



Boehringer
Ingelheim

VACCINE FOR CONTROL OF
NEWCASTLE DISEASE

Avinew **NeO**

The Innovation
Effervescent Technology



convenient

Safe

Eco-friendly



NeO

Avinew NeO

THE LYOPHILIZED VACCINE IN THE FORM OF EFFERVESCENT TABLETS FOR CONTROL OF NEWCASTLE DISEASE



WHAT IS IT Neo?

According to its acronym in English, NeO means "new effervescent option". NeO is an innovative technology that replaces traditional freeze-dried vaccines with effervescent tablets stored in blister packs containing freeze-dried vaccine virus.

WHY NEWCASTLE?

Newcastle disease

it represents the main concern of the poultry industry in endemic countries and remains a potential risk for countries free of the disease. It is highly onerous, not only because of its effects on the health and productivity of lots in the event of an outbreak (Fig. 1 and 2), but also because of the costs inherent in control actions and market losses due to trade barriers in Your presence.



Fig. 1 and 2.
Newcastle disease
causes substantial
economic losses from
injuries, high mortality
and production losses.



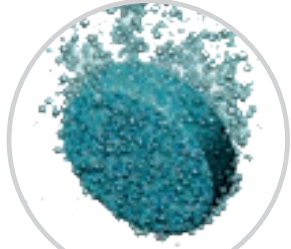
CONTROL

Successful control of Newcastle disease must be established by:

- 1** Optimal diagnosis (isolation and pathotyping).
- 2** Immunological integrity (control of infectious and non-infectious immunosuppression).
- 3** Reduction of the challenge (bio-security).
- 4** Decreased susceptibility (vaccination).

The vaccine of choice is one that induces a protective immune response with a minimum of respiratory reactions. The VG/GA Avinew strain with a dual replication pattern (in the respiratory and digestive tracts) is capable of providing high levels of protection with little or no post-vaccination reactions.

"VG/GA AVINEW™"



- The VG/GA Avinew strain (Villegas-Glisson/Georgia), is a naturally attenuated strain of Newcastle virus isolated from the intestine of turkeys.
- It is used worldwide and provides adequate protection regardless of the type of bird, the genotype of the challenge strain, or its geographic location.
- It presents a differential tropism, replicating itself in both the digestive and respiratory tracts (Table 1).
- Reduces respiratory reactions associated with vaccination (lower metabolic cost of the immune response), consequently the flocks vaccinated with the VG/GA Avinew vaccine better develop their genetic potential and a reduction in medication costs is observed for treatment of post-vaccinal reactions.
- Generates a better local immune response (cell-mediated immunity and Immunoglobulin A) in the sites where it is most required to counteract infection with velogenic viscerotropic strains.
- The seroconversion and protection titers are equivalent to those obtained with the LaSota strain.

KNITTING	NDV	POST-INOCULATION DAYS					
		1	4	7	11	15	21
trachea	VG/GA	-	+	+	-	-	-
	LaSota	+	+	+	+	-	-
LUNG	VG/GA	-	+	+	-	-	-
	LaSota	+	+	+	+	-	-
DUODENUM	VG/GA	-	+	+	+	-	-
	LaSota	-	-	-	-	-	-
CECAL TONSIL	VG/GA	-	+	+	+	+	-
	LASota	-	-	-	-	-	-

Table 1. Distribution by RT-PCR of the Newcastle virus in the tissues. (Perzo et al. 2008). Samples were taken from 5 birds per group and evaluated by PCR. T, trachea; P, lung ; D, Duodenum; Ct, Cecal Tonsilla; + RT-PCR positive (250 bp amplicon); - without amplification.

CROSS PROTECTION OF THE VG/GA-AVINEW STRAIN AGAINST DIFFERENT GENOTYPES CIRCULATING IN THE WORLD.

All strains of Newcastle disease belong to the same serotype, indicating that there are no variant strains of it.

Nevertheless, genotyping molecular shows the existence of differences in the genome of the strains that can affect its pathogenicity, which has generated doubts about the protection conferred by traditional vaccines, hence the importance of updated protection studies.

Evidence of cross-protection of the VG/GA Avinew strain against multiple genotypes circulating worldwide is shown below (Figures 2-4), demonstrating adequate protection against all.

