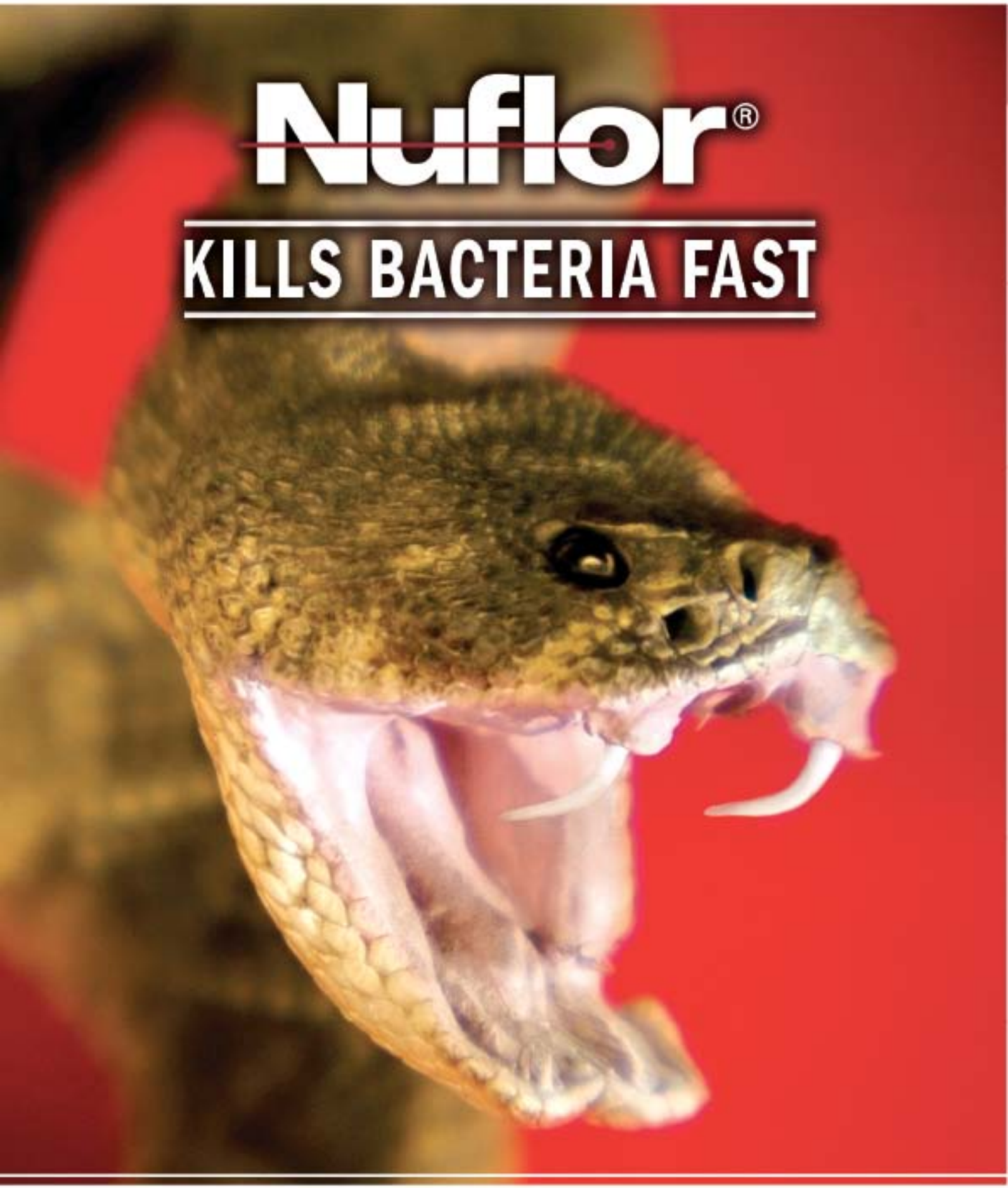
Nuflor®

KILLS BACTERIA FAST

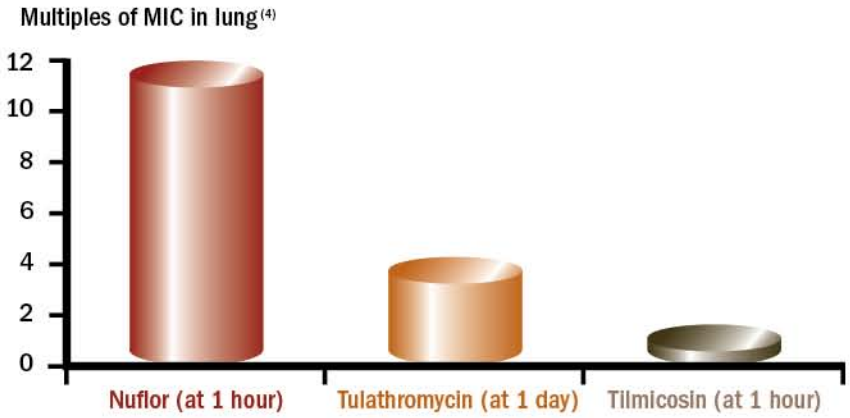


MSD Animal Health

Nuflor is fast

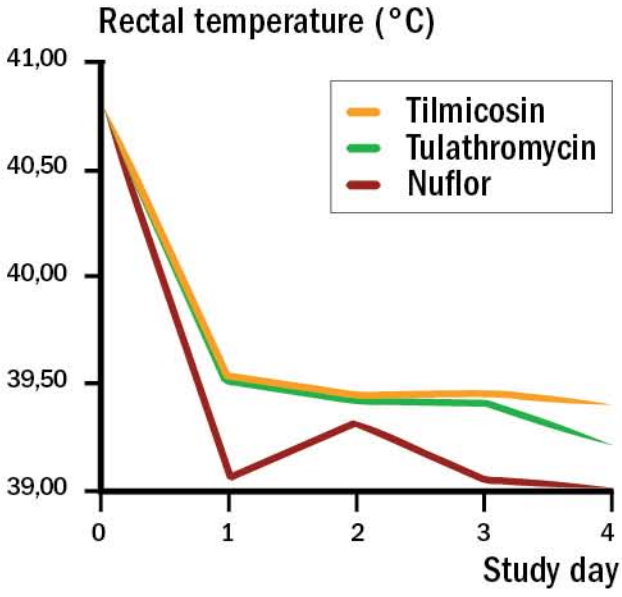
Nuflor gives high levels of concentration almost immediately

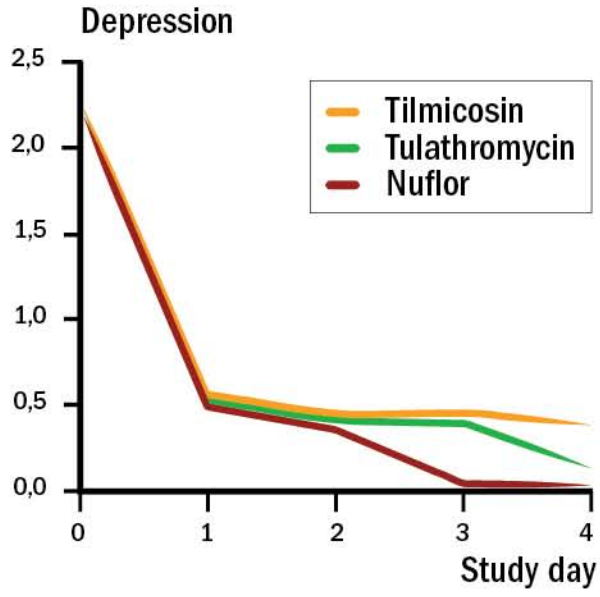
- Nuflor takes less than **30 minutes** to reach therapeutic levels in plasma and lung against *M. Hæmolytica*, *P. Multocida*, and *H. Somnus* [9].
- 1 hour after injection, Nuflor concentration in lung is 12 times the Minimum Inhibiting Concentration of *P. Multocida* [9].



Symptoms quickly recede after the use of Nuflor

- Symptoms quickly decrease after the use of Nuflor as can be seen with temperature and depression in the underneath field trial.





