

# Legumes: the pros and cons

123

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Photo: Fallow legume.

*As seen in the previous article, 'Planning the summer fallow', in this edition, fallow legumes can improve cane yields and soil health. This handy table helps to compare and evaluate the different types of legumes available for planting.*

Legume	Positives	Negatives
<b>Soybean</b> All regions	<ul style="list-style-type: none"> <li>• Large biomass when grown well</li> <li>• High nitrogen input</li> <li>• Can be taken through to grain for extra income</li> <li>• More tolerant of wet conditions than other legumes</li> <li>• Excellent results if well managed</li> <li>• Stuart and A6785 are resistant<sup>3</sup> to root knot nematode</li> <li>• Resistant to root lesion nematode</li> </ul>	<ul style="list-style-type: none"> <li>• Long growing season if taken to grain – delays cane planting until late autumn or spring</li> <li>• Large biomass can be difficult to manage if green manuring</li> <li>• Need a row crop planter for good seed placement and establishment</li> <li>• Requires more management</li> <li>• Leichhardt is highly susceptible<sup>4</sup> to root knot nematode</li> </ul>
<b>Lablab (Dolichos)</b> All regions	<ul style="list-style-type: none"> <li>• Easy to grow</li> <li>• Moderate biomass</li> <li>• Moderate nitrogen input</li> <li>• Allows early cane planting</li> <li>• Seed can be broadcast – but better results are achieved if planted in rows on beds</li> <li>• Tolerant of dry weather once established</li> <li>• Resistant to root lesion nematode</li> </ul>	<ul style="list-style-type: none"> <li>• Vigorous twining growth habit can make it difficult to manage crop residue</li> <li>• Not tolerant of waterlogging or poor drainage</li> <li>• May become a weed if allowed to go to seed</li> <li>• Highly susceptible to root knot nematode</li> </ul>
<b>Cowpea</b> All regions	<ul style="list-style-type: none"> <li>• Easy to grow</li> <li>• Moderate biomass</li> <li>• Moderate nitrogen input</li> <li>• Allows early cane planting</li> <li>• Seed can be broadcast – but better results are achieved if planted in rows on beds</li> <li>• Resistant to root lesion nematode</li> </ul>	<ul style="list-style-type: none"> <li>• Twining growth habit can make it difficult to manage crop residue</li> <li>• Low tolerance to waterlogging</li> <li>• May become a weed if allowed to go to seed</li> <li>• Highly susceptible to root knot nematode; except Meringa, which is moderately susceptible<sup>5</sup></li> </ul>
<b>Mungbean</b> Burdekin	<ul style="list-style-type: none"> <li>• Short season (three to four month) grain crop</li> <li>• Allows early cane planting with some income from grain</li> <li>• Quite tolerant of dry conditions once established</li> <li>• Resistant to root lesion nematode</li> </ul>	<ul style="list-style-type: none"> <li>• Low biomass and nitrogen input</li> <li>• Low tolerance to waterlogging</li> <li>• Indeterminate growth – can make harvesting difficult</li> <li>• Can have high grain losses through the grading process</li> <li>• Highly susceptible to root knot nematode</li> </ul>
<b>Peanut</b> Southern; Central; Atherton Tableland	<ul style="list-style-type: none"> <li>• Profitable, especially under irrigation</li> <li>• Resistant to root lesion nematode</li> <li>• Highly resistant<sup>6</sup> to root knot nematode</li> </ul>	<ul style="list-style-type: none"> <li>• Need well-drained, friable soils</li> <li>• Soil needs to be free of contaminants (pesticides) because peanuts are a food crop</li> <li>• Yield and quality and, therefore, returns can be variable in non-irrigated situations</li> </ul>



