



WHERE OUR *food comes from*

Lulled by the convenience of supermarket shopping, most of us have become disconnected from where and how our food is grown. As the nation prepares to pig out over the Christmas holidays, we investigate the origins of what's on our dinner plates.

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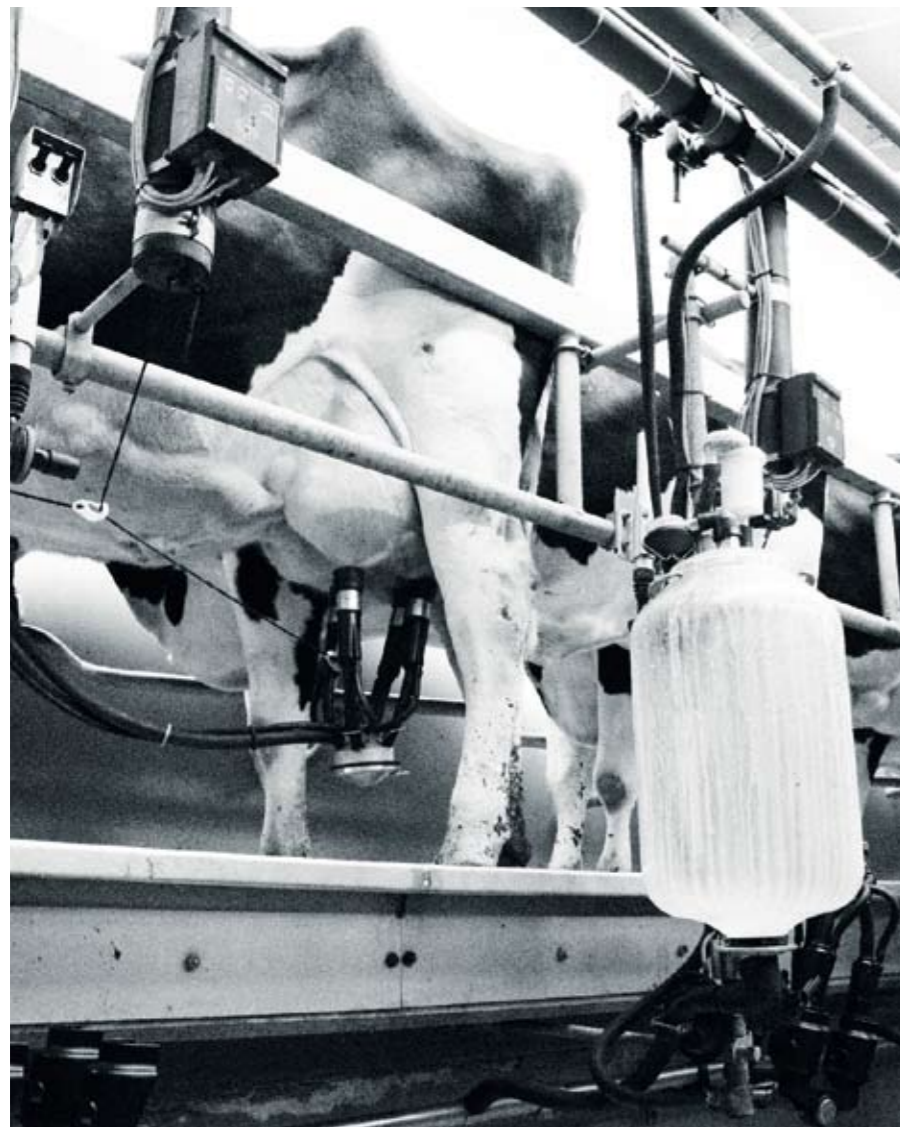
You're standing at the supermarket in front of a wall of tinned tomatoes, your hand hovering over the brand you usually buy. A quick glance at the label tells you the product is manufactured in Australia – but there's a catch. The tomatoes themselves were grown in Italy. And that's only the beginning of the questions: How did the food get here? What kind of farm did it grow on? Where, in other words, does the food you're about to buy actually come from?