Comparison of temperature and depression in BRD infected calves allocated to three treatment groups injected sub-cutaneously with Nuflor, tulathromycin or tilmicosin as per manufacturer's recommendations[10].

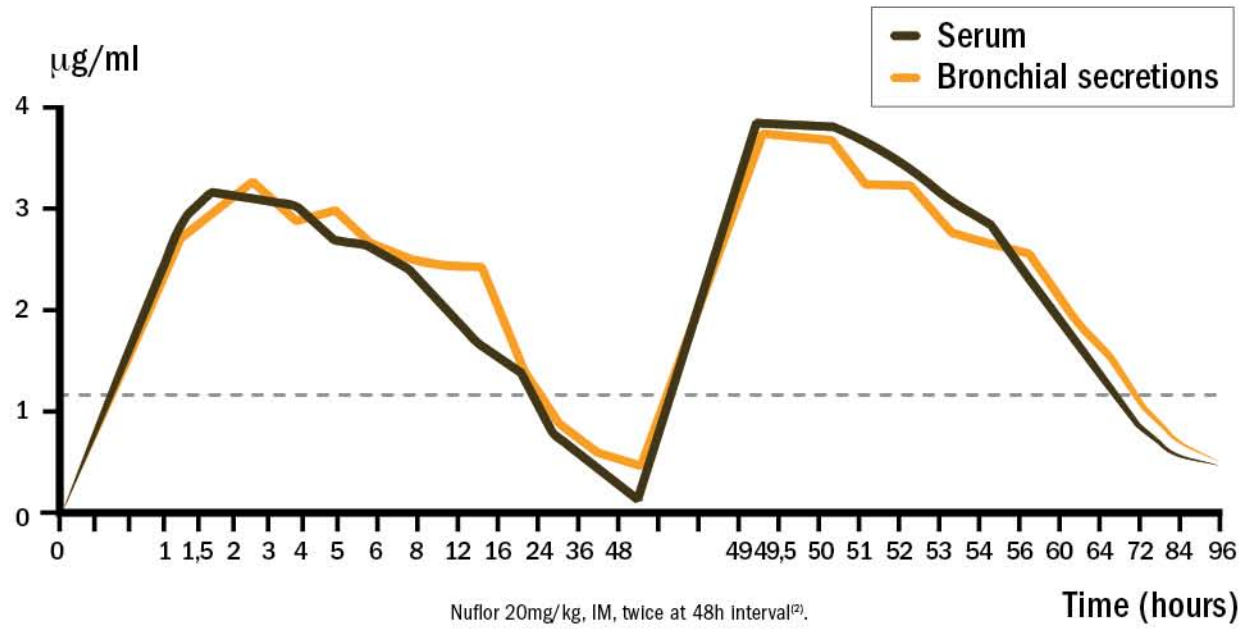
Nuflor kills bacteria

Nuflor has bacteriostatic AND BACTERICIDALactivity

- Nuflor's minimum bactericidal concentration (MBC) and minimum inhibiting concentrations (MIC) are very near one another (one dilution difference on average), which is important for field efficacy.

Pathogen (n)	MIC[1] (μg/ml)	MBC[1] (μg/ml)
M. Hæmolytica (35)	**0.6**	**1.1**
P. Multocida (36)	**0.5**	**1.1**
H. Somnus (5)	**0.5**	**0.6**

- Nuflor concentration in bronchial secretions of infected cattle quickly exceeds the MBC of *M. haemolytica*, *P. multocida*, and *H. somnus*.



Nuflor 20mg/kg, IM, twice at 48h interval[2].

- At observed concentrations, after 18 hours *M. haemolytica* population is reduced to below levels that allow regrowth, within 24 hours 99.9% of *P. multocida* population is killed, and within 8 hours *H. somnus* bacterial count falls below detectable limits[3].

Nuflor is fully active

High sentivity to Nuflor after 11 years of use

- Nuflor showed **no resistance** to major BRD pathogens in a major 2006 sensitivity study carried out from 307 samples collected in Belgium, France, Germany, Ireland, Italy, Netherland, Spain and United Kingdom. 133 samples were positive for major BRD pathogens.

