

# Ceva Animal Health Product Portfolio



*Together,  
beyond animal health*

This booklet is not at all intended to be  
a complete source of information.  
Rather, it only attempts to highlight the  
features and benefits of the products  
and principles of use.

Contact Ceva Animal Health should you  
require more information.

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## *Veterinary Services*



# Maxicare®

(1,9 % Albendazole + 3,0 % Closantel)

Reg. No. G3145 (Act 36/1947)

Namibia: V02/18.1.8/762

(Act 13/2003)



## FEATURES OF THE PRODUCT

A Roundworm, Lungworm, Milk Tapeworm, Adult Liver Fluke and Nasal Bot remedy for sheep and goats.

② Benzimidazole en ④ Salicylanilyde

## BENEFITS FOR THE PRODUCER

28 Days residual action against Wireworm and Hookworm in sheep and goats make this the ideal deworming remedy 4 - 6 weeks pre-breeding and again 4 - 6 weeks pre-lambing during the wet season to prevent erosion due to internal parasites. In this way it helps to improve lambing percentage and the development of quality colostrum for disease resistance of the neonate.

## WITHDRAWAL PERIODS

Milk: Do not use in sheep and goats of which the milk is used for human consumption.

Meat: 30 days.

## DOSAGE AND INDICATIONS

Drench: 2 mL/10 kg.

Shake well before use.

## NOTES:

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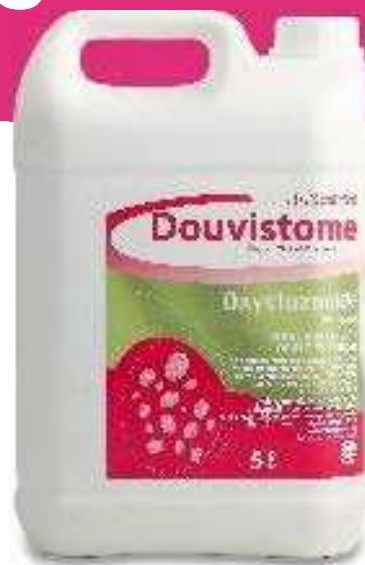
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# Douvistome<sup>®</sup>

(34 mg Oxyclusanide / mL)

Reg. No. G4185  
(Act 36/1947)



## FEATURES OF THE PRODUCT

Oral drench for the treatment of Liver Fluke and Giant Liver Fluke adult infestations as well as immature stages of Conical Fluke in cattle.

④ Salicylanilyde

## BENEFITS FOR THE PRODUCER

Kills adult Liver Fluke and thereby aids in decreasing the contamination of pastures with fluke eggs when all cattle are treated simultaneously; Fresh water snail infestation that leads to infection of grazing cattle is therefore lowered; Following one treatment with the Liver Fluke larvicidal drug, Triclabendazole at steam-up (about 3 weeks before anticipated calving), the Douvistome<sup>®</sup> zero milk withdrawal time allows at least 3 treatments during lactation with 70-day intervals between each treatment; By lowering a potential loss of 0,5 - 2 l erosion on daily milk yield, there is a return on investment to this approach – which also slows the rate of development of Liver Fluke resistance against Triclabendazole.

Where Conical Fluke is a problem in beef herds, a treatment in Winter is indicated to decrease egg contamination around and in “vleis” – lowering the risk of clinical cases.

## WITHDRAWAL PERIODS

Milk: Zero.

Meat: 14 days.

## DOSAGE AND INDICATIONS

A **single** dose of 15 ml / 50 kg is highly effective (>90 %) against adult Liver Fluke (*Fasciola hepatica*) and Giant Liver Fluke (*Fasciola gigantica*) in cattle.

A **single** dose of 55 ml / 100 kg is up to 61 – 96,6 % effective against pathogenic, immature Conical Fluke (*Calicophorum spp.*) in the small intestine and 56 – 98,1% effective against egg- laying adults in the reticulum-rumeno. \*\*

\*\*To increase the efficacy to 99,9 % and 100 % for immature Conical Fluke in the small intestine, and adults in the reticulum-rumeno, respectively, the dose of 55 ml / 100 kg has to be repeated after **72 hours (3 days later)**.

Cleanse and rinse dosing equipment immediately after use.

