**Anthracnose resistant, metribuzin tolerant**

**KEY FEATURES**

- High yielding across most lupin growing areas of WA, NSW, Vic and SA
- Resistant (R) to anthracnose (equal to Tanjil® and Wonga®)
- Tolerant to metribuzin (superior to Tanjil® and equal to Mandelup®)
- Improved resistance to pod shattering (equal to Tanjil® and Coromup®)
- Moderately resistant (MR) to phomopsis stem blight (equal to Tanjil® and Wonga®)
- Early flowering and early maturity
- Grain quality parameters that on average meet market requirements

**MAIN ADVANTAGES**

PBA Barlock® is a high yielding Australian sweet lupin variety suitable as a replacement for Tanjil® and Wonga® in most lupin growing areas of Western Australia. PBA Barlock® provides a very significant yield improvement in most regions of New South Wales, Victoria and South Australia.

PBA Barlock® is a considerable improvement in metribuzin tolerance over the varieties Tanjil® and Wonga® and will allow growers to use metribuzin as an option for controlling weeds within the lupin crop.

**SEED PROTECTION & ROYALTIES**

PBA Barlock® is protected under Plant Breeder’s Rights (PBR) legislation. Growers can only retain seed from production of PBA Barlock® for their own seed use.

An End Point Royalty of $2.75 per tonne (GST inclusive), which includes breeder royalties, applies upon delivery of this variety.

Seed is available from the commercial partner Seednet.
PBA Barlock® is the best choice in Agzone 1 due to its resistance to anthracnose. Jenabillup remains the best choice for Agzone 8 due to its Bean Yellow Mosaic Virus (BYMV) resistance (MR).

**Western Australia**
PBA Barlock® has performed well across most regions and is suggested as a replacement for Mandelup® and Tanjil® in all lupin growing zones.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>PBA Barlock®</td>
<td>104</td>
<td>105</td>
<td>102</td>
<td>102</td>
<td>100</td>
<td>112</td>
<td>95</td>
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</tr>
<tr>
<td>PBA Gunyidi®</td>
<td>103</td>
<td>103</td>
<td>103</td>
<td>103</td>
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<td>112</td>
<td>93</td>
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<td>Mandelup®</td>
<td>3.03</td>
<td>2.66</td>
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<td>1.60</td>
<td>1.72</td>
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<td>2.84</td>
</tr>
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</table>

**New South Wales**
PBA Barlock® has performed significantly better than other varieties in most regions and is suggested as a replacement for Mandelup® and Wonga®.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Northeast (2)</th>
<th>Northwest (5)</th>
<th>Southeast (27)</th>
<th>Southwest (3)</th>
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<tbody>
<tr>
<td>PBA Barlock®</td>
<td>101</td>
<td>102</td>
<td>99</td>
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<td>PBA Gunyidi®</td>
<td>89</td>
<td>90</td>
<td>98</td>
<td>101</td>
</tr>
<tr>
<td>Jenabillup®</td>
<td>92</td>
<td>99</td>
<td>100</td>
<td>105</td>
</tr>
<tr>
<td>Jindalee®</td>
<td>89</td>
<td>87</td>
<td>88</td>
<td>93</td>
</tr>
<tr>
<td>Wonga®</td>
<td>93</td>
<td>99</td>
<td>89</td>
<td>97</td>
</tr>
<tr>
<td>Mandelup®</td>
<td>2.58</td>
<td>2.26</td>
<td>2.98</td>
<td>2.02</td>
</tr>
</tbody>
</table>

