



► FERTILITY MANAGEMENT

Transizione 4.0



MORE PROGESTERONE...
LESS INFLAMMATION...
YES PLEASE!!

More progesterone...yes please!! Less inflammation...yes please!!

Scientific knowledge regarding the fight against **bovine hypofertility** has undergone **a radical change** in recent years.

Among these, the study of the ovarian cycle of the cow has shown that the development of a fertile follicle is dependent on two metabolically related factors:

- **the blood progesterone concentration**
- **the reduction of systemic inflammation present in the post-partum phase, especially in the summer period ("heat stress")**

The concentration **of the fertility hormone (progesterone)** and **the quantification of inflammatory stress** are, therefore, the two key factors to be analyzed **in the fight against bovine hypofertility**, especially in the presence of **"stressful" factors** that work in a negative sense in the establishment of a new pregnancy (heat stress, mycotoxins, etc ...)



More progesterone...YES PLEASE!!

“Progesterone is essential for the normal reproductive cycle; inhibits estrus and controls follicle growth. But some high-production dairy cows have too little of them in circulation”.

Penn State University

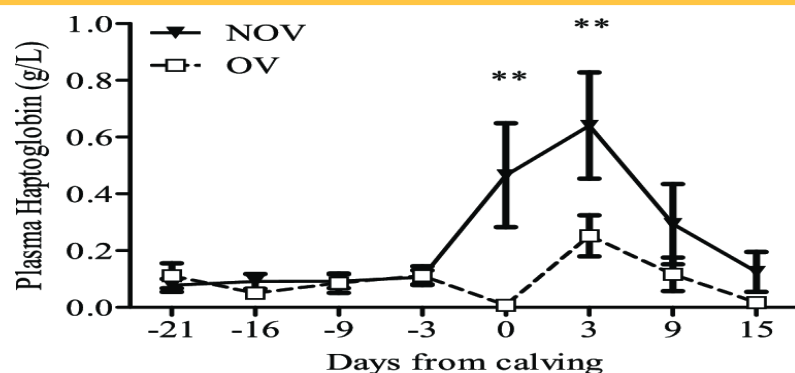


“The circulating concentrations of P4 represent a balance between P4 production and P4 metabolism; the metabolism of P4 is mainly related to the amount of blood flow to the liver due to the abundance in the bovine liver of enzymes that mediate the metabolism of P4”. *M.C.Wiltbank, A.H.Souza, P.D. Carvalho, A.P.Cunha, J.O.Giordano, P.M.Fricke, G.M.Baez and M.G. Diskin, 2014*

Less inflammation...YES PLEASE!!

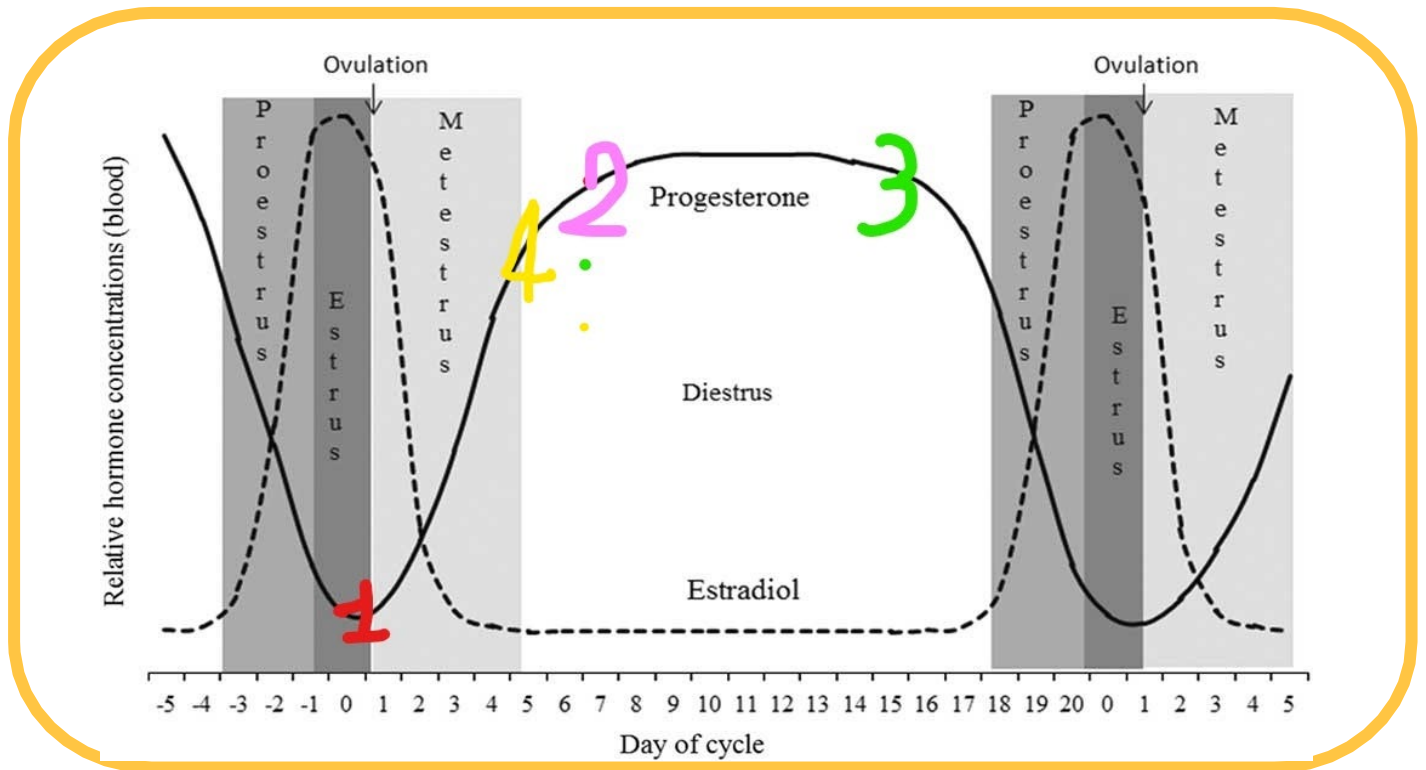
INFLAMMATION and fertility: a difficult relationship

