

Stay on the performance track!



BOVILIS[®]  **Halocur**
Rotavec[®] Corona

THE UNIQUE COMBO THAT CONTROLS NEONATAL DIARRHOEA

The Five Step Program

Keeping herd performance on track means preventing and controlling neonatal diarrhoea. Evaluating herd and farm management practices, properly diagnosing pathogens and analyzing colostrum quality and intake are essential steps in resolving this costly problem. Selecting the right prevention / treatment protocol is also critical to success.



> STEP 1

ASSESS PROBABLE CAUSES OF SCOURS

In the process of investigating a case of neonatal diarrhoea on a farm, a thorough discussion with the cattle producer about farm calf management and type of animals affected can already identify a list of possible causes of the scour problem.

- Key areas for discussion
- Age of the animals affected
 - Colostrum Management
 - Calf feeding protocol
 - Housing conditions
 - Previous farm disease history
 - Veterinary Health Plan

Agent	Age
Escherichia coli (ECET)	5-1 days
Clostridium perfringens B/C	14-0 days
Cryptosporidium parvum	12-7 days
Rotavirus	21-4 days
Coronavirus	30-5 days
Giardia duodenalis	30-5 days

Causes of diarrhoea and age at which calves are mostly affected.

> STEP 2

UNDERTAKE FECAL SAMPLING

Enteric conditions caused by infectious microorganisms can be diagnosed from fresh fecal samples. When sampling a herd the following should be considered:

- Sample a group of at least five affected animals
- Collect fecal samples from the animal and not from the floor

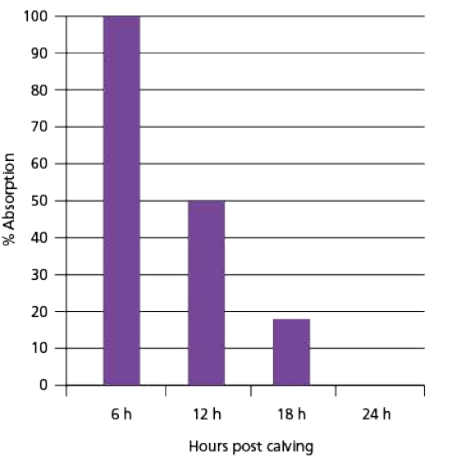
On site Diagnosis, an easy and quick option

On site kits give a diagnosis within minutes of collecting the samples. Pathogens that can be tested for are: Rotavirus, Coronavirus, *E. coli* and *C. parvum*.

> STEP 3

EVALUATE COLOSTRUM INTAKE

Colostrum antibodies provide local protection in the gut of the calf but a portion is also absorbed into the blood stream. The capacity for absorption of antibodies is high during the first hours after birth and disappears once the calf is 24 hours old. The quality of the colostrum feeding regime can be evaluated by measuring the level of IgG in blood. Values of less than 10 g/l are indicative of inadequate colostrum intake.



Antibody absorption in calves during the first 24 hours of life.

> STEP 4

MEASURE COLOSTRUM QUALITY

Inadequate colostrum intake can be the result of feeding poor quality colostrum. Colostrum quality can be measured using a colostrometer. The antibody level is measured in a sample of 250ml of colostrum. If colostrum does not contain sufficient antibody levels, action can be taken. Colostral antibodies can be boosted with vaccination.

> STEP 5

DEFINE AND IMPLEMENT A PREVENTION/ TREATMENT PROTOCOL

- Actions following the diagnosis of neonatal diarrhoea on a farm are at three levels:
- Treatment of affected animals: rehydration (IV/oral), antibiotic and/or *C. parvum* treatment, NSAID'S
 - Colostrum management: corrective measures must be taken if problems are identified with the administration of colostrum to neonatal calves
 - Prevention: implementation of vaccination protocols with Rotavec Corona and preventive use of Halocur for the control of *C. parvum*