	H. Sommi				*M. Hæmolytica*				*P. Multocida*			
	Total	S	I	R	Total	S	I	R	Total	S	I	R
Nuflor	**3**	**3**			**48**	**48**			**82**	**82**		
Tulathromycin	**3**	**3**			**48**	**47**		**1**	**82**	**82**		
Tilmicosin	**3**	**1**	**2**		**48**	**42**	**4**	**2**	**82**	**81**		**1**
Marbofloxacin	**3**	**3**			**48**	**46**	**1**	**1**	**82**	**81**	**1**	
Tetracyclin	**3**		**2**	**1**	**48**	**2**	**1**	**45**	**82**	**4**	**14**	**64**

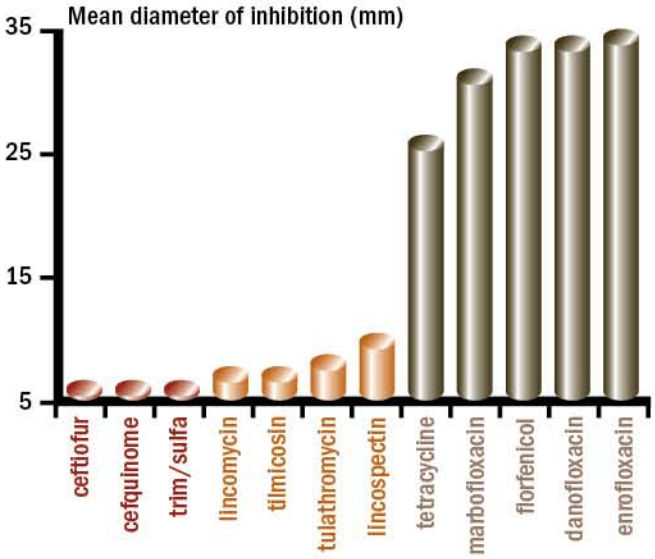
(S = Sensitive, I = Intermediate sensitivity, R = Resistant)[4].

Wide sensitivity to Nuflor

- Nuflor is active against many commonly isolated Gram-negative and Gram-positive bacteria that give rise to infection in cattle including[5]:

Gram-negative bacteria	Gram-positive bacteria
M. Hæmolytica	*A. Pyogenes*
P. Multocida	*S. Agalactiae*
H. Somnus	*S. Dysgalactiae*
E. Coli	*S. Uberis*
S. Dublin	*S. Aureus*
F. Necrophorum	
M. Bovis	
Bacteroides spp.	

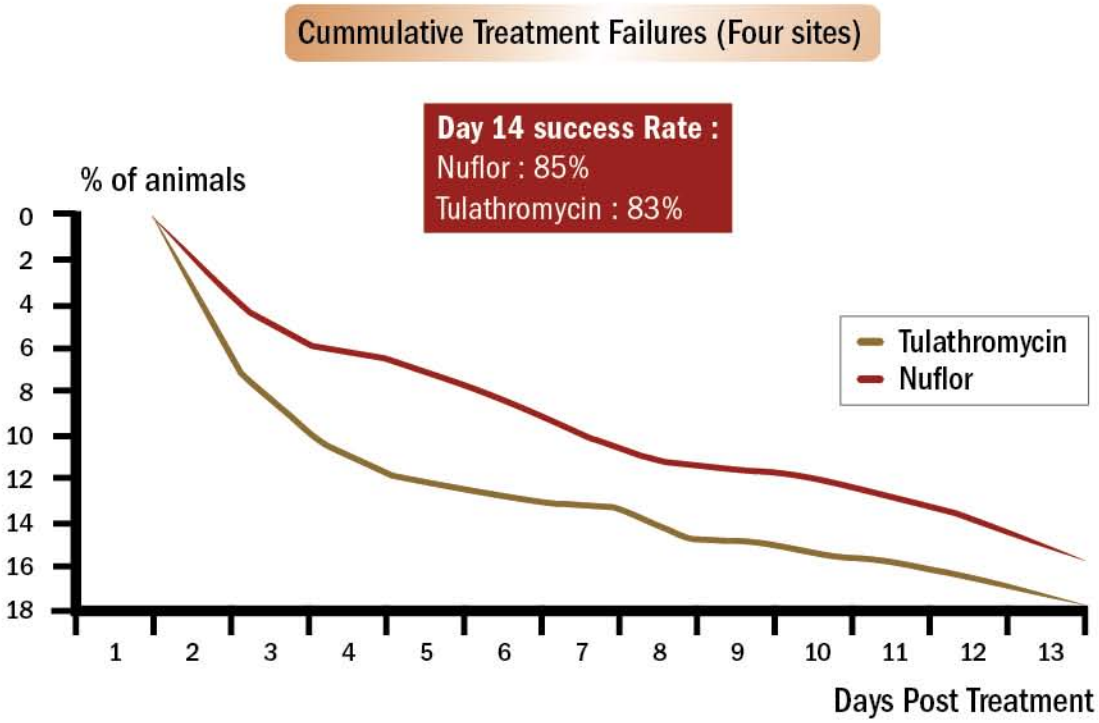
- Nuflor showed the most regular activity against 83 Mycoplasma bovis strains during antibacterial sensitivity testing[6].