- Reduced production of FSH and LH hormones (less follicular development and absence of ovulation)
- Luteolytic action of prostaglandins: reduction of blood progesterone and embryonic mortality
- Uterine action: reduction of glandular epithelium: embryonic resorptions



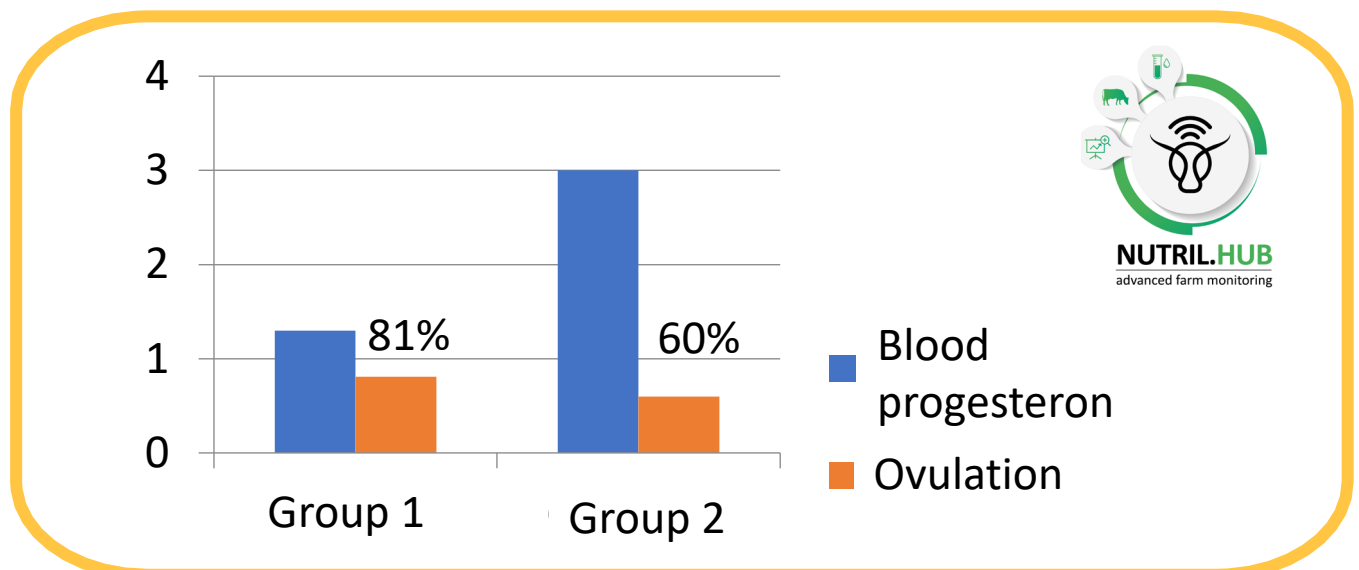
Correlation between Hp in peripartum and subsequent ovulation

