

innovax[®]
ND-ILT

ND

NOW DEPARTING
TOGETHER

1

ILT



***FOR A SIMPLIFIED
JOURNEY***

GETTING PROTECTION, WELFARE AND PRODUCTIVITY ON THE RIGHT TRACK

The use of vaccination to prevent disease and reduce economic losses is an integral part of today's flock health management. However, with commercial flocks being susceptible to several different infectious diseases this can often result in complex and time-consuming vaccination schedules.

Innovax®-ND-ILT has been developed to provide effective protection against three important infectious diseases from a single subcutaneous or in-ovo injection.



Hatchery administration of 3-in-1 Innovax-ND-ILT can reduce the number of vaccinations required on-farm, resulting in:

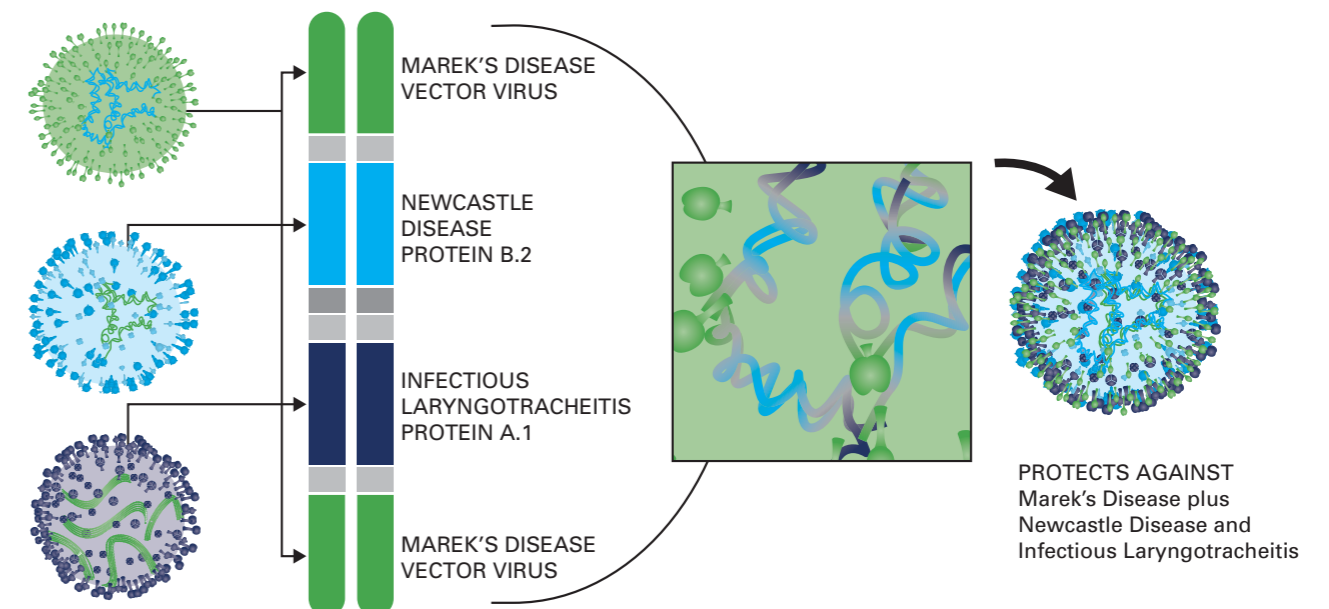
- Less congested on-farm vaccination schedules
- Reduced time and labour input

CONSTRUCTION OF INNOVAX-ND-ILT

The turkey herpesvirus (HVT) is the backbone of the dual construct Innovax-ND-ILT vaccine.

↓
Genes encoding the gD and gI glycoproteins of ILT and the fusion protein of ND are inserted within the HVT DNA.

↓
These fragments of genetic material tell the birds' cells to produce immunogenic proteins normally associated with an ILT or ND infection, stimulating cell-mediated immunity and antibody production against these infections.¹



Innovax-ND-ILT contains only fragments of ILT and ND viruses, therefore:

- It cannot induce an ILT or ND reaction.¹
- There is no horizontal spread of ILT or ND vaccine virus.¹
- There is no reversion to virulence.¹
- All birds must be correctly vaccinated in the hatchery as there is no chance of them encountering vaccine virus spread from other birds.



PROVEN PERFORMANCE

Challenge studies have demonstrated that Innovax-ND-ILT provides excellent protection against all three pathogens.

