

Keeping children safe on the dairy farm this spring



associated with the same ruminant-associated subtype of *Campylobacter jejuni*, was linked to the consumption of unpasteurised milk purchased from the same supplier. Some of the cases were hospitalised, highlighting the severity of outbreaks of this kind. But this infection pathway does not explain all the cases in dairying areas. A further clue is provided by the seasonal pattern of cases; when the time series of cases in urban areas is compared with rural areas both with and without dairy cattle, an interesting observation can be made (see Graph 1). Firstly, the urban areas and rural areas with no dairy cattle display a regular seasonal pattern, with peaks around November to February, and the effects of the intervention in the poultry industry can be clearly seen. However, in the areas with a high density of dairy cattle, the case rates peak around August to October and they are relatively unaffected by the intervention. This is consistent with an increase in exposure around calving time and highlights a very different epidemiological pattern in these areas compared to urban areas.

The precise determinants of infection are still unknown, but given the seasonal pattern, and the high risk in young children, it seems likely that direct contact with young stock at this time of year is an important risk factor. In discussion with rural GPs at a recent conference in Rotorua, it was evident that this has been identified as a problem; one provided anecdotal evidence that a programme of reducing hand-mouth behaviours and improving hygiene reduced the incidence of diarrhoeal disease in his pre-school patients living on dairy farms. Raising awareness of the importance of reducing the risk to these high risk groups could also be provided by rural veterinary practitioners, particularly given the risks associated with more harmful pathogens such as *E. coli* O157:H7; a pathogen that is also highly prevalent in New Zealand cattle and associated with severe complications such as renal failure and death.

Professor Nigel French
Professor of Food Safety and
Veterinary Public Health

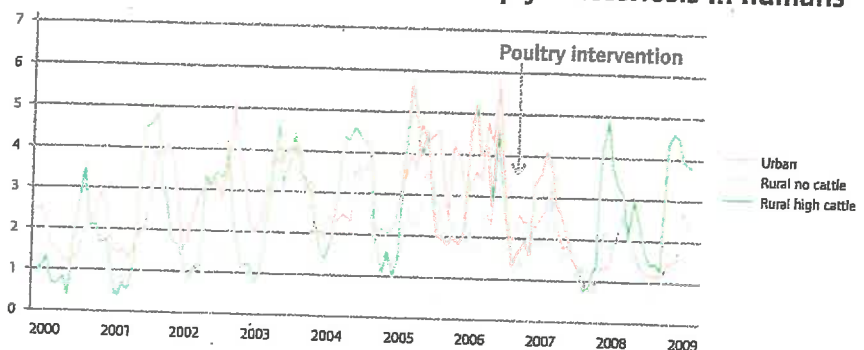
Vetlife is very pleased to have the following article from Professor Nigel French, Director of the Infectious Disease Research Centre and the Molecular Epidemiology and Public Health Laboratory in the Hopkirk Research Institute, Massey University.

Many of the most important zoonoses (diseases that can pass between animals and people) in New Zealand can be transmitted from cattle to humans via direct contact, food products, or from contamination of the environment and drinking and recreational water. The diseases include cryptosporidiosis, campylobacteriosis, salmonellosis, *E. coli* O157:H7 infection and leptospirosis - which figure prominently in the list of notifiable diseases. Top of the list is still campylobacteriosis causing dysentery, abdominal pain, cramps and fever. Even though the situation has improved in recent years: the major epidemic of campylobacteriosis associated with the consumption of chicken led to interventions in the poultry industry in 2007, and this resulted in a 50% reduction in the number of notified cases (from 16,000 cases in 2006 to around 8,000 in 2008). This decline was predominantly in urban areas, and has resulted in a major change in the epidemiology of this disease in New Zealand. Recently, work carried out in the Hopkirk Research Institute's mEpiLab has focussed the spotlight on human cases of campylobacteriosis in rural areas. Before the intervention in poultry, the case rates were