## NOTES:

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# Cevamec<sup>®</sup> 1 %

(1 % Ivermectin)

Reg. No. G2811 (Act 36/1947)  
Namibia: V01/18.1.2/182 (Act 13/2003)



PACK SIZES

50 ml &  
500 ml



## FEATURES OF THE PRODUCT

1 % injectable Ivermectin for sheep and cattle.

① Macrocytic lactone

## BENEFITS FOR THE PRODUCER

**Cattle:** Roundworm, Eye worm and Parafilaria (False bruising - 70 days needed before slaughter for lesions to disappear after treatment), sucking- and mange lice, as well as Sand Tampans. Treats maggot- infested wounds (effective for 2 weeks) and Blue ticks (21 days effective). Fast grazing rotation for 21 days in Spring and again in Autumn will lead to a decrease in next generation Blue tick numbers.

**Sheep:** Prevention and treatment of Roundworm, Nasal Bot, Sheep Scab and Australian itch mite during moist conditions.

## WITHDRAWAL PERIODS

Milk: Not for use in dairy cows within 28 days before expected calving (onset of lactation).

Meat: 21 days.

## DOSAGE AND INDICATIONS

Dose: 1 mL/50 kg subcutaneously.

## NOTES:

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# Ceva Super

(1 % m/v Ivermectin + 10 % m/v Clorsulon)

Reg. No. G4153 (Act 36/1947)



## FEATURES OF THE PRODUCT

A Roundworm and adult Liver Fluke remedy for cattle.

① Macrocyclic lactone ⑥ Sulphonamide

## BENEFITS FOR THE PRODUCER

With a  $\geq 90$  % efficacy against adult Liver Fluke infestations in cattle, Ceva Super should at least be strategically administered towards the end of Winter or early Spring in order to remove egg-laying adult Liver Flukes. This is the predominant stage of the life cycle at that time of the year. Minimising Liver Fluke egg contamination of open drinking water sources by adult Liver Flukes will result in lowering the infestation rate by immature stages during the ensuing warmer climatic conditions. This helps to lower the incidence of severe liver damage due to migration tracts by immature Liver Flukes. It is effective against the major Roundworm species as well.

## WITHDRAWAL PERIODS

Milk: Not to be used in lactating cows where milk is to be used for human consumption.

Meat: 49 days.

## DOSAGE AND INDICATIONS

Dose: 1 mL/50 kg subcutaneously

## NOTES:

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# Privexia<sup>®</sup>

(1 % Moxidectin)

Reg. No. G3915 (Act 36/1947)

Namibia: V12/18.1.2/1139 (Act 13/2003)



## FEATURES OF THE PRODUCT

1 % injectable Moxidectin for sheep and cattle.

① Macrocyclic lactone

## BENEFITS FOR THE PRODUCER

Treatment of sheep for Wireworm during the wet season or on irrigated pastures. Residual action against Wireworm lasts for 35 days. Longer acting formulations (2 % Moxidectin) are not necessarily more cost-effective compared to when sheep are moved through worm-infested pastures for 30 - 35 days after treatment with Privexia<sup>®</sup>; Longer acting formulations (2 % Moxidectin) with about 4,5 months residual action have a long “tail” (low plasma concentration) during which there is an increased risk of development of resistance. Not recommended for routine use against Sheep Scab in the dry season. Cevamec<sup>®</sup> 1 % should be used for this purpose instead during moist climatic conditions to delay the emergence of worm resistance.

## WITHDRAWAL PERIODS

Meat: 42 days.

\* If intended to be used for lambs to be finished in feedlots, the intended days on feed until slaughter must not be shorter than the withdrawal period.

## DOSAGE AND INDICATIONS

Dose: 1 mL/50 kg subcutaneously.

Not to be used in dairy cows.

## NOTES:

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# Eprecis<sup>®</sup> 2%

(2 % Eprinomectin)

Reg. No. G4260 (Act 36/1947)

PACK SIZE  
250 ml



## FEATURES OF THE PRODUCT

2 % injectable Eprinomectin indicated for the treatment and control of internal and external parasites in cattle.