Across Australia, more and more shoppers are asking about the production methods and environmental sustainability of their food. But with most food sold at supermarkets, the answers aren't always obvious. Adequate

signage explaining the food's origins is rare, as are staff who can offer knowledge. So then, how are you supposed to know?

The big picture perspective shows about 98 per cent of our fresh food – including meat, milk, eggs, fruit and vegetables – is produced domestically. But we're also bringing more food into the country, mostly processed or packaged goods (our major importers are New Zealand, the US and China). And yes, the organic market is growing, but it still only makes up a tiny portion of the food we buy.

The detail is more complicated. So let's look at the different sections of the supermarket individually, beginning the same way many Australians start their day – with dairy and eggs. >>



The lowdown on dairy and eggs

The good news is your milk most likely came from an Australian dairy farm – probably one near where you bought it. Your cheese and butter, however, might have come from further afield. In fact, there's a good chance the milk used to make them originated in Victoria, home to about two-thirds of the nation's dairy.

Historically, dairy farmers processed and sold their milk through co-operatives, but these days fewer than half of the dairy companies in Australia are run this way. The largest farmer-owned co-operative is Murray Goulburn. The two main players in the drinking milk market are National Foods (Dairy Farmers, PURA, Farmers Union), which merged with Lion Nathan in 2009, and Parmalat (Paul's brand).

But whether its private or co-op, the ethical issues remain the same. Modern dairy cows produce anywhere between 35 and 50 L of milk a day – far more than their calves would need, says animal

advocacy group, Animals Australia. Producing such huge volumes of milk can cause strain on the cow's udder and feet and lead to significant pain. Dairy cows usually produce a calf a year in order to continue producing milk, and are separated from their calves within 24 hours of birth. Some calves are kept alive for herd replacement or to raise as pink veal, with most unwanted dairy calves – three quarters of a million each year – slaughtered as 'waste products' at the age of 5 or 6 days old.

In Australia, most dairy cows are raised on pasture. Farms use a combination of grazing, feed in the dairy bails (the stalls in which they're milked), and in a feedlot. A small percentage of farms, mainly in Queensland and South Australia, don't let the cows graze outside. Like all cattle, dairy cows produce the greenhouse gas methane, and pollution from manure is also a concern. But Dairy Australia's Chris Phillips has faith in the industry's ability

to manage environmental challenges by thinking long term. "Our assets are our animals and our land – that's basically what we've built our businesses around."

Eggs are also produced in Australia. The hens are bred in farms, then sent to egg production facilities, mainly in NSW, Victoria and Queensland, where they'll lay for a year or so. Male chicks are worthless to the industry, so at one day old they're killed by carbon dioxide gassing or 'quick maceration', which means they're minced alive. Australian Egg Corporation Ltd managing director James Kellaway says the science suggests "quick maceration is a more humane way of killing" and that even free range and organic farms are supplied with hens from hatcheries that engage in the practice.

Cage eggs come from, yep, hens that live in cages. Each hen can have less space than an A4 sheet of paper, leaving no room to stretch her wings. Barn-laid eggs come from hens that have been kept in sheds, but not cages. Free range hens are also unconfined when they're in the hen house, and have access to an adjoining open-air range during daylight hours. Keeping hens this way typically means fewer birds to a flock. It's also more expensive for the farmers – which is why you pay more for free range eggs. Despite the cost, free range has grown to represent 18-20 per cent of production, says Meg Parkinson, president of Free Range Egg & Poultry Australia.



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There are guidelines for free range eggs but there are no universal or legally enforceable standards. This means that 'free range' varies between each producer. The industry body, Australian Egg Corporation Ltd, has voluntary standards allowing farmers to keep up to 1,500 chickens per hectare, though they are currently pushing to increase this to 20,000, while also proposing that free range hens be allowed to be locked inside sheds for the first 25 weeks of their lives. Currently they venture outside from about 5-6 weeks old.

At present, organic eggs make up a small proportion of the market. They generally have even stricter animal welfare standards, as well as restrictions on feed and the use of supplements and antibiotics. To find out if the brand of eggs that you buy is truly free range, visit www.frepa.com.au or www.animalwelfarelabels.org.au.

