

**BAD THINGS
COME IN**

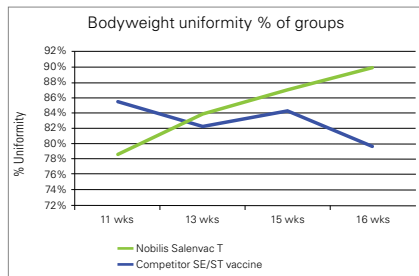
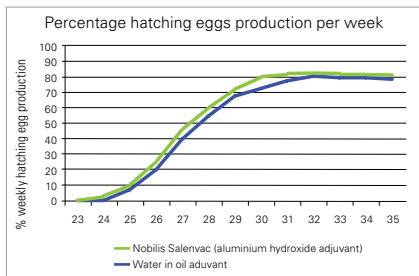


With broad-spectrum control against
three different *Salmonella* serogroups,
Salenvac ETC from MSD Animal Health
is your new poultry protection partner.

Nobilis®
SALENVAC® ETC

All three Nobilis® Salenvac® vaccines contain an Aluminium Hydroxide Gel; this adjuvant promotes a strong immune response and causes minimal vaccine reactions. The adjuvant makes Nobilis Salenvac vaccines safer for chickens and safer for the operator in case of accidental self-injection.

Minimal vaccine reaction leads to improved uniformity and flock performance.



Field Trial 1

Two groups of broiler breeders were vaccinated with either a *Salmonella* vaccine (Nobilis Salenvac) with an Aluminium Hydroxide Gel adjuvant, or a *Salmonella* vaccine with water in oil adjuvant. The percentage of hatching eggs per week is shown below.

During a period of 23 to 35 weeks of age, birds in the group that were vaccinated with the Aluminium Hydroxide Gel as adjuvant produced on average 3 hatching eggs more than those birds vaccinated with the water in oil-based vaccine.

Field Trial 2

Two groups of brown layers were vaccinated with either Nobilis Salenvac T or with a *Salmonella* Enteritidis (SE) and *Salmonella* Typhimurium (ST) vaccine with water in oil as adjuvant. The birds were vaccinated at 11 weeks and 15 weeks. Uniformity on bodyweight was measured at time of vaccination and several times afterwards.

The birds vaccinated with Nobilis Salenvac T showed an uninterrupted bodyweight uniformity development while the birds vaccinated with the water in oil-based SE-ST vaccine had poor bodyweight uniformity results. Bodyweight uniformity at the end of the rearing period is crucial for flock performance in the production period.



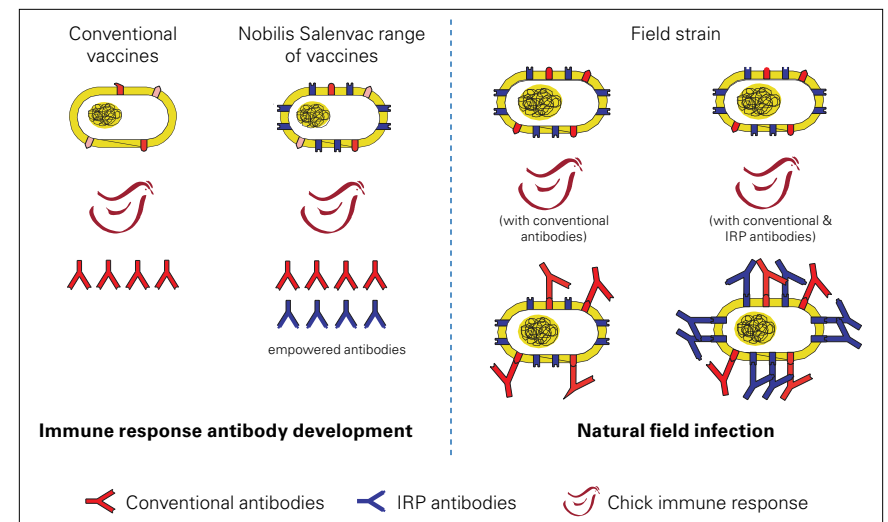
Iron is an essential requirement for bacteria such as *Salmonella* and *E. Coli* to grow and multiply. In the chicken intestine iron is bound to proteins, reducing its availability. To compensate, bacteria form on their surface iron regulated proteins, or IRPs, to enable an active intake of iron. These IRPs are recognized as antigens by the bird’s immune system.

