



Volvac® AC Plus + ND + IB + EDS KV

COMPREHENSIVE
»» COMBINATION OF
AVIAN CORYZA ANTIGENS¹

PREVENTION WORKS

Shaping the future of avian health



Boehringer
Ingelheim

Avian Infectious Coryza (AC)



"Infectious Coryza is an acute respiratory disease of chickens characterized by nasal discharge, sneezing, and swelling of the face under the eyes that occurs wherever chickens are raised.

The causative bacterium is *Avibacterium paragallinarum*, a gram-negative, pleomorphic, non-motile, catalase-negative, microaerophilic rod that requires nicotinamide adenine dinucleotide (V-factor) for *in vitro* growth. It is important to note that V-Factor – independent *Avibacterium paragallinarum* have been recovered in South Africa and Mexico.

The most commonly used serotyping scheme is the Page scheme, which groups *Avibacterium paragallinarum* isolates into serovars A,B, and C that correlate with immunotype specificity. Infected flocks are a constant threat to uninfected flocks. Transmission is accepted as being by direct contact, airborne droplets and contamination of drinking water.

Prevention is the best method of control. If replacement pullets are to be placed on a farm that has a history of Infectious Coryza, killed vaccines are available to help prevent and control the disease. As serovars A, B, and C are not cross-protective, it is essential that these killed vaccines contain the serovars present in the target population."²

Key factors

for an effective vaccination:

- **Quality of the vaccine:**

To guarantee the right immune response in the bird affording the desired safety level.

- **Quantity and stability of the antigen:**

To guarantee the right amount of antigen per dose in all vaccinated chickens.

- **Correct application:**

To assure the entry of the antigenic mass into the body of all birds in the flock.

The Widest Combination of Antigens

Better protection

Volvac® AC Plus + ND + IB + EDS KV is the vaccine with a comprehensive combination of Avian Coryza antigens to give a better protection.¹

Inactivated Avian Coryza vaccines provide protection only against the serovars included in the bacterin.

Therefore it is important that the vaccine contains all the serovars to provide a wide spectrum of protection