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Price of poultry

Here in Australia, the egg definitely comes before the chicken. In fact, the egg is flown here from the US or the UK and hatched in quarantine. The baby chick that emerges isn't the one that ends up on your plate. Rather, it's the great grandparent of the chooks we all eat.

About 95 per cent of poultry meat in Australia is chicken, over two-thirds comes from two big companies, Ingham and Baiada, and the majority is sold at supermarkets. So when you talk about poultry in Australia, you're really talking about a few major producers raising specially bred chickens in large sheds.

The sheds, usually located within a few hundred kilometres of capital cities, are typically about 150 m long, 15 m wide and home to a staggering 40,000 birds.

Contrary to popular opinion, chickens raised for meat aren't kept in cages, but they're crammed into those sheds pretty

tightly – it's legal to keep 20 two-kilogram chickens in a single square metre.

The chickens are bred to grow fast and can be 'harvested' at only 30 days old. They're picked up late at night and taken to a slaughterhouse, where they're stunned and killed. "It's a terrible life," says Glenys Oogjes, executive director of Animals Australia. "Each of these chickens is just a unit of production."

Factory farming has achieved significant commercial gains over the years, mostly through selective breeding (in Australia, meat chickens are given antibiotics, but not growth hormones). In 1975, it took almost 65 days to produce a two-kilogram chicken, but now it takes only 35.

According to industry body Australian Chicken Meat Federation (ACMF), these advancements mean chicken is the most "environmentally efficient" major meat source, with a much better rate of converting feed to muscle weight than beef, lamb or pork.

"The most sustainable is conventional chicken farming," says executive director of the ACMF, Andreas Dubs, citing a 2006 study that found switching to free range chicken would increase greenhouse impact by about 20 per cent.

But of course free range chicken has very clear animal welfare benefits. The birds don't have their beaks trimmed as they do in conventional factory farming (a process called 'de-beaking') and are allowed outside for at least eight hours a day. Organic chicken has much stricter standards, with a longer minimum lifespan, and there are no fertilisers, GM ingredients or pesticides in feed.

If you're opposed to the whole system, you should be aware that some large scale free range brands, such as Lilydale, are actually owned by the big poultry companies too.>>

The mystery of meat

When you visit a butcher, the true origin of your meat is sometimes gruesomely obvious. But these days most red meat is wrapped in plastic and sold at supermarkets, disconnecting us from the reality of eating animals. The best shoppers can do – aside from being a vegetarian or vegan – is learn where meat is produced and under what conditions.

Pigs are mostly raised in grain-growing areas such as southwest NSW, southeast Queensland, Victoria, southeast South Australia and southern Western Australia. They are usually kept in a shed. Adult females, called sows, give birth to piglets, which are weaned, raised in a separate area and slaughtered for meat as young as 18 weeks of age. The pregnant pigs are often kept in 'sow stalls' – individual pens two metres long and 60 cm wide, without enough room for them to turn around.

But pig farmers have recently bowed to consumer pressure over animal living conditions. "Last year the industry made a pledge, or a commitment, that we would be phasing out the use of sow stalls completely by 2017," says Andrew Spencer, CEO of industry peak body Australian Pork Limited. Meanwhile, Coles has committed to phase out the sale of sow stall pork by 2014 and currently produce their own branded free range pork, while 36 per cent of pork sold in Woolworths is sow stall free.

Almost all our fresh pork comes from Australian pigs, while most processed bacon and ham is made using imported meat. If you're wondering what happens to the sows once they're no longer reproducing, they're turned into salami.

Most of our fresh beef is also Australian. Queensland is by far the biggest producer, with more than 11 million head of cattle



– more than double NSW and triple Victoria. The southern states mostly run British and European breeds, while northern states have Asian breeds.

This means the southern and northern industries have different animal rights issues. Queensland cattle, for instance, have horns that are removed from the skull, an incredibly painful procedure. "If you do it really badly you can just see the brain sitting there," says Melina Tensen from the RSPCA.