Nobilis Salenvac ETC is produced under conditions of iron restriction (IRP technology). This IRP technology leads to a maximum expression of IRPs. Maximum expressed IRPs result in maximum induction of IRP empowered antibodies in addition to conventional antibodies.

IRP technology results in a vaccine that induces a strong chicken immune response, resulting in a powerful reaction against a natural field challenge. Nobilis Salenvac ETC induces conventional and IRP empowered antibodies.

Nobilis Salenvac ETC

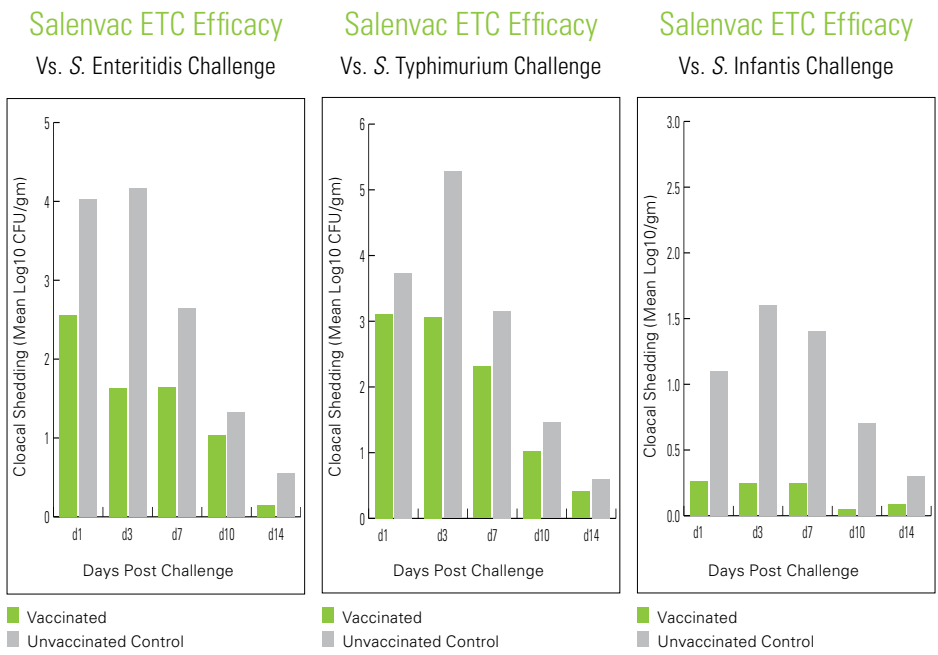
- Conventional and IRP empowered antibodies
- Strong immune response
- Powerful reaction against a natural field challenge



Shedding of *Salmonella* Enteritidis, *Salmonella* Typhimurium and *Salmonella* Infantis was evaluated in birds that received Salenvac ETC vaccinations at the ages of 6 and 10 weeks, and a control group that was non-vaccinated. The groups were then challenged at week 14.

Nobilis Salenvac ETC reduces the shedding of *Salmonella* Enteritidis, *Salmonella* Typhimurium and *Salmonella* Infantis.

The graphs below show the birds vaccinated with Salenvac ETC shed lower *S. Enteritidis*, *S. Typhimurium* and *S. Infantis* bacteria counts when compared to the control group over the length of the study.

