

Stubble Guidelines

Managing Blackleg in Stubble Retained Systems on Lower Eyre Peninsula

Local Management Guideline for the GRDC Stubble Initiative Project (LEA0002)

Blackleg survives on canola stubble, producing fruiting bodies that contain large quantities of airborne spores which are capable of travelling several kilometres. Timing of spore release from the stubble is dependent on autumn rainfall. Higher rainfall results in earlier spore release and consequently may lead to increased disease severity.

In recent years, there has been a large increase in blackleg symptoms appearing on the upper stems, branches and pods of canola plants. These have been found to be caused by the same fungus that infects seedling plants, so isn't a new disease. These new blackleg symptoms have caused significant yield losses.

Changing farming systems incorporating no-till, inter-row sowing and close canola rotations results in greater quantities of intact stubble producing potentially more inoculum. In trials, spore production measured from stubble that has been left standing in the paddock produced most spores later in the season compared to stubble that was knocked down. The current thought is that the new blackleg symptoms may be due to more inoculum and spore release delayed from the conserved standing stubble, which coincides with branch and pod development.

What are the solutions?

The GRDC Blackleg Management Guide is a first port of call for strategies to manage the disease. The guide is revised twice every year; once in autumn to incorporate data from the previous season and once in spring to include newly released varieties.

Access the latest guide on the GRDC website: www.grdc.com.au

Rainfall and crop intensity on Lower Eyre Peninsula (LEP) places the region in the high risk category for damage from blackleg, however variations from property to property can occur and an individual management strategy is required.

Monitor crops in spring

By snipping the stems of canola plants, assessing for internal infection and then inspecting for damage on the branches and pods at around windrow timing will aid in gauging the success of the current strategy, and is a critical step in planning for the following season.

Grow resistant varieties

The use of resistant varieties is the most important strategy. If springtime monitoring is picking up higher levels in a variety then it may be time to change. The Blackleg Management Guide has a list of current resistance ratings and resistance groups for all new and current varieties.

On LEP, disease pressure dictates growing cultivars that have at least an MR rating. Growing lower rated varieties will require additional management and expense.

Growing the same variety, or varieties from the same resistance group, for around three years has been found to start to shift the blackleg population on LEP, making it more aggressive towards those genes supporting that resistance group. For this reason, it is necessary to change varieties and rotation groups every three years under intensive production (greater than 30% of area planted).

Distance from previous crop

Growing canola at least 400m from last year's stubble will significantly reduce disease pressure on the current year's crop. On LEP, finding 400m between canola crops can be very difficult to do. Some growers have had success, with some anecdotal evidence of higher yields, by blocking their canola. This involves growing all their canola in adjoining paddocks one year and then moving their canola production to another part of the property the following year.

Fungicide Use

Fungicides have played a very important role in ensuring any potential yield loss from the breakdown of blackleg varietal resistance has been minimized in recent years on LEP.

There are currently seed treatments (e.g. Jockey®), fertiliser in furrow fungicides (e.g. Impact®) and foliar fungicides (e.g. Prosaro®) registered to control blackleg. All these products come from the DMI group of fungicides.

Research conducted on LEP has found significant and cost effective yield benefits from using two products (e.g. Jockey® + Impact®) in high disease pressure situations. It has also found benefits from using all three products in some situations (e.g. if a variety that has a lower resistance rating is being grown).

In 2015, tolerance to the fungicide Jockey® was found across Australia including the LEP. Monitoring of current management strategies every spring is critical in determining changes to blackleg populations.

Stubble Management

Longer rotations that allow for substantial spore release and reduction in stubble/pathogen presence on stubble is the only effective stubble management option. Stubble destruction is not effective. Inter-row sowing canola into two-year-old canola stubble where germinating seedlings are immediately next to standing stubble may result in higher levels of blackleg infection.

Sowing Date

Canola is most vulnerable to blackleg as a seedling. If crops are sown early into warmer conditions and get through the seedling growth stage quickly, they may escape high blackleg damage. However, in recent years higher levels of branch and pod infection have been observed on crops that have been planted early.

Management of Aerial (Branch and Pod) Symptoms

Earlier sowing and stubble retention appear to be leading to more blackleg symptoms on branches and pods. These have the potential to do as much or more yield damage as internal infection of the main stem.

Research is ongoing to find the best solution to the issue.

At the moment, selecting varieties that have effective major gene (or resistance group) resistance appears to be the most effective way of reducing symptoms observed from aerial infection.

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Photo: Steve Marcroft, Pod Infection, Lower Eyre Peninsula



Photo: Kieran Wauchope Hyola 50 breakdown.

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