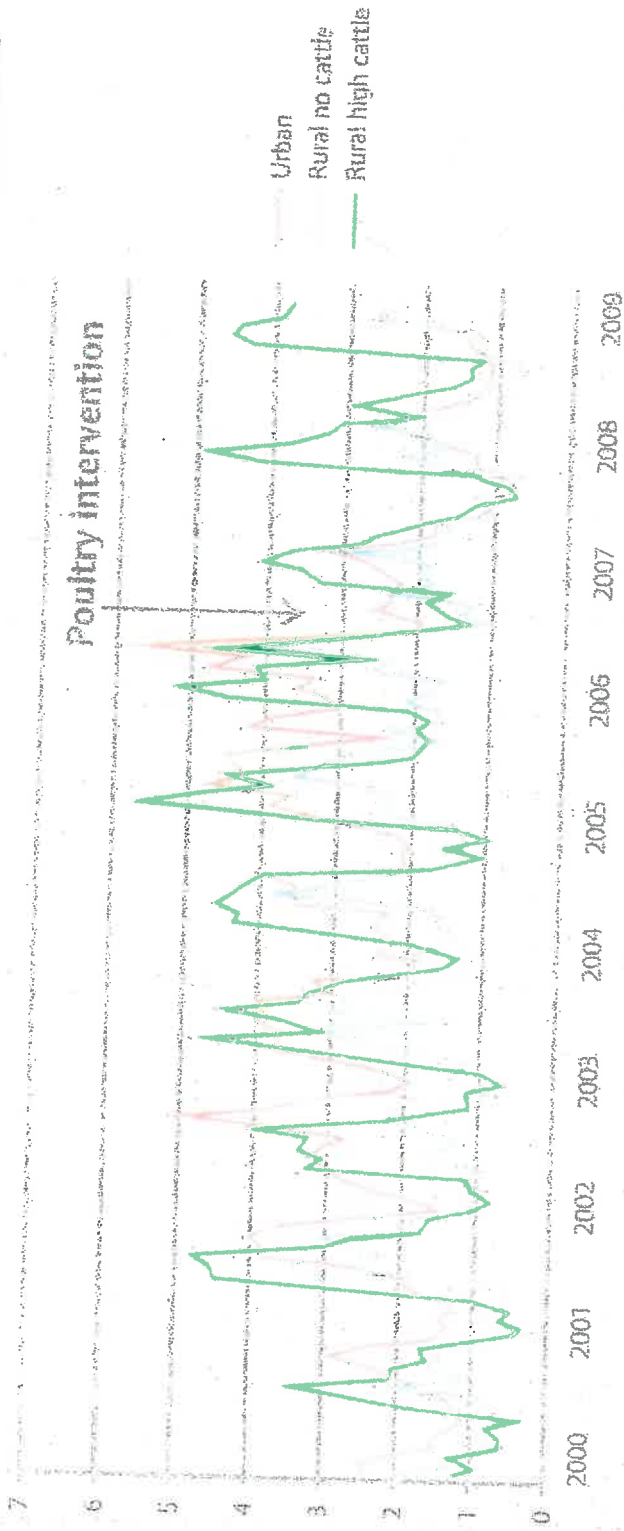
highest in urban areas, but now the rates are higher in rural areas, and in particular, areas with a high density of dairy cattle. In fact, the highest risk group in New Zealand is now children under 5 years of age living in high density dairying areas. This raises the question: where are they acquiring the infection from? Or, more specifically, what are the risk factors or transmission pathways?

Certainly the consumption of raw milk is an important risk factor for all age groups - an outbreak of 8 cases in 2011 in the Manawatu, all notified over a single 2-week period and all

