Murringo
Albus lupin

VARIETY SUMMARY
- Highest yielding albus lupin for eastern states
- Mid flowering, indeterminate genotype
- Moderate resistance to Pleiochaeta Root Rot and Phomopsis
- Susceptible to Anthracnose
- Grain quality well suited to albus human consumption markets
- Seed size similar to Luxor

BREEDING
Murringo was bred from a cross by DAFWA between a germplasm accession from the Azores Islands and the Russian cultivar, Vladimir.
The single plant selection and subsequent uniform line from this cross was transferred to NSW DPI Wagga Wagga and developed under the breeder code WK338.

AREA OF ADAPTATION
Murringo is best suited to medium to high rainfall lupin growing regions of NSW but can also be grown in Victoria and SA.

MATURITY
Murringo is a mid-flowering, spring genotype with a slightly longer maturity time than Luxor. The suitable sowing time is the normal albus sowing window of late-April to mid-May.

PLANT TYPE
Murringo has indeterminate branching type and a key morphological feature that distinguishes it from other albus varieties is that 30-50% of leaves on the main stem have 8-9 leaflets, compared to 7 on other varieties.
Murringo has slightly shorter plant height and height of first pod than Luxor.

GRAIN QUALITY
The average grain size of Murringo is similar to Luxor and Amira, which is larger than Kiev-mutant but smaller than Rosetta.
The seeds of Murringo are pure white, which is required for the human consumption market.
The total alkaloid content of whole seed of Murringo is below the ANZFA standard of 0.02%.
There is no bitter seed contamination in Murringo.

DISEASE RESISTANCE RATINGS
Murringo has moderate resistance to Pleiochaeta root rot, with levels similar to Rosetta and slightly less than Luxor, and significantly better than Kiev-mutant and Ultra.
Murringo has intermediate resistance to Phomopsis stem blight, better than Luxor and Rosetta, similar to Ultra but not as high as Kiev-mutant.
Murringo is very susceptible to anthracnose so is not suitable for growing in WA.

Disease ratings and plant type data (Source: NSW DPI)

<table>
<thead>
<tr>
<th>Variety</th>
<th>Disease ratings</th>
<th>Plant type data</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pleiochaeta root rot resistance</td>
<td>Phomopsis stem blight score</td>
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<tr>
<td>Murringo</td>
<td>MR 5.0 Intermediate</td>
<td>VS 113</td>
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<tr>
<td>Luxor</td>
<td>R 5.7 Intermediate</td>
<td>MS 114 189 68 74</td>
</tr>
<tr>
<td>Rosetta</td>
<td>MR 7.0 S</td>
<td>VS 119 182 70 80</td>
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<tr>
<td>Kiev-mutant</td>
<td>VS 4.0 MR</td>
<td>VS 107 183 58 58</td>
</tr>
<tr>
<td>Ultra</td>
<td>S 5.3 MS</td>
<td>VS 109 183 56 58</td>
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</tbody>
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GRAIN YIELD AND QUALITY DATA

Yield summary of Murringo expressed as % Luxor in NVT trials from 2008-15 (*except SW NSW that didn’t have trials in 2012 & 2013).

<table>
<thead>
<tr>
<th>Variety</th>
<th>NE NSW 8 trials</th>
<th>NW NSW 14 trials</th>
<th>SE NSW 51 trials</th>
<th>SW NSW 11 trials*</th>
<th>Seed size (g/100seeds)</th>
<th>Alkaloid % (2013)</th>
<th>Protein % (2013)</th>
<th>Manganese level mg/kg (2013)</th>
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</thead>
<tbody>
<tr>
<td>Murringo</td>
<td>102</td>
<td>102</td>
<td>101</td>
<td>97</td>
<td>32</td>
<td>0.014</td>
<td>37.5</td>
<td>915</td>
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<tr>
<td>Luxor</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>32</td>
<td>0.011</td>
<td>36.9</td>
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<tr>
<td>Rosetta</td>
<td>101</td>
<td>96</td>
<td>99</td>
<td>96</td>
<td>35</td>
<td>0.014</td>
<td>36.9</td>
<td>830</td>
</tr>
<tr>
<td>Ultra</td>
<td>92</td>
<td>97</td>
<td>96</td>
<td>94</td>
<td>30</td>
<td>0.014</td>
<td>36.8</td>
<td>880</td>
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<tr>
<td>Kiev-mutant</td>
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<td>93</td>
<td>91</td>
<td>31</td>
<td>0.009</td>
<td>38.3</td>
<td>1010</td>
</tr>
</tbody>
</table>

AGRONOMIC GUIDELINES

Sowing
Albus lupins cross pollinate so ensure Murringo has at least 1km isolation distance from other albus varieties. Select a well-drained paddock with soil pH (CaCl$_2$) above 5.0 to maximise production.

Aim to establish 35 plants/m$^2$ for early sowing and up to 45 plants/m$^2$ for later sowing. For 32g/100 seed size this is ~140kg/ha seed for 35 plants/m$^2$ and ~180 kg/ha seed for 45 plants/m$^2$.

Inoculate with Group G rhizobium.

Nutrition
Phosphorus should be applied at 15-20 kg/ha and Molybdenum is recommended to improve nodulation on low pH soils. Sulfur and Nitrogen may be considered depending on soil test.

Weed Control
Murringo has been grown in numerous yield trials using best practice agronomy and common lupin herbicides and no unusual herbicide damage symptoms have been observed. Murringo is safe for use with the main herbicides used in lupin production.

PLANT BREEDER RIGHTS AND ROYALTIES

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Growers are allowed to retain seed from production of this variety for their own use as seed only.

An End Point Royalty of $3.52 per tonne (GST inclusive), which includes breeder royalties, applies to this variety.

ACKNOWLEDGEMENTS

Murringo was bred by DAFWA then developed by NSW DPI Wagga Wagga, with support from growers through the GRDC.

For more information call Seednet on 1300 799 246 or visit www.seednet.com.au

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