# PRID® DELTA

flying higher in fertility

## FERTILITY PROTOCOLS

THE POWER IS NOW IN YOUR HANDS


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# Progesterone: key for fertility management

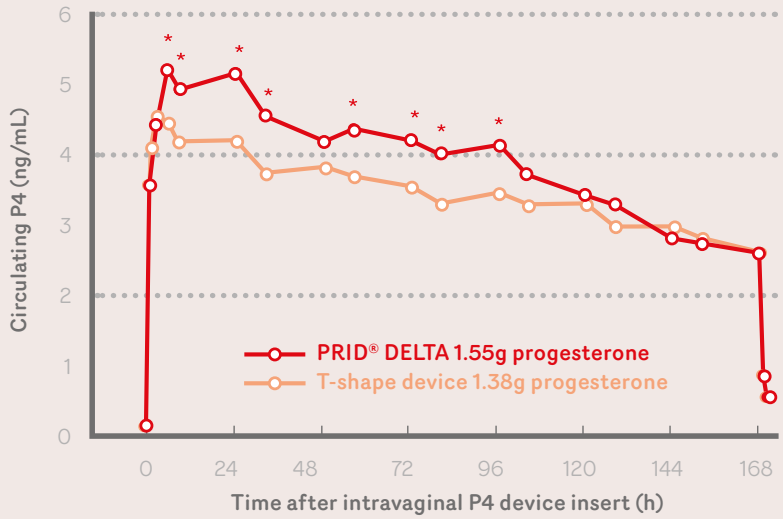
In high production dairy cows, the continuous high plane of nutrition required to maintain output appears to increase liver blood flow[1].
The increased liver circulation speeds up the metabolic breakdown of key reproductive steroid hormones, progesterone (P4) and oestradiol (E2) and reduces their circulating blood levels[1] resulting in:

- Poorer quality pre-ovulatory follicles[2,3]
- A shorter duration and poor expression of oestrus[4] leading to missed services
- Delayed or no ovulation[5,6]
- Less competent oocytes[2]
- Compromised endometrial function[7]
- Sub-optimal embryo quality[8,9]

## Think progesterone, think PRID® DELTA

PRID® DELTA is the progesterone releasing device (in the U.K. market) with higher progesterone levels and a larger surface area, achieving greater circulating P4 levels in cattle[10].

Graph comparing the circulating P4 levels achieved in ovariectomised cattle with PRID® DELTA to a T-Shaped device, over time following insertion[10]




**AUC (ng/mL*h): PRID® DELTA 653 vs T-shape device 583, P<0.01**
**AUC = Area Under Curve which represents the total amount of progesterone absorbed by the cow**

PRID® DELTA contains 12% more progesterone in total and has 29% larger surface area in contact with the vaginal wall than other devices available in the U.K.[11].

# PRID® DELTA - now with enhanced indications

## 1. More flexibility to manage individual herds

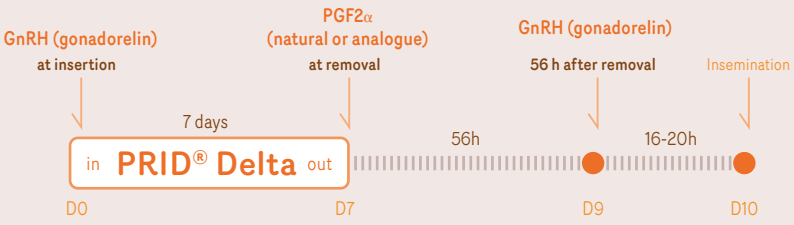
**'Judgment on the protocol to be used should be made by the veterinarian responsible for treatment, on the basis of the treatment objectives of the individual herd or cow'** [12].

This licence change enables tailored treatment protocols to be adapted to incorporate current research and ensure farmers are as compliant as possible

## 2. Reduced handling of cattle for fixed-time AI (FTAI) now possible

Prostaglandin (PGF2α) can now be used upon removal of PRID® DELTA for the induction and synchronisation of oestrus in cycling and non-cycling cattle[12], reducing the number of times cattle need to be handled and potential for error.

