Western Canada

Table 1. Specimens positive for rabies by species and province/territory in western Canada from January 1 to June 30, 1995

Species	BC	AB	SASK	MAN	YT	NWT	Totals
Bat	3	0	2	0	0	0	5/61
Cat	0	0	1	0	0	0	1/175
Cattle	0	0	2	2	0	0	4/59
Dog	0	0	1	0	0	3	4/241
Fox	0	0	0	3	0	3	6/30
Horse	0	0	1	0	0	0	1/8
Skunk	0	0	4	11	0	0	15/188
Wolf	0	0	0	0	0	1	1/4
Others	0	0	0	0	0	0	0/99
Total	3/88	0/311	11/236	16/214	7/16		37/865

Rabies diagnoses in western Canada, January 1 to June 30, 1995

From January 1 to June 30, 1995, the rabies unit at the Animal Diseases Research Institute, Lethbridge, received 865 specimens, of which 37 were found to be positive for rabies. **Compared with the same period for the previous year, this represents a 19% decrease in the number of submissions and a 44% decrease in the number of positive diagnoses.**

In British Columbia, 3 big brown bats *(Eptesicus fuscus),* submitted from the southwestern corner of the province, were found to be rabid.

The Alberta Rabies Vector Control Program continued to focus on southern Alberta and no rabid skunks were found this year. In the entire province, no positive cases of rabies in terrestrial animals have been diagnosed since June, 1994.

In Manitoba and Saskatchewan, the regional distribution of positive cases remained essentially the same. The majority of rabid specimens came from the southwestern Manitoba/southeastern Saskatchewan area. Other foci were located south of Regina/Swift Current, north of Winnipeg, stretching into the Interlake district, and there was 1 case east of the Red River, near Steinbach. The primary reservoir for rabies in these areas is the striped skunk, but spillover into the domestic animal and livestock population does occur. The 3 rabid foxes submitted were from the northern district of Manitoba. Compared with the same period in 1994, there has been a 59% decrease in the number of diagnosed positive specimens from Manitoba; the number of positive cases from Saskatchewan has remained unchanged.

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Ontario

Assessment of seropositivity to porcine reproductive and respiratory syndrome (PRRS) virus in swine herds in Ontario — 1978 to 1982

Although there are no reports of clinical outbreaks of porcine reproductive and respiratory syndrome (PRRS) before 1987 (1), antibody to PRRS virus has been found in swine sera collected in Iowa in 1985 (2) and Minnesota in 1986 (3). The initial outbreak in Germany occurred in late 1990 (4), with antibody first identified in East German herds in 1988 and 1989 (5). Initial outbreaks of PRRS-like disease occurred in Ontario in the late summer and early fall of 1987. Serological surveys done by Agriculture and Agri-Food Canada and provincial diagnostic laboratories over the last 2 to 3 y have indicated that 40% to 80% of herds in eastern and central Canada are now seropositive.

Using the IDEXX PRRS ELISA serology test kit (IDEXX Laboratories, Westbrook, Maine, USA) we evaluated sera collected from 1978 to 1982 from swine in Ontario. Each serum sample tested was from a different herd. **Specific antibody to PRRS virus was found in sera collected as early as 1979, with an increasing number of premises affected from 1979 to 1982 (Table 1).** All but one of the ELISA-positive sera

Table 1. Number of swine sera by year tested by IDEXX PRRS ELISA and confirmed positive using an indirect immunofluorescence (IIF) assay for IgG antibody against the porcine reproductive and respiratory syndrome virus

Year	# Sera tested	# Sera positive in ELISA	# Sera suspicious in ELISA	# Sera confirmed positive by IIF
1978	50	0	0	ND
1979	51	2	0	2
1980	51	7	1	8
1981	57	11	0	10
1982	56	10	0	10

ND = not done

were confirmed positive in an indirect immunofluorescence test to determine IgG specific for a Canadian isolate of PRRS virus (Institut Armand Frappier). **This is the earliest reported detection of antibody to PRRS virus worldwide.**

The long time between the presence of antibody and the recognition of disease in Ontario suggests that less virulent PRRS virus strains may have been circulating in Ontario prior to the severe disease outbreaks recognized in 1987.

References

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Isolation of a distinct serotype of porcine reproductive and respiratory syndrome (PRRS) virus in Ontario

At the beginning of 1995, segregated early weaned pigs housed in a new 2000 head all-in/all-out finishing barn in southern Ontario experienced an outbreak of dyspnea and coughing. These 25-kg feeder pigs were sourced from several 1000 head all-in/all-out nursery barns that housed piglets that were purchased from 10 sow herds and co-mingled at weaning. Histopathology of lungs revealed lesions of nonsuppurative and necrotizing bronchitis, bronchiolitis, and alveolitis.

The ONT-TS strain of PRRS virus was isolated from clarified lung homogenates of a 3-month-old dyspneic pig in MARC-145 cells, a cell line highly permissive to the PRRS virus. Isolation of PRRS virus was serologically confirmed by indirect immunofluorescence (IIF) using the SDOW17 monoclonal antibody (MAb), raised against the prototype US strain ATCC-VR2332 of PRRS virus. This MAb is directed against a group specific-epitope of the nucleocapsid (N) protein of both European and North American strains of the virus (1,2).

The antigenic relatedness of the ONT-TS strain to North American (ATCC-VR2332, IAF-Klop) and European (Lelystad virus) reference strains was determined by comparing their reactivities to 4 MAbs (SDOW17, VO17, EP147, IAFK8) directed to the 15-kDa N protein (2) and 2 MAbs (IAFK6, IAFK3) directed to the 19-kDa membrane (M) protein of PRRS virus (submitted for publication). The IIF test was used to titrate each of the 6 MAbs against all isolates. As reported in Table 1, comparable titers were obtained for the IAFK8 and SDOW17 anti-N MAbs with all the PRRS virus isolates tested. However, as for the Lelystad virus (LV) strain, the ONT-TS strain showed no reactivity towards the VO17 and EP147 anti-N MAbs. Interestingly, both anti-M MAbs, raised against the Québec IAF-Klop strain, also failed to react against the ONT-TS strain, as was also the case for the LV strain and the ATCC-VR2332 vaccine strain. **These observations suggest that unique strains of PRRS virus, which react differently from North American strains and similar to European PRRS virus isolates in MAb panels, may be established in Ontario swine herds.**

Previous studies have demonstrated that European and North American PRRS virus strains belong to 2 distinct genotypes (3). To further investigate the relationship between the ONT-TS strain and the reference European LV strain, genomic regions (ORFs 6 and 7) encoding for the M and N viral structural proteins were amplified by RT-PCR. Digestion of amplified products with 4 restriction enzymes (*Alu*I, *Bsa*J1, *Hae*III, *Msp*1), followed by electrophoresis analysis on agarose gels, indicated that the ONT-TS strain was genomically more closely related to the North American strains of PRRS virus, notwithstanding distinct restriction enzyme digestion profiles.

These MAb and restriction endonuclease studies using the ONT-TS strain indicate that Canadian isolates of PRRS virus are antigenically more diverse than has previously been demonstrated (1,4), especially if the comparison is extended to genes encoding for other viral structural proteins than the N protein.

References

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