The industry body, Meat & Livestock Australia (MLA) says that dehorning causes "transient pain" and that anaesthetic is not required in young animals. According to the MLA, dehorning is done to avoid injury to other livestock or themselves, makes the animals easier to handle and require less space in feedlots and during transportation.

If you buy 'grain-fed' beef in Australia, it means the animal has spent 60–70 days in a feedlot, an outdoor yard where cattle

are fattened before slaughter. About 70 per cent of feedlot cattle are implanted with hormones. According to MLA, 'grassfed' means the animal has been fed on pasture. Tensen says the label 'pasture-raised' or 'pasture-fed' indicates the animal has not been in a feedlot before slaughter. At the moment, there is no industry standard for these terms. The Cattle Council of

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Australia will launch an official 'pasture-fed' assurance program in early 2012.

Sheep are typically raised on pasture in temperate climates, such as western Victoria and southern Western Australia, and are less likely to spend time in a feedlot. Lamb is from sheep, generally under one year old, and mutton is from sheep more than two years.

Humane Choice's free range standards ban the use of feedlots and have strict rules about animal mutilation. Sheep must not have their tails removed and cattle dehorning must be done under anaesthetic if the animal is over three months old. Organic standards allow tail removal in lambs and dehorning without anaesthetic in cattle up to six months old.

There are a few free-range certification schemes for pork. The RSPCA's Approved Farming Scheme focuses on animal welfare. Sow stalls are not allowed and the pigs must have space to "perform most normal behaviours". Under the

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The ethics of animal sentience and slaughter

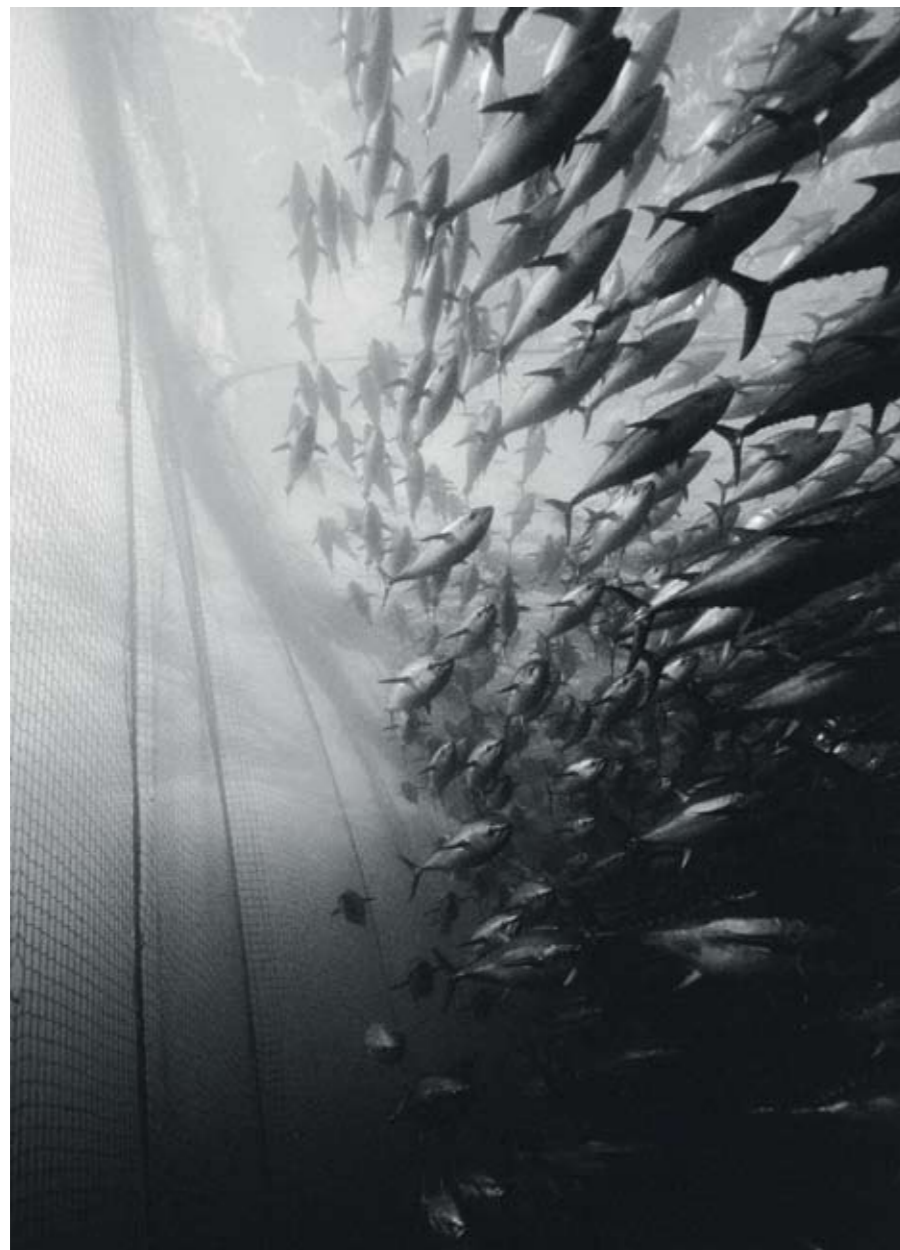
Some argue that 'humane slaughter' is a paradox, as farm animals have high-level communication skills. The RSPCA says humane killing is when an animal is 'killed instantly or rendered insensible to pain until death'. However, there's also ample research showing that farm animals undergo various levels of suffering during transportation to, and at, the abattoir, and have been known to be aware of impending danger or death. Today most accept that animals are sentient beings; with emotions including hunger, pain, fear and happiness. All farm animals have social relationships and structures. Pigs have been known to care for sick fellow pigs and are highly intelligent, ranking only behind dolphins and primates, with animal behaviourists and studies suggesting they are smarter than both dogs and three-year-old children. Meanwhile, research has shown that chickens can be taught to run the thermostat of their own coop, and cows, who form lifelong friendships, will show excitement when they learn something new.