The example below shows a simple **'4 handlings'** protocol for the induction and synchronisation of oestrus in cattle for FTAI.




## 3. Now licensed for use with GnRH

This enables vets to confidently use PRID® DELTA alongside Ovarelin® (GnRH) whilst complying fully with the cascade[12].

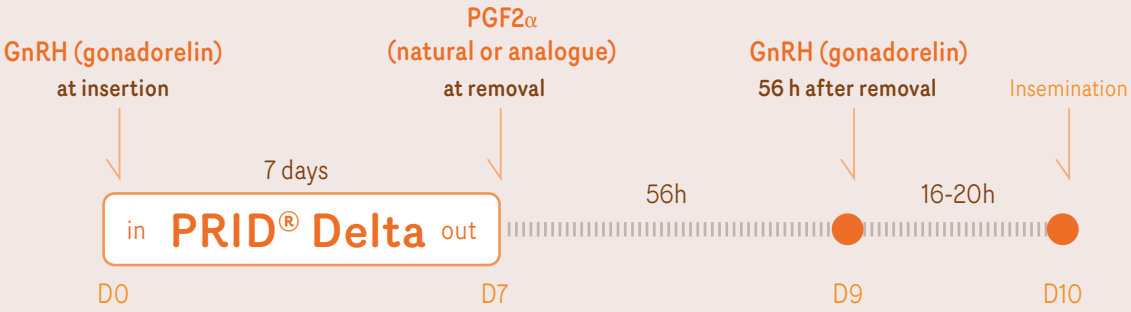
## 4. Now licensed for use with Embryo Transfer protocols

PRID® DELTA can be used for the synchronisation of recipients for embryo transfer and the preparation of donors for superovulation[12].

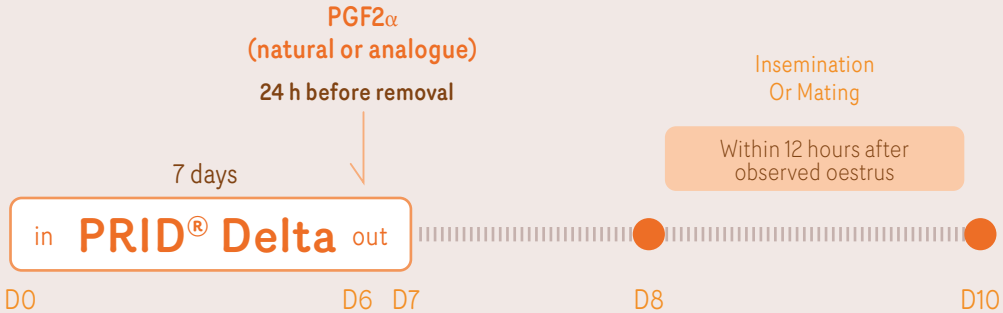
# PRID® DELTA for the induction and synchronisation of oestrus in cycling and non-cycling cattle including fixed time artificial insemination (FTAI)

The most appropriate protocol, as determined by the vet, should be used[12].

**Example 1:** a suitable protocol for oestrus synchronisation in cycling and non-cycling cows to control the emergence of a new follicular wave and the correct timing of ovulation:




**Example 2:** a suitable protocol for the synchronisation of heifers and cows to allow artificial insemination after oestrus observation:

