

CLIMA director Professor Kadambot Siddique, ICARDA senior chickpea breeder Dr R.S. Malhotra and Council of Grain Grower Organisations CEO Geoff Smith have plenty to discuss about the new chickpea varieties at the Mingenew-Irwin heavy land field day.



Council of Grain Grower Organisations director and Porejori grower John Carstairs talks with CLIMA director Professor Kadambot Siddique.

Kabuli chickpea back in the paddock

By TRENT CARSLAKE

Kabuli chickpea is back in rotation in Western Australia following the release of new ascochyta blight-resistant varieties. The new varieties will help reintroduce a popular crop devastated by this infectious disease.

The two new varieties, *Almaz*[®] (listed as FLIP97-530-CLIMAS) and *Nafice*[®] (listed as FLIP97-503-CLIMAS), were developed cooperatively with the International Centre for Agricultural Research in the Dry Areas (ICARDA) in Syria, the Aegean Agriculture Research Institute (AARI) in Turkey and the Centre for Legumes in Mediterranean Agriculture (CLIMA) in Perth.

Nafice[®] (Arabic for very precious) has bigger seeds than *Kaniva* and *Almaz*[®], but *Almaz*[®] (Arabic for diamond) is higher yielding. The GRDC funded the first phase of the project from 1998-2000, with subsequent funding from 2002-06 by the Council of Grain Grower Organisations (COGGO).

The new varieties were released at the Mingenew-Irwin Group's recent heavy land field day.

Since ascochyta blight was first observed in WA in 1999, the chickpea area in the state has dropped from 80,000 hectares to 5000ha, mostly affecting the smaller desi

variety. At the time, the kabuli chickpea industry was just emerging, with about 7000ha to 8000ha in production.

CLIMA director and co-breeder Professor Kadambot Siddique says the new ascochyta-resistant kabuli chickpea varieties, with improved yield and large seed size, should now give growers a profitable pulse option. He believes WA's kabuli chickpea crop could grow to 30,000ha, worth about \$20 million.

"Across Australia, these new disease-resistant varieties could increase kabuli production to 150,000ha, worth \$100 million," Professor Siddique says. To fully protect the new varieties against ascochyta blight, growers should apply one or two strategically timed fungicide sprays to maximise yield and prevent an increase in disease pressure, he says.

The varieties are moderately susceptible to phytophthora and possess better resistance than the currently grown *Kaniva* variety. *Almaz*[®] and *Nafice*[®] have a semi-erect growth habit, with *Almaz*[®] about five centimetres taller than *Kaniva*.

West Mingenew grower Alden Ostl was particularly impressed by the height of the new chickpeas: "It is great that they retain their height once they have ripened, which

KEY POINTS

- Release of two high-quality, ascochyta-resistant kabuli chickpeas for south-eastern and Western Australia
- Large seed size to meet market demand
- Collaborative effort by GRDC, ICARDA, AARI, CLIMA and COGGO

will make the harvesting process a lot easier," he says.

They are well suited for winter sowing in regions of medium-to-high annual rainfall (400-700 millimetres) with neutral to alkaline soils, mild spring conditions are favourable for seed filling.

Kabuli is a high-value crop for human consumption in foods like hummus and falafel. Professor Siddique says *Almaz*[®] and *Nafice*[®] produce seeds with attractive beige-coloured seed coats and have similar cooking qualities to *Kaniva*, making them marketable for human consumption.

The Mediterranean countries, West Asia, North Africa and the Indian sub-continent are the main consumers of kabuli chickpea.

Nitrogen-fixing is the major rotational benefit of chickpea for subsequent cereal

and oilseed crops. Professor Siddique says this reduces the requirement for increasingly expensive nitrogenous fertilisers, especially with the price per barrel of crude oil recently dipping US\$70.

Chickpea crops can also provide economical benefits of high gross margins; on average, good quality kabuli chickpea fetches \$500-to-\$700 a tonne.

"Fungicides eat away at profits, but the new varieties require less fungicide treatments than the incumbent *Kaniva*. This considerably lowers the costs associated with growing the new varieties," Professor Siddique says.

Irwin grower Chris Gillam says he has been bulking up *Almaz*[®] and it has shown excellent resistance to ascochyta blight and good herbicide tolerance.

The varieties have been trialled in SA, NSW, Victoria and WA and will be released for eastern Australia at the Pulse Australia Coordinated Field Day to be held on 2 November at Kalkee, 15km north of Horsham. Seed will be available to growers through COGGO Seeds in WA and through AWB Seeds in eastern Australia.

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Variety boost for northern growers

By KELLIE PENFOLD

Two new chickpea varieties - *Flipper*[®] and *Yorker*[®] - are the latest weapons against ascochyta blight and phytophthora root rot.

Bred by the NSW Department of Primary Industries (DPI), and to be commercialised by AWB Seeds, the desi types were released at the Chickpeas in Farming Systems Focus 2005 at Goodswind in September.

Flipper[®] offers northern NSW growers great ascochyta blight resistance, lessening or even eliminating the need for repeated fungicide treatments.

Meanwhile *Yorker*[®], in addition to a moderate ascochyta resistance, offers much improved phytophthora resistance.

These new varieties are a significant improvement on the current ascochyta-susceptible varieties and are a critically important part of a disease management package, according to Tamworth's NSW DPI chickpea breeder, Ted Knights.

"Basically, they are both suitable for the growing conditions of northern NSW, and it is up to growers to work with the variety which offers the greatest resistance to the largest threat - ascochyta or phytophthora."

Flipper[®] was bred at Tamworth as part of the national chickpea breeding program from a complex cross of existing varieties made in 1993.

Its resistance to ascochyta proved to be "damn good luck", according to Mr Knights.

Moreover, he thinks it is likely that the ascochyta resistance genes in *Flipper*[®] are different to those in varieties bred by ICARDA and developed in Australia for producers in south-eastern Australia.

"The resistance comes from a source which can be improved upon, where ensuing breeding will focus to broaden that resistance," Mr Knights says.

Flipper[®] is a medium to late maturing variety and has a tall, erect plant-type

KEY POINTS

- Two new varieties of chickpeas have been released, offering northern NSW and southern Queensland growers new weapons against two of the major diseases
- Both mean growers can reduce input costs due to decreased spray applications
- There are more to come - a suite of new varieties are in the trial stage

similar to *Amethyst* and *Jumbour*[®]. The later maturity, good lodging resistance and ascochyta resistance means it can be sown up to 10 days earlier, thereby offsetting any small reduction in yield potential (under disease-free conditions).

Mr Knights explains it is a matter of economics: "*Flipper*[®] may be able to be grown without any fungicide treatments for ascochyta - if conditions prove right and

disease pressure in the area is not extreme."

As phytophthora root rot is a problem generally only seen in north-eastern Australia, an other chickpea breeding program is focusing on building resistance. Therefore a local solution is needed.

Jumbour[®] has good resistance but Mr Knights says *Yorker*[®] has better resistance, although yields are similar.

"The feedback from growers has been they wanted to return chickpeas to their rotation or retain them without the need for so much spray. These are two varieties which should help them," he adds.

Pulse Australia forecasts nearly 80,000 tonnes of desi chickpeas will be produced in NSW and Queensland this year, with Australia producing more than 87,000 - down from the 109,700 produced last year.

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