① Macrocyclic lactone

## BENEFITS FOR THE PRODUCER

**Dairy cattle:** Dairy herds on pasture with a bulk milk tank ODR reading of  $> 0,5$  for Brown Stomachworm antibodies that have been treated around calving can produce about 150 - 300  $\ell$ + more milk per cow per lactation. This is because the erosion effect of Brown Stomachworm on peak production is addressed.

**Beef cattle:** Use in the Spring before the calving season commences as well as in Autumn. It's 28-day residual effect against Blue ticks, during which rotation through as many grazing camps as possible takes place, aids in a LONG-ACTING decrease in Blue tick infestation, resulting in lower dipping costs during the following Summer; Due to lower Eprinomectin milk residues taken in over a prolonged time, the ability of 3 - 6 months old suckling calves to develop an innate resistance to Redwater and Anaplasmosis can proceed unhindered in the calf aged 3 - 6 months.

## WITHDRAWAL PERIODS

Milk: Zero

Meat: 12 days.

## DOSAGE AND INDICATIONS

Dose: 1 mL/100 kg subcutaneously.

Note that Brown Stomachworm antibodies persist, following treatment and that this is by no means an indication of treatment efficacy.

## NOTES:

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# Multivit Effervescent Tablets

Reg. No. V12690 (Act 36/1947),  
Namibia: N-FF1076



## FEATURES OF THE PRODUCT

Vitamin A, B complex, C, D3, E, K3, Biotin, Pantothenic acid, Folic acid and Niacin effervescent tablets for addition to drinking water.

## BENEFITS FOR THE PRODUCER

Alleviates the effects of stress. Valuable where rumen function has been compromised, for example in cattle recovering from disease, weak animals immediately after transport, or after weaning. Hastens return to original production. Ideal for adaptation of feedlot calves and for use in feedlot hospital pens.

Oral vitamins are a source of nutrition for rumen microbes, which injectables are not. As opposed to injectable vitamins, the oral administration thereof directly benefits the rumen microbes which have a specific vitamin requirement needed for degrading and fermenting fibre from the diet.

## WITHDRAWAL PERIODS

Milk: None.

Meat: None.

## DOSAGE AND INDICATIONS

1 tablet/50 ℓ water for sheep, cattle, poultry, game, horses and swine.

## NOTES:

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# Rehydion<sup>®</sup> Gel

Reg. No. V18954  
(Act 36/1947)  
Namibia: N-FF1766

PACK SIZE

One 12 x  
320 ml  
bottles



## FEATURES OF THE PRODUCT

Soluble mineral and electrolyte supplement for calves, with acetate buffer.

## BENEFITS FOR THE PRODUCER

Alleviates acidosis, dehydration and loss of electrolytes (Na and K) in calves with diarrhoea due to various causes.

It does not interfere with critical rennet clot formation in the stomach – allowing a high whey yield (protein-rich fluid after the clot has formed). Milk need not be withdrawn, as milk fat is the most ideal energy source for the calf. Interference with clot formation as is the case with glucose, may aggravate diarrhoea.

## WITHDRAWAL PERIODS

Milk: None.

Meat: None.

## DOSAGE AND INDICATIONS

Add 20 mL to 1 L milk or drinking water;

Administer 2 L treated milk twice per day, per calf.

1 x 320 mL is sufficient for a single treatment course per calf, lasting 4 days.

## NOTES:

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# Gleptosil®

(Elemental iron in the form of Gleptoferron 200 mg / ml)

Reg. No. G2413  
(Act 36/1947)



## FEATURES OF THE PRODUCT

Injectable Iron for piglets in a 250 ml CLAS® vial for the prevention and treatment of anaemia due to an Iron deficiency.

## BENEFITS FOR THE PRODUCER

The bioavailability of Gleptosil® allows for better Iron distribution as indicated by a 96% absorption within 24 hours after application. This ensures a significant higher hemoglobin blood concentration resulting in better weight at weaning and later in life.

Iron deficiency results in impaired mechanisms of immune response.

## WITHDRAWAL PERIODS

None.

## DOSAGE AND INDICATIONS

Dose: 1 mL intramuscular in the neck, just below the ear, from 1 day after birth but not later than 3 - 7 days of age. Use a sharp needle to prevent mechanical tissue damage.