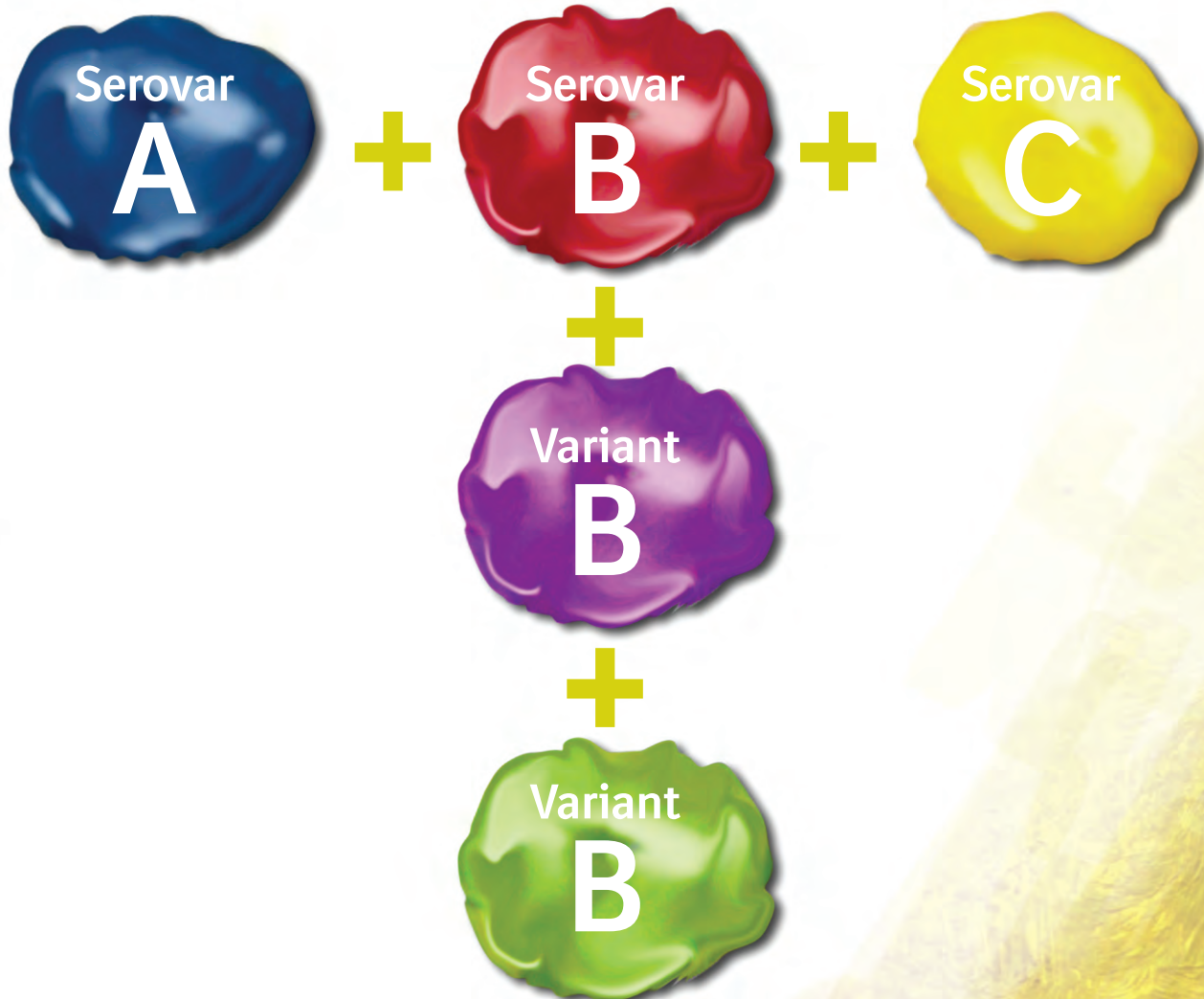
in the chickens. Besides the serovars A and C it has been demonstrated that the serovar B is also fully

pathogenic causing severe lesions in chickens. Since different strains of serovar B provide no

cross-protection amongst themselves, it is crucial to provide vaccines containing several strains of B serovar.³

Volvac® AC Plus + ND + IB + EDS KV

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Emulsified vaccines

Emulsion Quality

Boehringer Ingelheim killed vaccines contain a high quality adjuvant, proven to be very effective in reducing clinical signs and the economic losses caused by infection, without any adverse effects systemically or at site of injection.⁴

Absorption evaluation of Boehringer Ingelheim emulsified vaccines:

Post-vaccination days



Table 1. Absorption level of a concentrated emulsified vaccine (0.2 ml), 5 weeks post-vaccination.⁵

Correct absorption of an emulsified Vaccine provides better productivity thanks to:

1. Absence of excessive irritation in the application area
2. Better immune response
3. High titre till the end of the cycle
4. Long lasting protection of the flock
5. No adverse effect on the production parameters

