Nobilis SG 9R
The proven Salmonella vaccine for the layer industry

Description
Nobilis SG 9R is a live, freeze-dried vaccine, based on the rough Salmonella gallinarum strain 9R with a stabilizer for reconstitution in a special solvent. The vaccine contains at least $2 \times 10^7$ CFU per dose.

Indication
Nobilis SG 9R is indicated for active immunization of layer type chickens against Salmonella gallinarum (Fowl Typhoid) and Salmonella enteritidis infections.

Vaccination schedule
For adequate protection, two vaccinations are required with an interval of at least 6 weeks. The initial vaccination can be given from an age of 6 weeks followed by a booster between the ages of 14 and 16 weeks of age. The second dose should be given at least 2 weeks prior to onset of lay.

Administration
Administer 0.2 ml of the reconstituted vaccine to each chicken by subcutaneous injection in the lower part of the neck.

Presentation
Nobilis SG 9R is available in vials containing 500 or 1000 doses of vaccine packed in boxes of 10 vials.
Experiences in many countries show that vaccination can be an important tool in the control of Salmonella. The British Egg Industry Council’s “Lion Code of Practice” prescribes that all layer hens are vaccinated with a Salmonella vaccine. This vaccination requirement led to a significant reduction in Salmonella contamination of chicken products and Salmonellosis cases in humans in the UK.

Salmonellosis is the most frequently reported zoonotic disease in humans. In the year 2000 alone there were as many as 150,000 officially reported Salmonellosis cases in humans from EU countries. Poultry meat and eggs are often singled out as the potential source of infection.

During the 1980s, *S. enteritidis* emerged worldwide as the most commonly isolated Salmonella type. Control measures in poultry have thus mainly focused on *S. enteritidis*.

The European Community responded to this continuous threat with regulations forcing poultry producers to minimize Salmonella contamination in breeders and layers (Zoonosis Directive EC/92/117).

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There is evidence of similar success in The Netherlands. A growing number of layers are vaccinated as part of a Salmonella control program, which has resulted in a sharp reduction of the number of Salmonella infections in poultry.

Nobilis SG 9R is the vaccine of choice for the Dutch layer industry due to an excellent track record in keeping flocks Salmonella free.

**Salmonellosis in humans**

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Nobilis SG 9R, the live Salmonella vaccine egg producers can rely on

Live Salmonella vaccines induce a strong cell-mediated immune response. This plays an important role in helping the bird’s immune system respond against intracellular bacteria like Salmonella. Vaccination with a live Salmonella vaccine prevents horizontal and vertical transmission of the bacteria.

The vaccine strain
Nobilis SG 9R contains the live rough strain of Salmonella gallinarum, designated 9R. The 9R strain was originally developed by Williams Smith and has been used extensively in the control of Fowl Typhoid.

S. gallinarum and S. enteritidis are both classified as group D Salmonella (Kauffman-White scheme) implying that they have a similar antigenic structure (O-antigens 1, 9 and 12). The similarity in antigenic structure is the reason Nobilis SG 9R induces excellent cross-protection against S. enteritidis, as confirmed in laboratory and field studies.

Laboratory studies
In a cross-protection study, commercial layers were vaccinated with Nobilis SG 9R and challenged with a S. enteritidis PT4 strain.

Conclusion: a significant reduction of S. enteritidis positive birds in the vaccinated group.

Field experience
Cross-protection to S. enteritidis was also confirmed in a large field study in The Netherlands. A total of 80 commercial layer flocks (2.2 million birds) with a high risk profile for S. enteritidis infection where vaccinated with Nobilis SG 9R at 6 and 14-16 weeks of age.

The flocks were frequently tested serologically and by bacteriological examination up to the end of the production period. In total, 79 flocks remained negative for S. enteritidis and only one flock became Salmonella positive (1.25%).

During the same period of time, 214 out of a total of 1845 unvaccinated flocks, at low risk for Salmonella, tested Salmonella positive (11.5%).

Conclusion: vaccination with Nobilis SG 9R significantly reduced the level of S. enteritidis on the tested farms.

From these studies, poultry veterinarians have concluded that Nobilis SG 9R is an effective tool in reducing Salmonella infections in layer birds.
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Nobilis SG 9R, a proven tool in producing Salmonella free eggs

Nobilis SG 9R:
- Provides effective protection against *Salmonella gallinarum* as well as excellent cross-protection against *Salmonella enteritidis*
- Provides cell-mediated immunity in the gut, offering a first line of defence against Salmonella
- Has proven in large-scale field trials to significantly reduce *Salmonella enteritidis* infections in commercial layer flocks
- Does not pose a risk for humans as *Salmonella gallinarum* is not a human pathogen but is host-specific to poultry
- Does not spread to non-vaccinated flocks through faecal shedding or horizontal spreading between birds
- Contains a genetically stable vaccine strain with no risk of reversion to virulence
- Does not interfere with Salmonella monitoring programs as the serological response to the vaccine strain can be differentiated from the response to a *Salmonella enteritidis* field infection

Safety studies
Nobilis SG 9R has the longest safety record of any poultry Salmonella vaccine. The strain has been shown to be stable after 50 passages in embryonated eggs and five passages in susceptible birds with no reversion to virulence.

And unlike other live Salmonella vaccines there is no horizontal transmission that takes place between birds.

In human terms, absolute safety is guaranteed as *S. gallinarum* is not a human pathogen.

Differentiation from *S. enteritidis* field infection
Many countries enforce compulsory Salmonella monitoring programs. It is therefore important that the vaccine does not interfere with these monitoring programs. *S. gallinarum* is a non-motile Salmonella. Thus, unlike the motile *S. enteritidis*, the 9R strain lacks flagellae. An ELISA test detecting antibodies specific to *S. enteritidis* flagellae antigens (g,m) distinguishes between a *S. enteritidis* and *S. gallinarum* infection (GM-DAS blocking ELISA).
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Nobilis SG 9R, the safe alternative
Nobilis SG 9R is a well-documented and proven vaccine, which combines excellent efficacy features with a high level of safety.
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For more information on Salmonella control in poultry please visit
www.safe-poultry.com