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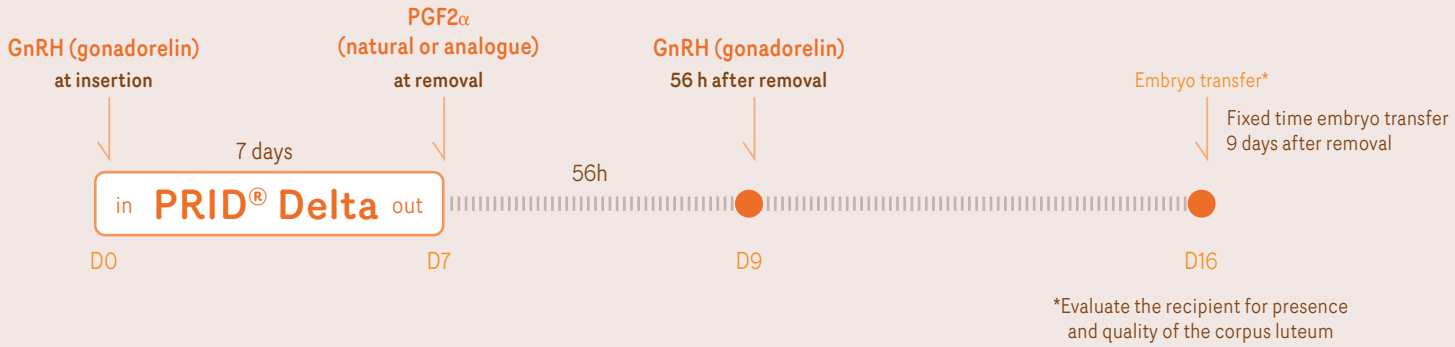
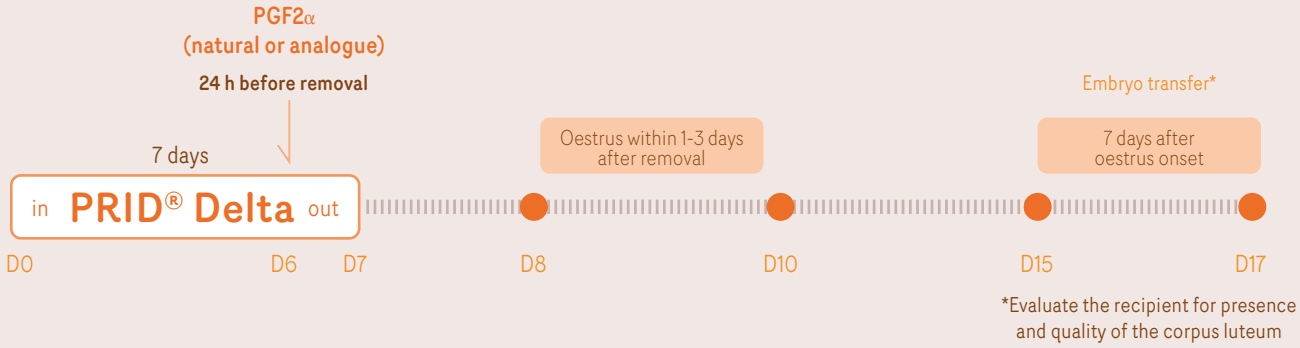
# PRID® DELTA - for management of embryo transfer

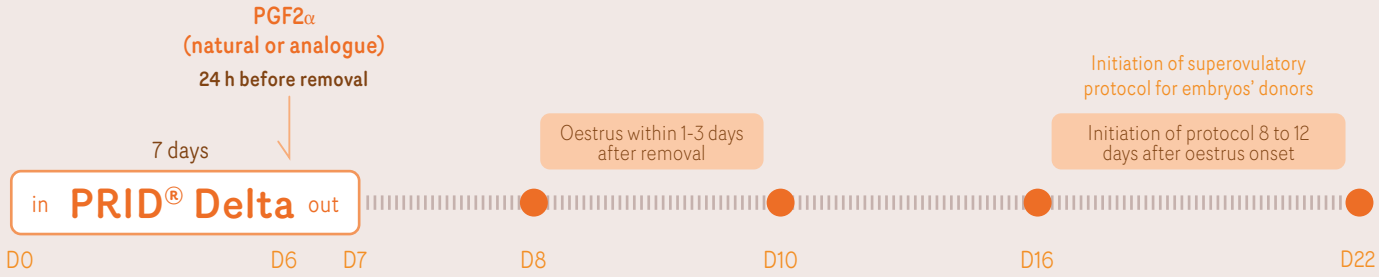
Protocols for the synchronisation of recipients include:




Or, as an alternative to induce oestrus and select suitable embryo recipients on the basis of oestrus expression:




