

A New Approach to Gumboro Disease Prevention on Native Bird in Vietnam



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Introduction

Native birds in Vietnam are normally protected from Gumboro disease by live attenuated vaccines applied two times on the farm. On-farm vaccination is a time and labor consuming process and must be adjusted to the maternally derived Ab (MDA) titers decline. This type of vaccination can be efficacious however application is prone to mistakes and cannot always be properly controlled. MB-1™ is a hatchery Gumboro vaccine applied by *In-Ovo* injection or to day-old-chicks (DOC) by sub-cutaneous injection. Hatchery vaccines overcome the

application issues of live vaccines applied on the farm and provide a controlled vaccine application. So far the MB-1 vaccine has been successfully used in commercial white broilers, layers and breeders, and the aim of the trial is to evaluate the safety and efficacy of the MB-1 vaccine in native birds. The MB-1 vaccine belongs to the M.B strain, that was isolated in 1989 by Dr. B. Gutter, M.A. M. Barbakov. The MB strain belongs to the IBDV genetic group 6 (Lazarus et al., 2008).

Materials & Methods

60,000 native day-old chicks (DOC) divided into four groups, were used in this trial. MB-1 was mixed with a Marek's diluent and HVT + CVI vaccines and injected subcutaneously to the back of the neck of the DOC using a Desvac machine. Live IB and ND vaccines were applied as well, by coarse spray. The on-farm vaccinations of AI ND and IB were done according to farm procedures (Table 1).

Figure 1: Timeline of sampling

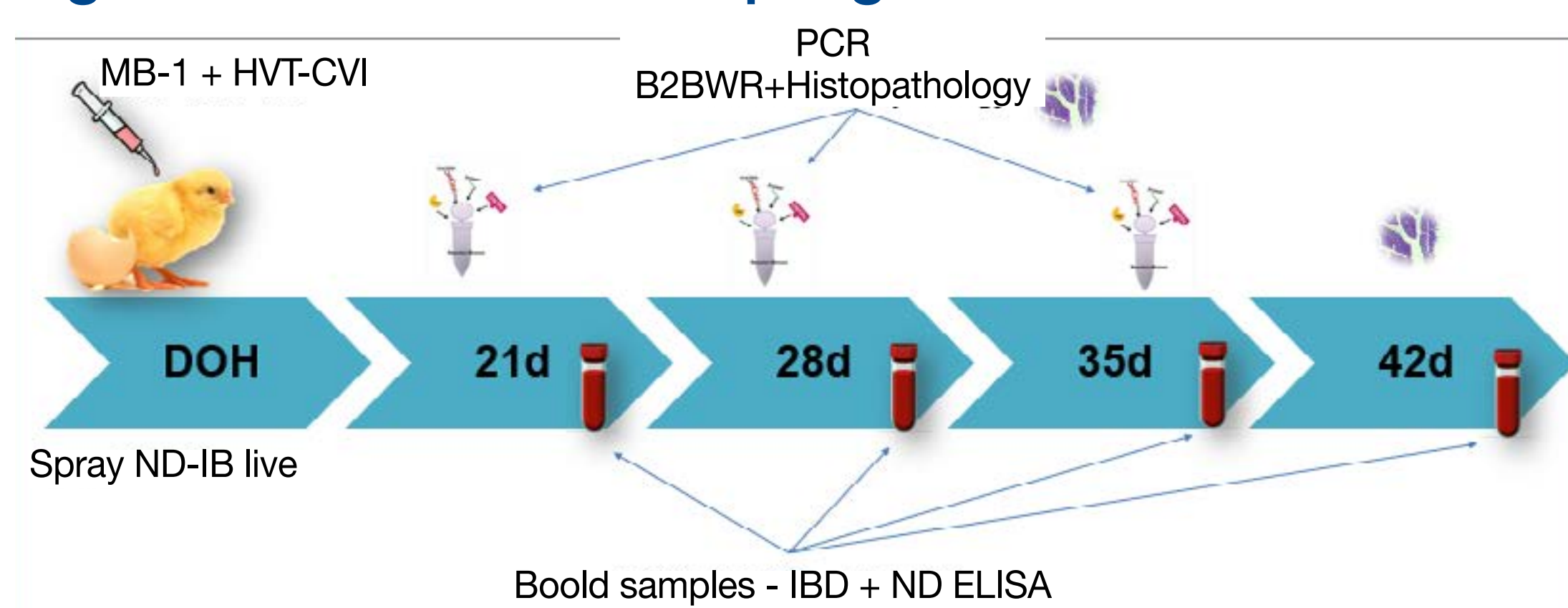


Table 1. Vaccine program (IBD, Marek, ND in first 3 weeks)

