

**OIL ADJUVANTED VACCINE: IMMUNOLOGICAL COVERAGE OF
REPRESENTATIVE STRAINS OF FOOT-AND-MOUTH DISEASE
TYPE A VIRUS IN SOUTH AMERICA**

*A. Alonso Fernández**; *M.S. Söndahl**; *Ivo Gomes**; *P. Augé de Mello**

PRELIMINARY REPORT

In 1976, there were three subtypes of foot-and-mouth (FMD) type A virus which were epidemiologically important in South America. Subtype A₂₄ affected the countries of the southern cone; A₂₇ occurred in the northern part of the continent and A₃₂ in Venezuela (1).

In Brazil, the following strains were identified during 1976: A Caçapava (Brazil/76), A Venceslau (Brazil/76) and A Pedregulho (Brazil/76) (2). The first strain is serologically similar to A Bagé (Brazil/76) and both are of epidemiological importance in the state of Rio Grande do Sul. The latter two strains were first diagnosed in São Paulo but only A Venceslau now occurs regularly in the field.

Practically all South American countries produce vaccine with subtype A₂₄ strain Cruzeiro (Brazil/55), with the exception of Colombia where A₂₇ Colombia/67, and Brazil where the A Bagé and A Venceslau were incorporated in the vaccine.

This report shows the results of a cross-immunity test in cattle, using representative field samples as well as those used in vaccine production in South America.

Oil adjuvanted vaccines (3) were prepared with strains A₂₄ Cruzeiro, A₂₇ Colombia, A₃₂

Venezuela, A Caçapava, A Venceslau and A Pedregulho. These vaccines were used to immunize groups of 11 mixed zebu cattle 6-12 months old. These cattle had not been vaccinated previously, were free of FMD virus antibodies and were kept on a farm where for several years FMD had not occurred.

The results of the mouse protection test (4) using sera of these cattle 120 days after vaccination, given in Table 1, are expressed as the expected percentage of protection (EPP) (5).

The results show that the oil adjuvanted vaccine gave satisfactory homologous immune response against all the strains studied. Similar heterologous coverage was obtained with A₂₇ Colombia, A₃₂ Venezuela and A Caçapava. Strain A₂₄ Cruzeiro has a broad coverage for all heterologous viruses with the exception of A Venceslau, which has a low immunological coverage for A₂₇ Colombia and A Venezuela. The poorest results were obtained with A Pedregulho.

In interpreting these results it should be noted that oil adjuvanted vaccines were used. Similar good heterologous coverage was obtained using oil adjuvanted vaccines with type C virus (6).

Less immunological coverage was obtained when aluminum hydroxide-saponin adjuvanted vaccines were used (Pan-American Foot-and-Mouth Disease Center, unpublished data).

* Pan American Foot-and-Mouth Disease Center, Caixa Postal 589, ZC-00, Rio de Janeiro, RJ, Brasil.

TABLE 1. Mean expected percentage of protection of cattle 120 days after vaccination with type A virus oil adjuvanted foot-and-mouth disease vaccines

Virus	Vaccines					
	A ₂₄ Cruzeiro	A ₂₇ Colombia	A ₃₂ Venezuela	A Caçapava	A Venceslau	A Pedregulho
A ₂₄ Cruzeiro	93 ± 14*	97 ± 2	99 ± 1	88 ± 14	88 ± 8	70 ± 13
A ₂₇ Colombia	94 ± 10	99 ± 0	88 ± 6	88 ± 11	75 ± 14	66 ± 15
A ₃₂ Venezuela	93 ± 10	81 ± 11	99 ± 1	83 ± 12	72 ± 11	55 ± 10
A Caçapava	89 ± 12	83 ± 12	83 ± 14	99 ± 0	82 ± 10	82 ± 10
A Venceslau	60 ± 21	87 ± 12	97 ± 2	88 ± 13	98 ± 1	80 ± 7
A Pedregulho	92 ± 10	94 ± 8	85 ± 12	96 ± 5	90 ± 14	93 ± 13

* 95% Confidence interval.

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