Protocol for embryo donors




**References**:

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2) Patrick Lonergan. Influence of progesterone on oocyte quality and embryo development in cows. Theriogenology 76 (2011) 1594–1601.
3) M. C. Wiltbank, A. H. Souza1, P. D. Carvalho, A. P. Cunha, J. O. Giordano, P. M.Fricke, G. M. Baez and M. G. Diskin. Physiological and practical effects of progesterone on reproduction in dairy cattle. Animal (2014), 8:s1, pp 70–81.
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8) Rivera FA, Mendonca LGD, Lopes G, Santos JEP, Perez RV, Amstalden M, Correa-Calderon A and Chebel RC 2011. Reduced progesterone concentration during growth of the first follicular wave affects embryo quality but has no effect on embryo survival post transfer in lactating dairy cows. Reproduction 141(2011), 333–342.
9) Diskin MG, Murphy JJ, Sreenan JM. Embryo survival in dairy cows managed under pastoral conditions. Anim Reprod Sci 2006;96:297–311.
10) T. van Werven, F. Waldeck, A.H. Souza, S. Floch, M. Englebienne. Comparison of two intravaginal progesterone releasing devices (PRID® Delta vs CIDR) in dairy cows: Blood progesterone profile and field fertility. Animal Reproduction Science 138 (2013) 143– 149.
11) Rathbone MJ, Bunt CR, Ogle CR, Burggraaf S, Macmillan KL, Burke CR, Pickering KL (2002). Reengineering of a commercially available bovine intravaginal insert (CIDR insert) containing progesterone. J.Control Release. Dec 13;85(1-3):105-15. 9.
12) PRID® Delta product SPC.

PRID® Delta 1.55g Vaginal Delivery System for Cattle. **COMPOSITION:** Progesterone 1.55g per device. **INDICATIONS:** For the control of the œstrus cycle in cows and heifers including: synchronisation of œstrus including fixed time artificial insemination (FTAI) protocols; synchronisation of oestrus of donor and recipient animals for embryo transfer (to be used in combination with a prostaglandin - PGF2α or analogue). Induction and synchronisation of œstrus in cycling and non cycling cattle including fixed time artificial insemination (FTAI) protocols: In cycling cattle (to be used in combination with prostaglandin (PGF2α) or analogue; in cycling and non-cycling cattle (to be used in combination with gonadotropin releasing hormone (GnRH) or analogue and PGF2α or analogue); in non-cycling cattle (to be used in combination with PGF2α or analogue and equine chorionic gonadotrophin (eCG)). **CONTRA-INDICATIONS:** Do not use in sexually immature heifers or females with abnormal genital tracts e.g. freemartins. Do not use before 35 days have passed since previous calving. Do not use in animals suffering from infectious or non-infectious disease of the genital tract. Do not use in pregnant animals. See section Use during pregnancy, lactation. **ADVERSE REACTIONS:** During the course of the seven day treatment, the device may induce a mild local reaction (i.e. inflammation of the vaginal wall). A clinical study carried out with 319 cows and heifers has demonstrated that 25% of animals presented ropy or cloudy vulvar secretions at the device removal. This local reaction disappears rapidly without any treatment between removal and insemination and does not affect fertility at inseminations nor pregnancy rates. **AMOUNTS TO BE ADMINISTERED AND ADMINISTRATION ROUTE:** Vaginal use. 1.55 g of progesterone / animal for 7 days. Judgment on the protocol to be used should be made by the veterinarian responsible for treatment, on the basis of the treatment objectives of the individual herd or cow. The following protocols could be used. For synchronisation of oestrus (including synchronisation of oestrus of donor and recipients animal for embryo transfer): Insert the device for 7 days, inject a prostaglandin (PGF2 α) or analogue 24 hours prior to device removal, removal of the device, in animals that respond to treatment the onset of oestrus generally occurs within 1-3 days after removal of the device, cows should be inseminated within 12 hours of first observed oestrus. For the induction and synchronisation of oestrus for Fixed Time Artificial Insemination (FTAI): in cycling cattle (insert the device for 7 days, inject a prostaglandin (PGF2 α) or analogue 24 hours prior to device removal, removal of the device, animals should be inseminated 56 hours after removal of the device); in cycling and non-cycling cattle, including recipient cows (insert the device for 7 days, inject GnRH or analogue at the device insertion, inject a prostaglandin (PGF2 α) or analogue 24 hours prior to device removal, animals should be inseminated 56 hours after removal of the device, or inject GnRH or analogue 36 hours after device removal and FTAI 16 to 20 hours later) or in alternative (insert the device for 7 days, inject GnRH or analogue at the device insertion, at device removal inject prostaglandin (PGF2 α) or analogue, inject GnRH or analogue 56 hours after removal of the device, animals should be inseminated 16 to 20 hours later); in non-cycling cattle (insert the device for 7 days, inject a prostaglandin (PGF2 α) or analogue 24 hours prior to device removal, inject eCG at the time of the device removal, animals should be inseminated 56 hours after removal of the device). Device application information: Using an applicator, insert one device into the vagina of the animal. The intravaginal device should stay in place for 7 days. The device is intended for single use only. **WITHDRAWAL PERIODS:** Meat and offal: zero days; Milk: zero days. Legal Category POM-V