Age (D)	Name of vaccine	Route/dose
DOH	MB-1 + Marek HVT + CVI	SC - 0.2ml
	ND - IB Mass+ IB Q1	Spray
10	ND + Subunit A1 H5	SC - 0.5ml
21	ND - IB Mass	DW

Parameter tested

IBD ELISA titers – IDEXX kit

ND, IB ELISA titers – IDEXX kit

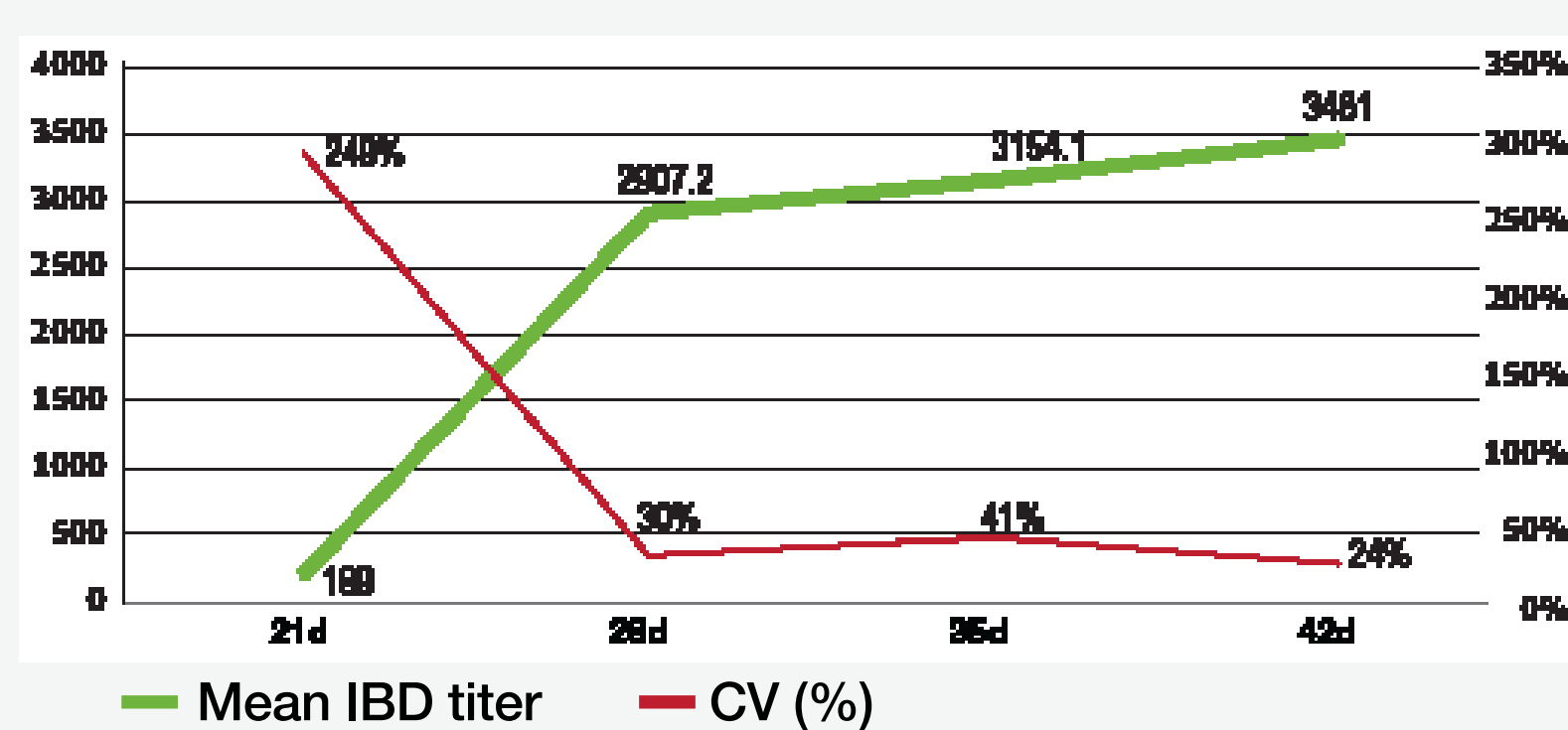
PCR (IBD) – Professor Hess Lab (Vetmeduni Vienna, Austria)

