

# Proceed with caution on new crops option

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Rural entrepreneurs and growers looking to diversify their production base are showing interest in several new crops and products, but producers looking to get involved in one of these emerging crops are advised to proceed with caution and pay close attention to the balance between risk and potential reward.

**F**ood industry demands for cleaner, healthier grains and growers' desire to diversify their production base are driving interest in new crops including quinoa, spelt, amaranth and freekeh.

However, the market for these emerging 'super grains' is still not big enough to make growing large quantities of them viable for most Australian farmers.

There is little data available about these new crops in Australia, but globally, grains such as quinoa (pronounced keen-wah) are fast becoming a popular food option. Approximately 80,000 tonnes of quinoa was harvested in South America in 2010.

Lauran and Henriette Damen, from Kindred Organics in Tasmania, are among the few producers growing quinoa in Australia.

According to Lauran, quinoa is difficult to grow in many parts of Australia because it can be sensitive to heat and does not handle weed competition well.

"Quinoa grows well in cooler climates such as Tasmania," Lauran said. "This year is our fifth harvest. We have harvested every year, but in some seasons we have had to pull out areas or paddocks because it would have cost more for labour to manage the weeds than the crop would have returned. Labour cost and availability is a big issue with growing quinoa."

The Damens are organic growers so rely on physical weed control.

Overseas the crop is washed post-harvest to remove a natural protective coating from the seed but facilities for this process are not currently available in Australia so Kindred Organics quinoa is sold with the coating intact.

Henriette says the flavour of quinoa is better if it's washed just before use, rather than immediately post-harvest. "It loses some goodness after it is washed and we want to keep it in as close to its original state as we can."



ABOVE - QUINOA GROWERS AND KINDRED ORGANICS PRINCIPALS LAURAN AND HENRIETTE DAMEN, PICTURED WITH THEIR SONS JOHN AND PETER, CONTROL QUALITY THROUGHOUT THE SUPPLY CHAIN BY MARKETING THEIR OWN PRODUCE. BELOW - A MATURING CROP OF QUINOA.



Kindred Organics is currently the only company in Australia that is growing quinoa commercially and doing its own marketing and so maintains control of quality from the paddock to the plate. In 2012 the Damens produced about 40 tonnes of quinoa from a 35 ha paddock.

Field trials designed to determine where conditions might be suitable for growing quinoa in Australia are underway in WA.

"The crop is still experimental. It has enormous potential and is likely to suit a wide range of environments," said Principal researcher Jon Clements, a University of WA scientist. "Quinoa is salt-tolerant and relatively tolerant to drought. Our project aims to select genotypes of the crop with promise for Australian conditions on the basis of yield and agronomic traits."

Spelt, an ancestor of wheat, is also becoming popular in the food industry. It is seen as perfect for bread, including sourdough breads. Australia's first commercial crop of spelt was grown by Geoff and Julie Brown of Buckwheat Enterprises in Parkes, NSW.

According to Robyn Neeson, Organic Farming Liaison Officer for NSW Government Industry and Development, Australian growers currently produce 4,000 tonnes of spelt a year, which is used in products with an estimated retail value of \$7.7 million.



## LEGUMES PULSING INTO THE MAINSTREAM

Pulses have gone from an emerging industry in Australia in the 1990s to a mainstream crop today, according to Wayne Hawthorne, Industry Development Manager for Pulse Australia.

Increasing global demand and greater knowledge has seen the industry in Australia grow to a value of \$1 billion in 2013.

Chickpeas, lentils, faba beans and mung beans now represent two thirds of Australia's pulse production and are primarily exported to the Middle East, India and Asia.



Growing a pulse can improve soil structure and biology as well as providing disease benefits for following crops in the rotation, Wayne said.

"Farmers started growing pulses to break cereal disease cycles and to provide nitrogen input but they also open the way for wider rotation of herbicides. And including a pulse in a cropping rotation can help growers manage weed populations that are resistant to one or more herbicides, as set out in the new GRDC WeedSmart program."