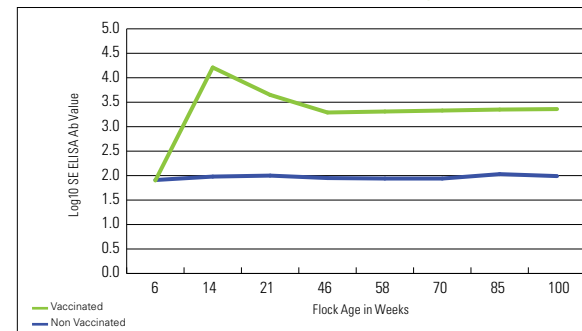


Salenvac ETC has a long, 90-week duration of immunity (DOI) post second vaccination (as evidenced by sustained serology) against both *S. Enteritidis* and *S. Typhimurium*. This means chickens are protected from these bacteria long after receiving the vaccination.

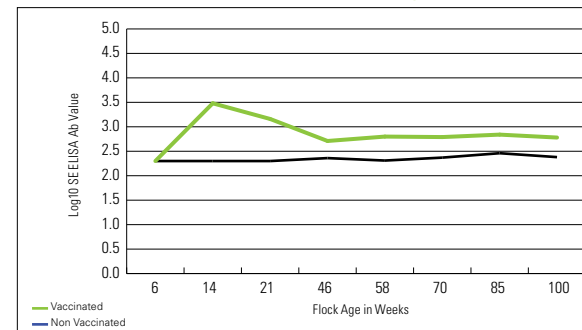
In the study, the vaccinated birds showed a good response to all three antigens contained within the vaccine. The antibody levels were higher than the non-vaccinated birds throughout the length of the study.

The graphs below clearly indicate that chickens vaccinated with Salenvac ETC have protection against *S. Enteritidis* and *S. Typhimurium* for up to 90 weeks.

Salenvac ETC Duration of Immunity Vs. *S. Enteritidis*



Salenvac ETC Duration of Immunity Vs. *S. Typhimurium*

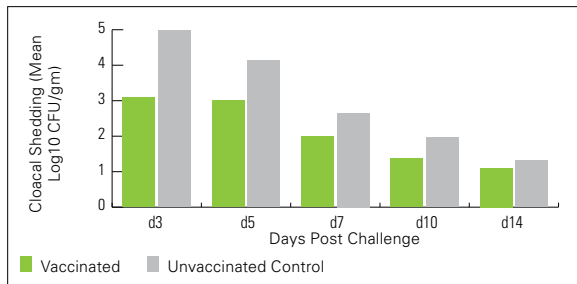


Birds vaccinated with Salenvac ETC also showed a DOI of 51 weeks against Group C species, *S. Infantis* and *S. Hadar*, as evidenced by challenge testing. In addition, birds vaccinated with Salenvac ETC showed a DOI of 57 weeks and 51 weeks respectively against *S. Heidelberg* and *S. Virchow* based on scientific knowledge from internal trials.

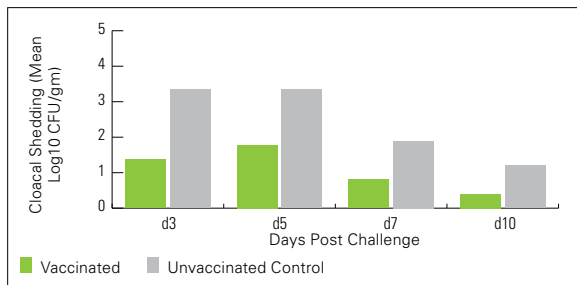
Nobilis Salenvac ETC offers broad-spectrum control against the three main identified species of *Salmonella*: *S. Enteritidis*, *S. Typhimurium* and *S. Infantis*. But that's not all. Studies show that Salenvac ETC also offers cross protection against *Salmonella* species not found in the vaccine.

The graphs below show the bacteria levels of chickens vaccinated with Salenvac ETC and challenged with *S. Hadar*, *S. Virchow* and *S. Heidelberg*, compared to chickens that didn't receive the vaccinations.