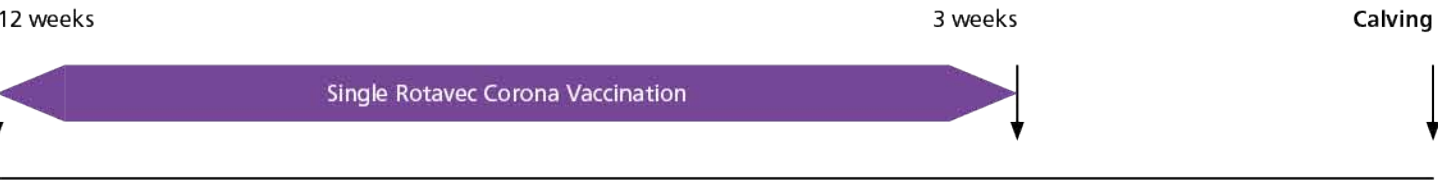




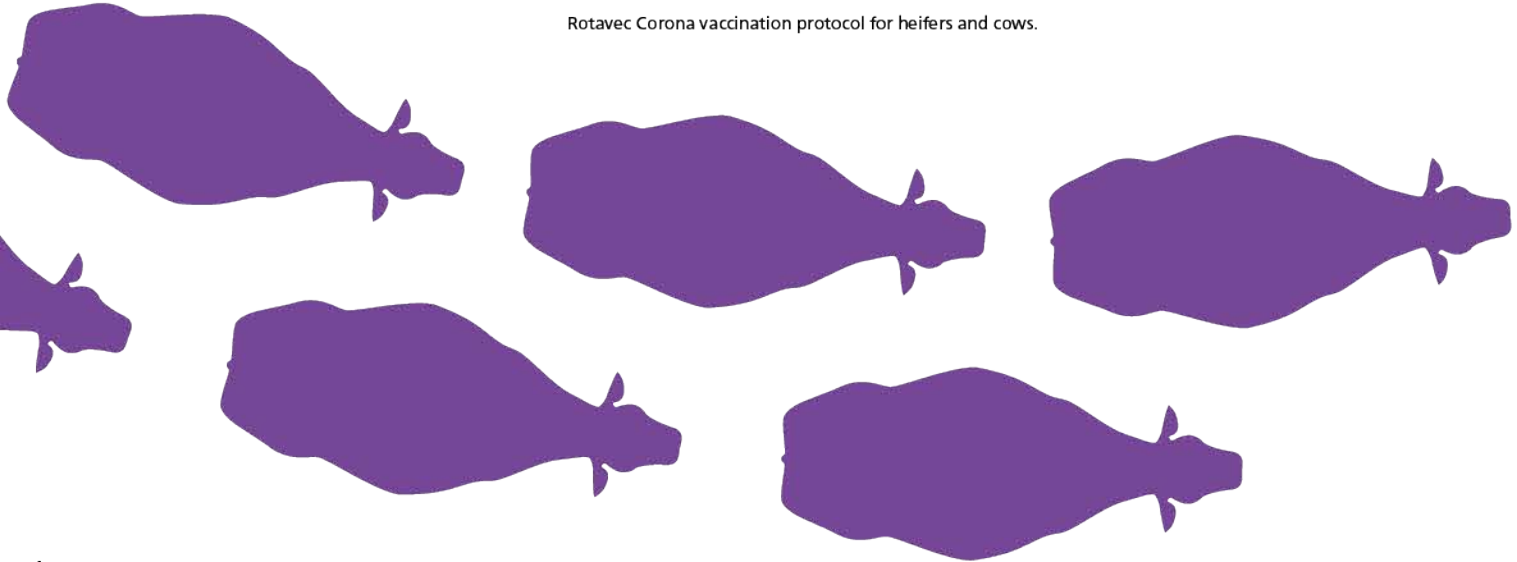
High efficacy, outstanding convenience

Rotavec Corona features outstanding efficacy against the main viral and bacterial enteric pathogens while delivering true convenience. Its single shot formula and broad window of vaccination (from 12 to 3 weeks prior to calving) makes it exceptionally well-suited to group vaccination.

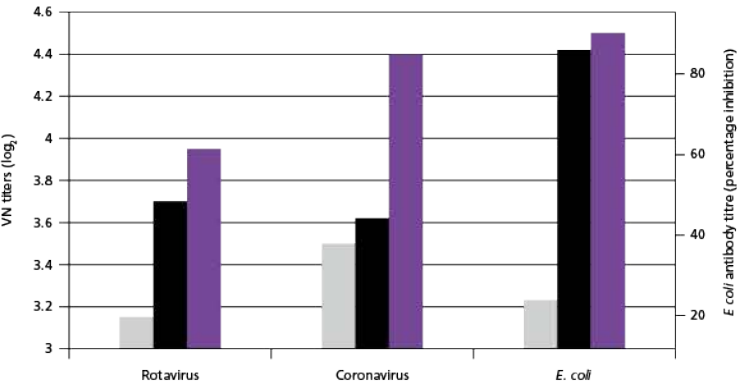
- High efficacy demonstrated under laboratory and field conditions
- Single shot primary course
- Convenient group vaccination possible with the broad window of vaccination (12-3 weeks prior to calving)
- Low dose volume. Only 2 ml per dose
- Easy intramuscular administration of the product
- A practical range of presentations: 1, 5 and 20 doses



Rotavec Corona vaccination protocol for heifers and cows.

