

# HORMONES



## Gonadotrophin releasing hormone (GnRH)

### Commercially available products

Fertagyl  
Receptal  
Deslorelin  
Gestar



### Pharmacological action

Stimulates a short surge of FSH and LH following a single bolus injection.

### Indications

#### Cattle:

- follicular cysts
- delayed ovulation or anovulation
- a cyclicity
- improved pregnancy rates, in cows with poor pregnancy rates, when used as 'holding injection' as a single bolus 12 days after insemination
- as part of oestrus-synchronization regimens ( Ov-synch programme).

#### Horse:

- induce ovulation

### Dose rates

- Buserelin: cow, 10-20 µg; horse 40 µg preferably i.m. but can be given i.v. or s.c.
- Gonadorelin: cow, 0.5 mg i.m., s.c. or i.v.

## Gonadotrophins

### 1. FSH and LH

Porcine FSH and recombinant-derived FSH are used to induce superovulation in donor cows for embryo transfer.

### Commercially available product

Porcine FSH-LH



## 2. Equine chorionic gonadotrophin (eCG)

Originally called pregnant mare's serum gonadotrophin (PMSG) but in order to use consistent nomenclature, it is now called eCG. A protein hormone produced by the endometrial cups of the mare from about 40-120 days of pregnancy. It mainly has FSH like activity but with a much longer biological half life than FSH

**Pharmacological action**

Mainly FSH-like in its action but has some LH activity.



**Indications**

**Cattle:**

- superovulation of donor cows for embryo transfer; rarely used because overstimulation can be a problem
- impaired spermatogenesis in bulls
- at the time of withdrawal of intravaginal progesterone preparations when used to treat a cyclicity.

**Sheep and goats:**

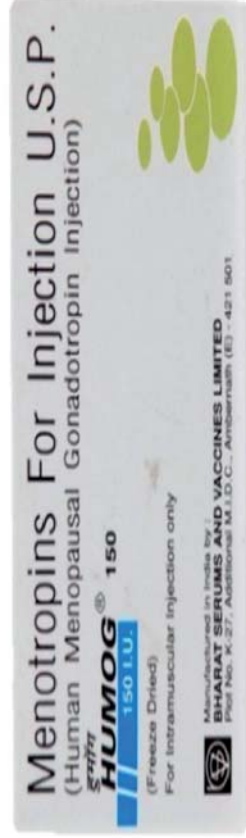
- in association with intravaginal progestogen sponges to advance the onset of the breeding season.

**Dose rate**

- Cattle: 1500- 3000 IU s.c. or i.m.
- Sheep and goats: 500-800 IU s.c. or i.m. (depending on the breed and time interval to the onset of normal breeding season)
- Dog: 50-200IU.

## 3. Human menopausal gonadotrophin (hMG)

Extracted from the urine of menopausal women, this has primarily an FSH-like action. Used to a limited extent in superovulating donor cows for embryo transfer. It has a shorter biological half-life than eCG.



## 4. Human chorionic gonadotrophin (hCG)

A protein hormone extracted from the urine of pregnant women, this hormone has primarily an LH-like effect and hence is used as a substitute for the more expensive LH; it also has a longer half-life than LH. Commercially available products Chorulon injection (Intervet)

**Pharmacological action**

Stimulates androgen production by the thecal cells of the ovary and Leydig cells of the testis; stimulates follicular maturation and ovulation, corpus luteum formation and maintenance.





### Indications

#### Cattle:

- delayed ovulation or anovulation
- ovarian cysts (especially follicular)
- luteal deficiency
- improve chances of pregnancy in cyclic non breeders (repeat breeder cows)
- improve libido in bull

#### Horse:

- induce or hasten ovulation
- 'rig test', stimulate rise in testosterone in peripheral blood of suspected cryptorchid.

#### Sheep and goat:

- improve libido in ram and male goat
- cystic ovaries in female goat.

#### Dog:

- prolonged or persistent pro-oestrus (oestrus in bitches)
- improve libido in male dog.

#### Cat:

- induce ovulation.

### Dose rate

- Cattle: 1500-3000 IU i.v. or i.m.
- Horse: 1500-3000 IU i.v. or i.m.
- Sheep and goat: 100-500 IU *i.v.* or *i.m.*
- Dog: 100-500 IU *i.m.*
- Cat: 100-200 IU *i.m.*

## Oxytocin

### Pharmacological action

Causes milk let-down, myometrial contractions to facilitate gamete transport, myometrial contractions during parturition and postpartum.



#### Cattle:

- induce milk let-down
- hasten uterine involution following dystocia, caesarean operation, after replacement of uterine prolapse, uterine trauma or haemorrhage.

#### Horse:

- induce foaling
- cause expulsion of retained fetal membranes
- induce milk letdown.

#### Sheep: As for cow.

#### Dog:

- treat uterine inertia
- expulsion of retained fetal membranes
- hasten uterine involution after dystocia or caesarean operation
- induce milk let-down.