	Group 1	Group2	Group3	Group4	Group5	Group 6	Group7
DAY 1	VG/GA Avinew™	VG/GA Avinew™	-	LaSota	LaSota	-	-
DAY 14		VG/GA Avinew™	VG/GA Avinew™	-	LaSota	LaSota	-
DAY28	Challenge with velogenic neurotropics Texas GB						
Number of birds protected by group	18/19	18/18	20/20	19/19	19/19	19/19	0/9

Table 2. Protection against genotype II. Challenge with the Texas GB strain (Merial Laboratory study 1994).

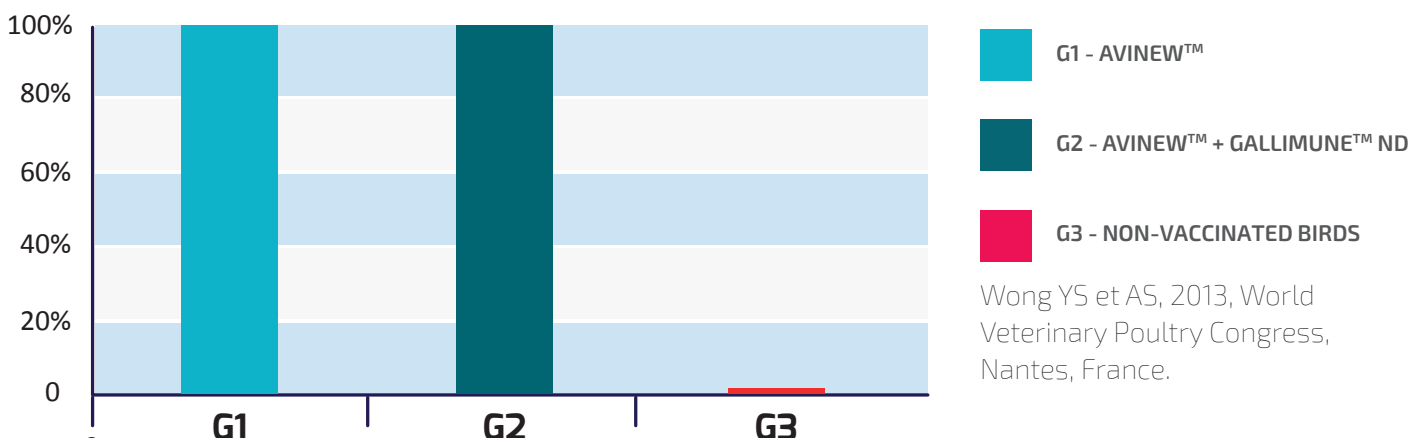


Fig. 3. Protection against genotype VII. Challenge with Velogenic strain from Malaysia.

VG/GA AVINEW AGAINST THE CHIMALHUACAN STRAIN AT 14 DAYS

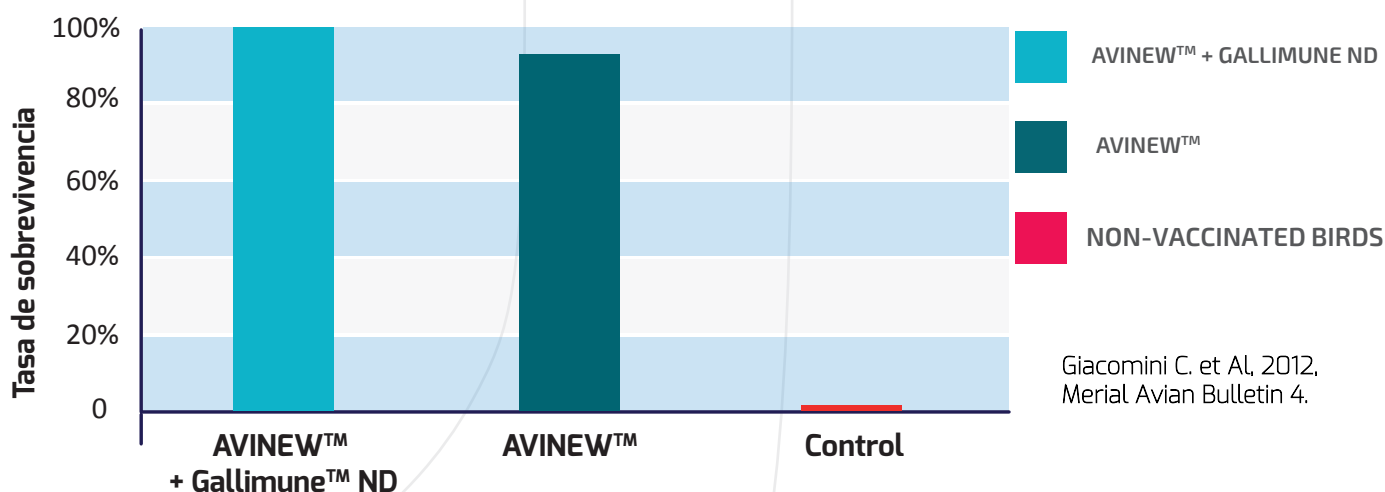


Fig. 4. Protection against genotype V. Strain from Mexico.

