6. Disease control

A. New Zealand dairy herd Enzootic Bovine Leucosis (EBL) control scheme

The New Zealand dairy industry enzootic bovine leucosis (EBL) scheme is carried out by LIC under the direction of Dairy InSight. In the course of the 2005/06 season, over half of the New Zealand Dairy herds were screened for EBL using either milk vat or pooled milk samples. EBL reactors were identified in three herds (<0.05% of herds tested) as a result of the screening as well as specific tracing and testing of herds with contact to known EBL herds. The overall prevalence of EBL-positive dairy herds has remained consistently below 0.02% for the last two seasons. The few remaining EBL pockets are particularly difficult to eradicate completely as the affected herds lack the good records needed to trace movements of in-contact cows and herds.

NZ dairy herd EBL status

- ***>50% of all New Zealand dairy herds were tested for EBL in 2005/06***
- ***Three 'new' EBL-positive herds were identified as a result of routine herd screening as well as targeted tracing and testing of herds linked to previously identified EBL outbreak herds***
- ***1 North Island EBL herd linked to herd with earlier history of EBL infection***
  2 South Island EBL herds share grazing (same owner); poor traceability & recent history of EBL
- ***EBL herd prevalence and annual incidence rates remain well below the 0.2% level required under the OIE (Office of International Enzootics) rules for declaration and maintenance of EBL-freedom***

Incident herds[1]

All three EBL herds identified over the 2005/06 season have clear links to previously identified EBL herds/cows. However tracing of animal movements has been hampered by lack of individual cow recording.

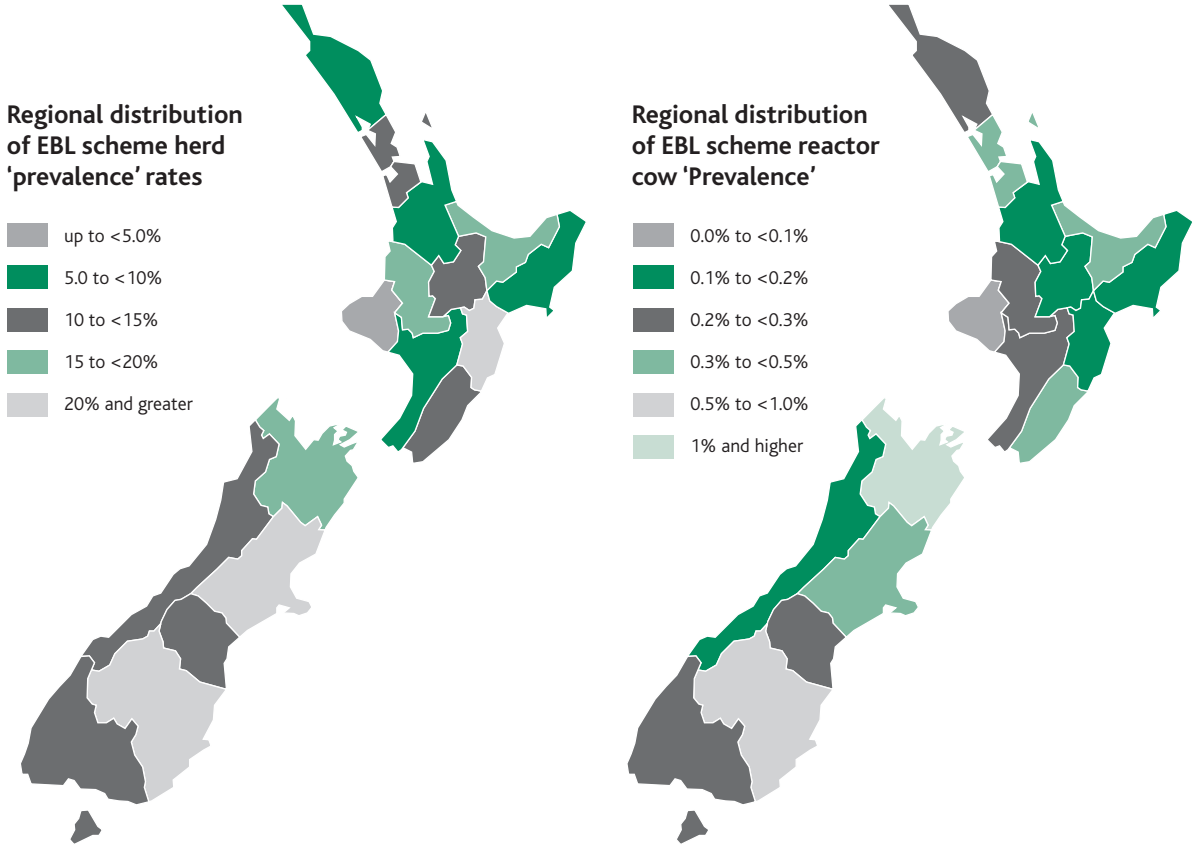
- A single EBL reactor was found in a Waikato herd. The herd owner has two herds; the second herd has a long history of EBL infection that was finally cleared in the previous season.
- The other two EBL herds in the South Island belong to the same large farming corporation with many dairy herds. In previous years a large proportion of the herds were infected with EBL. Lack of lifetime identification and regular stock mixing between herds made control challenging. By June 2005 the last herds had culled all EBL test positive cows. EBL was again diagnosed in late 2005 during repeat testing of this provisionally negative herd. Intensified monitoring of the corporation's herds revealed another two reactors in a second herd. An EBL-positive heifer was also identified amongst several thousand replacement stock tested on the corporation's shared rearing unit.