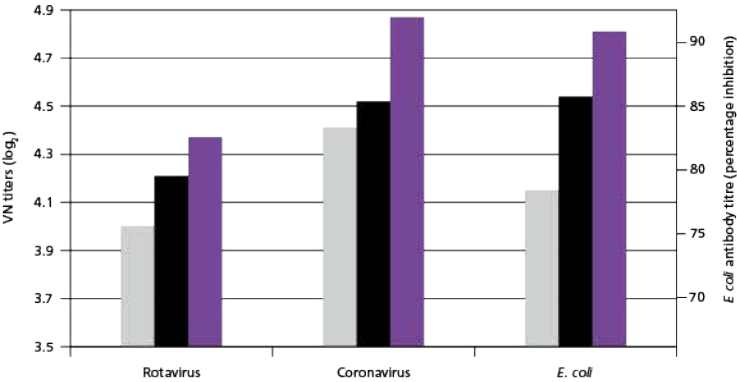


MATERNAL ANTIBODY TITERS IN COLOSTRUM FROM DAIRY COWS



Comparative evaluation of vaccination with Rotavec Corona and a second vaccine in the level of colostrum maternal antibodies of dairy cows.

MATERNAL ANTIBODY TITERS IN COLOSTRUM FROM BEEF COWS



Comparative evaluation of vaccination with Rotavec Corona and a second vaccine in the level of colostrum maternal antibodies of beef cows.

- Control
- Vaccine B
- Rotavec Corona



Halocur:

The first available product for prevention and treatment of cryptosporidiosis

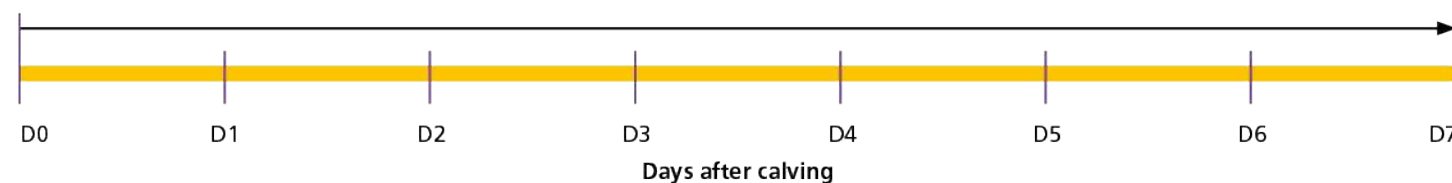
Halocur is unique. It is the only product registered for the prevention and treatment of cryptosporidiosis in newborn calves. Its efficacy has been demonstrated in vitro as well as in artificial and natural infections.

- Halocur can be used for *Cryptosporidium* prophylaxis as well as for the treatment of diseased animals
- Due to the cryptosporidiostatic action a marked decrease in fecal oocyst shedding is seen when infected animals are treated
- Halocur suppresses the parasite rather than killing it and hence does not significantly interfere with the development of host immunity
- Clinical symptoms like diarrhoea and inappetance will improve after Halocur treatment starts.
- A dose mechanism that facilitates correct dosing is provided
- Presentations of 480 ml and 960 ml

CRYPTOSPORIDIOSIS PREVENTION

Treat all newborn calves with Halocur

Calving

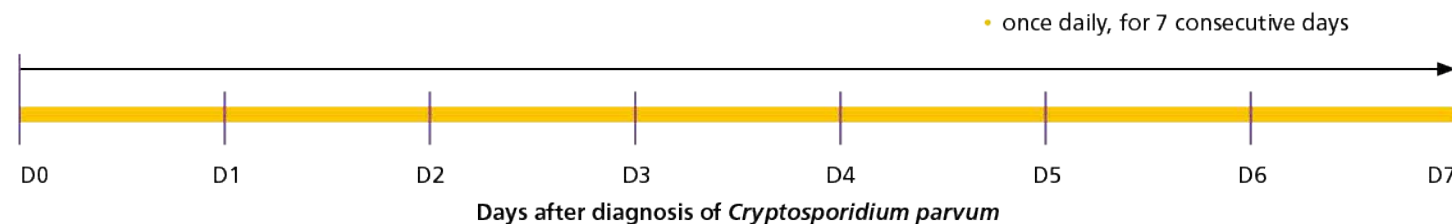


- within 24 hours of birth
- with 2 ml per 10 kg bw orally
- once daily, for 7 consecutive days