## NOTES:

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# Forceris™

(Each ml contains 30 mg Toltrazuril and 133,4 mg Iron as Gleptoferron 20 % Fe)

Reg. No. G4385  
(Act 36/1947)

PACK SIZE

250 ml



## FEATURES OF THE PRODUCT

For the prevention of iron deficiency, anaemia and prevention of clinical signs of Coccidiosis as well as reduction of oocyst excretion in piglets with one injection.

## BENEFITS FOR THE PRODUCER

Coccidiosis is one of the costliest diseases on swine farms, leading to diarrhoea, mortality and stunted growth. Iron deficiency can affect more than 30 % of piglets at weaning, resulting in weak and vulnerable piglets. Forceris™ offers a labour- and cost-effective solution to both problems - giving piglets a healthy start in life.

## WITHDRAWAL PERIODS

Meat: 70 days.

## DOSAGE AND INDICATIONS

Dose: 1,5 ml single Forceris™ intramuscular injection, behind the ear, between 24 - 96 hours after birth for all piglets between 0,9 – 3 kg body mass.

Do not administer to piglets suspected to suffer from deficiency of Vitamin E and/or Selenium.

Use a sharp needle to prevent mechanical tissue damage.

### NOTES:

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# Tenaline<sup>®</sup> LA

(200 mg Oxytetracycline in the dihydrate form)

Reg. No. G2436 (Act 36/1947)

Namibia: V97/17.1.2/1097

(Act 13/ 2003)



## FEATURES OF THE PRODUCT

Long acting injectable Oxytetracycline antibiotic (200 mg Oxytetracycline / ml) for sheep, cattle and pigs.

## BENEFITS FOR THE PRODUCER

Proven to be tissue-friendly; 72 - 96 hours efficacy. The CLAS<sup>®</sup> vial (light, shock-resistant, easy handling) ensures stability of the active ingredient – hence long shelf life of 3 years; Treatment and prevention (block treatment) of Heartwater and Gallsickness (Anaplasmosis), Pneumonia, Foot rot, Navel ill, Joint ill and uterine infections are the most common indications for its use.

## WITHDRAWAL PERIODS

Milk: 8 days.

Meat: 21 days.

## DOSAGE AND INDICATIONS

Ruminant dose is 1 ml/10 kg body mass by deep intramuscular injection. Do not repeat sooner than 72 hours later to avoid kidney damage.

Piglets <2 kg: 0,5 ml subcutaneous behind the ear.

Piglets 2-10 kg: 1 ml subcutaneous behind the ear.

Pigs > 10 kg: 1 ml/10 kg deep intramuscular.

Not for intravenous administration

## NOTES:

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# Coglavax®

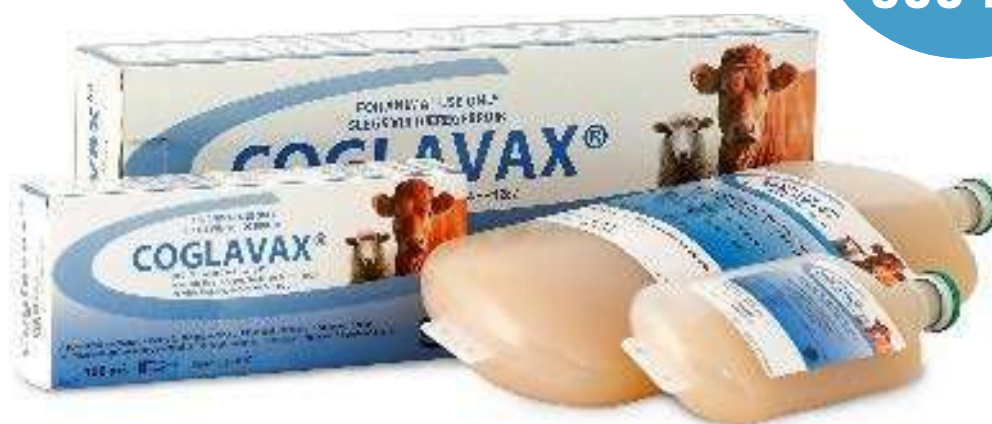
Reg. No. G3684 (Act 36/1947)

Namibia: V06/24.4/180 (Act 13/ 2003)