Bovine ovarian cycle: hormonal phases duration

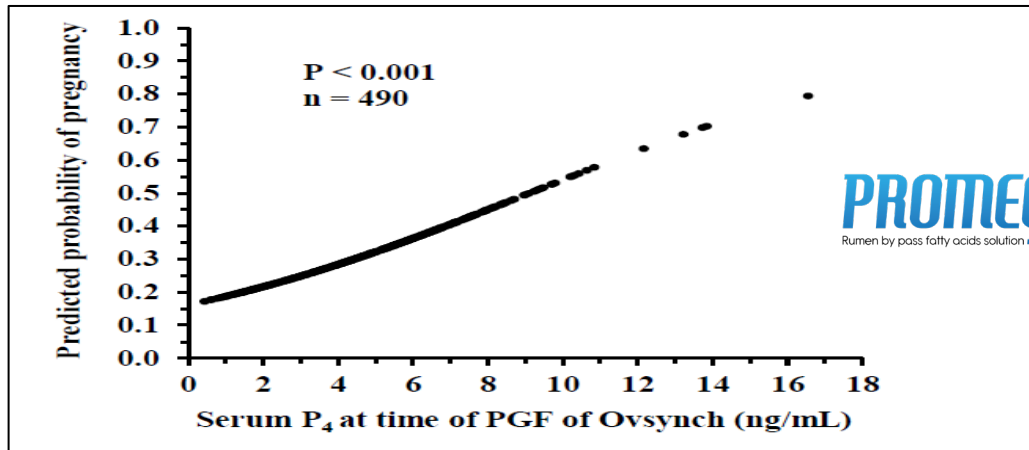


Let's analyze in detail how the progesterone trend affects the degree of fertility of the cow in the crucial phases of the bovine ovarian cycle marked by the numbering on the graph:

1 The high rate of blood progesterone (3.0 ng / ml vs 1.3 ng / ml) negatively affects ovulation following the execution of the Double Ovsynch protocol (81.1% vs 60%).

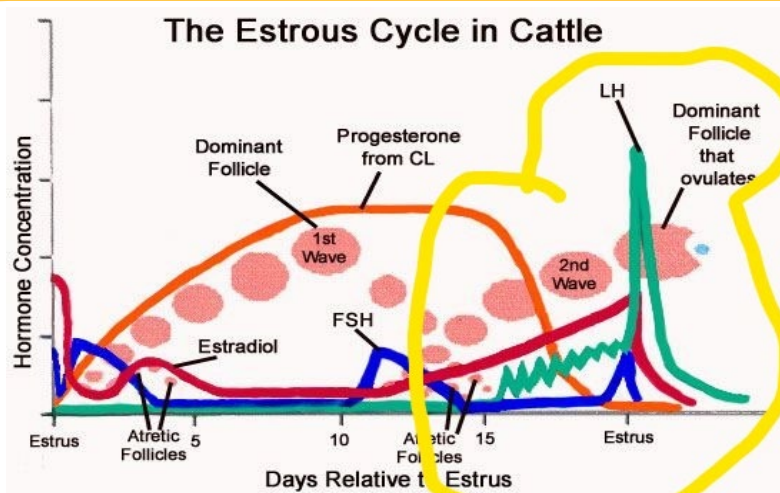


2 The high rate of blood progesterone increases the possibility of impregnating the cow at the next AF (51% vs 37%) in Ovsynch protocol (n = 564); cows with reduced blood progesterone, on the other hand, had double ovulation. (Cunha et al., 2008).



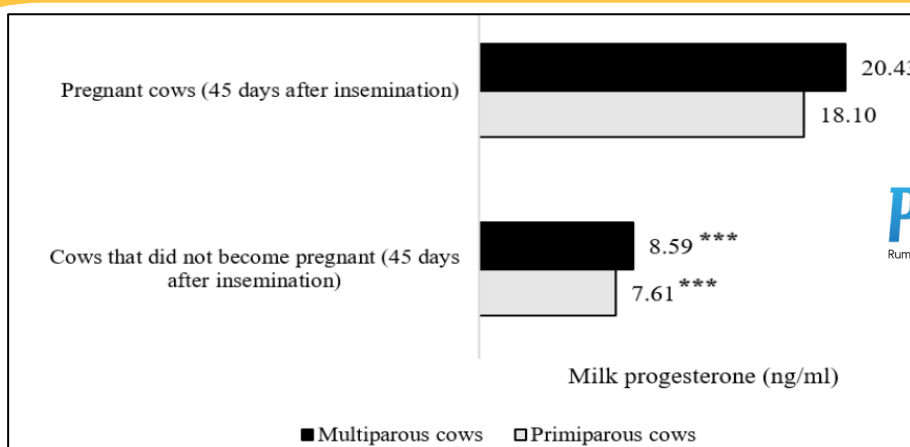
PROMEGA+plus
Rumen by pass fatty acids solution

3 The progesterone concentration influences the final follicular wave for the maturation of the dominant follicle (Bisinotto et al 2010).



