

an attractive career

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Anika Molesworth, Danila Marini and Rebecca Thistlethwaite - they're young, smart and making agricultural science an attractive career path.

It's been a good season in western New South Wales and on Anika Molesworth's family property, Rupee Station, near Broken Hill, the country has come alive. After years of drought, grasses and herbage once again carpet the landscape and the colour of green soothes the soul. Anika, 28, grew up in Melbourne but when her family purchased Rupee in 2000 she was tipped head first into Australia's drought-riddled agricultural industry. But instead of driving her away, life on the land, even at its harshest, drew her in.

Danila Marini, 25, and Rebecca Thistlethwaite, 26, also grew up in urban environments and also experienced the pull of rural Australia when their families bought rural properties; Rebecca on the southern highlands of NSW where her family ran Angus cattle, and Danila on a small farm in the Adelaide Hills where she fell in love with sheep, cattle, goats and chickens.

"These wonderful young women 'get' both science and the bush, and are blazing their own paths towards improving our agriculture through innovation," says Professor Snow Barlow from The University of Melbourne.

All three have followed their passion for agriculture into the world of scientific research and are giving back to the land and the animals, that nurtured them in their youth.

With her boots pointed towards an outback campfire Anika is more than happy to talk about her career as an agricultural scientist. "I've just returned from Cambodia where I was flying drones," Anika explains. "We are looking at crop biomass, nitrogen content and soil moisture from the air and working out how and where we can improve soil nutrients and water management. Apart from being super fun, drones are a new technology offering great potential in international development research."

Anika is in Cambodia for her PhD research, which is looking at optimising soil fertility in water constrained environments and comparing Australian conditions to those found in Cambodia and Laos. It is the latest step in her amazing agricultural career, which has seen her named 2015 Young Farmer of the Year and put her in Paris for the United Nations Conference on Climate Change.

Although her time at Rupee Station was an introduction to

agriculture it was as a jillaroo that confirmed this was the life for her. "As soon as I left high school I caught three planes of decreasing size and flew to a giant cattle station in northern Queensland," she says. "Unlike many 18 year-old-city girls, all I wanted was to be on the back of a horse trailing a few thousand cattle with a vast empty horizon ahead of me. I love the raw beauty of the extensive grazing systems. They are wild, challenging and isolated. You find great value in the most basic essentials of life – a clear stream to fill your water bottle, a smile from the only person you see that day or a gum tree to offer shade on a week-long muster."

This passion for rural Australia is echoed by Danila. "Being from South Australia I absolutely love the Flinders Ranges and Kangaroo Island but the New England region has also stolen my heart," she says of the area around Armidale where she moved after completing a Bachelor of Science at Adelaide University.

"I love that you can drive through pastoral land seeing sheep and lambs along the highway, and then take a few turns and all of a sudden you're greeted with beautiful gorges and towering waterfalls."

But it was not the scenery, but the sheep, which captured Danila's heart. Her love affair started with hand-rearing lambs in the Adelaide Hills and progressed with animal husbandry when she learnt to weigh, drench and vaccinate while at high school.

"However during my honours year I got to work with sheep as a flock and as an individual, and it was during this time that I learnt a lot about sheep behaviour and the fact sheep can be pretty smart," she says.

So Danila set about proving it, moving to Armidale to undertake further studies at the University of New England. "The aim of my PhD project was to incorporate pain relief in food for sheep and cattle and to train sheep to self-administer the drugs (non-addictive of course)."

Her valuable work showed that pain relief, in the form of non-steroidal anti-inflammatories, in pellets could be successfully delivered to castrated and tail-docked lambs. "Sheep are clever," Danila explains. "You can train them but

> CLOCKWISE FROM TOP LEFT PHOTO:
REBECCA, DANILA AND ANIKA.



because animals never react exactly as you would expect, we couldn't demonstrate they could learn to voluntarily take the drugs."

Now working with chickens as an animal scientist at Armidale, Danila is committed to making the world a better place for both farmers and animals. "The best part of my career is doing the research. I work with industry to improve animal health and welfare," she says.

While Anika is sorting out the soil and Danila the animals, Rebecca is researching the science of crops, specifically wheat, at Narrabri. "I'm a final year PhD student with Sydney University and my project focuses primarily on breeding new wheat varieties for their superior tolerance to heat stress," she says.

"I'm hoping to be able to develop varieties that will improve overall wheat yields for our northern NSW grain farmers, even when the growing season is extremely hot and dry."

Researching the science of wheat on the vast Narrabri plains is a world away from Sydney's Sutherland Shire where Rebecca grew up on sand and sea. "When I was 13 years old my parents bought a small property in the southern highlands and this was the beginning of a whole new world of exciting experiences for me," she says.

"I couldn't wait to spend all of my holidays and weekends in a place that made me feel so free." Rebecca's future career path had been ignited.


Rebecca has completed a Bachelor of Science in Agriculture at the University of Sydney and gained graduate work as a

research agronomist.

"I travelled 75,000 km by car in my first year across NSW and Queensland, flew interstate countless times and travelled overseas," Rebecca says, before she received a Grains Research and Development Postgraduate Scholarship to study plant breeding and genetics.

Now working at the I. A. Watson Grains Research Centre this city girl has no regrets about her life and career in the country. "I've fallen head over heels in love with rural Australia and in particular the north west of NSW," Rebecca adds. "The Narrabri Shire is nestled in the Nandewar Ranges on the banks of the Namoi River and even though it can be incredibly hot and dry, it is one of the most picturesque places I've ever been."

Rebecca collaborates with dedicated scientists across the world; all of them working with the common goal of producing more food with fewer resources for an expanding population in a time of challenging climate change.

"Before I worked in research my vision of a scientist was socks, sandals and hairy legs," Rebecca laughs. "On the surface science may not appear to be sexy but don't let this fool you. The sexiness of the scientific world emanates from the intelligence of the people who work within it and their ability to communicate the relevance of their discoveries to the rest of the population." 

Anika, Danila and Rebecca are all Young Farming Champions with the Art4Agriculture program.





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