

Chickpea and lentil trial

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Take home messages

- Chickpeas and lentils should be sown in early May to achieve early growth and maximise biomass and yield.
- In 2013 at Westmere, growth was generally slow and lacked vigour, however lentils tolerated some short term waterlogging surprisingly well.
- The larger Kabuli chickpeas, like PBA Monarch, Almaz and Kalkee are likely to be the most profitable options for this region.

Introduction

The Southern Pulse Agronomy program undertakes a range of agronomic trials that ensures the benefits of new pulse varieties are maximised and delivered to growers. In south western Victoria, field peas and faba beans are generally perceived to be the lowest risk pulse crops for the region. However, uptake and overall production as a proportion of the total cropped area remains relatively low compared with other cropping zones. Potential reasons for these observations are varied, but generally relate to risks associated with disease and weed management and lack of profitability compared with other cropping options.

Small variety trials in lentils and chickpea were sown at Westmere to re-investigate the potential of these crops, now that several new varieties have been developed with improved agronomic characteristics.

Aim

To investigate the potential of new chickpea and lentil varieties in the high rainfall zone of Victoria.

Chickpeas

Experimental Details

Sowing date: 5 June
 Stubble: Incorporated
 Row Spacing: 20 cm
 Fertiliser: MAP @ 60 kg/ha at sowing
 Plant Density: 20 plants/m²

Results and Interpretation

Growth of chickpeas was generally slow and lacked vigour and during late winter to early spring plants appeared yellow (potential nitrogen deficiency). It is important to note that it is likely to be beneficial to sow chickpeas in early May to achieve some early growth and maximise potential biomass and yield. No disease was noted in the plots. During late spring they appeared to recover produced yields between 1.3 and 2.4 t/ha. PBA Striker, Almaz and PBA Monarch were the highest yielding varieties. The larger Kabuli chickpeas, like PBA Monarch, Almaz and Kalkee, are likely to be the most profitable options for this region.

Table 1. Grain yield (t/ha) of Chickpea varieties grown at Westmere in 2013.

| Variety | Grain Yield |
|-------------|-------------|
| PBA Striker | 2.35 |
| Almaz | 2.28 |
| PBA Monarch | 2.22 |
| Kalkee | 1.89 |
| Genesis090 | 1.43 |
| PBA Slasher | 1.27 |

LSD(P<0.05) = 0.78



Figure 1. Chickpeas at Westmere, 2013.

Chickpea variety and agronomic guide - New varieties for 2014

BA Monarch (CICA0857) is a high yielding medium sized kabuli chickpea. It is particularly well adapted to the shorter medium rainfall environments of south eastern Australia, due to improved adaptation through earlier flowering and maturity compared to GenesisTM090, Almaz and GenesisTMKalkee. It has shown a consistent yield advantage of 5 - 13 % over current medium and large seeded kabuli varieties. It also has shown similar yields but larger seed size than the small sized GenesisTM090. Seed size is predominantly 8 - 9 mm (larger than GenesisTM090 and similar to Almaz).

PBA Monarch has a semi spreading plant type and is early flowering and maturing (earlier than Genesis™ 090 and Almaz). It is moderately susceptible (MS) to ascochyta blight (similar to Almaz and Genesis™ Kalkee but more susceptible than Genesis™ 090) and susceptible (S) to phytophthora root rot. Seed is available through SeedNet.

PBA Maiden (CICA0717) is a large seeded desi chickpea suitable for the medium to low rainfall environments of southern Australia. It is broadly adapted to these regions and has shown similar yields to PBA Slasher. PBA Maiden is moderately resistant (MR) to foliar infection by ascochyta blight (equal to PBA Striker). Seed size is greater than current southern desi varieties (28 % larger than PBA Slasher) with a yellow-tan seed coat. PBA Maiden is well suited to whole seed desi markets such as those in Bangladesh. It has a semi-spreading plant type and height similar to PBA Slasher, with early to mid flowering and maturity (earlier than PBA Slasher but later than PBA Striker). Seed is available through SeedNet.

Refer to Appendix A for full chickpea variety and agronomic guide.

Lentils

Experimental Details

Sowing date: 5 June
 Stubble: Incorporated
 Row Spacing: 20 cm
 Fertiliser: MAP @ 60 kg/ha at sowing
 Plant Density: 20 plants/m²

Results and Interpretation

Growth of lentils was generally slow and lacked vigour, similar to that which has been previously observed. It is important to note that it is likely to be beneficial to sow lentils in early May to achieve some early growth and maximise potential biomass and yield. Surprisingly they tolerated the short term waterlogging that was observed in winter and produced yields between 1.5 and 2 t/ha. Due to the variation in the trial from weeds and soil issues, there was no significant difference in yields.

Table 1. Grain yield (t/ha) of Lentil varieties grown at Westmere in 2013.

| Variety | Grain Yield |
|------------|-------------|
| PBA Bolt | 1.98 |
| Nugget | 1.85 |
| PBA Ace | 1.82 |
| CIPAL 1207 | 1.78 |
| PBA Blitz | 1.54 |
| Nipper | 1.50 |

LSD(P<0.05) = ns

Lentil Variety and Agronomic Guide - New varieties for 2014

PBA Hurricane XT (CIPAL 1101) builds on the success of the first herbicide tolerant lentil, PBA Herald XT. It incorporates the same improved tolerance to some Group B herbicides, but with higher grain yields and improved agronomic characteristics. PBA Hurricane XT has an APVMA permit for imazethapyr use (product label rates, plant-back periods and all label directions for use must be adhered to).

PBA Hurricane XT is the highest yielding small red lentil with a 5-12% long term yield advantage over PBA Herald XT and Nipper. It is lower yielding than PBA Ace and PBA Bolt, but may be preferred where more flexible weed control is desired or for marketing reasons. It is a mid-maturity, broadly adapted variety with earlier flowering, improved vigour and increased plant height over PBA Herald XT and Nipper, with resistance to ascochyta blight. Seed is slightly larger in size than PBA Herald XT and Nipper with a grey seed coat. Seed is available through PBSeeds.

Refer to Appendix B for full lentil variety and agronomic guide.