scheme, 'free-range pork' means all the pigs are born and raised with access to the outdoors, and 'bred free-range' means the sows and boars live outdoors, while the weaned piglets are raised in open sheds called 'ecoselters'. Another certifier, Humane Choice, prohibits sow stalls and antibiotics in feed, and ensures all pigs spend their entire lives outdoors. Industry body, Australian Pork Limited, is developing its own free-range standard, but no producers are certified as yet. Organic standards also prohibit "intensive production systems", such as sow stalls, and allow the animals access to pasture.

The Biological Farmers of Australia (BFA) and National Association for Sustainable Agriculture Australia (NASAA) require at least 95 per cent of feed to be certified organic. The NASAA also stipulates that at least 50 per cent of this feed must be sourced from the farm itself; the rest from the region. Medicines and synthetic chemicals are also restricted.

At the abattoir, sheep are stunned by an electric current and cattle by a penetrating bolt to the brain. Pigs are stunned electrically or with carbon dioxide. The unconscious animal is then shackled and hung by a hind leg and has its throat cut. The unconscious animal dies from loss of blood. The recent controversy over live export is partly because other countries don't stun the animals before killing them, however the live transport of the animals is abhorrent.

Fourth-generation farmer Marcus Goonan runs 167 head of cattle in Dederang, northern Victoria and says we've become removed from where our meat comes from and what it should taste like. He says, "it's important to go to an independent family-owned butcher. He'll know where everything comes from." If you want to know where your meat comes from, says Leo Donati, owner of Donati's Fine Meats in Melbourne, "you've got to talk to the people that sell it". >>



Seafood catch

Australians have developed a taste for fish in recent decades. During the meat-and-three-veg era of the late 1940s, we ate fewer than five kilograms of seafood per year, but now we pack in about 25 kg each on an annual basis.

While most of our fresh meat is produced domestically, up to 69 per cent of the seafood that we consume is imported. Of the remaining, 24 per cent is caught in Australian waters and 7 per cent comes from fish farms, known as 'aquaculture' (see page 28 for details).

