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Short Communication

ASSESSMENT OF MATERNAL ANTIBODIES AGAINST NEWCASTLE DISEASE VIRUS IN COMMERCIAL CHICKS**

Maternal antibody level against Newcastle disease virus (NDV) in day old chicks play an important role in the formulation of vaccination schedule (Rose and Orlans, 1981). The maternal antibody level was influenced by the amount of yolk transferred antibodies and the age of the chicks (Doll *et al.*, 1950). Poor immune response to Newcastle disease (ND) vaccines were observed in four days to two weeks old chicks (Winterfield and Seadle, 1957). Here an attempt was made to study the maternal antibody level against NDV in commercial chicks for the formulation of effective vaccination schedule.

Thirteen batches of chicks from six different commercial hatcheries of Tamil Nadu were collected at day old age and bled at weekly intervels for a period of 6-8 weeks. Ten samples were collected at random on each occasion. Maternal antibody level against NDV was assessed by haemagglutination inhibition (HI) test. The HI test was carried out following the description of Alexander (1988) using 4 HA Unit of formalinised LaSota virus as source of antigen and 1% chicken erythrocytes as indicator system.

Results are presented in Table-1. It could be seen from the results that maternal antibody level against NDV in day old chicks varied from 4.2 ± 0.12 $\log^2$ to 8.3 ± 0.14 $\log^2$ and the titre declined to or below 3 $\log^2$ at the end of 2nd weeks or afterwards. The maternal antibody level declined at a constant rate and had a half life of approximately 4.5 days. Chicks responded to ND vaccination when the maternal antibody level against NDV declined to 3 $\log^2$ (Allan *et al.*, 1978).

Lee (1987) indicated that if the chicks maternal antibody titre against NDV was higher than 1:32, infections would be prevented and vaccination would be ineffective. If the chicks maternal antibody titre is lower than 1:32 it is appropriate to induce immunity by vaccination. In Taiwan a collaboration programme between poultry breeding farms and the livestock disease control centres undertook a regular labeling of shipping boxes for newly hatched chicks indicating that they have maternal antibodies against ND. This programme, in operation in Taiwan since 1985, was found to be highly useful for farmers in formulating an effective vaccination schedule.

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Table 1 Maternal antibody leavels in chicks (Geometric mean HI Titres)

Hatchery No.	Age in weeks							
	0	1	2	3	4	5	6	7
Hatchery - 1								
Hatch - A	8.2±0.12	6.5±0.07	4.2±0.12	3.0±0.14	1.8±0.60	1.0±0.14	Nil	Nil
Hatchery - 2								
Hatch - A	7.5±0.15	6.3±0.14	3.0±0.24	2.2±0.12	1.2±0.18	1.0±0.00	Nil	Nil
Hatch - B	5.5±0.15	4.7±0.24	4.3±0.14	3.0±0.24	1.8±0.12	1.8±0.60	1.0±0.00	Nil
Hatchery - 3								
Hatch - A	8.3±0.14	5.2±0.18	5.1±0.31	2.3±0.14	1.7±0.14	1.2±0.16	0.6±0.15	Nil
Hatch - B	7.4±0.15	4.4±0.15	2.2±0.12	2.0±0.00	1.7±0.14	1.2±0.16	1.0±0.14	Nil
Hatch - C	7.4±0.15	4.3±0.14	3.1±0.09	2.7±0.14	2.0±0.20	1.7±0.14	1.0±0.24	Nil
Hatch - D	5.6±0.15	4.9±0.09	3.0±0.14	2.0±0.20	2.0±0.28	1.0±0.24	1.0±0.00	Nil
Hatch - E	7.8±0.15	6.8±0.15	5.0±0.39	3.1±0.15	2.8±0.17	1.0±0.51	Nil	Nil
Hatch - F	8.0±0.23	6.2±0.15	5.6±0.21	3.2±0.19	2.8±0.33	1.0±0.44	Nil	Nil
Hatchery - 4								
Hatch - A	6.3±0.45	6.1±0.13	5.6±0.15	5.5±0.15	2.7±0.14	2.0±0.20	1.0±0.24	Nil
Hatchery - 5								
Hatch - A	4.2±0.12	4.0±0.14	3.1±0.09	1.8±0.12	1.0±0.14	Nil	Nil	Nil
Hatch - B	7.5±0.15	7.2±0.12	5.7±0.14	5.3±0.14	1.3±0.14	1.4±0.18	1.0±0.24	Nil
Hatchery - 6								
Hatch - A	6.5±0.15	4.6±0.15	4.5±0.15	4.1±0.09	1.1±0.15	1.5±0.15	1.0±0.14	Nil

Each figures is a geometric mean of 10 Samples Values are expressed in $\log^2$ base

In the present study, maternal antibody levels against NDV in day old chicks were quite high in all the hatcheries (Table-1). Under the present circumstances the Taiwan programme promises to be ideal for ensuring effective vaccinations against ND at the field level.

Summary

Maternal antibody levels were estimated in day old chicks and the values are reported.

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