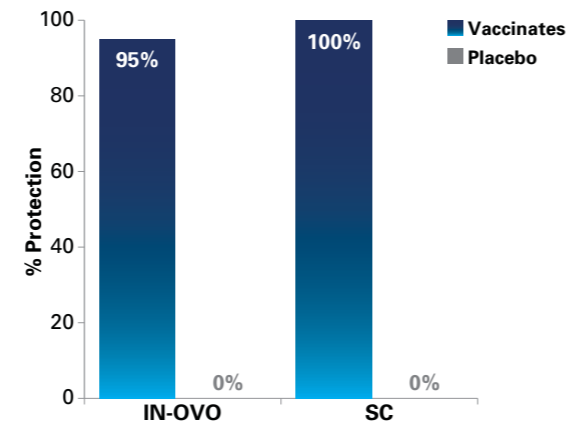
ND PROTECTION

Onset of Immunity: 5 weeks
Duration of Immunity: 62 weeks

Study design:

- Vaccinated in-ovo at 18 days' embryonation or subcutaneously at day 1.
- Birds challenged at 4 weeks with virulent Texas GB challenge strain.
- Evaluated over 14 days for clinical signs of Newcastle Disease or death.

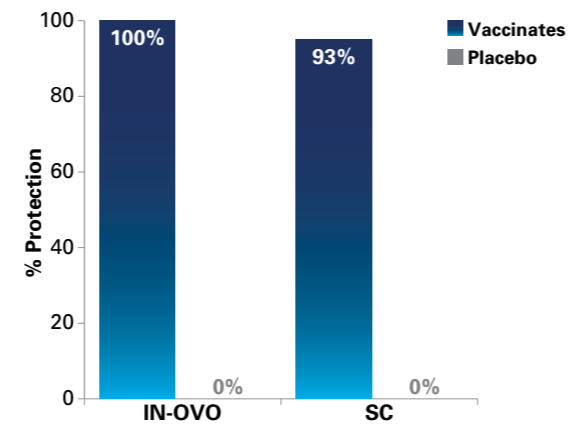
Newcastle Disease efficacy (Texas GB strain)¹



Study design:

- Vaccinated in-ovo at 18 days' embryonation or subcutaneously at day 1.
- Birds challenged at 5 weeks of age with ND strain Herts 33/56.
- Evaluated over 14 days for clinical signs of Newcastle Disease or death.

Newcastle Disease efficacy (Herts 33/56)²



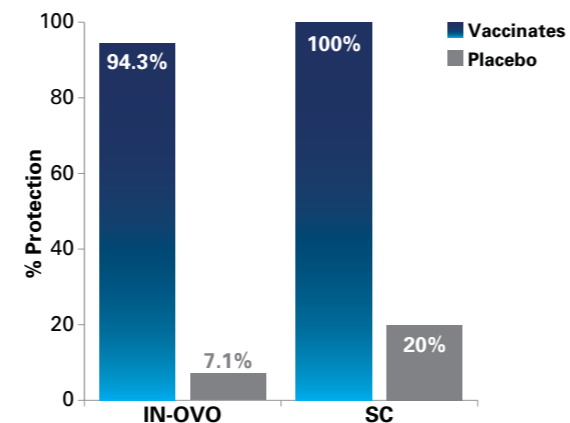
ILT PROTECTION

Onset of Immunity: 4 weeks
Duration of Immunity: 62 weeks

Study design:

- Vaccinated in-ovo at 18 days' embryonation or subcutaneously at day 1.
- Birds challenged intratracheally at 4 weeks with virulent challenge ILT Lot 96-3.
- Evaluated over 10 days for clinical signs of Infectious Laryngotracheitis or death.

Infectious Laryngotracheitis efficacy¹



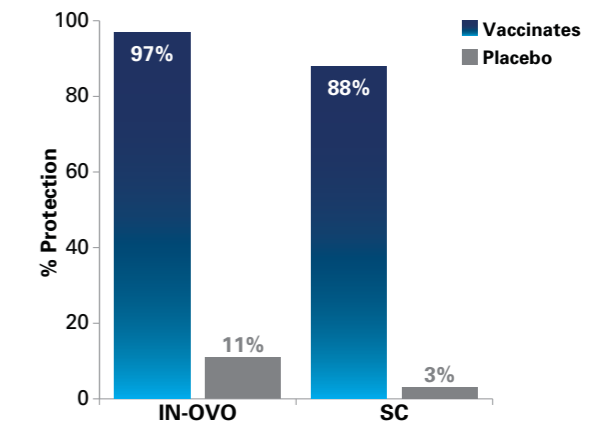
MAREK'S DISEASE PROTECTION

Onset of Immunity: 9 days
Duration of Immunity: Entire risk period

Study design:

- Vaccinated in-ovo at 18 days' embryonation or subcutaneously at day 1.
- Challenged at 5 days of age with virulent GA 5 Marek's Disease strain.
- Evaluated over 49 days for clinical signs and gross lesions of Marek's Disease.