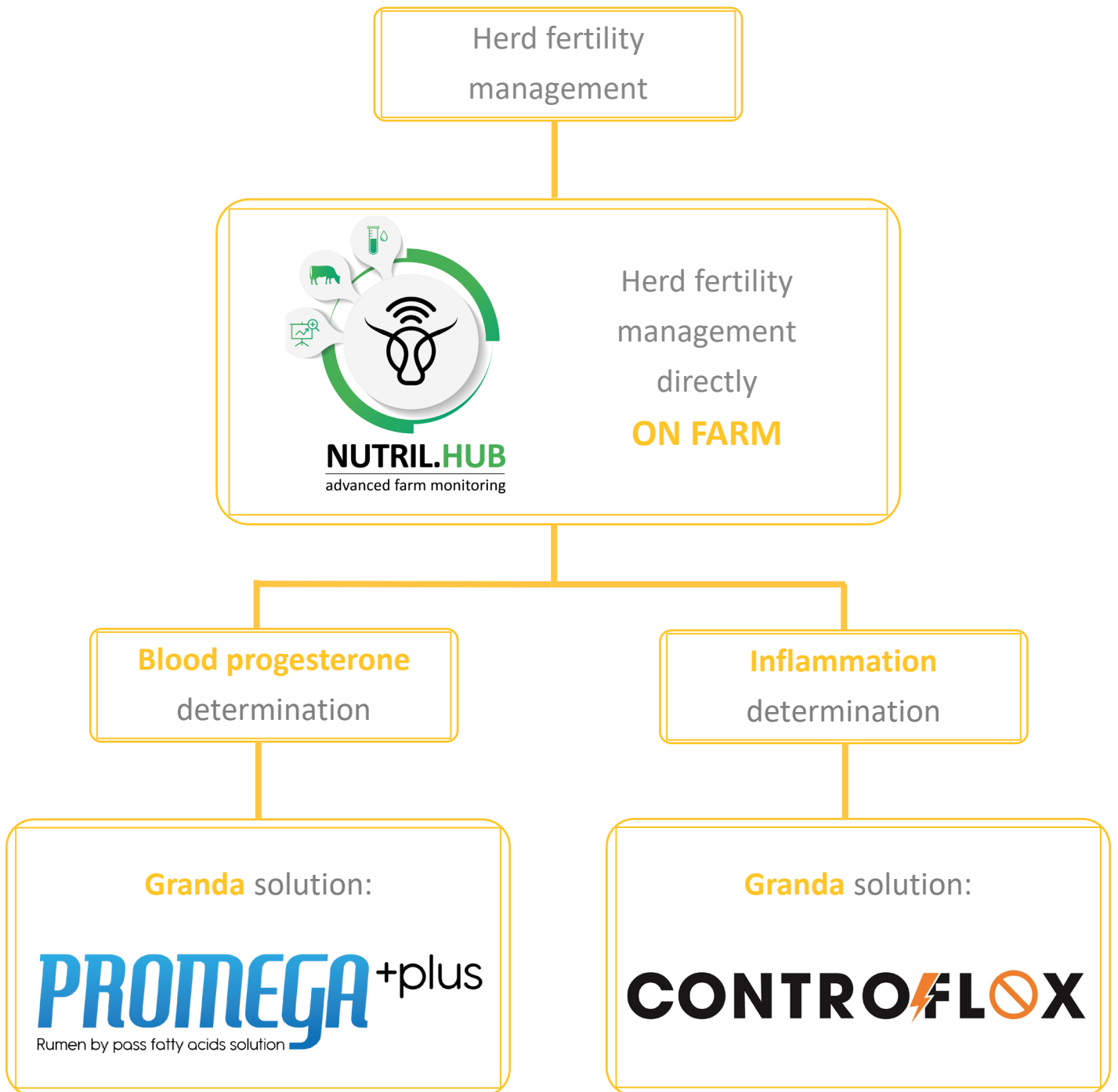
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4 The concentration of blood progesterone allows the implantation and survival of the embryo at the uterine level; 60% of cows appear to have a value <7.4 ng / mL at day 5 post AF. (Stronge et al 2005).



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Granda Team's approach





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