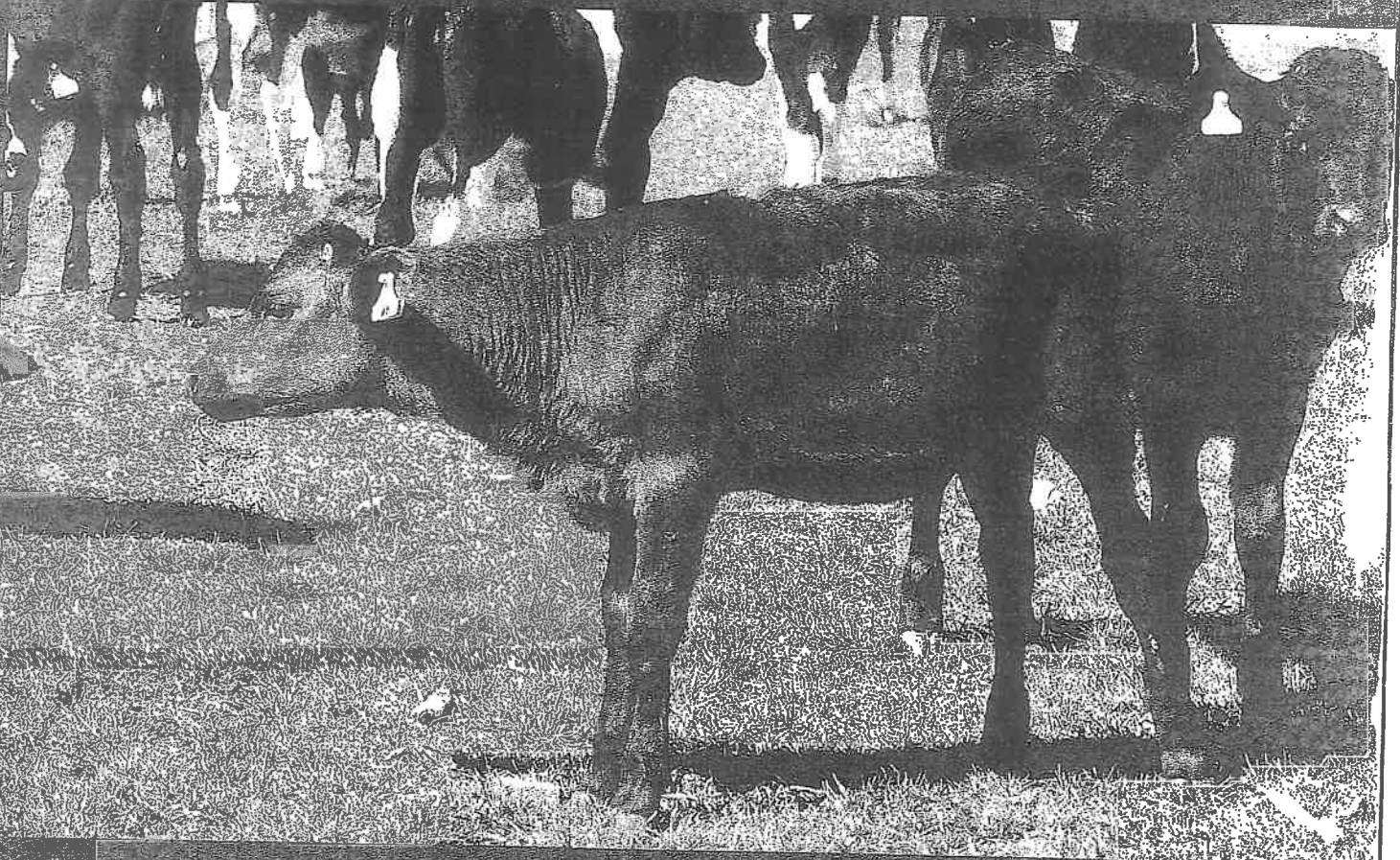
Graph 1: Seasonal incidence of Campylobacteriosis in humans



Graph 1: Seasonal incidence of Campylobacteriosis in humans



Keeping children safe on the farm this spring: part 2



Children love baby animals and calves are always cute. Unfortunately a calf shed can be a dangerous place for young children during spring, with diseases such as cryptosporidiosis and campylobacter easily picked up from scouring calves. As discussed by Nigel French in the last newsletter, outbreaks of *Campylobacter jejuni* infection in humans peak from August to October. Although campy and crypto are the two that most commonly come to mind, salmonella, Rotaviral and *E. coli* scours can also be passed to humans.

On many farms there is no such thing as a babysitter when you want one and so the kids have to tag along when it is time to feed or treat the calves. Keep in mind though that preschool age children are especially vulnerable. Their immune systems are immature, they have a tendency to stick hands and things they find in their mouths, and they are harder hit by infections – diarrhoea in small people is a bigger deal just as it is for small animals.

Even if children are not entering the shed they may still be at risk. Every time you

leave the calf shed and head back to the house you are potentially carrying bugs with you that could make your children sick.

Pregnant women, elderly people and people with a depressed immune system due to other illness or medication are also at a higher risk of catching these bugs, so the same rules apply.

Hygiene and separation from potential infection are important.

Ideally children should be kept out of calf sheds for their own protection, this is especially important in preschool age children.

Always wash hands thoroughly after working with the calves. Make sure children who have been around calves wash their hands and face thoroughly before eating.

Eating food or drinking while working with the calves should be avoided, as should smoking or anything that could mean bugs enter your mouth.

Change into a fresh set of clothes or overalls and change footwear after dealing with the calves. If you cannot have a dedicated set of 'calf shed boots', then boot baths with Virkon S or another quality disinfectant outside the calf pens should be used.

Any person handling calves who becomes ill with diarrhoea, vomiting or stomach cramps should talk to a doctor as soon as possible. This is even more important if it is a child who becomes unwell. Be sure to tell your doctor that you live and work on a farm.

Be aware of the risks and guard against them. Following a few simple rules, such as those above, will mean that you and your family remain healthy and able to get through spring, and maybe even enjoy it, without having the added stress and worry of your children coming down with some quite nasty diseases.

Jess McDowell
Vetlife Temuka

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