DATA SHEET
Estroplan Injection

**Presentation** A colourless, buffered, sterile aqueous solution for injection, containing cloprostenol sodium equivalent to 250 μg of cloprostenol per ml. Also contains 0.1% chlorocresol as a bactericide.

**Uses** Cloprostenol is a synthetic prostaglandin analogue structurally related to prostaglandin F₂α (PGF₂α), for use in cattle and horses. As a potent luteolytic agent, it causes functional and morphological regression of the corpus luteum (luteolysis) in cattle and horses, followed by return to oestrus and normal ovulation.

In non-pregnant cycling cattle luteolysis is usually followed by ovarian follicular development and a return to oestrus with normal ovulation in 2 - 5 days following treatment. In horses oestrus commences 2 - 5 days following treatment with cloprostenol, with normal ovulation occurring 8 - 12 days after treatment.

*Note:* There is a refractory period of four to five days after ovulation when cattle and horses are insensitive to the luteolytic effect of prostaglandins. Estroplan has a good safety margin and does not impair fertility. No deleterious effects have been reported on the progeny conceived at the oestrus following treatment.

**Cattle**

**Therapeutic indications**

(i) *Suboestrus or undetected oestrus*

After diagnosing the presence of a corpus luteum - by rectal palpation - treat with Estroplan and inseminate those animals showing heat. Those animals which do not show heat are re-examined 11 days later and may receive a second injection of Estroplan and be bred at oestrus or at fixed times; once at 72 - 84 hours or twice at 72 and 96 hours.

(ii) *Induction of parturition*

Estroplan induces parturition in the period around normal term. Induction should take place as close to the predicted calving date as possible and not more than 10 days before. Induction should not be attempted before day 270 of gestation measured from the confirmed day of conception, except in pathological conditions. All treated animals must receive adequate supervision. In common with other methods of shortening the gestation period a higher than usual incidence of retention of the foetal membranes is to be expected.

(iii) *Termination of normal pregnancy*

Normal pregnancy can be terminated in cattle from one week after conception until the 150th day of gestation. The best results are obtained during the first 100 days. Treated animals should be kept under observation until expulsion of the foetus and placenta is complete.
(iv) Termination of abnormal pregnancy

Mummified foetus: Induction of luteolysis at any stage of pregnancy will usually result in the expulsion of the mummified foetus from the uterus into the vagina from which manual removal may be necessary. Normal cyclical activity should then follow.

Hydrops of the foetal membrane: Pathological accumulation of placental fluids can cause severe physiological complications and death. Surgical drainage is not usually successful in alleviating the condition. In such cases, a single dose of Estroplan may be used to induce parturition.

(v) Chronic endometritis (pyometra)

Treat with a single dose of Estroplan. In long-standing cases treatment may be repeated after 10 - 14 days.

(vi) Ovarian luteal cysts

Where cystic ovaries associated with persistent luteal tissue and absence of heat are diagnosed, Estroplan has proved to be effective in correcting the condition and bringing about a return to cyclicity.

Controlled breeding in cattle

Examples of programmes which have been used are as follows.

1. A single treatment of cattle with palpable evidence of a corpus luteum, followed by breeding on detection of the subsequent oestrus.
2. Detection of oestrus for 6 days, breeding those animals seen in heat; a single treatment is given to all non-served animals on the 6th day and these cattle are bred at subsequent oestrus.
3. Two injections 11 days apart, breeding at oestrus or at fixed times (see below).
4. As (3) above, but breeding any animals showing oestrus before the second injection. Thus the second dose of Estroplan is given only to those cattle not seen in oestrus during that time and is followed by breeding either on signs of oestrus or at fixed times (see below).

Cattle which respond to a single prostaglandin injection will normally do so within 6 days of treatment. The response time after two injections is more rapid. Animals may be inseminated on detection of oestrus in any of the Estroplan programmes. However, fixed time insemination should only be used following the second of a two injection programme (ie. examples iii. and iv.). In the latter case insemination should be performed either once at 72 - 84 hours or twice at 72 and 96 hours after the second injection, as preferred.

Double 'fixed-time' insemination may give superior results to a single insemination. However, economic factors in the particular herd may outweigh such a benefit.

For successful treatment, animals should be cycling normally. Rectal examination before treatment should avoid the disappointment of treating non-cycling (anoestrous) or pregnant animals.

Attention should be directed to the diet and condition of the treated animals. Sudden changes in feeding levels, in feed constituents and in housing, etc should be avoided around the time of the breeding programme, as should any other factor, such as regrouping, which could reasonably be expected to lead to stress.

