

Pure Canterbury

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Pasture Motukarara, Canterbury NZ. Source: Wikimedia Commons

The great French geographer Paul Vidal de la Blache believed that the human geographer's primary task was to account for distinctive genres de vie, lifestyles, or, modes of existence set in a landscape. Nothing was more distinctive to subsequent New Zealand geographers than the patchwork quilt of rectangular paddocks of cereals, crops and fat lamb pastures that comprised the Canterbury Plain between 1890 and 1990. A patchwork delineated by water races, wire fences and impressive shelterbelts of English gorse, Monterey Pine (*Pinus Radiata*) and Monterey cypress, from California, planted to protect the paddocks from desiccating norwesterly winds. Much has changed since.

At Camelot Robotic Dairy farm, near Ashburton, mid Canterbury, the robotic system gives 500-odd unusually large framed Friesian and Swiss Brown cows the option of being milked up to four times a day. A microchip collar tracks their movements as they move between pasture, the dairy and rewards of straw and water in the loafing yard. The microchip opens the gate when the cow needs to visit the dairy. Inside laser sensors direct the cups to individual teats. Milking information is displayed on a computer monitor.

At Dunsandel, half way between Ashburton and Christchurch Synlait opened a \$100 million shiny, ultra-modern milk powder factory in 2008, the largest infant formula facility of its type in the Southern Hemisphere. In 2010, Chinese company Bright Dairy, a Shanghai-based enterprise, bought a controlling stake in Synlait so that

container loads of cans containing Pure Canterbury infant formula are now shipped off to China.

This year a large-scale dairy farm has been given the go ahead in the Mackenzie Basin, southwest of Ashburton, around Twizel, despite opposition from environmental groups and from Ngai Tahu the principal Maori iwi (tribe) of the southern region of New Zealand. Huge central pivot irrigation systems pump water from the fluvioglacial gravels to provide pastures for some 1 400 dairy cows. So severe is the north Otago climate that the cows will need to be wintered off the property. The battle to establish this enterprise took two years in the court system and it may offer a precedent for further dairy farming in the district. A more optimistic venture to farm 18 000 dairy cattle further down the valley that involved stall feeding in cubicles over winter was denied permission to proceed.

Rather ironically, Ngai Tahu Holdings Corp, the commercial company owned by the iwi is also planning the development of three dairy farms in former forested country at Eyrewell Forest, north of the Waimakarri River, close to Christchurch, where irrigation pipes will supply river water to the pastures. The iwi is concerned enough about the environment to develop these farming ventures in conjunction with experts from Christchurch's Lincoln University.

Dairy farming is big business in this part of New Zealand. Although many farmers still grow wheat and barley and

high value specialist crops such as radish and Asian greens, dairying has proliferated under central pivot irrigation and rotary dairy systems. In 1990 there were 20,000 hectares in Canterbury under irrigation and in dairy production. In 2012 the relevant figures are an order of magnitude larger with 200,000 hectares irrigated and in dairy production. In the past two or three years dairy farming has boomed in this part of the world. Land prices and cattle prices have risen commensurately and dairy farming is still an attractive financial proposition.

Of course there are environmental consequences connected to this expansion of dairy cattle numbers. The distinctive mixed crop and livestock farming landscape referred to above had a number of advantages. A typical farm in the 1980s had substantial herds of breeding ewes feeding off pasture, wheat stubble and green weeds that spring up in the newly ploughed paddocks. The sheep fertilise the soil and a rotation of root crops, legumes, clover, lucerne and fallowing revitalise the soil and replace nitrogen and other elements. Farm activities were income supplementary dependent on the oscillations of meat and grain prices, and, work complementary. When the intensive periods of grain production occurred on farm then livestock needed little attention and vice versa.

Today, mixed crop and livestock farms harvest grass grown as a cash crop that is sold to dairy farmers as silage thus removing valuable nutrients from the soil and interrupting the nitrogen cycle. Dairy farmers have further problems with the nitrogen cycle. Animal wastes add excessive nitrate ions and ammonium ions to rivers and groundwater systems. Scientists from Lincoln University say that there is evidence of an increasing long-term trend of nitrate in groundwater. A 2009 study by Environment Canterbury revealed that only 43% of all Canterbury dairy farms were fully compliant with the standards set for the discharge of dairy effluents. Further, Canterbury Plain river systems have been degraded both in terms of water quality and water quantity with significant contamination from faecal matter, nitrogen and phosphorus, shelter belts have been demolished with concomitant reductions in biodiversity and, most important of all, the agricultural sector emissions of CO₂ equivalent gases, largely from the belches and backsides of cattle, represented 49.4% of all greenhouse gas emissions in New Zealand.

The incursion of dairy farming into the Mackenzie Basin is particularly disturbing. The Basin is a high inter-montane dry area floored by fluvioglacial outwash deposits and covered by brown tussock grasses set against the backdrop of the snow-covered Southern Alps. The braided rivers and moraine-dammed lakes are habitats for important native birds, the most famous of which is the black stilt, which is one of the rarest waders in the world. It is an area of outstanding natural beauty, a quintessential New Zealand landscape, an area impacted on by people but a region in a nice balance between human occupancy, whether pakeha or Ngai Tahu, whether seen in terms of forest clearing and hydro-power development, and the maintenance of a surrounding awe-inspiring and irreplaceable scenic resource. The Aoraki-Mt Cook National Park and the Ruataniwha Conservation Park are well protected but the Basin is hardly a natural landscape because it encompasses the farms, and, townships of Tekapo and Twizel, the hydro-power infrastructure, wilding pines (the spread of exotic conifers), introduced hawkweed and patches of semi-desert like bare ground in the drier and lower parts of the Basin. Nevertheless, it does provide an impressive foreground, an aesthetic picture frame, for the Southern Alps. It does allow ecological and geomorphological processes to proceed in the Basin. Intensive dairy farming and conversion of the land to irrigated pasture threaten the picturesque qualities and the ecological integrity of Mackenzie Country.



Water pollution due to dairy farming in the Wairarapa, New Zealand. Image also shows a cattle underpass on State Highway 2. Source: Wikimedia Commons

It is probably apocryphal but Chinese tourists are said to be able to pay for their trip to New Zealand should they be allowed to fill their suitcases with milk powder on their return journey. Chinese demand for dairy products is increasing rapidly. In the four years since the 2008 Free Trade Agreement was signed between the two countries New Zealand dairy exports to China increased in value from \$500 million to \$2 billion. By 2019, the ever-reducing tariffs of dairy products will be reduced to virtually zero. The young New Zealander that came to try his or her hand at mixed crop and livestock farming, from North Island, thirty or forty years ago has been replaced by robots and a succession of dairy farm workers on Canterbury dairy farms with temporary work permits from as far away as the Philippines and Latin America, particularly Chile. Such is the power of the market. Although, Vidal would add that the natural endowments of the Canterbury Plain and Mackenzie Basin present a range of possibilities for people to make use of.

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Australian Curriculum Geography references:

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK028>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK029>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK038>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK061>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK063>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK069>

<http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACHGK070>



Mackenzie Basin and the Southern Alps, New Zealand.
Source: Wikimedia Commons