The optimal combination^{6,7}

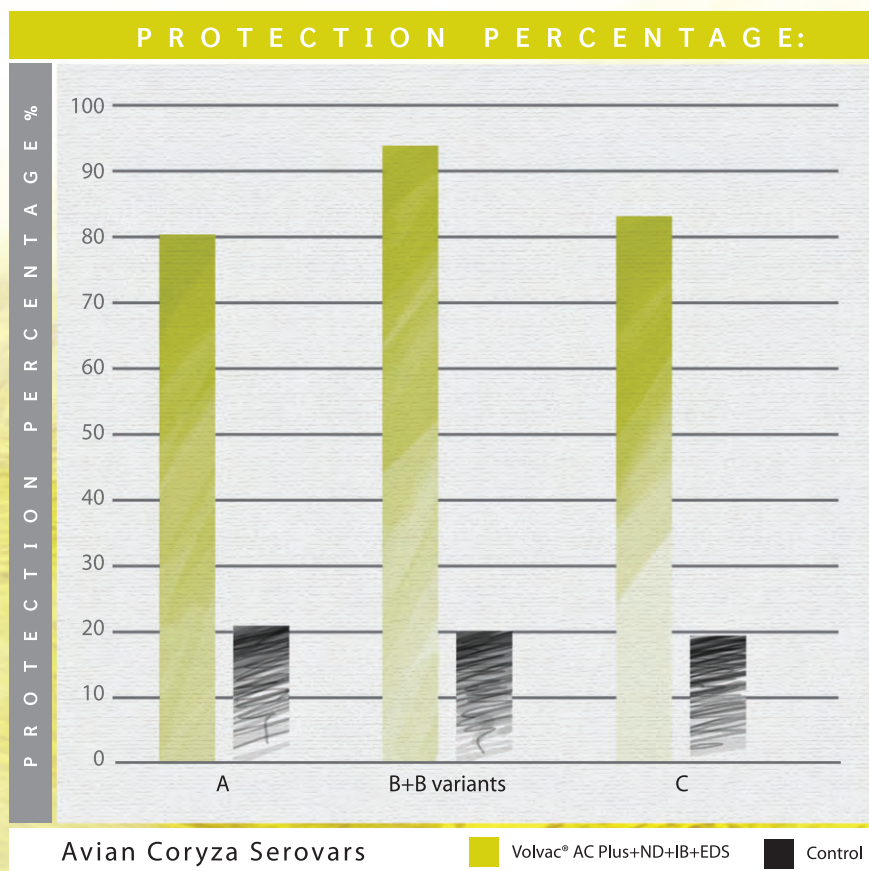
Cost savings

Boehringer Ingelheim offers not only a comprehensive Avian Coryza strains in a vaccine but the optimal combination to prevent the most common diseases that cause egg drop problem in layers as well:

>>> Volvac® AC Plus+ND+IB+EDS

In a field trial^{6,7}, the efficacy of each of the fractions against the respective diseases has been demonstrated. Vaccinated birds with Volvac® AC Plus+ND+IB+EDS KV have been challenged with Avian Coryza A, B, B variants and C serovars, Newcastle Disease, Infectious Bronchitis and Egg Drop Syndrome strains and compared with a non-vaccinated control group:

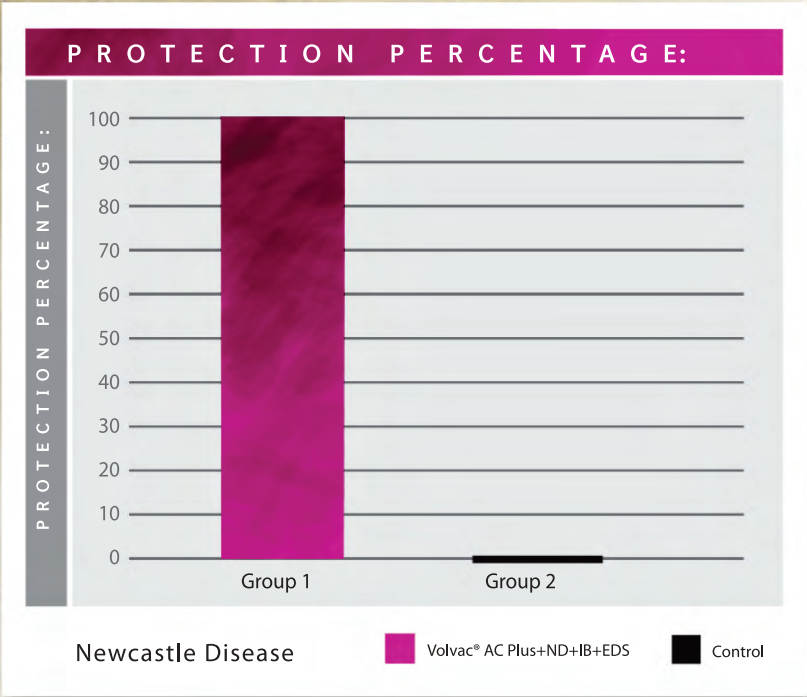
Avian Coryza:



The effectiveness of Volvac® AC Plus+ND+IB+EDS KV was demonstrated offering a total protection higher than 80 percent in the group vaccinated after challenge.

