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## In search of the perfect noodle

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Japan's iconic Udon noodles need premium wheat varieties to produce a flawless product. This wheat is sourced from Western Australia, the world's leading supplier of noodle wheat into Japan and Korea. Australian scientist and CEO, Tress Walmsley, leads speciality WA crop breeding company, InterGrain, in developing innovative new varieties for this most discerning of markets.

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Tress Walmsley, the only woman to head a major cereal breeding company in Australia, almost spent her life as an environmental researcher.

A few months before she was due to start her doctorate in aquatic biology, Tress went on holiday in farming country north of Perth to Three Springs. The Department of Agriculture and Food Western Australia happened to be doing crop trials in the area at the time and in a chance meeting Tress was asked if she could use her scientific skills to help with seeding a field trial.

One thing led to another and Tress soon found herself back in Perth co-ordinating the Department of Agriculture's TopCrop program – a job that led directly to her role today: CEO of the crop breeding company, InterGrain.

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Try watching this video on [www.youtube.com](http://www.youtube.com), or enable JavaScript if it is disabled in your browser.

As part of her work at the Department of Agriculture, Tress was asked to build a business plan for a commercial crop breeding program for Western Australia. She was also asked to develop the operating systems and commercial platform for the spin-off proprietary limited company. A move across to run both the program and ultimately the business as CEO, followed in natural progression.

Ten years later, and this company – InterGrain – is widely recognised as producing some of the best noodle wheat varieties in the world and is the only active breeder of wheat varieties for Udon noodles outside of Japan.



**Excellence in wheat varieties**

How did Australia – and specifically Western Australia – come to develop such excellence in distinctive noodle wheat varieties?

The story goes back forty years, says Tress.

'In the 1980s, the Japanese began to purchase wheat from Western Australia specifically for noodles. At the time, Dr Graham Crosbie, a research scientist who specialised in cereal chemistry, was working at the Department of Agriculture. The Japanese kept asking for a particular wheat variety called 'Gamenya' and Dr Crosbie wondered why. So he travelled to Japan and found that this variety was being used specifically for the iconic Udon noodle.

'Dr Crosbie then set up a collaboration between plant breeders here in Australia and the noodle industry in Japan to develop the perfect wheat varieties for various types of noodles – and particularly, for Udon noodles.'

Tress says that working closely with the industry in Japan has been the key to success for InterGrain. 'They had to teach us what was important for them, and our cereal chemists have had to master the finer points of Udon noodle making.

'WA now has a trained sensory testing panel that is skilled enough to pick up micro sensory differences across lines,' Tress explains.

'When we release a new noodle variety, the process involves two sensory panels, including a Japanese expert who blind tastes to make sure we meet the market's requirements.'

## It takes a special grain

'It takes a special grain and exactly the right growing conditions to produce the necessary mix of 'spring' and 'stretch' for the Udon noodle,' Tress says.

'To be successful in the finished product, the wheat has to be bright creamy in colour and have the perfect 'mochi mochi' texture and mouth-feel.'

Western Australian wheat provides these unique requirements in abundance: the state exports over one million tonnes of Udon noodle grain annually to Japan and Korea – a trade worth more than A\$350 million.

'A standard wheat breeding product development cycle takes about eight to ten years to complete,' says Tress. 'We're looking for yield potential, disease resistance and high quality. We start the process by crossing two sets of genetics. For the first two years all of the work is conducted in glass houses. After that you go out into the field.'

InterGrain has fifty different trial sites across Australia – from Western Australia to South Australia, Victoria, and as far north as southern Queensland.

'What we're trying to do is expose our wheat genetics to the widest possible range of environmental conditions,' explains Tress. 'We're trying to find varieties that are broadly adapted so that a grower experiencing a poor season can still receive a reasonable yield, and an excellent yield when the season's good.'

Tress points out that a crop variety has to do more than just perform agronomically well for growers. 'It must also meet end user quality requirements: in particular, the needs of our Japanese and Korean customers.

'In practice, this means that we do a lot of quality testing. We look for the obvious things such as the perfect colour and the right texture, but there's more. To give just one example – we also look for a wheat variety that

has what one could call 'staying power': because Udon noodles are usually served in a bowl of hot soup, we have to be sure that they won't become gummy or disintegrate when they sit immersed in hot liquid over a period of time.'



## Australia – innovative in agriculture

Wheat varieties for Udon noodles only make up about ten per cent of Western Australia's wheat production; 'so we also do a lot of work on the hard wheat varieties that are used for bread production and for instant noodles,' says Tress.

InterGrain also has a national barley breeding program which is directed at producing varieties that meet grower demand for yield and yield stability across a range of environments. Plus a special quality focus on making the perfect beer.

In her fifteen years in the business Tress has gained a wealth of knowledge about what's needed to run commercial plant breeding operations, but she credits her success on the way new ideas are tackled by those around her and the general atmosphere of innovation in the industry.

'I think that we're incredibly innovative in Australia when it comes to agriculture,' Tress says. 'We try everything.'

'It stems from our 'can do' attitude. We push to get things done and we like to test our limits.'

Find out more about [InterGrain](#).

