



Debra Chant

## Topping up in a warmer world

Rising temperatures associated with climate change are likely to lower milk yield from cows, according to a CSIRO study. Milk losses will be minimised, say the researchers, if farmers adapt by providing shade and sprinklers for their herd.

The study uses a new approach that measures future changes in terms of risk to farm productivity rather than in climatic terms. It was conducted in the NSW Hunter Valley. CSIRO is confident that the findings will apply elsewhere in Australia.

'Primary producers who are users of climate information and often vulnerable to

changes in the weather want to know how climate change will affect their activities,' Dr Roger Jones says.

'We have analysed and presented the results of the study showing how much dairy farmers may need to adapt to the impacts of climate change to maintain their productivity.

'Under current climate, dairy cows in the Hunter Valley that are kept out in the open produce about 3% less milk than those kept under shelter.

'This loss represents about 230 litres of milk per cow each year for a high-yielding

herd. By adapting to hot weather by using shade sheds and sprinklers, milk losses can be reduced to about 50 litres per cow per year.'

However, because of climate change likely by the year 2030, milk losses are likely to be between 250 and 310 litres annually per cow, depending on the rate of warming.

'Importantly, the study has found that if farmers use shade sheds and sprinklers, each of their cows will produce 190 to 220 litres more milk per year than cows left exposed in paddocks. This would limit milk losses after adaptation to about 60-90 litres per cow per year. Our study shows that where measures limiting the effect of high temperatures on livestock are economical now, they will save even more money in future,' Dr Jones says.

CSIRO has discussed its findings with staff from government departments, conservation councils and the NSW Dairy Farmers Association.

'We studied hot cows because they were relatively simple to model,' Jones says, 'and we wanted to demonstrate our methods of risk assessment to the government and community.'

The researchers are hoping to apply their methods to study the risk that climate change poses for integrated catchment management in the Hunter Valley.

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### 'Burpmap' in the wind

IF YOU'VE ever wondered where the bulk of Australia's burping ruminants hang out, CSIRO Atmospheric Research has just the map for you.

The division's Simon Bentley says a typical cow burps 280 litres of methane each day, the result of microbial digestion in its stomach.

He and his colleague Dr Ying Ping Wang have used an air transport model to convert the collective emissions of Australia's livestock into atmospheric concentrations. The outcomes were verified against measured concentrations at Tasmania's Cape Grim Baseline Air Pollution Station.

Results from the work will contribute to Australia's national greenhouse gas inventory. Under the Framework Convention on Climate Change, countries are obliged to report on greenhouse gas emissions such as methane.

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