

Mungbeans a Great Summer Legume Choice

Many growers in the north have experienced a later harvest than is typical for the region, so have not as yet planted any summer crops. In situations where there is good soil moisture, mungbeans may be a practical and potentially profitable summer crop choice. Prices over the last five years have been over \$700 per tonne (delivered port) and with average yields in southern Qld around one tonne per hectare, mungbeans are worth considering.

Planting:

Mungbeans can be planted in northern NSW, across the downs and into central Qld from September through until late February and even into early March (optimal planting times vary by region – for more details see GRDC grow notes).

Variety selections are important and should include consideration of yield, height, disease resistance and grain quality. It is critical that varieties are not mixed, as it is unacceptable and significant penalties can be imposed. Planting certified seeds and paying careful attention to harvest hygiene is important. Some recently released varieties include; Crystal P, Satin IIP, Jade-AUP and Celera II-AUP.

A couple of key things to consider if you are planting mungbeans include: paddock history, soil type and variability, row spacing and plant population, disease history and previous herbicide use.

Paddock history: legume crops such as cowpeas, navy beans and soybeans are hosts of bacterial pathogens of mungbeans. It is also important to know that sorghum, sunflowers, maize, soybeans and possibly some weeds are hosts of charcoal rot. An understanding of the disease history of paddocks could be valuable.

Soil type: sodic or saline soil type should be avoided, as should Gilgai's or contoured blocks. Mungbeans are short, so hollows can cause issues at harvest. It is preferable to plant into even soil types with well-prepared seed beds, as this will help establishment and the development of an even plant stand.

Row Spacing and Plant Population: Recent research conducted as part of the Pulse agronomy project (GRDC DAN00171, UQ 00067) suggests that growers should target row spacing of 0.5m or less with the standard plant population of 20 to 30 plants per square metre.

Previous Herbicide Use: Paddocks with a recent history of Group B Herbicides such as Ally®

(metsulfuron), Glean® (chlorsulfuron) or Logran® (triasulfuron) should be avoided as these herbicides typically have a nine to 15-month plant-back period. Care should also be taken following the use of atrazine, as residues may also be an issue for nine months.

Inoculation: As with all legumes inoculation is important if satisfactory nodulation and hence nitrogen fixation is to occur. A Group I mungbean inoculant (Rhizobium strain CB 1015) should be used with a sticker to stick the inoculum to the seed. This will increase survival percentages for summer planting.

The amount of Nitrogen fixed by a legume increases as legume biomass increases and is reduced by high levels of soil nitrate. Mungbeans will fix adequate Nitrogen to support the crops potential yield as such do not generally require N fertilisers, small amounts as starter can be beneficial. Residual N from mungbeans is less when compared to other pulse crops.

Disease Management

Mungbeans may be affected by a number of diseases and disorders caused by several fungi; powdery mildew (*Podosphaera fusca*), and charcoal rot (*Macrophomina phaseolina*) and bacteria: tan spot (*Curtobacterium flaccumfaciens pv. flaccumfaciens*) and halo blight (*Pseudomonas savastanoi pv. phaseolicola*).

The distribution, incidence and severity of these diseases will be influenced by the interactions between the pathogen, host and environmental conditions. There is some degree of resistance available in some varieties, but the adoption of an integrated disease management strategy is important to avoid yield losses as a result of disease.

Only powdery mildew has fungicide registrations currently available, including an existing permit (no. 13979) for the use of tebuconazole on mungbeans in Qld and NSW.

A 2015 and 2016 research study by the Centre for Crop Health at the University of Southern Qld looked into the most cost-effective options for the control of powdery mildew in mungbeans at a number of sites in Qld.

They found that applying a fungicide when the disease first appeared would slow the development, but that if this was not followed up with further

fungicide applications the powdery mildew continued to develop. Often the infection ended at similar levels to the untreated control.

In plots where two sprays of tebuconazole are applied 14 days apart after the first sign of powdery mildew, infection levels could be minimised and net returns increased by more than \$400 per hectare over an unsprayed mungbean crop.

The three main findings from the research were;

- Applying tebuconazole to mungbeans infected with powdery mildew can substantially boost yield and gross margins.
- One spray when the fungus is first detected will help boost yield, but the best balance between application cost and returns is struck when a second spray is applied 14 days after the first if infection occurs early.
- The value of treating powdery mildew varies depending on the region, timing of infection and season. Incidence and severity will be determined by weather conditions, for example cooler humid conditions favour the disease.

For more information on mungbeans please refer to the references included in the article.

Image from Centre for Crop Health, University of Southern Qld: Ideal conditions for powdery mildew infection can lead to leaves mostly covered with greyish-white powdery growth, spores (conidia) and spore-bearing structures (conidiophores) on the surface of the leaves.



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References:

Dr Adam Sparks from the Centre for Crop Health, University of Southern Queensland

<http://mungbean.org.au/agronomy.html>

<http://permits.apvma.gov.au/PER13979.PDF>

<https://grdc.com.au/GRDC-FS-NFixation-Legumes>

<http://mungbean.org.au/assets/grdc-grownotes-mungbeans.pdf>

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/175911/East-dryland-mungbeans-12-13.pdf

<https://grdc.com.au/Research-and-Development/GRDC-Update-Papers/2014/03/Management-impacts-on-N-fixation-of-mungbeans-and-chickpeas>

<https://grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-Issue-119-Nov-Dec-2015/Agronomy-planning-sets-up-higher-profitability>

<https://grdc.com.au/Media-Centre/Media-News/North/2016/11/Benefits-of-summer-pulses-in-your-system>