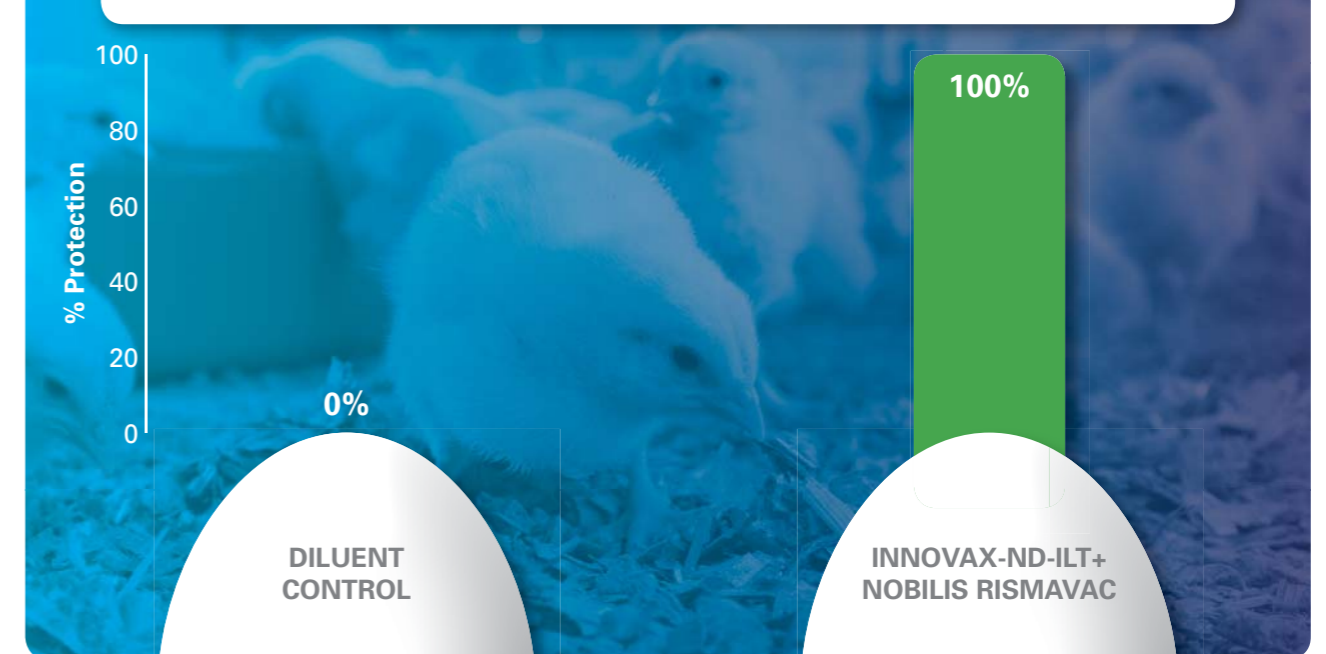
Marek's Disease efficacy¹



INNOVAX-ND-ILT & NOBILIS® RISMAVAC

Innovax-ND-ILT can be mixed in the same solvent and administered via the subcutaneous route with Nobilis Rismavac to provide an onset of immunity of 5 days for MD.

% PROTECTION FOLLOWING CHALLENGE WITH vvMDV (RB1B)³



Safety and efficacy data demonstrate that the following vaccines can be administered to 1-day old chicks following in-ovo or subcutaneous vaccination of Innovax-ND-ILT, helping to further simplify vaccination schedules.

Nobilis ND Clone 30*

Nobilis IB Ma5

Nobilis IB 4-91

*2-week onset of immunity has been demonstrated for ND following concurrent vaccination with Innovax-ND-ILT.

