Summary of Product Characteristics

1 NAME OF THE VETERINARY MEDICINAL PRODUCT

Eprinex 0.5% w/v Pour-on Solution for Beef and Dairy Cattle

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance

Eprinomectin 0.5% w/v

For a full list of excipients, see Section 6.1

3 PHARMACEUTICAL FORM

Pour-on solution.
Clear, slightly yellow solution.

4 CLINICAL PARTICULARS

4.1 Target Species

Beef and dairy cattle.

4.2 Indications for use, specifying the target species

Eprinex Pour-on for Beef and Dairy Cattle is indicated for effective treatment and control of the following parasites:
Gastrointestinal roundworms (adults and fourth-stage larvae)
Ostertagia spp.
*Ostertagia lyrata (*adults only)
Ostertagia ostertagi (including inhibited L_4)
Cooperia spp. (including inhibited L_4)
Cooperia oncophora
Cooperia pectinata
Cooperia punctata
Cooperia surnabada
Haemonchus placei
Trichostrongylus spp.
Trichostrongylus axei
Trichostrongylus colubriformis
Bunostomun phlebotomum

Nematodirus helvetianus
Oesophagostomum spp. (adults only)
Oesophagostomum radiatum
Trichuris spp (adults only)
Lungworms
Dictyocaulus viviparus (adults and L_4)
Warbles (parasitic stages)
Hypoderma bovis
H. lineatum
Mange Mites
Chorioptes bovis
Sarcoptes scabiei var.bovis
Lice
*Damalinia bovis (*biting lice)
Linognathus vituli (sucking lice)
Haematopinus eurysternus (sucking lice)
Solenopotes capillatus (sucking lice)
Horn flies
Haematobia irritans

Prolonged Activity
Eprinex Pour-on for Beef and Dairy Cattle, applied as recommended, effectively controls reinfections with *Ostertagia spp*. (including *O. ostertagi* and *O. lyrata*), *Cooperia spp*. (including *C. oncophora*, *C. punctata* and *C. surnabada*), *Nematodirus helvetianus*, *Oesophagostomum radiatum* and *Dictyocaulus viviparus* for up to 28 days after treatment and *Haemonchus placei* and *Trichostrongylus spp*. (including *T.axei* and *T. colubriformis*) for up to 21 days after treatment. Eprinex Pour-On for Beef and Dairy Cattle controls *Haematobia irri*tans (horn flies) for at least 7 days after treatment. For the best results Eprinex Pour-On should be part of a programme to control both internal and external parasites of cattle based on the epidemiology of these parasites.

4.3 Contraindications

This product is formulated only for topical application for beef and dairy cattle, including lactating dairy cattle.
Do not use in other animal species. Do not administer orally or by injection.
Do not apply to areas of the backline covered with mud or manure.
Do not use in animals with known hypersensitivity to the active ingredient.

4.4 Special warnings for each target species

None.

4.5 Special precautions for use

Special precaution(s) for use in animals
The details provided in 4.10 apply.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
If accidental skin contact occurs, wash the affected area immediately with soap and water. If accidental eye exposure occurs, flush eyes immediately with water.
Do not smoke or eat while handling the product.
Wash hands after use.

4.6 Adverse reactions (frequency and seriousness)

None known.

4.7 Use during pregnancy, lactation or lay

Eprinex Pour-On for Beef and Dairy Cattle may be used in dairy cattle during all stages of lactation.
Studies have demonstrated a wide safety margin.
Studies conducted at three times the recommended use level of 0.5 mg.
Eprinomectin/kg b.w. had no adverse effect on breeding performance of cowsor bulls.

4.8 Interaction with other medicinal products and other forms of interaction

None known.

4.9 Amounts to be administered and administration route

Administer only by topical application at the dose rate of 1 ml of Eprinex Pour-On for Beef and Dairy Cattle per 10 kg of body weight, corresponding to the recommended dose rate of 0.5 mg eprinomectin per kg b.w. The product should be applied along the backline in a narrow strip extending from the withers to the tailhead. The following dosing packs are available:

<u>Dosing cup with Measure-Squeeze-Pour System (250 ml and 1 litre bottles)</u>

The 250 ml pack contains one 25 ml dosing cup and one dip tube.
The 1 litre pack contains one 60 ml dosing cup and one dip tube.

Insert the dip tube into base of the dosing cup. Leave the slotted end of the dip tube exposed in the bottom of the bottle.
Unscrew bottle cap from the top of the bottle. Screw the dosing cup onto the top of the bottle.

Measure: To select the correct dose rate, rotate the adjuster cap at the top of the cup in either direction to position the dose indicator to the weight of the animal you want to treat. When body weight is between markings, use the higher setting.

Squeeze the bottle gently to fill the dosing cup to the required dose. Release your grip and any excess will return to the bottle.

Pour: Apply the full dose by tipping and pouring along the back line of the animal until the dosing cup is empty.

The dosing cup should remain attached to the bottle when not in use.
Detach the dosing cup after each use and replace the bottle cap.

Back-pack (2.5 and 5 litre packs)

Connect the dosing gun and draw-off tubing to the back-pack as follows.
Attach the open end of the draw-off tubing to an appropriate dosing gun.
Attach the draw-off tubing to the cap with the stem that is included in the pack.
Replace shipping cap with the cap having the draw-off tubing.
Tighten the draw-off cap.
Gently prime the dosing gun, checking for leaks.
Follow the dosing gun manufacturer's directions for adjusting the dose and proper use and maintenance of the dosing gun and draw-off tubing.
Rainfall before or after treatment will not affect the efficacy of the product.