CRYPTOSPORIDIOSIS THERAPY

Treat all calves aged less than 3 weeks with Halocur

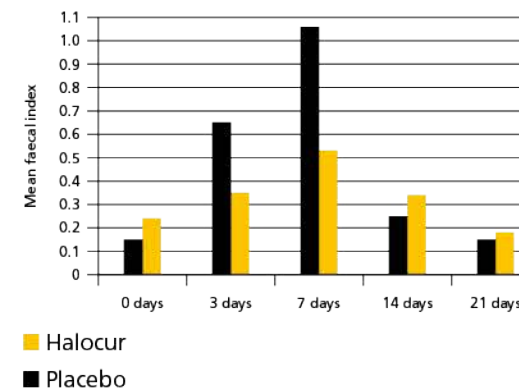
C. parvum diagnosis



- within 24 hours after diagnosis of Cryptosporidiosis
- with 2 ml per 10 kg bodyweight, orally
- once daily, for 7 consecutive days

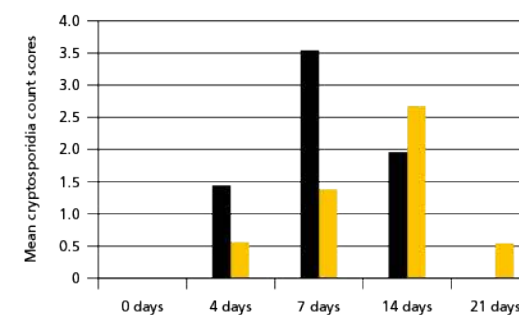
PREVENTIVE USE OF HALOCUR

REDUCTION OF SEVERITY OF CALF DIARRHOEA



In a multicentre field study, the preventive use of Halocur in farms diagnosed with diarrhoea due to *C. parvum* reduced significantly the severity of diarrhoea enabling at the same time the development of natural immunity in the treated calves.

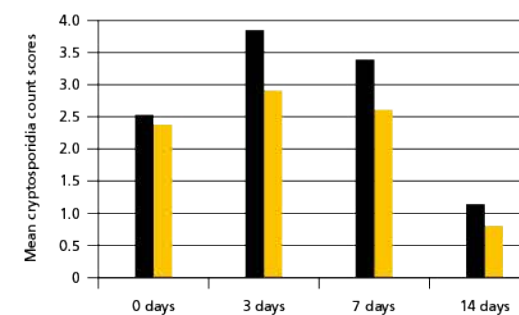
REDUCTION OF OOCYST OUTPUT



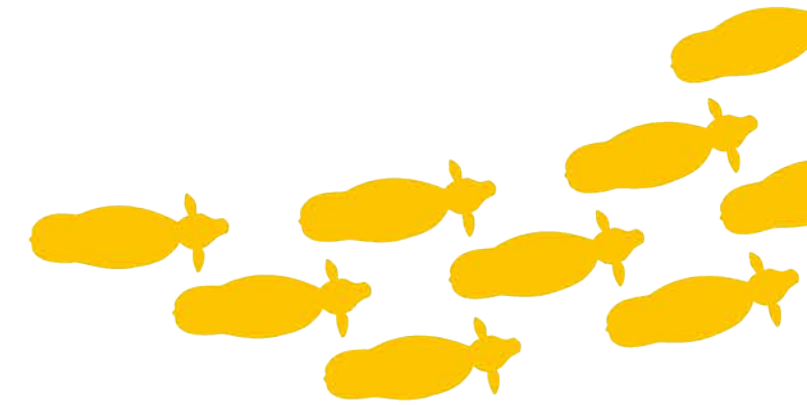
In a multicentre field study, the preventive use of Halocur in farms diagnosed with diarrhoea due to *C. parvum* significantly delayed the peak excretion of oocysts and reduced the level of oocyst excretion.

THERAPEUTIC USE OF HALOCUR

REDUCTION OF OOCYST OUTPUT



In a multicentre field study, the curative use of Halocur in farms diagnosed with diarrhoea due to *C. parvum* significantly reduced the level of oocyst excretion, environmental contamination and the risk of calves presenting liquid diarrhoea.