Bursa to Body weight ratio (B2BWR) – on the farm

Histopathology – Nong Lam University Vet lab

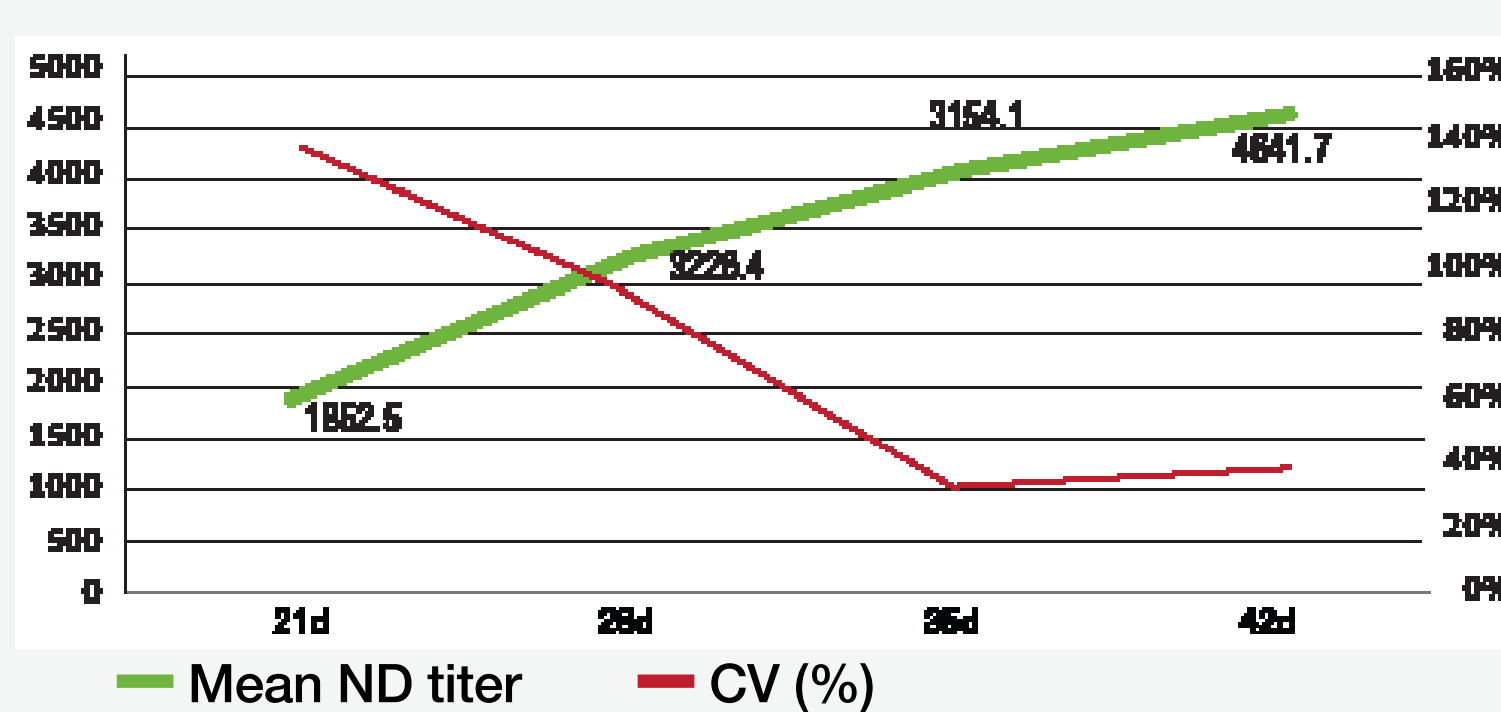
Results

Chart 1. IBD antibody titer response



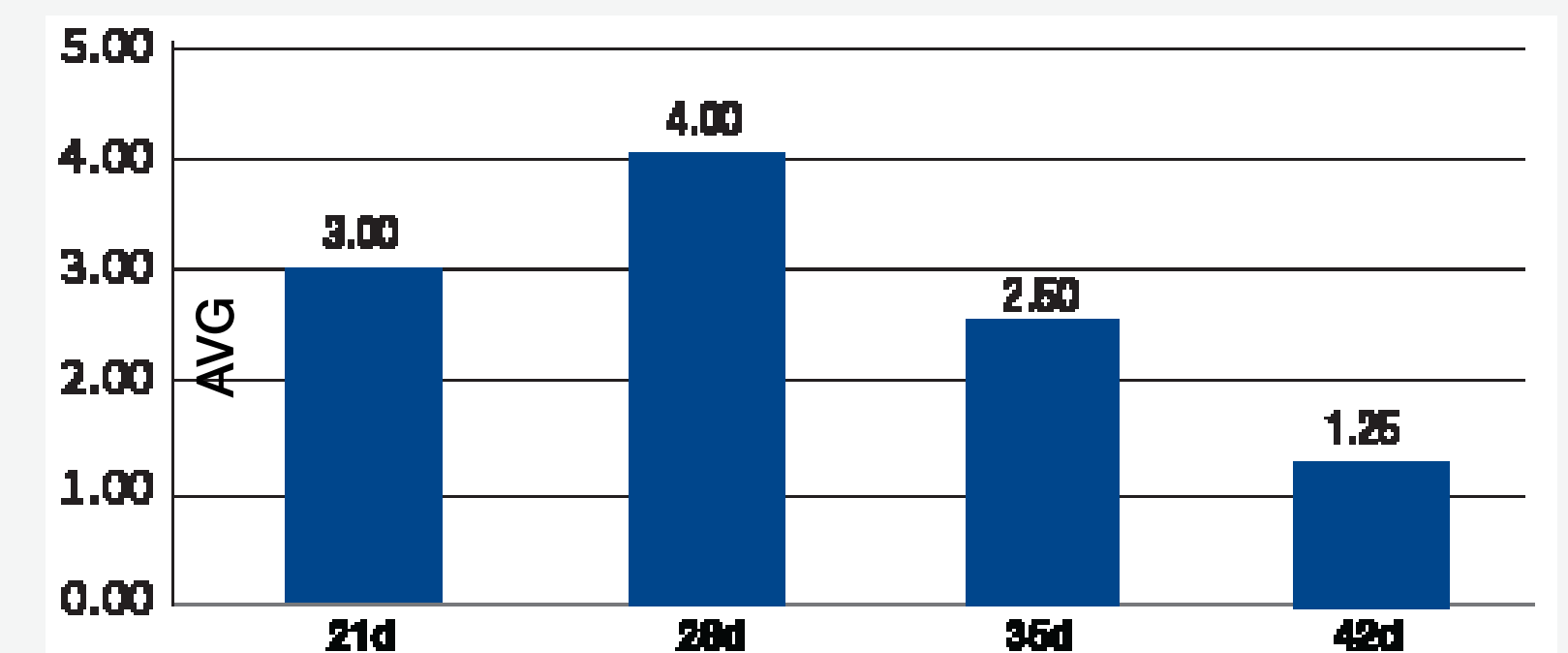
PCR results showed that only the MB strain was detected. No other IBD strain was detected until 35 days of age.

Chart 2. ND serology



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Chart 5. Histopathology Lesion Score



Bursa histopathology show good scores from 35 to 42 days of age with an average of 2.5 and 1.25 respectively and full recovery at 42d.

The ND titers increase markedly from 21 days to 42 days of age. At 21 days the average titers are 1,852 with the % CV of 139%. At 28 days they are 3,226 with % CV of 94%. At 35 days they are 4,088 with the %CV of 33%, and at 42 days 4,642 with the %CV of 38%. This shows a high and uniform (CV) ND antibody titer response indicating no MB-1 interference in protection from ND.

Normal Bursa to Body Weight Ratio and Histopathology scoring were observed and indicate bursa recovery starting from 32 days of age. The bursa/spleen looks like the same trend as with the bursa to body weight ratio.

Conclusions

Efficacy

The Bursa of vaccinated layers was PCR positive for the MB-1 vaccine strain starting from 21d onwards until 35d of age indicating no field infection and a successful early vaccine replication after a single dose. IBD ELISA titers in Native bird vaccinated with MB-1 were high and uniform from 28d onwards indicating that the MB-1 replication started early, at the 3rd week of age.

Safety

Native birds vaccinated with MB-1 reacted well to the ND vaccination as shown by the Newcastle titers response Normal Bursa to Body Weight Ratio and Histopathology scoring were observed in the Native birds vaccinated with MB-1 and showed full bursa recovery.

References available upon request, please contact: nguyenmanh.ho@pahc.com