### Dose rate (oxytocin)

- Cattle: 10 IU i.m. or i.v.
- Horse: 10 IU i.m. or i.v.
- Sheep and goat: 2-5 IU i.m. or i.v.
- Dog and cat: 0.5-5 IU i.m. or i.v.



### Estrogens

Commercially available products

Estradiol benzoate

Indications

Dog:

- prevention of unplanned pregnancy
- urinary incontinence in the spayed bitch
- prostatic hyperplasia and anal adenoma in the male dog
- to depress hypersexuality in the male dog.



### Progestogens

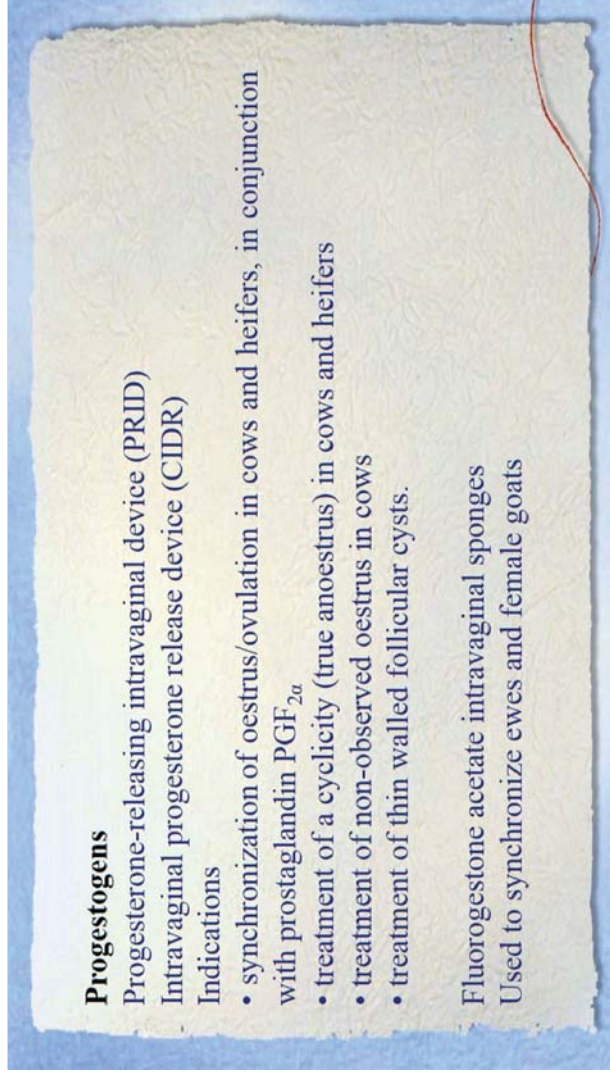
Progesterone-releasing intravaginal device (PRID)

Intravaginal progesterone release device (CIDR)

Indications

- synchronization of oestrus/ovulation in cows and heifers, in conjunction with prostaglandin PGF<sub>2α</sub>
- treatment of a cyclicity (true anoestrus) in cows and heifers
- treatment of non-observed oestrus in cows
- treatment of thin walled follicular cysts.

Fluorogestone acetate intravaginal sponges  
Used to synchronize ewes and female goats





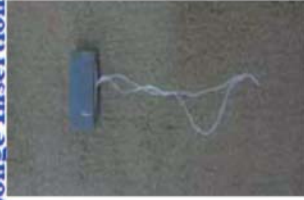
**Altrenogest (Regumate)**  
 Equine, Intervet)  
 Used to suppress cyclical activity where this may cause managemental or behavioral problems, to control timing of estrus to meet the availability of the stallion, to induce cyclical activity in the breeding season.



**Fluorogestone acetate**  
 intravaginal sponges  
 (Chronogest, Intervet)  
 Used to synchronize ewes and female goats



**Sponge Insertion**



**Prostaglandins**

Pharmacological action

PGF<sub>2α</sub> and analogues are potent luteolytic agents, except in the bitch and cat. They play a role in ovulation, parturition and gamete transport, in the latter two by virtue of their effect on the smooth muscle of the genital tract. They have a short biological half-life because 90% of prostaglandins are metabolized at one passage through the pulmonary circulation.



### Indications

#### Cattle:

- synchronization of oestrus in cows and heifers
- treatment of non-observed oestrus
- induction of calving
- inducing abortion and expulsion of mummified calves
- treatment of pyometra
- treatment of endometritis
- treatment of luteal ( luteinized) cysts.

#### Horse:

- inducing abortion before 35 days
- treatment of a persistent luteal phase
- induction of foaling
- hasten return to oestrus if service is missed
- hasten return to oestrus after the foal heat

#### Sheep and goat:

- synchronization of oestrus
- inducing early abortion in sheep
- treating pseudopregnancy in goats.

#### Dog:

- treatment of open pyometra in the bitch ( dinoprost and cloprostenol, use with care).