Avinew NeO

- The new Avinew NeO product contains the same VG/GA Avinew strain that has shown the aforementioned benefits, guaranteeing bio-equivalence in the field with the advantages of a new technology for preparing and preserving the biological.
- The presentation in effervescent tablets represents a technological advance that **guarantees three additional benefits:**



Convenient



Safe



Eco-friendly

The preparation of the vaccine is facilitated by reducing up to four times the time invested, eliminating the need to mix, reducing the risk of contamination. There is less risk of error thanks to the simplification of the process and that the tablets are color coded (blue tablet). Operational advantages in terms of storage and transport of vaccines.

Less risk of occupational accidents for the operator in the preparation of the vaccine since glass bottles and aluminum seals are eliminated. While the safety and protection for birds remains the same, based on bio-equivalence, once the tablet is dissolved, the protection is the same as demonstrated by previous presentations.

The new presentation is much friendlier to the environment, reducing the volume of waste, eliminating the use of bottles and reducing our carbon footprint for a better planet.



Avinew NeO

Effervescent Tablet Live Vaccine against
Newcastle Disease

- Dual replication in the intestine and respiratory tract that reduces post-vaccine reactions and guarantees broad local and humoral immunity.
- Excellent cross protection against the different genotypes circulating worldwide.
- Excellent safety for the operator.
- Simplifies processes, minimizing risks during preparation.

- Reduces up to 10 times the generation of waste.
- Less preparation time.
- Less space for storage.
- Less environmental impact.

- ✓ The new presentation and its handling reduce 10 times the weight of waste material compared to traditional glass vials.
- ✓ The cardboard box is certified by FSC (Responsible Forest Management).
- ✓ The weight of the container is 5 times less (compared to the previous presentation) resulting in a better carbon footprint during transport.

Reconstitution of the NeO vaccines



1 | Store at 2 to 8 °C



2 | Record batch number



3 | Wear respiratory mask and protective eyewear



4 | Use clean water
(chlorine free)



5 | Only remove the number of tablets you will use. Pre-cutting allow to remove the needed number of tablets



6 | Pop the tablet from the blister. Reconstitution time depends on the vaccines used and the water temperature



7 | Properly dispose of all used blister packs



8 | Pour the vaccine mixture into the container



9 | Always wash your hands before and after mixing the vaccines

AVINEO NEO (Effervescent Tablet Live Vaccine against Newcastle Disease) - In broiler chickens from the age of 1 day: Active immunization against Newcastle disease to reduce mortality and clinical signs associated with the disease. In future layer and breeder pullets from the age of 4 weeks: Primary vaccination for active immunization against decrease in laying due to Newcastle disease for a booster with an inactivated vaccine (Ulster 2C strain) before laying starts. In turkeys from the age of 1 day: Active immunization against Newcastle disease to reduce mortality and clinical signs associated with the disease. **Dosage, routes and method of administration:** In broiler chickens: Primary vaccination by ocular route (drop in the eye) or by ocular route (using a sprayer); from the age of 1 day. Oral booster (in drinking water); at the age of 2-3 weeks. It is recommended to maintain a minimum interval of 2 weeks between the two vaccinations. In future layer and future breeder pullets: Two administrations by ocular route (drop in the eye), ocular route (using a sprayer) or oral route (in drinking water); at the age of 4 and 8 weeks. Vaccination with the medicinal product should be followed by vaccination with an inactivated vaccine (Ulster 2C strain) before laying starts for sufficient efficacy. In turkeys: Vaccination by ocular route (using a sprayer); from the age of 1 day. **Storage:** Store and transport refrigerated (2 – 8) °C. Protect from light. Do not freeze. Do not keep unused tablets after removal from the blister. **Precautions:** Vaccinate only healthy animals. Hands and equipment should be washed and disinfected after each vaccination. Keep out of reach of children. For Animal Treatment only.

Manufactured by BOEHRINGER INGELHEIM ANIMAL HEALTH FRANCE SCS the marketing authorization holder is BOEHRINGER INGELHEIM VETMEDICA GmbH, GERMANY.