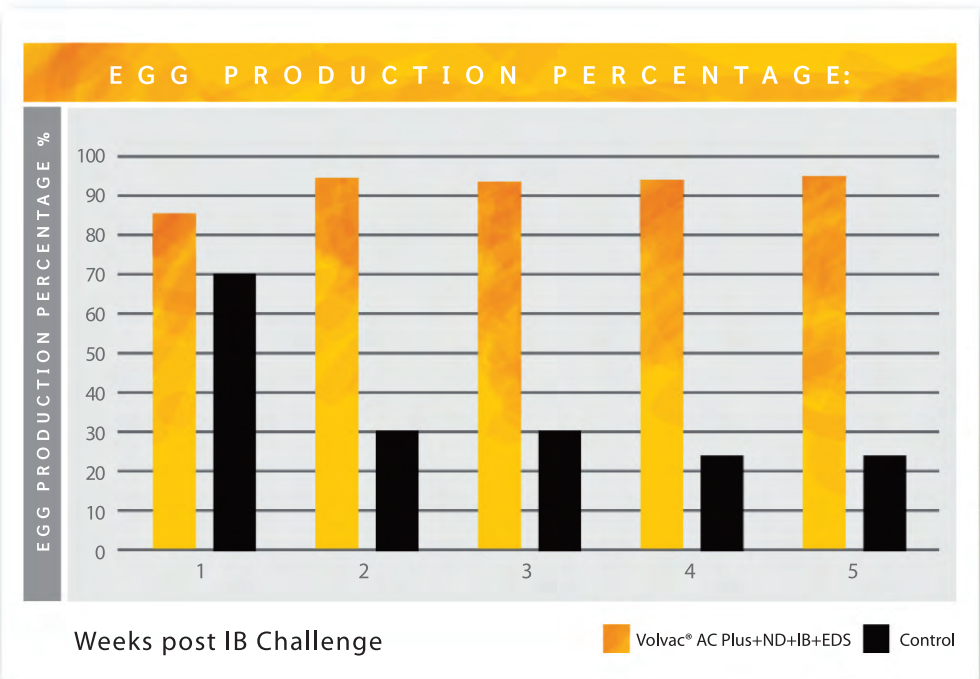


Newcastle Disease (ND):