Zambia: 346/717V (Act 3/2013)

PACK SIZES

100 ml &  
500 ml



## FEATURES OF THE PRODUCT

Clostridial vaccine with the following toxoids from:

1. *C. perfringens* against enterotoxemia:
  - Alfa (Blood gut in sheep and Red gut in cattle),
  - Beta (Lamb Dysentery in lambs),
  - Epsilon (Pulpy Kidney in sheep),
2. Alfa toxoid from *C. novyi* type B (False Blackleg, Swelled Head Disease, Malignant Oedema, Necrotic Hepatitis),
3. *C. septicum* (Uterine Gas Gangrene, Malignant Oedema and Gas Gangrene),
4. *C. tetani* (Lock jaw / Tetanus)
5. *C. chauvoei* (Black quarter in cattle and sheep).

## BENEFITS FOR THE PRODUCER

Effectively reduces the risk of losses due to toxin production following the overgrowth of the ubiquitous Clostridial bacteria, under the following circumstances:

- Fast growing stock with high dry matter intake,
- After parturition in heifers, cows and ewes,
- During sudden, high intakes of lush growing pasture,
- Variation in intakes as is often the case in zero grazing dairy systems and in beef and sheep feedlots,
- In wounds (e.g. caused by shearing, uterine wounds, tail docking, castration and teething in young stock),
- In times where supplementary feeding is needed as in the case of severe drought and in certain times of the production cycle,
- Lower risk of injection site tissue reactions.

## WITHDRAWAL PERIODS

Meat: 21 days.

## DOSAGE AND INDICATIONS

Subcutaneous dose for cattle > 100 kg body mass is 4 ml and 2 ml for sheep and cattle < 100 kg body mass. Administer earliest at age 4 months and 4 weeks to calves and lambs, respectively. To be followed by a 2<sup>nd</sup> vaccination 4 - 6 weeks later in stock that have not been vaccinated before. Thereafter once annually - ideally at dry-off in dairy cows and around weaning in beef cattle; 4 – 6 weeks before anticipated lambing in ewes.

# Cevac<sup>®</sup> Chlamydia

Reg. No. G3843 (Act 36/1947)

Namibia: V10/24.4/877 (Act 13/ 2003)



## FEATURES OF THE PRODUCT

Live attenuated *Chlamydophila abortus* 5.0 Strain 1B vaccine with minimum of  $10^5$  IFU's (Inclusion forming Units) per 2 ml dose.

## BENEFITS FOR THE PRODUCER

Helps prevent *Chlamydophila abortus*-related losses in conceptuses in ewes to help minimise the difference between scan pregnancy rate and actual lambs born. This modified live vaccine provides an immunity that lasts for 2 years; the cellular protection is immediate and shedding of *Chlamydophila abortus* organisms by symptomless carriers into the environment is minimised.

## WITHDRAWAL PERIODS

Meat: 21 days.

## DOSAGE AND INDICATIONS

Dose: 2 ml per ewe lamb 5 months and older by subcutaneous injection.

Non-pregnant ewes:

Administered no sooner than 6 weeks before first anticipated mating. After reconstitution of the freeze-dried vaccine, it must be used within 2 hours.

Do not use in ewes that are under treatment with antibiotics (e.g. Tetracycline or Sulpha). Because Chlamydophila is a serious zoonosis, care should be taken to prevent accidental self-injection - upon which medical advice should be sought immediately.

## NOTES:

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# Ovipast

Reg. No. G4260  
(Act 36/1947)

**PACK SIZE**  
100 ml  
100 dose vial,  
inactivated cell-free  
supernatant  
vaccine.



## FEATURES OF THE PRODUCT

Contains the toxins (Leukotoxin, Lkt and Lipopolysaccharide (LPS)) in a cell-free supernatant of *Mannheimia haemolytica* type A1, and inactivated cultures of *Pasteurella multocida* type A.

## BENEFITS FOR THE PRODUCER

Aids in lowering the risk of deaths due to Ovine and Caprine Pneumonia - complicated, aggravated or caused by the toxins of all *Mannheimia haemolytica* strains and *Pasteurella multocida* type A; Can be used simultaneously with a clostridial vaccine like Coglavax®.

## WITHDRAWAL PERIODS

Meat: 21 days.