Most of our tinned tuna is caught in the Western and Central Pacific Ocean and processed in Thailand. We import about 40,000 tonnes a year, captured using Fish Aggregating Devices (FADs) to attract the fish and giant purse-like nets to scoop

entire schools out of the ocean. Catching our seafood this way has become a huge overfishing issue with many species threatened or endangered. Another problem, explains Nathaniel Pelle from Greenpeace Australia Pacific, is that FADs attract other marine species, which are killed and discarded as 'bycatch'.

Bycatch is also an issue in Australia's prawn trawling industry, which produces more than 20,000 tonnes of prawns each year. Tooni Mahto from the Australian Marine Conservation Society (AMCS) says for every kilo of prawns caught in Australia's Northern Prawn Fishery, the nets drag up five kilos of other stuff, including endangered species.

Fresh table fish consumed on the Eastern seaboard, such as flathead, blue grenadier and shark, comes

from Commonwealth-managed fisheries stretching from southern Queensland to the bottom tip of Western Australia. The critically overfished Southern Bluefin Tuna is caught off South Australia, but most of it is exported to the lucrative Japanese sashimi market.

Most of our fresh, frozen and packaged salmon is farmed in Tasmania. They are grown in 'sea cages' where they're fed a special diet including fish proteins and antibiotics, plus nutrients to make the flesh pink. Critics claim it's the aquatic equivalent of battery hen farming, leading to disease and marine pollution.

University of Tasmania aquaculture expert Stephen Battaglene says the Australian industry is highly regulated so these criticisms don't apply. However, an international study ranks Australia's salmon aquaculture behind most of Europe in terms of sustainability.

If you're wondering about what to buy, CSIRO fisheries scientist Tony Smith says you should choose local. "You can feel better about it from an ecological point of view than generally eating imported seafood." AMCS's Australia's Sustainable Seafood Guide lists farmed shellfish (mussels, abalone, oysters, scallops), wild crabs (blue swimmer, mud crab) and fresh wild fish (whiting, trevally, moonfish, mackerel, leatherjacket, bream, herring, bonito) as better options. Visit www.sustainableseafood.org for more.



The roots of our fruit and veg

They're the foundation of the food pyramid, but where do your fresh fruit and vegetables come from? Australia's vast size and diverse range of climates mean most fresh produce can be grown somewhere in the country at any time of the year. With consistently warmer weather, Queensland is the biggest producer – bananas, tomatoes and summer fruits are mostly grown there. Stonefruit, oranges and grapes are likely to come from NSW, Victoria and South Australia.

Whether or not the produce in your local supermarket or greengrocer comes from nearby, or has been trucked in from elsewhere, depends largely on your local climate and the growing conditions needed for that particular crop.

If, for example, a particularly cold winter interrupts supply in the southern states, fruit and veg might be trucked down from warmer Queensland climes, says William Churchill, communications manager for industry body AusVeg.

Fresh produce usually finds its way to the supermarket within a few days of being harvested. It's picked, packed and chilled in one day. If a grower has a contract with a supermarket, it's trucked to distribution centres near major cities, and from there to individual stores. Sturdy root vegetables, such as carrot, could come by train, but fragile produce – like lettuce – can bruise and is less likely to travel far.

Some fresh produce might be kept in cold storage – for up to nine months – to ensure its availability all year round.

The concept of food miles is a tricky one in Australia, says Churchill. Because our population is so spread out, our food usually has to travel a fair distance to reach our supermarkets. You can reduce this distance by choosing to buy from a local, independent fruit and veg shop. "Your greengrocers," says Churchill, "won't have large distribution chains that the supermarkets rely on." This means they're more likely to buy from nearby growers.

Occasionally, there are gaps in the domestic supply of staple fruits and vegetables. When this happens, retailers will often import fresh produce from other countries. Industry bodies are pushing for retailers to allow their local supplies to run out before restocking with imported goods, with labels to make it clear whether fresh groceries are Australian-grown or imported.

Chemical residues can pose a concern for consumers, however, any pesticides and chemicals used in food production need to be approved by the Australian Pesticide and Veterinary Medicine Authority (APVMA), and farmers need to have a permit to use them. Churchill says many growers are trying to use fewer chemicals, and are looking to practices like Integrated Pest Management (IPM), which uses 'good' insects like ladybugs to

Where does your food come from?

