-funded project.
- Peanut rust was observed on old peanut cultivars in the Bundaberg region, but new cultivars displayed some level of resistance.
- Diagnostic samples received from South Burnett Region had late leaf spot and net blotch diseases.
- Sclerotinia rot was found in crops at a low to moderate incidence (1-40%) in peanuts grown in the South Burnett, Texas and Brisbane Valley regions



Figure 6 Healthy peanut (left), peanut kernel shrivel syndrome affected peanut (right) (Photo D.L. Adorada)

## Sorghum

The sorghum crop in 2018 was planted starting in September in southern Queensland and northern New South Wales. Central Queensland was, in general, planted later due to delayed rainfall with much of the planting taking place starting in January or February.

A rainfall event and strong wind towards end of the season, in what seemed to be a disease-free sorghum cropping season, caused considerable lodging in a number of paddocks in Southern Queensland near Condamine and Brookstead. Lodged plants were found to be infected with Charcoal rot and Fusarium stalk rot (*Fusarium* spp.) diseases. However, lodging was not confined only to this area with lodging and stalk rots due to *Fusarium* and *M. phaseolina* (charcoal rot) both occurring in central Queensland as well.

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Figure 7 Mixed stalk rot infection of charcoal and Fusarium stalk rots in sorghum (Photo D.L. Adorada)



Figure 8 Sorghum lodging in central Queensland (Photo P. Gonzales)

## Soybean

There was very little soybean planted this season, with bacterial disease found in only a few paddocks. A soybean crop in southern Qld was found to have 20% incidence of bacterial blight. A paddock, located in Long Plain northern NSW, had >50% incidence of the disease.



Figure 9 Bacterial blight on soybean (Photo D.L. Adorada)

## Sunflower

There were greatly reduced plantings of sunflower, due to poor summer rains as well as low demand for the crop.

- Two paddocks from southern Qld had very low incidence of Rhizopus head rot (1-3%.)
- Verticillium wilt on the lower leaves were observed (60-90% incidence) in two paddocks in southern Qld and a paddock in northern NSW



Figure 10 Rhizopus head rot on sunflower (Photo D.L. Adorada)



Figure 11 Verticillium wilt of sunflower (Photo D.L. Adorada)

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## Further information

Going into the 2018/19 summer cropping season we will again be monitoring paddocks for diseases and providing diagnostic services. For information on submitting diagnostic samples, please contact Lisa Kelly, DAFQ (email: Lisa.Kelly@daf.qld.gov.au (mailto:Lisa.Kelly@daf.qld.gov.au), phone: 07 4688 1590) or visit the QDAF [Broadacre plant pest or disease enquiry form](https://www.daf.qld.gov.au/business-priorities/plants/health-pests-diseases/plant-pest-diagnostic-services/broadacre-crop-protection-diagnostics/broadacre-plant-pest-or-disease-enquiry) (https://www.daf.qld.gov.au/business-priorities/plants/health-pests-diseases/plant-pest-diagnostic-services/broadacre-crop-protection-diagnostics/broadacre-plant-pest-or-disease-enquiry). For more information on how to submit a good sample for the best possible diagnosis, please see "Diagnosing plant diseases: What do we ask and why do we ask for it? (https://communities.grdc.com.au/field-crop-diseases/diagnosing-plant-diseases-ask-ask/)".

As the next summer cropping season is approaching, the best disease management option is to practice preventive measures, to minimise the incidence of the disease. Disease management options are described in the following resources:

- GRDC GrowNotes (https://grdc.com.au/resources-and-publications/grownotes)
- Re-visiting management options for charcoal rot in sorghum – GRDC Communities (https://communities.grdc.com.au/field-crop-diseases/re-visiting-management-options-charcoal-rot-sorghum)


## Acknowledgements

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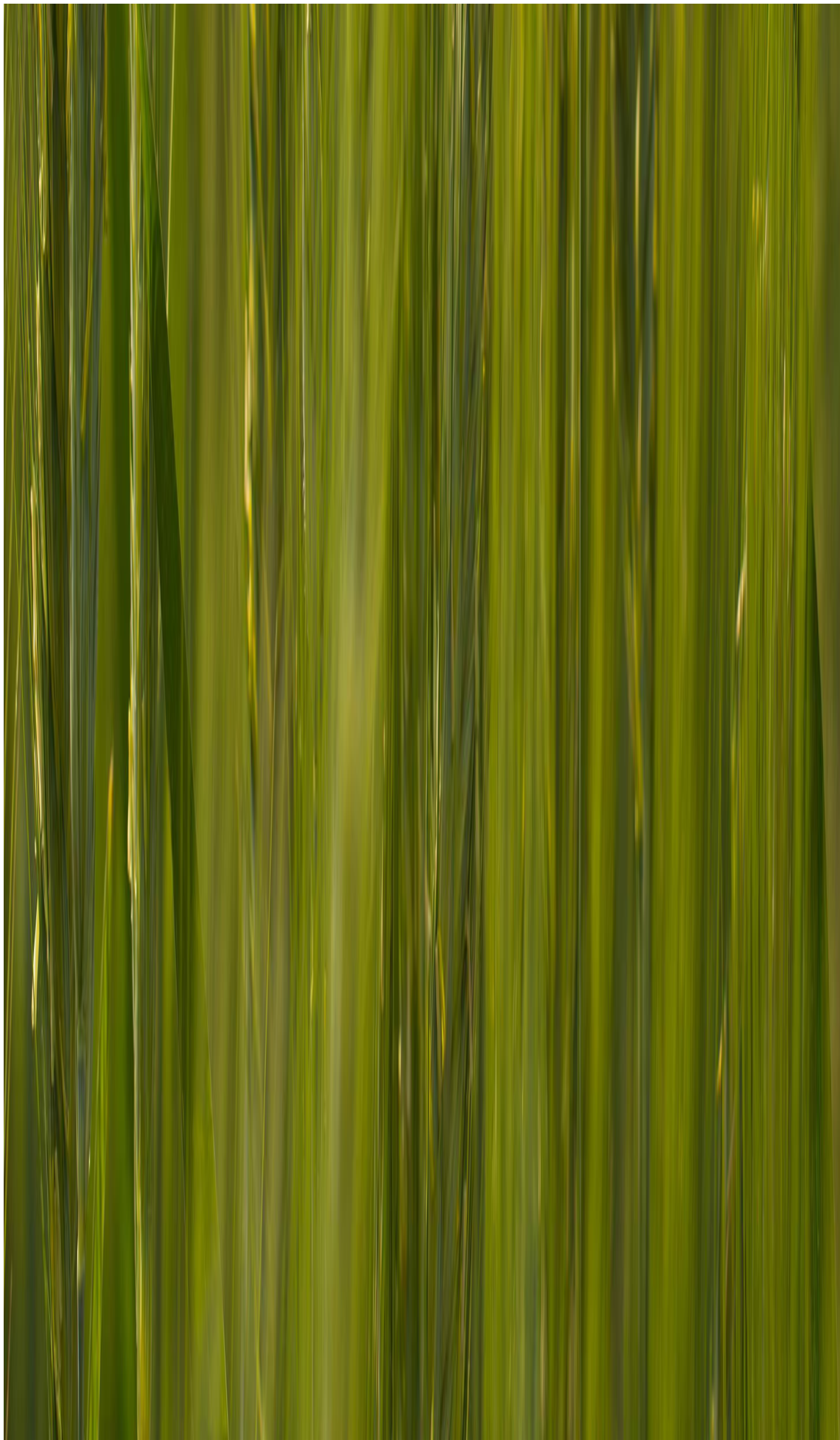
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