**Victoria and South Australia**
PBA Barlock® provides significantly higher yields on the Upper and Lower Eyre Peninsula and performs well in the Murray mallee. It is recommended as a replacement for Mandelup® in these regions.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Upper Eyre Pen (3)</th>
<th>Lower Eyre Pen (7)</th>
<th>Mid North (3)</th>
<th>Southeast (12)</th>
<th>Murray mallee (3)</th>
<th>Vic. mallee (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBA Barlock®</td>
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<td>110</td>
<td>90</td>
<td>95</td>
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<td>94</td>
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<tr>
<td>PBA Gunyidi®</td>
<td>104</td>
<td>103</td>
<td>98</td>
<td>93</td>
<td>106</td>
<td>90</td>
</tr>
<tr>
<td>Jenabillup®</td>
<td>109</td>
<td>104</td>
<td>97</td>
<td>100</td>
<td>115</td>
<td>95</td>
</tr>
<tr>
<td>Wonga®</td>
<td>99</td>
<td>96</td>
<td>87</td>
<td>87</td>
<td>86</td>
<td>83</td>
</tr>
<tr>
<td>Mandelup®</td>
<td>1.82</td>
<td>2.57</td>
<td>2.03</td>
<td>2.11</td>
<td>2.03</td>
<td>1.16</td>
</tr>
</tbody>
</table>

**Source:** Trial results from Pulse Breeding Australia (PBA) and National Variety Trials (NVT) programs
The number in brackets ( ) shows the number of trials.
DISEASE MANAGEMENT

- Resistant (R) to anthracnose similar to Tanjil®.
  - Seed dressings are still recommended to reduce the risk of seed borne infections.
- Moderately susceptible (MS) to brown spot and the full agronomic package for this disease should be implemented.
- Resistance to phomopsis stem blight is equivalent to Tanjil® and Mandelup®.
- Resistant (R) to grey spot.

Virus

- Moderately resistant (MR) to resistant (R) to CMV seed transmission which is better than Mandelup® but not as good as Tanjil®.
- Moderately susceptible (MS) to late infection of BYMV. Equivalent to Mandelup® but not as good as Jenabillup® and Quilinock®.
- Jenabillup® is the preferred variety in WA Agzone 8 to manage the risk from BYMV.

Herbicide tolerance

- PBA Barlock® shows equivalent tolerance to all registered herbicides including metribuzin in comparison with Mandelup®.

Harvestability

- Harvest height is equivalent to Tanjil® and is shorter than Mandelup®.
- Harvest grain loss risk is reduced with PBA Barlock® being more resistant to pod shattering than Mandelup®.

AGRONOMY

Agronomic characteristics

- PBA Barlock® has similar agronomic characteristics when compared to Tanjil®.
- PBA Barlock® is slightly later flowering and maturing than Mandelup®.
- Moderately Resistant (MR) to lodging in high rainfall regions, equivalent to Tanjil®.

Herbicide tolerance

- PBA Barlock® shows equivalent tolerance to all registered herbicides including metribuzin in comparison with Mandelup®.

Harvestability

- Harvest height is equivalent to Tanjil® and is shorter than Mandelup®.
- Harvest grain loss risk is reduced with PBA Barlock® being more resistant to pod shattering than Mandelup®.

## Plant disease resistance of PBA Barlock® in comparison to other Australian sweet lupin varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Lodging (High Rainfall)</th>
<th>Brown spot</th>
<th>Phomopsis (stem)</th>
<th>Anthracnose</th>
<th>Grey spot</th>
<th>CMV (seed)</th>
<th>BYMV</th>
<th>Aphid</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBA Barlock®</td>
<td>MR</td>
<td>MS</td>
<td>MR</td>
<td>R</td>
<td>R</td>
<td>MR/R</td>
<td>MS</td>
<td>R</td>
</tr>
<tr>
<td>PBA Gunyidi®</td>
<td>MR</td>
<td>MS</td>
<td>-</td>
<td>MR/R</td>
<td>S</td>
<td>MR/R</td>
<td>MS/MR</td>
<td>R</td>
</tr>
<tr>
<td>Coronup®</td>
<td>MS/MS</td>
<td>MS</td>
<td>R</td>
<td>MR</td>
<td>R</td>
<td>MR</td>
<td>MS</td>
<td>R</td>
</tr>
<tr>
<td>Jenabillup®</td>
<td>MS/MS</td>
<td>MS/MS</td>
<td>MS</td>
<td>R</td>
<td>-</td>
<td>MR</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Jindalee®</td>
<td>-</td>
<td>-</td>
<td>R</td>
<td>MS</td>
<td>R</td>
<td>MS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mandelup®</td>
<td>MS</td>
<td>MS</td>
<td>R</td>
<td>MR</td>
<td>R</td>
<td>MR</td>
<td>MS</td>
<td>R</td>
</tr>
<tr>
<td>Quilinock®</td>
<td>MS</td>
<td>MS</td>
<td>MS</td>
<td>MS</td>
<td>R</td>
<td>MR</td>
<td>MR</td>
<td>MS</td>
</tr>
<tr>
<td>Tanjil®</td>
<td>MR</td>
<td>MS</td>
<td>MR</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>MS</td>
<td>R</td>
</tr>
<tr>
<td>Wonga®</td>
<td>MR</td>
<td>MS</td>
<td>MR</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>MS</td>
<td>R</td>
</tr>
</tbody>
</table>