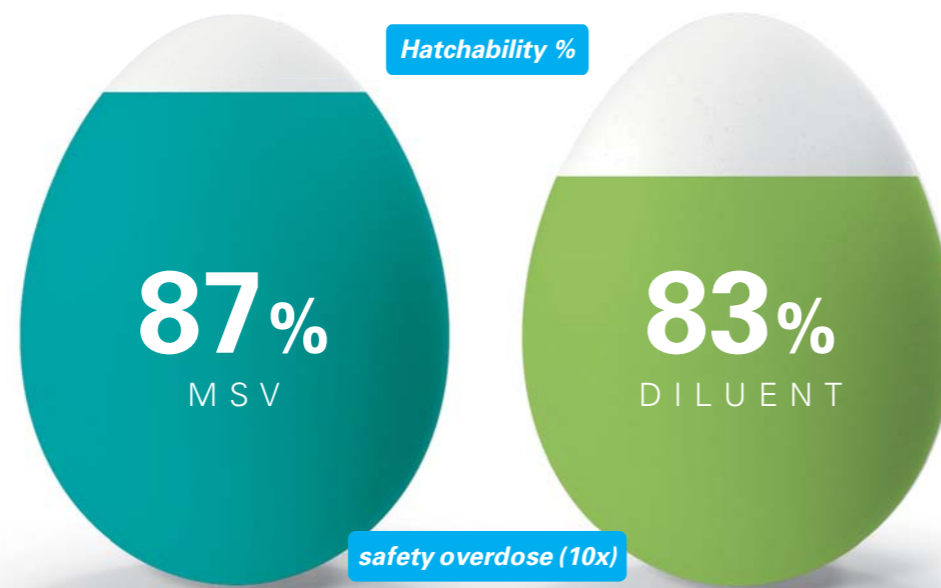


EXCELLENT SAFETY PROFILE¹

The safety profile of Innovax-ND-ILT was evaluated by injecting SPF birds via the in-ovo or subcutaneous route with Master seed virus (MSV) containing at least 10 times as much viable virus as the field dose.

Results demonstrated:

- No impact on average body weight
- No impact on hatchability



No adverse reactions were observed in overdose trials.

NO REVERSION TO VIRULENCE¹

In-vivo stability and safety of the double recombinant virus was further evaluated by back-passage studies:

- Results confirmed the stability of the viral proteins expressed following in-vivo passage.
- No clinical signs associated with MD, ND or ILT were observed and birds were free of any Marek's Disease or other lesions upon necropsy.

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ND-ILT

2000 DOSES AMPOULES IN-OVO OR SUBCUTANEOUS INJECTION AT THE HATCHERY

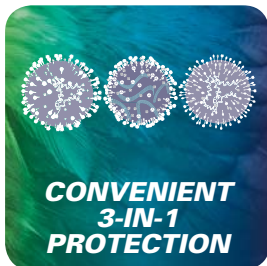
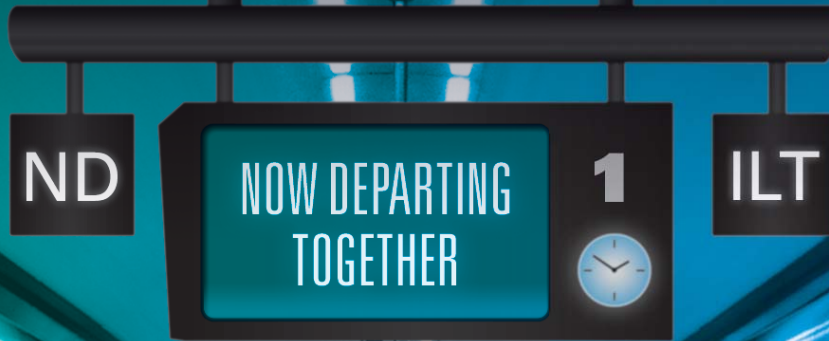


- 3-in-1 protection
- Convenient hatchery vaccination
- Long lasting disease prevention*
- Simplified vaccination schedules – saving time and labour
- No horizontal spread of live ND or ILT vaccine virus¹
- No reversion to virulence¹
- Licensed to be mixed with Nobilis Rismavac



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*Innovax-ND-ILT Summary of Product Characteristics: Newcastle Disease DOI: 62 weeks, Infectious Laryngotracheitis DOI: 62 weeks and Marek's Disease DOI: Entire risk period.

References: 1. A double recombinant herpes virus of turkeys for the protection of chickens against Newcastle, infectious laryngotracheitis and Marek's diseases. Gergen *et al.* Avian Pathology 2019, VOL. 48, NO. 1, 45-56. 2. MSD Trial – GIN 19-50-030: Data on file. 3. MSD Study GIN E-18-50-015: Data on file.

Innovax[®]-ND-ILT contains cell-associated live recombinant turkey herpesvirus (strain HVT/NDV/ILT), expressing the fusion protein of Newcastle disease virus and the glycoproteins gD and gI of infectious laryngotracheitis virus: $10^{3.3} - 10^{4.3}$ PFU*. **POM-V.** Nobilis[®] Rismavac contains live cell associated Marek's disease virus strain CV1988 $\geq 3.0 \log_{10}$ TCID₅₀. **POM-VPS.** Nobilis[®] ND Clone 30 contains live Newcastle disease virus, strain Clone 30 $\geq 6.0 \log_{10}$ ELD₅₀. **POM-VPS.** Nobilis[®] IB Ma5 contains live Avian Infectious Bronchitis virus strain IB Ma5: $\geq 3.5 \log_{10}$ ELD₅₀. **POM-VPS.** Nobilis[®] IB 4-91 contains live attenuated avian Infectious Bronchitis Virus (IBV) variant strain 4-91: $\geq 3.6 \log_{10}$ ELD₅₀. **POM-V.** Further information is available from the SPC, datasheet or package leaflet. MSD Animal Health UK Ltd. Registered office Walton Manor, Walton, Milton Keynes MK7 7AJ, UK. Registered in England & Wales no. 946942. Advice should be sought from the medicine prescriber.

Use Medicines Responsibly.

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