"Pulses also fit nicely into stubble-retention cropping systems and are profitable in their own right."

"In many cases pulses provide the best gross margins of any crop on the farm. Even when this isn't the case they can often improve overall gross margins across the whole rotation because of the disease, nitrogen and other benefits they provide for following crops."

Chickpeas, faba beans and lentils are higher-priced than some of the other pulses. Field pea prices tend to be lower, but peas are a versatile crop that yields well in a wide range of conditions.

"We are in a global market with international competitors, so supply and demand forces operate, just like with other commodities," Wayne said. "Market demand and hence prices differ from pulse to pulse and year to year."

"In the paddock, all pulses require a planned approach and timely inputs, without cutting corners."

"South Australia has ideal growing conditions for pulses but each crop needs to be managed differently."

"It is important to match the crop to the soil type, as well as the crop and variety to the rainfall and cropping system. Not all pulses are directly interchangeable. For instance, lupins are dependent on soil pH, chickpeas cannot be crop topped and beans are less drought tolerant than peas," he said.

"Most growing challenges for pulse producers tend to be in the lower rainfall areas, where finding a suitable pulse is considered more difficult, especially if not using new varieties and farming systems such as no-till and stubble retention."

"There are also challenges in higher-rainfall areas where beans are the only pulse crop with tolerance to waterlogging and are more tolerant of acidic soils than many other pulses."

Foliar disease management is no longer the challenge it used to be, he said, provided growers take an integrated approach to disease control and pay close attention to timing. It is ineffective to rely on foliar fungicide use after disease has set in.

"Frost during podding can reduce yield in some areas, with brown and green manure and hay cutting options for some pulses if they are affected by drought or frost. Chickpea and lentils are less suited to these options."

According to Wayne, choosing the right paddock and cropping procedure is vital when growing pulses in SA. "Paddock selection is critical with pulses."



GREENWHEAT FREEKEH IN THE MARKET PLACE.

"We have found the demand for spelt has increased in the past decade," Geoff Brown from Buckwheat Enterprises said. "Spelt is generally low-yielding, but it's got a great taste and huge health benefits."

He also finds it fairly easy to grow.

"Last year, our yields were around 2 t/ha, but that was a fairly dry year. An average yield would be about 2.5 t/ha. We plant the seed at 70 kg/ha and can see up to 30 tillers/m<sup>2</sup>," he said.

"Spelt is late-maturing and we like to have it in before the end of April; otherwise it needs a wet spring to produce much grain. It seems to be able to handle a dry winter, providing you have a wet spring."

"The best wheat growing country will grow the best spelt crops. It is really no different to modern wheat varieties with weed issues and controlled spraying."

"Spelt is planted with the shell on because de-hulling reduces the germination. Seed

## WEALTH OF INFORMATION ON NEW CROPS WEBSITE

Growers thinking about trying a new crop can access production and marketing information from the Australian New Crops Website ([www.newcrops.uq.edu.au](http://www.newcrops.uq.edu.au)).

The new web site has been developed by the Rural Industries Research and Development Corporation (RIRDC) as part of its New Plants Project, which is being led by industry expert and principal researcher Dr Rob Fletcher.

Dr Fletcher said the new crops website is a source of reliable and current information useful for those interested in commercialising new plant products in Australia.

"The website provides good advice on the process of new crop commercialisation," he said. "We aim to revise and upgrade the website on a regular basis to ensure readers are getting the most out of the site."

"We often tell farmers to work back to front in the supply chain - find out what the end product is and where it will sell, then work out if you can grow the particular species. They need to ask themselves whether the crop is a perennial or annual crop. Is it a cereal, tree, vine, or shrub, and does it need to be processed?"

"There is always a risk associated with new crops because farmers like to grow something new, but the novelty will never make them money if the supply chain is not in place."

"Farmers should not grow a crop because no one else is growing it in their region. The worst thing they can do is generate seed for other farmers."

He recommends enterprising farmers search the website for information about the crop they are considering before attempting to grow it.