Source: Pulse Breeding Australia South Perth, WA 2012

VS = Very Susceptible, S = Susceptible, MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant

**Figure 1**: Relative performance of PBA Barlock® as a percentage of Mandelup® across Western Australian sites of similar mean site yields

**Source**: Western Australian National Variety Trials (NVT) 2008 - 2012
Better pulse varieties faster

PBA is an unincorporated joint venture between the GRDC, University of Adelaide, University of Sydney, SARDI, DEPI Victoria, NSW-DPI, DAFF QLD, DAFWA and Pulse Australia. It aims to deliver better pulse varieties faster.

FOR MORE INFORMATION

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SEED ENQUIRIES

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Seednet’s mission is:
“To deliver high performance seed based genetics to Australian grain growers and end user customers via superior product and service delivery channels.”

Seednet is proud to partner with Pulse Breeding Australia and invest in the improvement of Australian lupin varieties.

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Southern New South Wales
Mark Richards, NSW-DPI, Ph: 0428 630 429
Wayne Hawthorne, Pulse Australia, Ph: 0429 647 455

Better pulse varieties faster

PBA Barlock
Australian sweet lupin

SEED QUALITY

PBA Barlock® has small seed similar to Tanjil®. The protein content is similar to Mandelup® and the alkaloid content, on average, is similar to Mandelup®. The alkaloid content may fluctuate from season to season, but the relative value compared to Mandelup® will remain similar.

Seed quality of PBA Barlock® in comparison to other Australian sweet lupin varieties as a percentage of Mandelup®

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seed weight</th>
<th>Seed protein</th>
<th>Seed alkaloid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandelup®</td>
<td>142. mg</td>
<td>31.2 %</td>
<td>0.012 %</td>
</tr>
<tr>
<td>PBA Barlock®</td>
<td>92</td>
<td>100</td>
<td>92</td>
</tr>
<tr>
<td>PBA Gunyidi®</td>
<td>90</td>
<td>104</td>
<td>100</td>
</tr>
<tr>
<td>Belara®</td>
<td>99</td>
<td>99</td>
<td>75</td>
</tr>
<tr>
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</tr>
<tr>
<td>Danja®</td>
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<td>100</td>
</tr>
<tr>
<td>Quilinock®</td>
<td>97</td>
<td>104</td>
<td>92</td>
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<tr>
<td>Tanjil®</td>
<td>92</td>
<td>105</td>
<td>117</td>
</tr>
</tbody>
</table>

Source: Pulse Breeding Australia
Data is an average of 9 sites across 3 years (2009 - 2011)

BREEDING

PBA Barlock® (tested as WALAN2325) was bred by Dr Bevan Buichell, in cooperation with the Department of Agriculture and Food’s lupin breeding team under the umbrella of Pulse Breeding Australia.

It is from a 2000 cross between 97L122-1 and 89A169-11-11.

PBA Barlock® is named after ‘Barlock’, one of many indigenous names for the Native Grass Tree, which is widespread on the coastal sands of the west coast of Western Australia.

Disclaimer: Recommendations have been made from information available to date and considered reliable, and will be updated as further information comes to hand. Readers who act on this information do so at their own risk. No liability or responsibility is accepted for any actions or outcomes arising from use of the material contained in this publication. Reproduction of this brochure in any edited form must be approved by Pulse Breeding Australia © 2013

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