

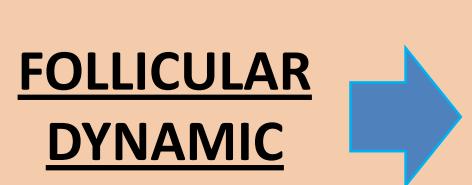
High Dairy Cow Synchronization Protocols

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INTRODUCTION

Reproductive efficiency is considered to be one of the main management factors to improve dairy profitability. Pregnancy rate and its distribution over the time are two variables that affect the production and economy of dairy farms. To be more competitive, appropriate synchronization protocols have to e used to get a high pregnancy rate after only one artificial insemination. In this way, the recent literature describes different synchronization protocols that are able to control the estrous cycle using different strategies.



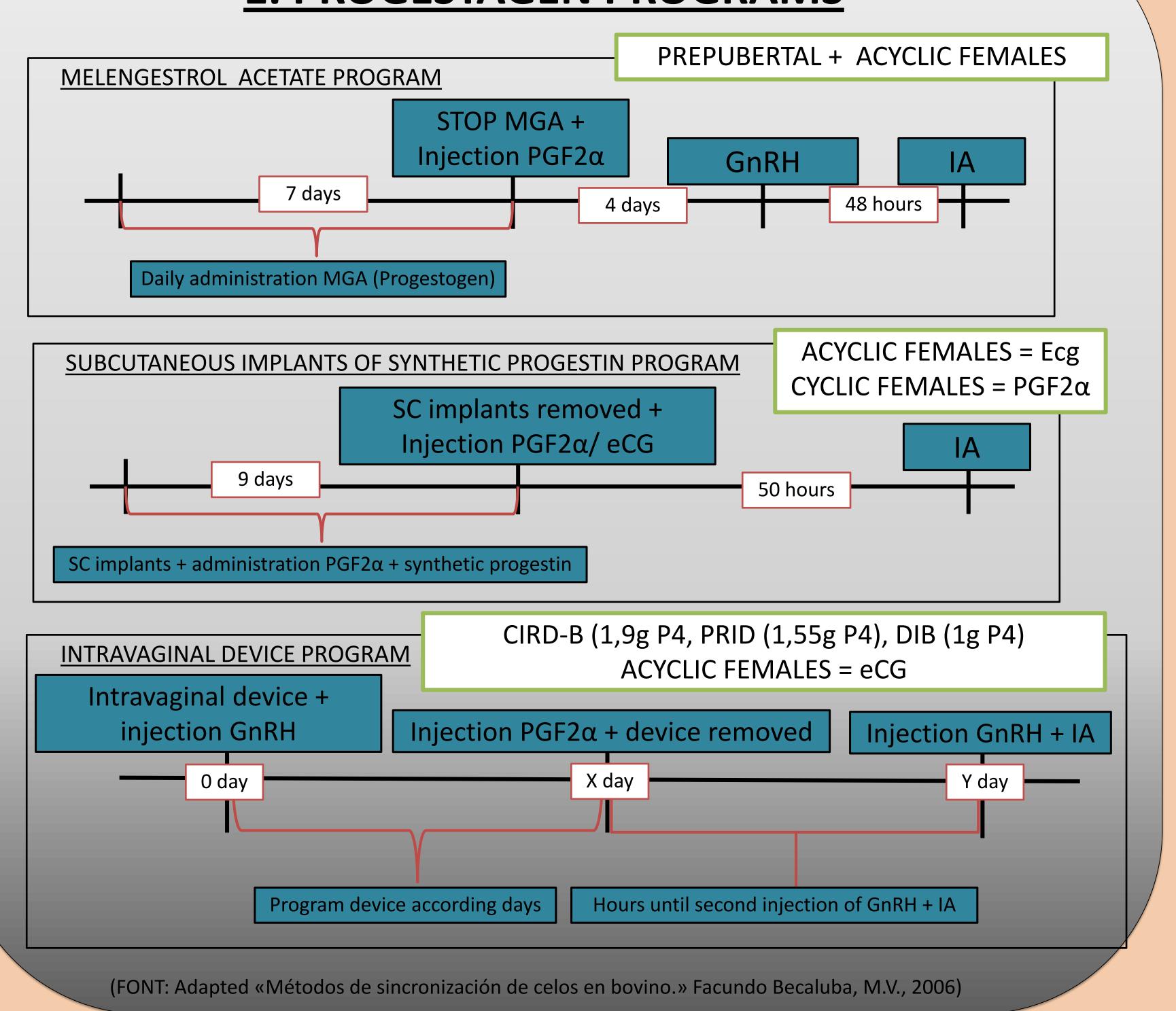
Process of growth and regression follicles modulated by the neuroendocrine system

Hormones	Origin	Target site	Function
Gonadotropin-			or treouting the tree
Releasing Hormone	Hypothalamus	Anterior hypophysis	Stimulate FSH/ LH production and secretion
(GnRH)			
Follicle Stimulating	Hypophysis	Ovaries	Steroidogenesis + follicular growth and
Hormone (FSH)	Пурорпузіз	Ovaries	maduration
Luteinizing Hormone	Hypophysis	Ovaries	Ovulation + Corpus luteum formation/
(LH)			maintenance
Estrogen/ Estradiol	Ovaries	Hypothalamus	Stimulate sexual behaviour + Positive
(E2)			feedback
Progesterone (P4)	Ovaries/ CL	Uterus +	Uterus preparation for deployment to
		Hypothalamus	maintain gestation + Negative feedback
Prostaglandin F2α (PF2α)	Uterus	Ovaries + Hypothalamus	Destruction CL + Abolition of negative feedback by progesterone