- **Rotavec® Corona:** the single shot vaccine against neonatal diarrhoea
- **Halocur:** the only product registered for the prevention and treatment of cryptosporidiosis
- Together they form a unique combination that controls neonatal diarrhoea and keeps your herd's performance on track



EARLY CARE, LIFE LONG GAINS

ROTAVEC™ CORONA - SUMMARY OF PRODUCT CHARACTERISTICS

Presentation: A white liquid emulsion vaccine for injection. Each dose contains: Bovine rotavirus, strain UK-Compton, serotype G6 P5 (inactivated), a 1/4 dose of vaccine stimulates a virus neutralising antibody titre: $\geq 7.7 \log_{10}/\text{ml}$ (guinea pigs). Bovine coronavirus, strain Mebus (inactivated), a 1/20 dose of vaccine stimulates an ELISA antibody titre: $\geq 3.41 \log_{10}/\text{ml}$ (guinea pigs). *E. coli* F5 (K99) adhesion, 1/20 dose of vaccine stimulates an ELISA antibody (OD492): > 0.64 (guinea pigs). Thiomersal, 0.051 - 0.069 mg. **Uses:** For the active immunisation of pregnant cows and heifers to raise antibodies against *E. coli* adhesin F5 (K99) antigen, rotavirus and coronavirus. While calves are fed colostrum from vaccinated cows during the first two to four weeks of life, these antibodies have been demonstrated to: reduce the severity of diarrhoea caused by *E. coli* F5 (K99), reduce the incidence of scours caused by rotavirus, reduce the shedding of virus by calves infected with rotavirus or coronavirus. **Dosage and administration:** **Dose:** Cows and heifers 2 ml. **Administration:** By intramuscular injection. The recommended site is the side of the neck. The bottle should be well shaken before any vaccine is withdrawn. A single injection should be given during each pregnancy between 12 and 3 weeks before calving is expected. **Colostrum feeding:** Protection of calves depends on the physical presence of colostrum antibodies (from vaccinated cows) within the gut for the duration of the first 2 - 3 weeks of life until calves develop their own immunity. Thus it is essential to ensure adequate colostrum feeding for the whole of this period to maximise the efficacy of vaccination: 1) All calves must receive adequate colostrum from their dams within 6 hours of birth. Suckled calves will continue to receive adequate colostrum naturally by feeding from vaccinated cows. 2) In the dairy herd colostrum/milk from the first 6-8 milkings of vaccinated cows should be pooled. 3) The colostrum may be stored below 20°C but should be used as soon as possible as immunoglobulin levels may fall by up to 50% after storage for 28 days. Where possible, storage at 4°C is recommended. The calves should then be fed on this pool at the rate of 2 1/2 to 3 1/2 litres per day (according to body size) for the first two weeks of life. 4) Optimal results will be obtained if a whole herd cow vaccination policy is adopted. This will ensure that in calves the level of infection and consequent virus excretion is kept to a minimum and consequently the overall level of disease challenge on the farm is kept to a minimum. **Contra-indications, warnings:** **Warnings:** Do not vaccinate unhealthy animals. No information is available on the concurrent use of this vaccine with any other. It is therefore recommended that no other vaccine should be administered within 14 days before or after vaccination with this product. Part used containers of the vaccine should be discarded within 8 hours of opening. **Side effects:** The oil adjuvant provides the convenience of a single shot vaccine and has been carefully chosen to minimise any consequent side effects. It may produce a detectable swelling at the site of injection in a proportion of animals. The injection site reaction gradually reduces in size until it is no longer detectable, usually 14 to 21 days after treatment. As with all vaccines occasional hypersensitivity reactions may occur. In such cases appropriate treatment such as adrenaline should be administered without delay. **Withdrawal period:** Zero days. **Operator warning: To the user:** If you inject yourself accidentally with this product, go at once to the nearest Accident and Emergency (Casualty) Department of a hospital and show the information printed below to the doctor (or nurse) on duty. **To the doctor:** Accidental self-injection with this oil-based product can cause intense vascular spasm which may, for example result in the loss of a digit. Expert PROMPT surgical attention is required and may necessitate early incision and irrigation of the injected area, especially where there is involvement of finger pulp or tendon sheaths. **Pharmaceutical precautions:** Store between +2°C and +8°C including during transport. Protect from light. Do not freeze. Rotavec Corona should not be mixed with other medicaments or vaccines. **Packaging Quantities:** 2 ml bottle (1 dose), 10 ml bottle (5 doses), 40 ml bottle (20 doses). **Further information:** 1) Calf diarrhoea is a complex disease of which rotavirus, coronavirus and *E. coli*, are three of the most important causal agents in calves in the first few weeks of life. The vaccine will aid in reducing the incidence of scours caused by rotavirus, coronavirus and *E. coli* where these are the sole aetiological agents. The vaccine provides no protection against cryptosporidia (for which there is currently no vaccine), but often mixed infections occur and it may help to some degree by providing protection against any concurrent rotavirus, coronavirus and *E. coli* F5 (K99) infections. The presence of each agent can be confirmed by laboratory sampling of fresh faeces samples (not swabs) taken directly from calves before any treatment. As the level of passive protection induced by the vaccine is not absolute, coronavirus and rotavirus infections may occur in calves from vaccinated dams - but will be contained whilst the calf is mounting its own active immune response against the viruses. 2) F5 (K99) antigen enables *E. coli* to adhere to the calf's small intestine where the bacteria multiply rapidly and produce toxins leading to scours, typically in the first few days of life. Specific antibodies can inhibit *E. coli* sticking to the gut wall and thereby their ability to cause disease. The *E. coli* F5 (K99) antigen in Rotavec Corona promotes the production of antibodies in colostrum and milk. 3) In any animal population there may be a small number of individuals which fail to respond fully to vaccination. Successful vaccination depends upon correct storage and administration of the vaccine together with the animal's ability to respond. This can be influenced by such factors as genetic constitution, intercurrent infection, age, the presence of maternally-derived antibodies, nutritional status, concurrent drug therapy and stress.

