



Smart farm science

Australian cattle and sheep farmers care for almost half of our continent, working with scientists to save water and energy, look after the environment and keep their animals happy and healthy.

Backyard biodiversity

A great farm has a balance of healthy livestock, pasture, trees, plants and wildlife. This balance is called biodiversity. Biodiversity means a place has lots of different forms of life. It covers everything from plants to animals, fungi (like mushrooms) and microorganisms (life forms that are too small to see), as well as the environments they live in.

High biodiversity means an area has many different types (species) of life. The air we breathe, the food we eat and the water we drink all rely on a high biodiversity.

Farmers try to create greater biodiversity on their farms. Planting new trees helps native shrubs and bushes to grow. Tree roots hold soil in place, which stops the soil's food (nutrients) from washing away in the rain. Plus, trees keep animals cool in hot weather by giving them shade, and in winter they protect animals from wind and rain.

Farmers fence around native Australian trees (remnant vegetation) to give native animals a sheltered place to feed and breed. Fences also keep out feral pests like foxes, which prey on native animals.

Weeds are bad for biodiversity — they invade crops, damage soil and can harm cattle and sheep. Weeds cost Australian farmers \$4 billion a year — that's a lot of money! But scientists have come up with some pretty cool weed solutions — for example, when a tree gets infested with a weed called Parkinsonia, they inject the tree with a tablet of fungi that gets rid of the weed!

Watch farmers Pip and Selwyn Job from Cumnock, NSW, talk about the importance of biodiversity on their farm
Find out more: GOODMEAT.COM.AU/EDUCATION

Wise up on water!

Australia is a dry country with weather that's hard to predict. It's tough to keep a farm running if you don't know when it's going to rain. So farmers are careful to save water, making every drop count towards watering their animals and keeping pastures growing.

Providing water for the animals is the biggest use of water on the farm. Every day, an adult cow drinks about 45 litres of water and an adult sheep drinks up to 7 litres of water!

Farmers are also becoming water smart in many other ways. Dams collect and store rainwater, supplying water to the farm for animals to drink and to water the pastures where they graze. Heat from the Sun can dry up a dam, just like it dries up puddles after the rain. Farmers can beat the heat by covering up their dams, so even when the weather is dry, or there's no rain, they'll have a good water supply. They can also pipe water to where it's needed on the farm, and can use satellite images and weather websites to keep track of the driest areas of their property.

Farmers also plant perennial shrubs and bushes for their animals to eat. Perennials are plants that live for more than two years and can live on very little water, so they often survive a drought.

See how cattle farmer Peter Camp, from Kalyeeda Station, WA, keeps his waterways healthy. Find out more: GOODMEAT.COM.AU/EDUCATION

Healthy herds

Caring for sheep and cattle is a big job. When your grandparents were young, the average Australian farmer produced enough food each year to feed 20 people. Today, each Australian farmer produces enough food to feed 600 people — 150 in Australia and 450 overseas.

We need to make sure that animals are protected from disease. Cattle and sheep can get sick from germs and parasites (creatures that live on or in another animal). Parasites, like ticks, can make cattle and sheep very sick and affect their ability to grow and reproduce. In one Meat & Livestock Australia project, scientists are working together to find a vaccine against tick fever.

It's not just science and medicine that can help to keep animals healthy. When animals are handled well as they are moved around, fed and housed, they are happier and healthier. Poor handling can make an animal feel stressed and afraid of people. Other Meat & Livestock Australia projects are looking at the best ways to handle animals.

Watch farmer Jane Sale describe how cattle are mustered on Yougawalla Station, WA
Find out more: GOODMEAT.COM.AU/EDUCATION

Fart smarts

We all do it! Farting and burping, or flatulence and belching, is a natural result of eating. It's caused by bacteria in our stomachs digesting our food and creating waste gases such as methane.

Cattle and sheep belch more than humans because of their unique digestion system that allows them to digest grasses that other animals couldn't eat.

Methane is a greenhouse gas. Large amounts of greenhouse gases can trap heat in our atmosphere in a way that scientists think could change our climate forever.

Methane from sheep and cattle creates up to 10% of Australia's greenhouse gases. To reduce this, scientists have found foods that make animals less gassy. For example, adding fat and oil to the diet of cattle can change their digestive process, producing less methane.

Some sheep and cattle naturally make less methane than others. Understanding why could help farmers and scientists work out how to breed other animals that do, too.

There are lots of other ways farmers can reduce greenhouse gases. Making electricity is a major cause of greenhouse gas emissions. So, instead, some farmers are collecting cleaner energy from the Sun by using solar panels.

Read about Danille Fox's story and how they save emissions on their farm Bona Vista, Queensland
Find out more: GOODMEAT.COM.AU/EDUCATION

Meet some passionate young farmers!

Stuart Tait

I'm passionate about agriculture and was awarded a Nuffield Scholarship in 2017 for study in the red meat industry. I grew up on my family's cattle property near Mandurama on the NSW Central Tablelands. After travelling, working and completing a Bachelor of Business (Farm Management) at university, I returned to the family business, which I now manage with my parents.

Our business is breeding Angus cattle with a self-replacing herd and trading cattle from a pasture-based grazing program. Some of the herd is sold as Pasturefed Cattle Assurance System-certified and the remaining animals are sold to feedlots to be finished on grain.

Careful management of our land and cattle to work with the climate results in the most efficient and sustainable food production.

I've also helped to set up a discussion group for 'young' farmers in this region, which meets every second month to discuss the beef industry and business issues, establish agricultural trials and host guest speakers.

Tim Eyes

My aim is to help my clients produce high quality beef for the local market while striving for economic and ethical sustainability with best practice stock handling and natural resource management.

I believe in maintaining and enhancing our environment, with a strong focus on ensuring high quality water, growing efficient pastures and effective fertiliser use.

I love everything about producing top-quality Australian beef. I run a farm consultation and management business, and manage six commercial beef properties near Wyong Creek on the NSW Central Coast.

To achieve the best results, I often seek advice from experts, such as agronomists. These specialists support me by undertaking soil testing and nutrient mapping.

I utilise rotational grazing systems, and encourage pasture performance and soil health by mulching (cutting the pasture at an even level promoting faster regrowth) and harrowing manure into the soil. Sheep are used to help control winter weeds, reducing reliance on herbicides.

The farms I manage employ low-stress stock handling methods, creating a calm and comfortable environment for cattle and people. These measures improve efficiency, help produce higher quality meat and ensure the cattle live a healthy life.

About Meat & Livestock Australia

Meat & Livestock Australia (MLA) is owned by Australian beef, sheep and goat producers and represents Australia's red meat and livestock industry via marketing, research and development programs. Educating young Australians about the red meat industry is important to Australian farmers. This is why MLA make it a priority to offer teachers and students a wide range of curriculum-linked resources and interactive activities as an aid to bring the farm into the classroom. Visit: goodmeat.com.au/education