"On the home page, there are three boxes; 'the ten points for planning', 'do your own marketing short course' and 'the 13 steps for commercialisation of new crops'. There is also information about more than 68,000 commercially interesting plant varieties, but the planning, marketing and commercialisation information is the starting point. Contact details and links to or further research are also available online."

"No farmer should do this alone. We are currently working on software in Victoria and NSW that will tell farmers where they can plant new crops and what they could be growing."

needs to be run through a de-bearder to polish it and help it run freely in the seeder."

The grain is light compared to wheat, Geoff said, transport costs are an issue at harvest time, Geoff said.

"Spelt has about half the density of wheat and the cost of freight has to be factored into the final product. We try to use trucks with high sides to get a legal payload, but it helps to fairly close to a processor."

### Freekah

Demand for freekeh (pronounced free-ka), is also increasing in Australia and overseas.

Freekah is made by roasting immature wheat grains. Because the grain is harvested while the grain is still developing the end product is high in proteins,

vitamins and minerals. Served and prepared like rice, freekeh can be used as a side dish, in salads and to make pasta, pizza bases, breads and breakfast foods.

Tony Lutfi Managing Director of Greenwheat Freekeh, at Two Wells, said the demand for freekeh nationally and worldwide is currently greater than it has ever been before.

"Greenwheat Freekeh export Australian freekeh to the US, Canada, UK and parts of Asia," Tony said. "The demand has increased rapidly in the past two or three years and will continue to grow in the near future."

"In 2006 our distributor in the US could not give freekeh away, now the market conditions have completely changed. We are currently negotiating with a company



TONY LUTFI, MANAGING DIRECTOR OF GREENWHEAT FREEKEH.

in Canada who wants to launch freekeh salads in supermarkets across Canada. We also work with companies in Australia who are using freekeh as an ingredient in products including breakfast cereals, breads, pasta, and pizza bases.

"As demand grows we need to match the growth with capacity to be able to supply the market. We are now looking to work with farmers to increase production capacity and give buyers the security they need to launch these products," he said.

Greenwheat Freekeh is a small company, but is an international leader in technology and freekeh processing and one of the largest producers of freekeh in the world.

"In 2013, we aim to produce around 1,000 tonnes of freekeh for national and export markets," Tony said. "We are currently sourcing wheat from within a 300 kilometre radius of our plant because it needs to be processed within 12 hours of harvesting."

"As demand for freekeh increases, we welcome more farmers to work with us to supply the overseas markets. We are also interested in licensing our technology and

selling to groups of farmers to expand the industry.

"For farmers, it gives them an opportunity to generate a premium for themselves, in addition to harvesting grain early before the spring rains. There may also be a reduction in chemical costs as the growing season is much shorter. It really is a great benefit to Australian farmers," he said.

### Paddock perspective

Elden Oster, from Maitland, grows durum for freekeh production. While it provides a good return on investment on a small scale, the money is not the reason he started growing wheat for Greenwheat Freekeh, Eden said.

"This year will be our second year of production growing durum for freekeh processing. Last year we grew 40 ha of durum for freekeh on our 610 ha mixed-cropping property, so it's a small percentage of our overall production.

"For me it's not about growing for a premium price, because on a larger scale there is little in it. It's more about supporting the industry and people like Tony at Greenwheat Freekeh who are

sticking their necks out and creating an industry of emerging grains for Australian farmers," he said.

Last year, he harvested the durum for freekeh in October, three weeks before the rest of his durum was ready for harvesting.

"We harvested the freekeh durum when it was beginning to get quite doughy. The challenge with producing a green grain is there is a fine line between being too green and not green enough.

"This exercise fits with my rotation and time frame on farm. There is no exceptional machinery required to harvest the green crop."

Elden predicts exciting times for the boutique grains industry in the next five to 10 years, and will be watching with interest.

"I really saw freekeh as an opportunity to do something different and give it a go. The health benefits, combined with the current trends and demands overseas, were what inspired me. I will continue to watch this space and follow the niche markets for the next few years," he said.



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