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

No signs of toxicity appeared when 8-week old calves were treated at up to 5x the therapeutic dose (2.5 mg Eprinomectin/kg b.w.) 3 times at 7-dayintervals.
One calf treated once at 10x the therapeutic dose (5 mg/kg b.w.) in the tolerance study showed transient mydriasis.
There were no other adversereactions to treatment.
No antidote has been identified.

4.11 Withdrawal period(s)

Meat and Offal: 15 days
Milk: Zero hours/days

5 PHARMACOLOGICAL or IMMUNOLOGICAL PROPERTIES

ATCvet code: QP54AA04

5.1 Pharmacodynamic properties

Eprinomectin is a member of the macrocyclic lactone class of endectocides which have a unique mode of action. Compounds of the class bind selectively and with high affinity to glutamate-gated chloride ion channels which occur in invertebrate nerve or muscle cells. This leads to an increase in the permeability of the cell membrane to chloride ions with hyperpolarization of the nerve or muscle cell, resulting in paralysis and death of the parasite. Compounds of this class may also interact with other ligand-gated chloride channels, such as those gated by the neurotransmitter gamma-aminobutyric acid (GABA).
The margin of safety for compounds of this class is attributable to the fact that mammals do not have glutamate-gated chloride channels; the macrocyclic lactones have a low affinity for other mammalian ligand-gated chloride channels, and they do not readily cross the blood-brain barrier.

5.2 Pharmacokinetic particulars

Metabolism
The bioavailability of topically applied eprinomectin in cattle is about 30% with most absorption occurring by about 10 days after treatment. Eprinomectin is not extensively metabolized in cattle following topical administration. In all biological matrices, the B_{1a} component of eprinomectin is the single most abundant residue. The contribution of eprinomectin B_{1a} to the total radioresidue level remained relatively constant between 7 days and 28 days after treatment - for example, between 84% and 90% in liver, the proposed principal target tissue.

Maximum plasma concentration
In beef cattle treated topically with radiolabelled eprinomectin at the recommended dose of 0.5 mg/kg bodyweight, there was no distinct peak in the plasma radioactivity versus time curve, but a broad plateau occurred between 9 and 14 days after dosing. Highest concentrations of eprinomectin B_{1a} were in the range of 7.33 - 19.74 ng/ml.

In lactating dairy cows treated topically with 0.75 mg radiolabelled eprinomectin/kg bodyweight, some animals showed a distinct peak in plasma radioactivity levels, whereas others exhibited a broad plateau. Peak levels of eprinomectin B_{1a} were in the range of 42.7 - 134.4 ng/ml. The highest levels of plasma radioactivity occurred between one and 7 days after dosing.

Tissue residues

The level of total residues in tissues of beef cattle and lactating dairy cows was of the same order with liver>kidney>fat>muscle.

The distribution of total residue in edible tissues differs from that seen with other macrocyclic lactones such as abamectin and ivermectin. For these compounds, residue concentrations in fat were much closer to those in liver, and fat contained significantly higher total residue concentrations than kidney, whereas the eprinomectin residue concentrations in fat were much lower than those in liver and kidney.

The half-life for depletion of total residue was about 8 days for all 4 tissues in cattle. Eprinomectin B_{1a} concentration depleted at a similar rate to that of total residue.

Milk residues
Twenty dairy cows were treated with unlabelled eprinomectin at the recommended dose of 0.5 mg/kg of bodyweight. The maximum concentration of eprinomectin B_{1a} in milk ranged from < 2.3 ng/ml (the limit of quantitation) to 11.36 ng/ml, with the peak occurring 2-3 days after treatment in most of the animals.
Excretion
Faeces was the major route of elimination of the drug in beef cattle and dairy cows. In beef cattle, faeces and urine were collected from 2 steers, and the amount of drug excreted up to 28 days after dosing was determined as 15 - 17% and 0.25 % in faeces and urine, respectively.

A further 53 - 56% of the dose was recovered from the skin at the application site collected from 3 animals sacrificed at 28 days after dosing.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Butylated Hydroxytoluene
Propylene glycol octanoate decanoate

6.2 Major incompatibilities

None Known.

6.3 Shelf-life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.

6.4 Special precautions for storage

Do not store above 30°C. Store bottle or pack in the original carton in order to protect from light.
The dosing cup should not be stored attached to the bottle when not in use. Remove the cup after each use and replace with the bottle cap.

6.5 Nature and composition of immediate packaging

250 ml, 1 litre, 2.5 litre and 5 litre HPDE containers with HDPE lid.
The 250 ml bottle is provided with a 25 ml dosing cup. The 1 litre bottle is provided with a 60 ml dosing cup.

The 2.5 litre and 5 litre packs are back-packs designed for use with a suitable automatic dispensing gun.

Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

Do not contaminate lakes or streams, as free eprinomectin may adversely affect fish and certain water-borne organisms.
Studies indicate that when eprinomectin comes in contact with the soil, it readily and tightly binds to the soil and becomes inactive.
Any unused product or waste material should be disposed of in accordance with national requirements.

7 MARKETING AUTHORISATION HOLDER

Boehringer Ingelheim Vetmedica GmbH
Binger Strasse 173
55216 Ingelheim am Rhein
Germany

8 MARKETING AUTHORISATION NUMBER(S)

VPA10454/033/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

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Date of last renewal: 18th May 2007

10 DATE OF REVISION OF THE TEXT

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