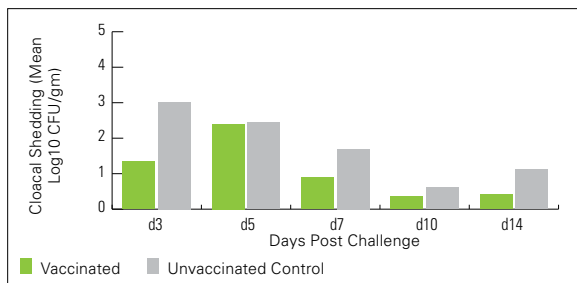
Salenvac ETC Cross Protection Vs. *S. Hadar*



Salenvac ETC Cross Protection Vs. *S. Heidelberg*



Salenvac ETC Cross Protection Vs. *S. Virchow*



Protection against all three.

Nobilis Salenvac ETC offers broad-spectrum control against the three main identified serogroups (serogroups B - C - D) that affect both chickens and humans.

There is conclusive evidence that an increased stocking density, larger farms and stress result in increased occurrence, persistence and spread of *Salmonella* in laying hen flocks.

Nobilis Salenvac range of vaccines

Nobilis **Salenvac** contains inactivated cells of *Salmonella* Enteritidis PT 4. Nobilis **Salenvac T** contains inactivated cells of *Salmonella* Enteritidis PT 4 and *Salmonella* Typhimurium DT 104. Nobilis **Salenvac ETC** contains inactivated cells of *Salmonella* Enteritidis PT 4, *Salmonella* Typhimurium DT 104 and *Salmonella* Infantis S03449. All three vaccines contain Aluminium Hydroxide Gel as an adjuvant and thiomersal as a preservative. Nobilis **Salenvac**, Nobilis **Salenvac T** and Nobilis **Salenvac ETC** are grown with IRP technology.

Indication

Nobilis Salenvac is indicated for the stimulation of active and passive immunity against *Salmonella* serogroup D. Nobilis Salenvac T is indicated for the stimulation of active and passive immunity for *S. Enteritidis*. Nobilis Salenvac T is indicated for the active immunization of chickens and to reduce caecum colonization and faecal excretion with *S. Enteritidis* and *S. Typhimurium*. Nobilis Salenvac ETC is indicated for the active immunization of chickens to reduce colonization and faecal excretion of *Salmonella* serogroups B, C and D.

Vaccination schedule

Standard vaccination schedule: first dose (0.5 ml) from 6 weeks of age, with a second dose at least 4 weeks later. The second vaccination should be administered no later than 3 weeks before lay.

Administration

Administration is by intramuscular injection under aseptic conditions.

Presentation

Nobilis Salenvac, Nobilis Salenvac T and Nobilis Salenvac ETC are marketed in 500 ml bottles containing 1,000 doses.



Nobilis® SALENVAC® ETC

PROTECT YOUR FLOCK, YOUR FOOD AND YOUR WAY OF LIFE

BROAD AND LONG PROTECTION

- Contains *S. Enteritidis*, *S. Typhimurium* and *S. Infantis* antigens
- 90-week duration of immunity (DOI) post second vaccination (as evidenced by sustained serology) for *S. Enteritidis* and *S. Typhimurium*, 51-week DOI (as evidenced by challenge) for *S. Infantis* and *S. Hadar*

SAFE ALUMINIUM HYDROXIDE GEL ADJUVANT

- Safer for birds and handlers
- Causes minimal vaccine reactions compared to oil-based adjuvants

OPTIMUM IMMUNIZATION AGAINST *SALMONELLA SPP*

- Strong serological response
- Reduces shedding and colonization

ADVANCED IRON REGULATED PROTEIN (IRP) TECHNOLOGY

- Vaccine antigen produced under iron restricted protein conditions resulting in maximum expression of IRPs
- Induces strong chicken immune response