Legume	Row spacing	Planting depth	Target population <sup>1</sup>	Planting time <sup>2</sup>	Inoculant
<b>Soybean</b> All regions	<ul style="list-style-type: none"> <li>50–90 cm can be used, depending on the cane farming system</li> </ul>	<ul style="list-style-type: none"> <li>2.5–5 cm</li> <li>On heavier clay soils or those prone to crusting and sealing, plant at the shallower depth</li> </ul>	<ul style="list-style-type: none"> <li>250–300 000 plants/ha for cover crops; increase to 300–400 000 if planting late</li> <li>300–400 000 for grain crops</li> </ul>	<ul style="list-style-type: none"> <li>Cover crops – from late October to December</li> <li>Grain crops – mid-December to early/ mid-January</li> </ul>	<ul style="list-style-type: none"> <li>Group H</li> <li>Soybeans must be inoculated for the best nodulation and results</li> <li>They will not nodulate successfully with the native soil rhizobia</li> <li>Peat slurry is usually the most effective method</li> </ul>
<b>Lablab (Dolichos)</b> All regions	<ul style="list-style-type: none"> <li>30–100 cm (20–40 cm is usual), depending on available machinery and farming system</li> <li>Can be broadcast but dry matter and nitrogen return will be lower</li> </ul>	<ul style="list-style-type: none"> <li>1–5 cm</li> </ul>	<ul style="list-style-type: none"> <li>60–100 000 plants/ha</li> </ul>	<ul style="list-style-type: none"> <li>October to December (before the wet season)</li> </ul>	<ul style="list-style-type: none"> <li>Group J</li> <li>Not necessary to inoculate if legumes have been grown before</li> </ul>
<b>Cowpea</b> All regions	<ul style="list-style-type: none"> <li>30–90 cm</li> <li>Can be broadcast but dry matter and nitrogen return will be lower</li> </ul>	<ul style="list-style-type: none"> <li>3–5 cm</li> </ul>	<ul style="list-style-type: none"> <li>150–250 000 plants/ha</li> </ul>	<ul style="list-style-type: none"> <li>October to December (before the wet season)</li> </ul>	<ul style="list-style-type: none"> <li>Group I</li> <li>Not necessary to inoculate if legumes have been grown before</li> </ul>
<b>Mungbean</b> Burdekin	<ul style="list-style-type: none"> <li>Narrow rows 15–40 cm: potential yield benefit when yields are greater than 1 t/ha; higher nitrogen fixation</li> <li>Wide rows 50–100 cm: easier access for machinery; easier to harvest as plants grow taller and hold pods higher</li> </ul>	<ul style="list-style-type: none"> <li>3–5 cm</li> </ul>	<ul style="list-style-type: none"> <li>200–300 000 plants/ha for dryland</li> <li>300–400 000 plants/ha for irrigated</li> </ul>	<ul style="list-style-type: none"> <li>Early plant – September to end of November</li> <li>Late plant – January to end of February</li> </ul>	<ul style="list-style-type: none"> <li>Group I</li> <li>Peat slurry is usually the most effective method</li> </ul>
<b>Peanut</b> Southern; Central; Atherton Tableland	<ul style="list-style-type: none"> <li>Traditionally 90 cm</li> <li>Row spacing can be adapted to fit the farming system</li> </ul>	<ul style="list-style-type: none"> <li>5–7 cm is ideal</li> <li>Plant shallower if planting dry and watering up</li> </ul>	<ul style="list-style-type: none"> <li>Irrigated: 130–200 000 plants/ha, depending on type</li> <li>Non-irrigated: 50–80 000 plants/ha in southern Qld, depending on type; 80–90 000 plants/ha in north Qld, depending on type</li> </ul>	<ul style="list-style-type: none"> <li>Bundaberg – early September to mid-December</li> <li>Northern NSW &amp; southern Qld – mid-October to late November</li> <li>Other areas – mid-November to mid-December</li> </ul>	<ul style="list-style-type: none"> <li>Group P</li> <li>Group I can be used if group P is not available</li> <li>Water injection is the preferred method as the slurry method can wash the applied fungicide off the seed</li> </ul>

<sup>1</sup> **Target population can vary by district and planting time:** seek local advice from your seed merchant or productivity officer

<sup>2</sup> **Planting time can vary by district and variety:** seek local advice from your seed merchant or productivity officer

<sup>3</sup> **Resistant:** there will be limited nematode reproduction

<sup>4</sup> **Highly susceptible:** nematodes will multiply to high population densities

<sup>5</sup> **Moderately susceptible:** nematodes will readily multiply

<sup>6</sup> **Highly resistant:** no nematode reproduction