Here's a breakdown of some typical origins for common types of food.

SALMON: Tasmania (near Hobart and Macquarie Harbour)

TUNA: Thailand (caught in Western and Central Pacific Ocean, around Papua New Guinea)

BEEF: Queensland (biggest region is 'Fitzroy', around Rockhampton and Gladstone)

LAMB/MUTTON: Western Victoria, southwest Western Australia and southwest NSW

CHICKEN: Victoria (Mornington Peninsula, Geelong, Bendigo), NSW (Sydney outskirts, Newcastle, Mangrove Mountain, Goulburn), South Australia (Adelaide outskirts, Two Wells area), Western Australia (Perth outskirts), Tasmania (outskirts major cities) and Queensland (Brisbane outskirts, Mareeba)

DAIRY: Gippsland, Murray Region (Campaspe, Shepparton), Western Victoria (Warrnambool)

EGGS: NSW/ACT (one-third of egg-laying flock) Queensland and Victoria (quarter each)

BANANA, PINEAPPLE, AVOCADO, MANGO, FRESH TOMATO, CAPSICUM, ZUCCHINI AND BEETROOT: Queensland

STONEFRUIT, ORANGES AND GRAPES: NSW, Victoria and South Australia

CANNED FRUIT: Victoria

manage harmful insects like aphids, alongside 'soft chemistry'. This means that the crops are sprayed less often.

Organic produce uses similar distribution channels to conventional produce, but has stricter restrictions on fertilisation and pest control.

Holly Vyner, general manager of Biological Farmers of Australia, hopes to see the growth in organics continue. "Because as we say, organic isn't a luxury, it's how food should be. And we'd like it to be available and accessible to as many consumers as possible." >>



What's on our plates?

How much food and drink do you think the average Australian consumes every year? The answer might surprise you.

Eggs	6 kg
Seafood	25 kg
Cereals	85 kg
Vegetables	98 kg
Fruit	106 kg
Alcoholic beverages	111 kg
Meat	116 kg
Milk	230 kg

Source: Commonwealth of Australia. (2011). *Australian Food Statistics 2009–10*. Australian Government Department of Agriculture, Fisheries and Forestry. Based on annual average, 2005–2007.

Decoding the label: packaged and processed food

When you leave the supermarket, it's likely that about 40 per cent of what's in your trolley will be processed packaged food. Much of that will be made up of drinks or confectionary, followed by dry groceries (canned foods, sauces and oils, dry pasta and noodles etc.), then packaged baked goods and frozen or chilled processed foods.

Increasingly, even food that's actually manufactured here is made from produce that has been imported. Fruit and vegetables that have already been processed come mainly from China, New Zealand and the US, representing the largest category of 'substantially transformed' food imports. We buy about 80 per cent of our packaged food at the major supermarkets, Coles or Woolworths.

William Churchill from AusVeg says a lot of fruit and vegetable processors

are now importing produce or moving off-shore entirely, as major brands such as McCain or Edgell try to compete with the supermarket-brand labels. Buying produce from overseas is cheaper because growers in those countries have smaller production costs, and can therefore sell for less.

Labelling is the key to figuring out the origins of packaged food, and it helps to know what to look for. 'Made in' usually refers to where the product was manufactured. After manufacturing information on the label, you'll usually find details about where the ingredients themselves came from. Word order is important here; if the label says "from local and imported ingredients", there are more local than imported ingredients and vice versa.

It's worth remembering, says Nick Ray from Ethical Consumer Group, that these

country-of-origin labels also count the packaging as an 'ingredient'. Most of the food stuff might be from overseas, he says, "But then the packaging is transformed here in Australia and therefore it gets that logo."

The other issue is the packaging itself. Plastics 3, 6 and 7 can be harmful if ingested and are best avoided with food. Ray suggests reducing the amount of packaged food you buy or choosing recyclable packaging. 🌱

What are your thoughts on the true origins of our food? Tell us about your own personal ethics. Head to the G Forum at www.gmagazine.com.au/forum to post your comments.