Nuflor is effective

Fast and fully active for improved recovery

- In a recent USA trial on 4 sites, Nuflor demonstrated better numerical treatment success rate and fewer relapses than tulathromycin.



Cumulative BRD treatment failures in a comparative field trial in USA on 625 beef heifers; antibiotic treatments were administered by sub-cutaneous injection as per manufacturers' recommendations[7].

- Nuflor gives very high cure rates as it has been repeatedly demonstrated through time. The table underneath, from a published review, gives a consolidation of comparisons between Nuflor and a range of different antibiotics.

% SUCCESSES AND % RELAPSES AFTER TREATMENT				
Countries	% success 1 day PT		% relapses 1 week PT	
Experimental drug	Nuflor	AMO	Nuflor	AMO
France and Spain	89.0	67.9	4.5	17.5
Experimental drug	Nuflor	OTCLA	Nuflor	OTCLA
France	94.0	55.0	12.0	46.0
Experimental drug	Nuflor	SPI	Nuflor	SPI
France	91.0	47.0	42.0	53.0
Experimental drug	Nuflor	ENRO	Nuflor	ENRO
Germany	98.0	88.0	12.0	16.0
Netherlands	95.0	87.0	0.0	5.0

Summary of % successful cures at 1 day post treatment and % relapses at 1 week post treatment in different field trials (FFC= Nuflor, AMO=amoxicillin, OTCLA=oxytetracyclin long acting, SPI=spiramycin, ENRO=enrofloxacin)[8].

Nuflor makes the difference

Fast acting

- Nuflor reaches active levels within 30 minutes.

Bactericidal

- Nuflor kills bacteria fast.
- No bacterial regrowth within 24 hours.

Broad cover

- Acts on a broad spectrum of pathogens including:
  P. Multocida, M. Hæmolytica, H. Somnus and *A. Pyogenes.*

Safe to handle

- No operator warnings required on the data sheet.

Proven efficacy

- No significant resistance in 11 years of use.
- Quick decrease of symptoms and high recovery rate.

Nuflor®

1 - De Hass V. et al, Florfenicol: a time- or concentration- dependent antibiotic?, XXII World Buiatrics, Aug. 2002.
2 - Data on file Schering Plough.
3 - De Haas et al. New advances in calf disease management. World Buiatrics Congress, 2002.
4 - De Hass V. et al, the incidence and sensitivity of major bovine respiratory disease pathogens in Europe, World Buiatrics Congress, Nice 2006.
5 - Data on file Schering Plough.
6 - De Hass V. et al, the incidence and sensitivity of major bovine respiratory disease pathogens in Europe, World Buiatrics Congress, Nice 2006.
7 - Comparison of the clinical efficacy of Nuflor (florfenicol) and Tulathromycin for treatment of bovine respiratory disease, veterinary technical update, Schering Plough, 2006.
8 - From: comparative efficacy of florfenicol and various antibiotics in the treatment of the bovine respiratory disease complex in Europe, BCVA Edinbugh, 1996.
9 - Nuflor Technical Monograph, Pfizer product brochure UK, Elanco technical bulletin UK.
10 - Data on file Schering Plough.

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