## DOSAGE AND INDICATIONS

Administer 1 ml subcutaneous when the youngest lamb or kid is 4 weeks of age and repeat 4-6 weeks later; Thereafter, immunise does or ewes annually, 4-6 weeks before the onset of the kidding or lambing time; Only for use in domestic small stock; Store between 2 - 8 °C and do not freeze; Shake well before use.

## NOTES:

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# Hyogen<sup>®</sup>

[Inactivated adjuvanted (Imuvant<sup>™</sup>) *Mycoplasma hyopneumoniae* vaccine. (Ceva proprietary strain BA2940-99)]

Reg. No. G4124  
(Act 36/1947)



## FEATURES OF THE PRODUCT

For the immunisation of healthy piglets against Enzootic Pneumonia caused by *Mycoplasma hyopneumoniae*.

## BENEFITS FOR THE PRODUCER

A single vaccination ensures quick and long-term protection. Hyogen<sup>®</sup> ensures significant fewer lung lesions at slaughter, results in better average daily gain, feed conversion and profitability. Effective immunity is observed 17 days post-vaccination and protection lasts for 6 months post-vaccination.

## WITHDRAWAL PERIODS

Meat: 21 days.

## DOSAGE AND INDICATIONS

Store the vaccine at 15 – 25 °C until shortly before use. Dose is 2 mℓ intramuscular, on the side of the neck, from 21 days of age. Where piglets are challenged at an early age a 1 mℓ vaccination can be done at one week of age followed by a 1 mℓ booster 2-3 weeks later .

Discuss the protocol with your veterinarian.

Do not use antimicrobial therapy 10 days before or after vaccination.

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# Imidox<sup>®</sup>

(Imidocarb Dipropionate 12 % m/v)

Reg. No. G3257  
(Act 36/1947)



## FEATURES OF THE PRODUCT

For the treatment and prevention of Asiatic- and African Redwater and the treatment of Gallsickness (Anaplasmosis).

## BENEFITS FOR THE PRODUCER

Treats, and protects for 4 and 8 weeks, respectively against new cases of Asiatic- and African Redwater.

Ideally suited for extensive beef herds or at dry-off in pregnant dairy cattle before they are turned out onto pastures where there is a risk of Blue tick infestation. DOES NOT sterilise the existing immunity against Redwater.

## WITHDRAWAL PERIODS

Milk: 6 days after a dose of 2,5 ml/100 kg body mass;  
The milk withdrawal is unknown after a dose of 1 ml/100 kg body mass.

Meat: 213 days after a dose of 2,5 ml / 100 kg body mass;  
After the 1 ml / 100kg body mass dose, the meat withdrawal period is 80 days: Thus appropriate to use at the start of the feed period in feedlot calves that will be on feed for longer than 80 days until slaughter.

## DOSAGE AND INDICATIONS

Administer by subcutaneous or intramuscular injection.

Redwater treatment or block treatment: 1 ml/100 kg.  
Period of protection is unknown for this dose.

Block/preventative treatment: 2,5 ml/100 kg - which provides protection for 4 and 8 weeks against Asiatic- and African Redwater, respectively.

Treatment of Gallsickness (Anaplasmosis): 2,5 ml/100 kg body mass.

Do not repeat within 4 weeks.

## NOTES:

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# PRID<sup>®</sup> DELTA

(1,55 g Progesterone per device)

Reg. No. G4037 (Act 36/1947)

Zambia: 346/704V (Act 3/2013)



## FEATURES OF THE PRODUCT

Intra-vaginal device for use in well-fed and managed dairy- and beef heifers and cows to initiate or synchronise oestrus.

## BENEFITS FOR THE PRODUCER

The larger surface area of the device allows for fast and sustainable Progesterone (P4) release to achieve higher plasma P4 concentrations during the period of insertion. This is especially important in high producing dairy cows. Less irritation and lower risk of device loss; Can be used in various protocols because

it is not sold with any particular injectable hormone – allowing for flexibility as the situation demands; Ceva recommends the use of Oestradiol Cypionate (ECP) at implant removal instead of Oestradiol Benzoate (EB) 24 hours after implant removal – eliminating the extra handling required for this.