HALOCUR® - SUMMARY OF PRODUCT CHARACTERISTICS

Presentation: A pale yellow solution for oral administration containing 0.5 mg/ml halofuginone lactate in aqueous excipient. **Uses:** For the prevention of diarrhoea caused by *Cryptosporidium parvum* in newborn calves on farms with a history of cryptosporidiosis and reduction of diarrhoea due to diagnosed *Cryptosporidium parvum*. Halocur has been demonstrated to reduce oocyst excretion. **Dosage and administration:** For oral use in calves after feeding. Calves 35 kg to 45 kg: 8 ml Halocur once a day for 7 consecutive days. Calves 45 kg to 60 kg: 12 ml Halocur once a day for 7 consecutive days. For prevention of diarrhoea treatment should start within 24-48 hours of birth, for reduction treatment should start within 24 hours of the onset of diarrhoea. Consecutive treatments should be administered at 24 hour intervals. The dosage should be accurately calculated for calves heavier than 65 kg or lighter than 35 kg, on the basis of 2 ml/10 kg. Overdosage is dangerous; toxicity may occur at 2 times the therapeutic dose. Once the first calf has been treated, all other newborn calves in the herd must be treated as long as the risk of diarrhoea due to *Cryptosporidium parvum* persists. To ensure correct dosage, use either the applicator provided, which dispenses 4ml per shot or an appropriately graduated syringe. **Contra-indications, warnings:** Do not use on an empty stomach. Do not use in cases of diarrhoea, which have been established for more than 24 hours and in weak animals. For treatment of anorexic calves, the product should be administered in half a litre of an electrolyte solution by stomach tube. Animals should receive adequate colostrum. **Overdose:** As symptoms of toxicity may occur at 2 times the therapeutic dose, it is necessary to adhere strictly to the recommended dosage. Symptoms of toxicity include diarrhoea, visible blood in faeces, decline in milk consumption, dehydration, apathy and prostration. Should clinical signs of overdosing occur the treatment must be stopped immediately and the animal fed milk or milk replacer. Rehydration may be necessary. Repetitive contact with the product may lead to skin allergies. Avoid skin and eye contact with the product. In case of skin and eye contact wash thoroughly the exposed area with clean water. If eye irritation persists, seek medical advice. Wear protective gloves while handling the product. Wash hands after use. Halocur should not enter watercourses, as this may be dangerous for fish and other aquatic organisms. Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal product should be disposed of in accordance with the local requirements. **Withdrawal Period:** Meat and offal 13 days. **Pharmaceutical precautions:** Avoid introduction of contamination. Keep out of reach of children. **Packaging Quantities:** 500ml high-density polyethylene bottle containing 490 ml of the oral solution.