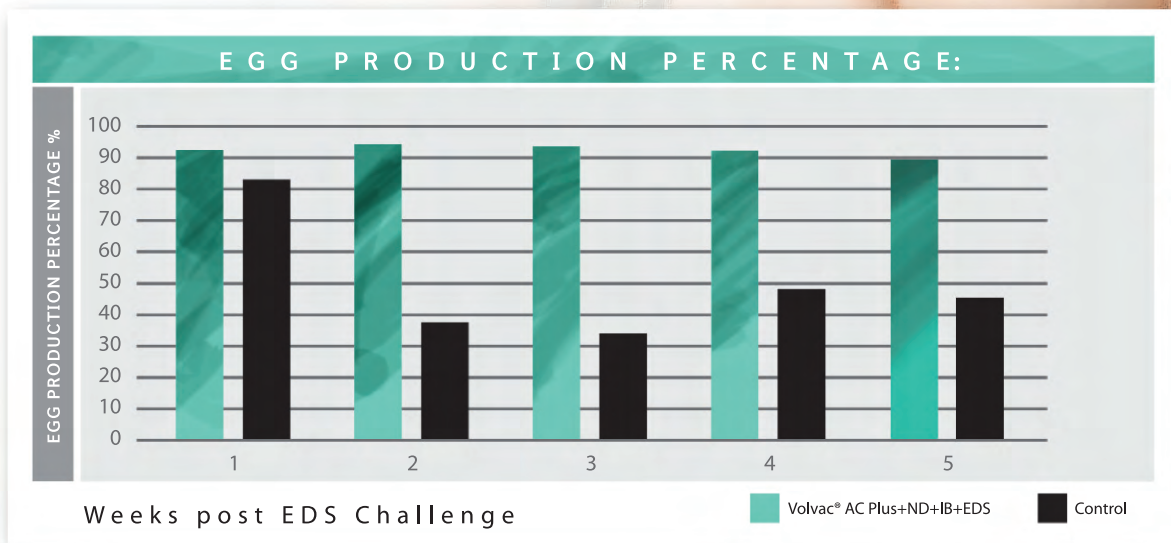


The vaccine complies with the effectiveness evaluation for the Newcastle Disease fraction.

Infectious Bronchitis (IB):



Egg Drop Syndrome (EDS):



The effectiveness of the vaccine against Infectious Bronchitis and Egg Drop Syndrome virus was demonstrated statistically with a significant difference in production between the groups vaccinated with Volvac® AC Plus+ND+IB+EDS KV and the non-vaccinated groups.

Conclusions

- »» **A large percentage** of vaccinated birds were protected against a challenge with **NDV**. Non-vaccinated birds died in less than 6 days post challenge.
- »» AC was demonstrated protecting **>80 %** of birds challenged with different *Avibacterium Paragallinarum* strains.
- »» The effectiveness of Volvac® AC Plus+ND+IB+EDS KV against bronchitis and egg drop syndrome virus was shown statistically with **significant differences in laying production between both groups** ($p < 0.0001$).



Volvac® AC Plus + ND + IB + EDS KV

8 ways to protect your egg production

»» A comprehensive combination of avian coryza strains, providing a solid and long lasting immunity^{1,3,6,7}:

- Serotype A
- Serotype B (with two additional Serotype B variant strains)
- Serotype C

»» A comprehensive combination of antigens in a single vaccine preventing egg production loss^{1,6}

»» Excellent quality adjuvant ensures:

- Reduced systemic or injection site reactions^{4,7}
- High titre values till the end of the production cycle⁷
- Long lasting protection of the flock⁷
- Better egg production parameters⁷



FORMULA	INDICATIONS	DOSE
Vaccine elaborated with A, B, B variants and C serotypes of <i>Avibacterium paragallinarum</i>, LaSota strain of Newcastle Disease, Massachusetts serotype of Infectious Bronchitis and strain 127 of Egg Drop Syndrome inactivated and emulsified in oil adjuvant. Each 0.5 ml contains a minimum titer: $10^{8.0}$ EID₅₀/dose of each Avian Coryza serotype, $10^{8.2}$ EID₅₀/dose of ND, $10^{6.7}$ EID₅₀/dose of IB and 1000 HAU*/dose of EDS before inactivation. *Haemagglutinating units	Recommended for the vaccination of healthy, primed layer and breeder birds against Avian Infectious Coryza (AC), Newcastle Disease (ND), Infectious Bronchitis (IB) and Egg Drop Syndrome (EDS).	0.5 ml/bird by the subcutaneous route in the middle third part of back of the neck. Recommended for the vaccination 4 weeks before the onset of egg production. A primary vaccination against AC is recommended for a maximum booster effect. Presentation: Plastic bottle: 500 ml (1000 doses).

References: 1. Data on file, Ingelheim Pharmaceuticals (Pty) Ltd, Animal Health Division, 2. Blackall P.J., Vaccines against infectious coryza, WPSJ, 1995; 51:17-26, 3. Jacobs AAC, van den Berg K and Malo A, Efficacy of a new tetravalent coryza vaccine against emerging variant type B strains, Avian Path 2003; 32(3):265-269, 4. Data on file, Ingelheim Pharmaceuticals (Pty) Ltd, Animal Health Division, 5. Data on file, Ingelheim Pharmaceuticals (Pty) Ltd, Animal Health Division, 6. Data on file, Ingelheim Pharmaceuticals (Pty) Ltd, Animal Health Division, 7. Data on file, Ingelheim Pharmaceuticals (Pty) Ltd, Animal Health Division.