

Investigation of the index case herd and identification of the strain types of *Theileria orientalis* associated with outbreaks of bovine anaemia in New Zealand in 2012

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Supplementary Table 1. A nucleotide distance matrix of sequences obtained from major piroplasm surface protein (MPSP) PCR products amplified and sequenced from blood samples from cattle with signs of anaemia associated with *Theileria orientalis* infection (TABA), against reference MPSP types described for Asia and Australasia (Ota *et al.* 2009; Kamau *et al.* 2011) after alignment with CLUSTAL W.

Reference Sequences	MPSP PCR products from NZ samples						
	Type 1 herd 6 ^a	Type 3 herd 5 ^b	Type 2 herd 4 ^c	Type 5 herd 2 ^d	Type 2 herd 2 ^d	Type 2 herd 1 ^e	Type 3 Takaka ^f
	KP795977	KP795978	KP795979	KP795980	KP795981	KP795982	KP795983
Type 1 Chitose, Japan	98.4	84.4	87.2	85.1	87.2	87.2	84
Type 2 Ikeda, Japan	86.9	82.1	99.6	80.8	99.6	99.6	82.3
Type 3 Buffeli, Essex	84.8	99.3	82.3	85.1	82.3	82.3	99.1
Type 4 Okinawa, Japan	90.1	90.6	87.2	87.7	87.2	87.2	90.2
Type 5 Shintoku-Cheju	84.7	86.3	80.6	97.3	80.6	80.6	86
Type 6 Kamphaeng, Thailand	77.5	75.6	77	77.2	77	77	75.8
Type 7 Okinawa, Japan	86.3	81.2	86.3	80.1	86.3	86.3	81
Clifton 41, Australia	85.1	85.6	80.8	99.6	80.8	80.8	85.3
Oakey 45, Australia	85.1	85.6	80.8	99.6	80.8	80.8	85.3
<i>Theileria parva</i>	63.8	60.7	64.2	62.5	64.2	64.2	61
<i>Theileria annulata</i>	64.2	61.1	63.1	61.1	63.1	63.1	60.9

^a Whangarei, Northland

^b Helensville, Auckland

^c Ekatahuna, Manawatu

^d Reporoa, Waikato

^e Kamo, Northland

^f TABA-free herd in Takaka, South Island

Ota N, Mizuno D, Kuboki N, Igarashi I, Nakamura Y, Yamashina H, Hanzaike T, Fujii K, Onoe S, Hata H *et al.*
Epidemiological survey of *Theileria orientalis* infection in grazing cattle in the eastern part of Hokkaido, Japan.
Journal of Veterinary Medical Science 71, 937–44, 2009

Kamau J, de Vos AJ, Playford M, Salim B, Kinyanjui P, Sugimoto C. Emergence of new types of *Theileria orientalis* in Australian cattle and possible cause of theileriosis outbreaks. *Parasites and Vectors* 4, 22, 2011