SWINE FEVER
VACCINATION OF PIGLETS BORN OF IMMUNE SOWS USING THE CL CHINESE STRAIN

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Prophylaxis of Swine Fever in a highly contaminated region demands regular routine vaccination of the animals. Specific antibodies transmitted from the sow to the piglet interfere with the development of immunity of the piglet after vaccination (1-3-4-5-7-9-10-12). A study was carried out to monitor the development and evolution of immunity in piglets vaccinated with the CL Chinese strain.

MATERIALS

The vaccine and its prior performances have already been described (7-8).

METHOD

Sows were vaccinated according to groups : 6 months or 1 month before covering, during the 2nd or 3rd month of pregnancy, or not at all. Piglets were weaned at 1 week and vaccinated between 1 and 9 weeks according to the groups. The methods of titrating the seric antibodies and of challenge using a pathogenic virus were described. (6).

RESULTS

Piglets born from non-immune sows - Figure N° 1 illustrates the equivalence and satisfactory development of immunity in piglets vaccinated at 1 or 9 weeks.

Piglets born from immune sows -

Evolution of immunity of maternal origin (Figure N° 2) Whereas antibody titres do not differ significantly in the sows, both the evolution of antibodies of colostral origin and the protection of the piglets are significantly different in the piglets of these two groups of sows and give preference to piglets born of sows vaccinated 6 months prior to pregnancy.

Immunisation (Table N°1) : Whereas serum antibody titres are not significantly different in sows at farrowing, the immunisation of piglets depends on their age at the time of vaccination and on the length of time between vaccination and farrowing for the sow. When the sows are vaccinated a long time before covering, this enables both passive protection lasting for more than 2 months (Figure N°2) and a very satisfactory active immunisation level (>80 %) post-vaccination at the age of 5 weeks in the piglets (Table N°1).

Immunity persistence : It was interesting to monitor the effect of a booster injection at 6 months in piglets born from sows vaccinated 6 months before the gestation period, and then themselves primo-vaccinated at 5 weeks. Figure N°3 shows that immunity is excellent 42 months after the booster.

DISCUSSION

The very young piglet is immunocompetent (2-9) and can be vaccinated as early as 7 days if there are no specific colostral antibodies. The difference of immunisation observed between the groups of piglets born from immune sows (which had equivalent serum antibody titres) seems to be in relation to the time between the sow's vaccination/farrowing. This different behaviour would repose on a difference in the nature of antibodies transmitted by the colostrum (3-5), expressed by the notion of avidity (11). In the case of a modified virus vaccine, the prior immunisation colostral antibodies (dominant IgG) would be more avid (high antibody titre), but less inhibitive (low immunosuppressive reaction) than the recent immunisation antibodies (dominant IgM).

CONCLUSION

In an immunologically speaking new herd of animals, vaccination of piglets using the CL Chinese strain can intervene as early as the 7th day. In a priorly immunised herd, the piglets can be vaccinated when 35 days old, whilst they are still protected by the colostral antibodies. A booster injection given before the puberty of the future reproducers ensures immunity at least throughout their economic life (4 years).

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Table N° 1 - Immunity in piglets born from immune sows

SOWS		PIGLETS			
		Vaccination		Challenge	
Vaccination	Antibodies at farrowing	Age (weeks)	Antibodies	Age (weeks)	Protection
2nd-3rd month gestation	2.39 2.30	1 9	1.39 0.80	22-23	4/8 9/9
1 mth before covering	2.53	5 6.5 9	0.58 0.62 0.60	27	4/6 6/6 6/6
6 mths before covering	2.56	5	2.42	21-25	18/22

Fig. 1 - Immunity in piglets born from non immune sows

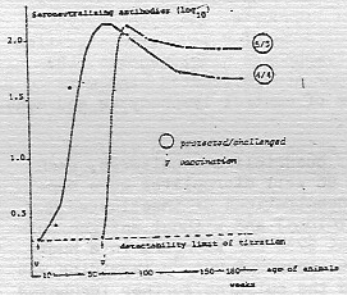

Fig. 2 - Colostral immunity in piglets born from immune sows

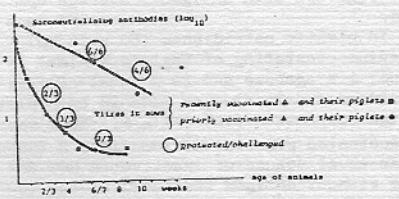

Fig. 3 - Immunity persistence after booster in piglets born from immune sows.