In **beef herds** its use for fixed time AI leads to more calves from chosen male genetics born earlier during the calving season – yielding heavier calves at weaning or allowing earlier weaning of the dam for longer recovery until re-conception. This ultimately contributes to an increase in kilograms beef produced per hectare grazing.

In **dairy herds** selective synchronisation after the Voluntary Waiting Period results in a 100% submission rate, contributing to a higher pregnancy rate, fewer costly days open and a higher Income over Feeding Costs.

## WITHDRAWAL PERIODS

None.

## DOSAGE AND INDICATIONS

Disinfect both the vulva and the device between females - using F10<sup>®</sup> disinfectant. For use in well recognised, proven synchronisation protocols, only in non-pregnant heifers that have reached target breeding mass (70 % of adult mass), reproductive tract development and age. For the synchronisation of oestrus in non-pregnant cows that are gaining in body condition - no sooner than 50 days postpartum.

# Principles for the control of ectoparasites in cattle

*OBJECTIVE: To minimise the unstructured, unnecessary use of insecticides – where possible.*

1. Know and understand the differences between one and multi-host ticks as well as the life cycle of flies.
2. Remember: Ectoparasites overwinter off the animal host, whereas endoparasites overwinter in the host.
3. If at all possible, do not expose suckling calves to ectoparasiticide at all between birth and the age of 6 months. Tick exposure allows for the development of sufficient natural immunity against tick-borne diseases.
4. The strategic use of injectable, systemic endectocides (eg Eprex<sup>®</sup> 2 % and Cevamec<sup>®</sup> 1 %) for the control of the one host Blue tick in Spring, is mainly to limit development of larvae to egg laying adult females; in Autumn the objective is to eliminate the last generations of Blue tick to prevent more eggs to overwinter that will hatch during the next Spring.
5. Know the duration of residual, insecticidal action of each remedy and rotate the herd through as many grazing camps as possible during this period to expose as many as possible Blue tick larvae as well as various immature stages of multi-host ticks.
6. Consider the use of a Winter dip(s) followed by a grazing rotation(s) in areas where multi-host ticks like Brown Ear tick and Bont tick (abscesses and Heartwater) cause problems during especially the late Summer. The almost invisible immature stages of these tick species are abundant during Winter.
7. Spot treatment (face, lower limbs and tail switch) against flies is important because insect worry decreases voluntary dry matter intake and hence production (growth, body condition gain and milk yield).
8. Where spray races and plunge dips are used, the concentration of the active ingredient(s) should be maintained.

# Principles for synchronising oestrus in heifers and cows for the purpose of successful fixed time A.I.

*OBJECTIVE: To achieve the maximum possible conception in treated animals.*

1. Success depends more on the type of animal that is chosen to be synchronised and comparatively not so much by the choice of hormones.
2. Heifers should have reached target breeding age and mass and should be cycling and gaining in body condition.
3. Cows must be gaining in body condition and should have calved longer than 60 days ago.
4. The quality of the oocyte to be ovulated is influenced by the ratio between protein and carbohydrates in the ration about 3 months in advance. – most often during the peripartum period.
5. Follow a synchronisation protocol that is underwritten by a veterinarian. There are significant differences between protocols for heifers vs. cows, *bos indicus* vs. *bos taurus* breeds and for cyclic vs. non-cyclic females. Should these differences not be taken cognisance of when drawing up a protocol, results may be disappointing. There is no universal protocol for all situations. Consult a specialist.
6. It is easy to expect a high conception following one fixed time insemination after oestrus synchronisation. It is important to have realistic expectations.
7. Heifers and cows should become accustomed to the handlers and handling facilities well in advance to time – not associating these with pain and fear. Adrenalin and cortisol are the enemies of fertility.
8. Use 2 – 3 applicators for placement of the intra-vaginal devices and to allow for sufficient disinfection time between animals by alternating the introducers. Use a non-irritant disinfectant like F10<sup>®</sup> and Acriflavine-Glycerine lubricant.