Distribution of EBL in New Zealand dairy herds before control

The results of the EBL scheme testing carried out since its inception in 1997 were analysed and presented in 2006 at the epidemiology chapter of the joint Federation of Asian Veterinary Associations and New Zealand Veterinary Association conference, as well as the International Society of Veterinary Epidemiology and Economics symposium. The data shows that overall 1,301 EBL herds were identified with ~9,350 EBL reactor cows. While the average number of reactor cows per EBL herd was 5.7, in almost 40% of cases a single EBL-positive cow was found in the herd. At the opposite end of the spectrum, only 12 herds had EBL prevalence's greater than 20%. The highest infection levels were observed in a Nelson/Marlborough herd with 59% of the dairy cows infected. Interestingly, New Zealand's original report of EBL dairy herds occurred in Nelson/Marlborough and Otago during the early 1980's. These regions maintained the highest levels of EBL until the start of the EBL control scheme. Taranaki herds had the lowest levels of EBL infection.

[1] *Herds previously classified EBL negative (or provisionally negative) with newly identified EBL infection*

Graph 6.1: ***Regional distribuion of the EBL scheme***



Analysis of EBL diagnoses by cattle age revealed that the vast majority of EBL infections occurred in calves and yearlings – often in outbreak clusters. Transmission amongst mature dairy cows occurred less frequently. The most likely explanation for this phenomenon is the practice of gouge dehorning. Massive blood loss after gouge dehorning serves as an effective source of infective material, especially if measures to contain blood loss and cross-contamination are poor, leading to unusually high transmission rates.

Continued EBL screening

Further papers were presented on behalf of the EBL scheme at the conferences, demonstrating that primary screening using milk vat sample testing (instead of individual/pooled milk sampling) for herds of all sizes will permit more efficient and intensive monitoring of the national dairy herd. Vat milk testing has already been employed in smaller herds for some time and primary vat milk screening of all EBL-negative herds is therefore being phased in. Given that EBL may persist at very low levels, continued screening of all NZ dairy herds will be necessary for some time to ensure that any remaining pockets of infection are identified and eradicated before the infection spreads to other herds.

In spite of the lack of enforceable cow identification and movement controls, the EBL scheme has been highly successful in eliminating the risk of EBL to the NZ dairy industry.

References

Voges H (2006) Monitoring herd EBL-freedom using bulk-milk samples; an efficient tool for herds of all sizes. *Proceedings of the 14th FAVA Congress and the Food Safety & Biosecurity, and Epidemiology & Animal Health Management Branches of the NZVA*

Voges H (2006) New Zealand Dairy Enzootic Bovine Leucosis Control. *Proceedings of the 14th FAVA Congress and the Food Safety & Biosecurity, and Epidemiology & Animal Health Management Branches of the NZVA*

B. Tuberculosis (Tb) control

Control of Tb (*M. bovis*) over the agricultural industry is managed by the Animal Health Board whose primary objective is to manage Tb to reduce the number of infected herds and to prevent Tb vector free areas becoming vector risk areas. The status of a vector area is determined by the prevalence of wild animals that are considered a source of infection (e.g., possums and ferrets).

Table 6.1: ***Tuberculosis (Tb) testing and results in 2005/06***

Region	*Vector Status*	*Number of infected dairy herds June 2006*	*Number of dairy cattle primary tested*	*Number of Tuberculous[a] dairy cattle*
Northland	Free	0	94,731	8
Auckland	Free	0	36,862	1
Waikato	Free	4	1,214,988	42
	Risk	1	117,677	8
Bay of Plenty	Free	0	80,512	1
	Risk	0	2,879	0
Gisborne	Free	0	905	0
Hawkes Bay	Free	0	15,492	7
	Risk	2	29,238	4
Taranaki	Free	0	154,445	4
Manawatu/Wanganui	Free	0	122,437	7
	Risk	2	70,307	9
Wellington	Risk	1	102,644	19
North Island	Free	4	1,720,372	70
	Risk	6	322,745	40
North Island	**Total**	**10**	**2,043,117**	**110**
Marlborough	Free	0	18,799	8
	Risk	0	2,466	1
Tasman/Nelson	Free	1	39,365	34
	Risk	3	13,045	12
West Coast	Free	0	7,338	9
	Risk	31	186,105	151
Canterbury	Free	1	238,305	31
	Risk	2	106,907	7
Otago	Free	1	86,538	31
	Risk	0	116,636	4
Southland	Free	0	149,100	13
	Risk	0	97,797	5
South Island	Free	3	539,445	126
	Risk	36	522,956	180
South Island	**Total**	**39**	**1,062,401**	**306**
New Zealand	Free	7	2,259,817	196
	Risk	42	845,701	220
New Zealand	**Total**	**49**	**3,105,518**	**416**

Sourced from Animal Health Board – Annual Report for the year ending 30 June 2006
[a] *Tuberculous Animals include lesioned reactor cattle and lesioned cull cattle*