HYPOTHALAMUS Positive Feedback Negative Feedback GnRH HYPOPHYSIS FSH OVARIES Follicular growth Ovulation Corpus Luteum Pre-ovulatory follicle Progesterone Estradiol (FONT: Adapted «Ciclo estral» Christian a Rippe, Dairy Cattle Reproduction Conference, 2009).

1. PROGESTAGEN PROGRAMS

(FONT: Adapted «Ciclo estral» Christian a Rippe, Dairy Cattle Reproduction Conference, 2009).

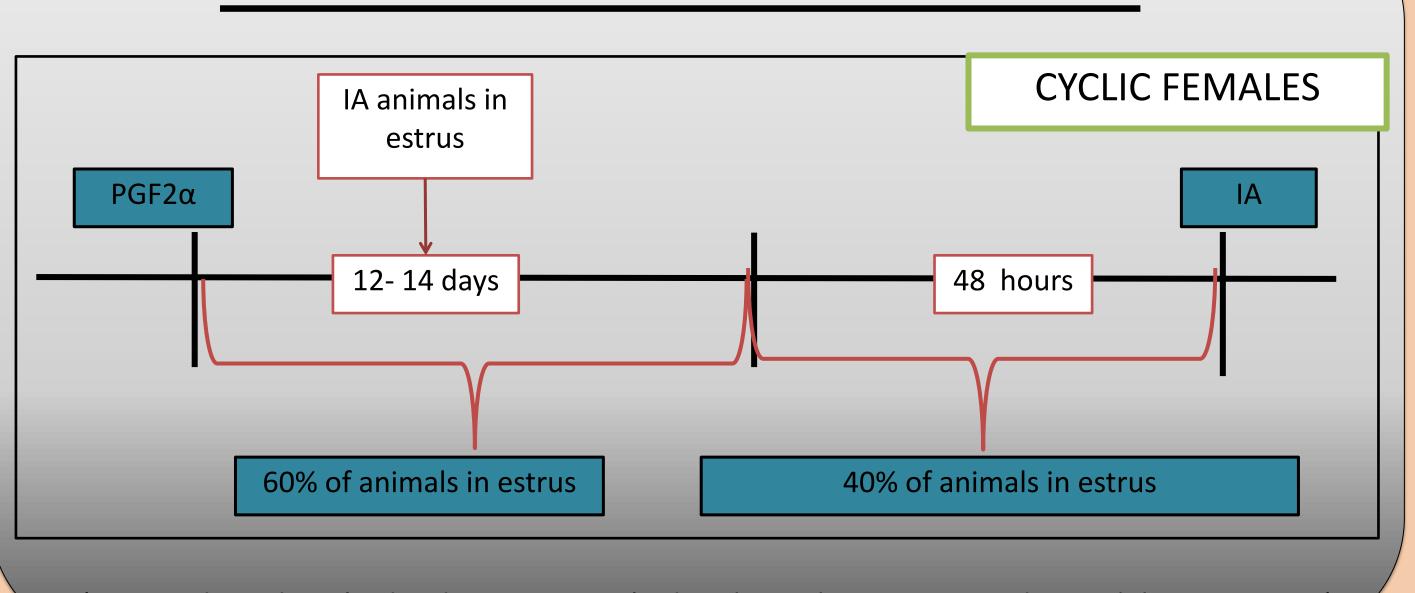


CLASSIC OVSYNCH PROGRAM GnRH PGF2α GnRH 7 days 24 hours 48 hours Ovulation + CL formation + New **CL** regression Ovulation follicular wave ADDITIONAL FOLLICULAR MATURATION TIME **OVSYNCH56 PROGRAM** GnRH PGF2α GnRH 7 days 56 hours 16 hours A DAY FOR GROWTH and MATURATION FOLLICULAR **COVSYNCH72 PROGRAM** PGF₂_α GnRH GnRH + IA 7 days 72 hours HEIFERS ANESTROUS OR POLYCYSTIC OVARIES 5dCOVSYNCH72 PROGRAM GnRH + IA GnRH GnRH PGF2α 5 days 48 hours 24 hours

(FONT: Adapted «Dairy Cow Production council-USA, 2011-2013.

2. GnRH – PGF2α- GnRH PROGRAMS

3. PROSTAGLANDIN PROGRAM



The synchronization program may require the use of one or more hormones.

Synchronization efficiency and fertility rate depend on the synchronization

CONCLUSIONS

synchronization programs.

program used.

Management, nutrition, environmental or pathologic factors that prevent cows from cycling or cause low conception rate must be corrected before starting a synchronization program.

It is necessary to understand the reproduction physiology to develop new estrus

(FONT: Adapted «Métodos de sincronización de celos en bovino.» Facundo Becaluba, M.V., 2006)