**Ovarelin®** 50µg/ml, Solution for Injection for Cattle. **COMPOSITION FOR 1 ML**: Gonadorelin (as diacetate tetrahydrate) 50.0 µg. **INDICATIONS FOR USE**: Induction and synchronisation of oestrus and ovulation in combination with prostaglandin F2a (PGF2α) or analogue with or without progesterone as part of Fixed Time Artificial Insemination (FTAI) protocols. Treatment of delayed ovulation (repeat breeding). **SPECIAL WARNINGS**: The response of dairy cows to synchronisation protocols may be influenced by the physiological state at the time of treatment, which includes age of the cow, body condition and interval from calving. Responses to treatment are not uniform either across herds or across cows within herds. Where a period of progesterone treatment is included in the protocol, the percentage of cows displaying oestrus within a given period is usually greater than in untreated cows and the subsequent luteal phase is of normal duration. **ADMINISTRATION AND ADMINISTRATION ROUTE**: Intramuscular use. 100 µg of gonadorelin (as diacetate) per animal in a single injection.i.e. 2 ml of the product per animal. **THE FOLLOWING PROTOCOLS HAVE BEEN EVALUATED AND COULD BE USED**: Induction and synchronisation of oestrus and ovulation in combination with a prostaglandin F2α (PGF2α) or analogue: Day 0: First injection of gonadorelin, Day 7: Injection of prostaglandin (PGF2α), Day 9: Second injection of gonadorelin should be done. The animal should be inseminated within 16-20 hours after the last injection of the product or at observed oestrus if sooner. Induction and synchronisation of oestrus and ovulation in combination with a prostaglandin F2α (PGF2α) or analogue and a progesterone releasing intravaginal device: **THE FOLLOWING FTAI PROTOCOLS HAVE BEEN COMMONLY REPORTED IN THE LITERATURE**: Insert progesterone releasing intravaginal device for 7 days. Inject gonadorelin at the progesterone device insertion. Inject a prostaglandin (PGF2α) 24 hours prior to device removal. FTAI 56 hours after removal of the device, or inject gonadorelin 36 hours after progesterone releasing intravaginal device removal and FTAI 16 to 20 hours later. **TREATMENT OF DELAYED OVULATION (repeat-breeding)**: GnRH is injected during oestrus. To improve the pregnancy rates, the following timing of injection and insemination should be followed: injection should be performed between 4 and 10 hours after oestrus detection. An interval of at least 2 hours between the injection of GnRH and artificial insemination is recommended. Artificial insemination should be carried out in accordance with the usual field recommendations, i.e., 12 to 24 hours after oestrus detection. **WITHDRAWAL PERIODS**: Meat, offal and milk: zero days. Legal Category POM-V

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Prescription decisions are for the person issuing the prescription alone. Please use medicines responsibly (www.noah.co.uk/responsible)

For further information, please refer to the product SPC or data sheet.

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