If artificial insemination is to be used, the quality of semen and insemination technique should be assured beforehand.
A recommended guideline for use of Estroplan in dairy cows is as follows. After the first injection of Estroplan, inseminate any cows showing signs of heat. Animals that do not show signs of heat should be injected 11 days after the first injection and then inseminated 72 - 96 hours later.

Control of the oestrus cycle is of value in the dairy herd

a. **to control oestrus in the individual animal**, giving better control of the individual’s calving index and reducing the number of cows culled as barren;

b. **to control oestrus in groups of cows** to allow management of the herd in groups of suitable size and to facilitate the maintenance of a seasonal calving pattern;

c. **to permit the use of artificial insemination in dairy heifers.**

Control of the oestrus cycle is of value in the beef herd

a. **to facilitate the use of artificial insemination**

b. **to enable the most efficient use of available bulls** when natural service is preferred;

c. **to permit better herd management at conception and calving.**

**Horses**

(i) **Induction of luteolysis following early foetal death and resorption**

About 8 - 10 % of all mares which conceive lose the conceptus during the first 100 days of pregnancy. Persistence of luteal function in the ovary precludes an early return to oestrus.

(ii) **Termination of persistent dioestrus**

Non-pregnant mares frequently and spontaneously go into and out of periods of prolonged dioestrus. A very high proportion of mares in this category i.e. not cycling, are in prolonged dioestrus rather than anoestrus, particularly in the latter part of the breeding season.

(iii) **Termination of pseudopregnancy**

Some mares which are covered at normal oestrus and subsequently found to be empty (but not having lost or resorbed a conceptus) display clinical signs of pregnancy. These animals are said to be 'pseudopregnant'.

(iv) **Treatment of lactation anoestrus**

Failure of lactating mares to cycle again for several months after exhibiting an early 'foal heat' can be avoided.

(v) **Establishing oestrous cycles in barren/maiden mares**

Some maiden or barren mares may be found, on examination, to have a functional corpus luteum and are suffering from abnormal persistence of luteal function or are simply failing to exhibit normal oestrus. Suboestrus has a higher incidence in maiden mares early in the breeding season. Treatment with Estroplan enables prediction of the time of onset of oestrus, allowing optimum utilisation of teasing and stallion resources.

(vi) **As an aid in stud management**

Mares may be brought into oestrus on a planned timing schedule (singly or in groups), to facilitate more efficient use and management of stallions during the breeding season.
**Dosage and administration**

*Cattle:* 2.0 ml

*Ponies and donkeys:* 0.5 to 1.0 ml

*Thoroughbreds, hunters and heavy horses:* 1.0 to 2.0 ml

Administer by intramuscular injection using aseptic technique. Do not inject through wet or dirty skin. Do not administer intravenously. Use the contents of the vial within 28 days of withdrawal of the first dose. Discard unused material.

**Contra-indications, warnings, etc.** On rare occasions, severe, life-threatening, local bacterial infections may occur in association with clostridial proliferation at the injection site. It is important to keep treated animals under observation, and if such infection occurs, aggressive antibiotic therapy, particularly covering clostridial species, should be employed as a matter of urgency. Aseptic techniques should be employed with care to reduce the possibility of these infections.

*Overdose in cattle* Increased body temperature and salivary secretion have been reported, usually associated with the administration of 5 - 10 times the recommended dose.

*Overdosage in horses* Sweating, increased respiratory and heart rates, ataxia, watery diarrhoea and signs of mild abdominal pain have been observed. Such reactions have usually resulted from doses in excess of that recommended, and are generally mild and transient.

Cattle should not be slaughtered for human consumption with 24 hours of administration of the product.

Milk from treated cattle may be used for human consumption.

Do not use Estroplan in horses intended for human consumption. Treated horses may never be slaughtered for human consumption. The horse treated must have been declared as not intended for human consumption under national horse-passport legislation.

**Operator warnings** Prostaglandins of the F2α type can be absorbed through the skin and may cause bronchospasm or miscarriage. Care should be taken when handling the product to AVOID SELF-INJECTION OR SKIN CONTACT.

Women of child-bearing age, asthmatics and persons with bronchial or other respiratory problems should avoid contact with, or wear disposable plastic gloves when administering, the product.

Accidental spillage on the skin should be washed off immediately with soap and water. In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician. Wash hands after using this product.

The possible incidence of bronchospasm with the product is unknown. Should shortness of breath result from accidental inhalation or injection, seek urgent medical advice and show the doctor this warning.

**Disposal** Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal products should be disposed of in accordance with local requirements.

**Pharmaceutical precautions** Do not store above 25°C. Protect from light.

**Legal category** POM-V.

**Package quantities** Multi-dose vial containing 20 ml.

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