# Principles of vaccine use in Ruminants

*OBJECTIVE: To apply the correct vaccine at the right time to the correct animal (in terms of age and stage of production).*

1. Only purchase registered vaccines from trustworthy distributors, where one is sure that the cold chain management has been in place at all times.
2. Respect and maintain the cold chain at all times from purchase to use – even with the vaccine already in the syringe next to the crush pen.
3. Only use clean syringes and clean, razor-sharp needles.
4. Use a sterile needle after each crush of about 20 head of animals.
5. Do not sterilise vaccination equipment with any chemical. Clean it by sterilising it in boiling water immediately after use and again before re-use.
6. Administer vaccines strictly according to directions for use. Vaccines intended to be administered by subcutaneous injection can cause serious injection site lesions if accidentally administered intra-muscularly by needles that are too long.
7. Do not vaccinate sheep in the axilla of the front leg next to the chest wall or on the inside of the hind leg next to the udder. Vaccinate on the side of the neck – preferably behind the ear. The wool is easily parted by using the thumb and index finger with one hand whilst using the other to handle the syringe. An assistant should simultaneously restrain the head. The person handling the vaccine syringe should have clean hands and he / she must keep them clean throughout. The person must not handle sheep (filling the crush pen). Rather, assistants should do this.
8. Only vaccinate healthy animals that are in a good nutritional status.
9. Do not wait to start vaccinating during disease outbreaks.
10. Inactivated vaccines mainly stimulate humeral immunity (antibodies) and always require a booster, 4 – 8 weeks later, following initial administration. Thereafter, once a year administration is sufficient unless stated otherwise. About one month prior to anticipated birth of offspring, pregnant stock will benefit from administration of inactivated vaccines to enable the transfer of passive immunity to the neonate, by timely intake of an adequate volume of colostrum. Most inactivated vaccines can already be administered at a very young age.
11. Live vaccines are freeze-dried and must be administered as soon as possible (within 30 minutes) after reconstitution with a sterile diluent. With the exception of Lumpy Skin Disease vaccine, live vaccines cannot be administered to pregnant stock due to the risk of resorptions or abortions. Do not administer live vaccines shortly (6 – 8 weeks) prior to anticipated breeding (conception). Booster vaccinations with live vaccines should be performed annually. Live vaccines stimulate mainly an almost immediate cellular immunity. Most live vaccines are administered from the age of 4 – 6 months.
12. No vaccine will ever provide 100 % protection in 100 % of vaccinated animals.
13. Talk to your veterinarian for use of the most appropriate vaccines in your area.

# Principles of deworming in sheep

*OBJECTIVE: Management to retain as many as possible unselected, susceptible worms IN the sheep as well as those outside on pasture. These are the worms in REFUGIA that are not exposed to worm remedies. Accept that we cannot eradicate worms and have to co-exist with them!*

1. Do not deworm the entire flock simultaneously. Use FAMACHA® and the 5-Point-Check® to selectively deworm the sheep that really require it and, in this way, select for resistance and resilience against at least wireworm infestation. This is to preserve REFUGIA on pasture, those worms not exposed to the active ingredient.
2. Deworming and the grazing strategy are intimately related to each other: Move to a new camp, wait, deworm thereafter; or, deworm, wait and then move – depending on grazing availability in the particular camp. Avoid deworming and then moving sheep immediately to a new camp where the eggs of surviving, resistant females will then be shed on the pastures.
3. Where longer acting dewormers like Privexia® and Maxicare® are used, one can utilise the “vacuum cleaning” effect by moving treated sheep through known infested camps during the wet season.
4. Taking all the above into account: Deworm at strategic times e.g. ewes 4 weeks prior to the onset of lambing, or lambs at the age of 6 – 8 weeks.
5. To help prevent efficient, accelerated development of worm resistance: Avoid the routine use of remedies on all sheep during the dry season when all the worms are IN the sheep (hypobiotic larvae) the so called “cleaning of flock” strategy.
6. From a development of worm resistance viewpoint: A single deworming of all sheep is far worse than several times deworming to selected sheep at the right time.
7. Know the status of resistance of the flock by having faecal egg count reduction tests performed (FERT). Your veterinarian can help you use the right remedy at the right time for the right sheep.
8. The vaccination status against Clostridial diseases like Blood gut and Pulpy Kidney Disease should be up to date prior to deworming sheep.
9. Shake any deworming drench formulation thoroughly before use and regularly whilst deworming the flock.

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*Together,  
beyond animal health*