

# Volar

## Bayer New Zealand Ltd

A new *Fusobacterium necrophorum* vaccine for use in cattle, sheep and deer was launched by Bayer in February 1996. The following provides an outline of *Fusobacterium necrophorum* and the diseases it causes. It describes Volar, its characteristics and indications.



### Fusobacterium necrophorum

- Characteristics
  - Gram negative bacteria
  - Anaerobic
  - Pleomorphic
  - 3 Biovars A, AB, B
- A and AB
  - Pathogenic
  - Exhibit the following virulence factors : Exotoxin, Endotoxin, Capsule
- B
  - Non-pathogenic
  - Commensal

### Characteristics of Fusobacterium and Diseases

- *Fusobacterium necrophorum*
  - Protective antigens have not been defined.
  - Antibody serological assays are not indicative of protection against disease.
- Disease
  - Reliable models of *Fusobacterium* diseases do not exist.
  - Diseases tend to be multifactorial and sporadic.
  - Therefore the tool available for assessing the efficacy of a vaccine such as Volar is limited essentially to field trials where efficacy is demonstrated via statistically significant differences between treatment groups.

### VOLAR

Characteristics of the vaccine.

- Aluminium hydroxide adjuvant
- Contains equal amounts of killed *F. necrophorum* strains 5118 and 5120
- Current claims
  - Ovine interdigital dermatitis (Scald) in sheep
  - Acute Footrot in Cattle caused by *F. necrophorum*
  - Necrotic stomatitis in deer caused by *F. necrophorum*

## Recommendations for Use

In all species initial treatment is a sensitising dose followed by a booster 4-6 weeks later. Continued protection requires an annual booster in following years. Treatment is recommended prior to expected outbreaks or disease exposure for optimum results.

- Cattle  
dose rate = 5 mls  
- Pre calving
- Sheep  
dose rate = 3 mls  
- Prior to expected disease exposure ( dp on history, local conditions)
- Deer  
dose rate = 3 mls  
- Pre fawning for passive immunity transfer to fawns

## Safety

- No overt reactions have been recorded in cattle, sheep or deer when used according to label recommendations.
- Safe to use in pregnancy.
- Multiple dose and multiple injection studies in sheep and cattle produced no adverse effects.

## Efficacy

### Cattle

#### US Trials

	No Cattle	No cases Acute Footrot	% incidence Acute Footrot	% Reduction Incidence	No. cases Chronic Footrot
Vaccinated	763	11	1.4%	57.6%	0
Control	783	26	3.3%	-	3

- Besides the reduction of incidence of acute disease, none of the affected animals in the treatment group went on to develop chronic footrot suggesting a better response to treatment in vaccinated animals.

### Fallow deer

#### Tirau

Fallow does in the treatment group were vaccinated pre fawning to increase passive immunity transfer to fawns and reduce deaths from *Fusobacterium necrophorum* induced Necrotic stomatitis.

	Does vaccinated	Does Fawning	Fawn deaths <i>Fusobacterium</i>	% fawn deaths
Vaccinated	194	172	1	1
Control	84	75	4	5

- The difference between percentage incidence of fawn deaths between vaccinates and controls is statistically significant.

### Other diseases

Other diseases where Volar may have an indication and where further development is planned are:

- Ovine Foot abscess carcass
- Cervine necrobacillosis, Red deer
- Caprine Scald

