

# Reproductive Management in Dairy Cattle (Estrous Synchronization)

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## **Estrus Synchronization:**

**What are the advantages?**

- 1. Allows an organized and efficient approach for AI**
- 2. Synchronizes estrus and thus reduce time required for estrus detection**
- 3. Improves record keeping and group cow management**

## **Advantages of Estrous Synchronization (Cont.)**

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- 4. Labor saving tool for utilizing superior genetics, increase longevity and productivity of dairy cows**
- 5. Better management tool for maintaining proper calving interval (12-13 month)**
- 6. Facilitate adoption of artificial insemination**

***Economic Return and Profitability***



## **Estrous synchronization: a reproductive mgt. tool**

- Controls the timing of estrus or ovulation**

**mechanism:**

- Altering the length of the estrous cycle and/or pattern of follicular growth**

## **Key to Success of systematic program**

- **Incorporation efficient and accurate detection of estrus**
- **Timely AI relative to time ovulation**

### **Prostaglandin: PGF<sub>2</sub> $\alpha$**

**Regression of the CL and decrease in progesterone synthesis and secretion**

- **Lutalyse - Natural compound 25 mg dose I.M.**
- **Estrumate - Analogue 500 mg dose I.M.**
- **Prostomate - Analogue to Lutalyse**

Mode of action for **PGF2 $\alpha$**

- **Regress active corpus luteum**
- **Regresses Day 5-17 corpus luteum**

**Response:**

- **estrus (heat): 2-5 days after injection**
  - **heifers ~50 hours cows ~72 hours**
- ~60-65% of herd should respond to injection**

### **Gonadotropin Releasing Hormone (GnRH)**

**Ovulation and/or luteinization of the growing follicle**

**Cystorelin - GnRH Analogue**

**Factral - GnRH Analogue**

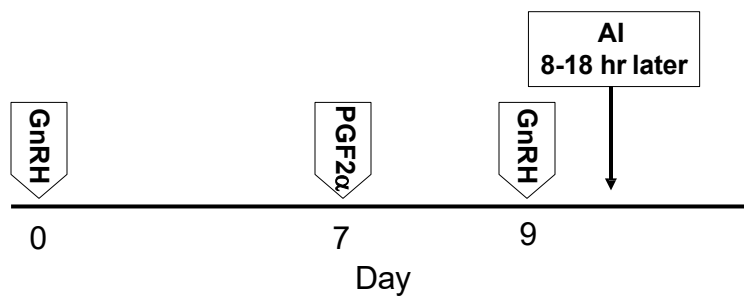
**Fertagyl - GnRH Analogue**

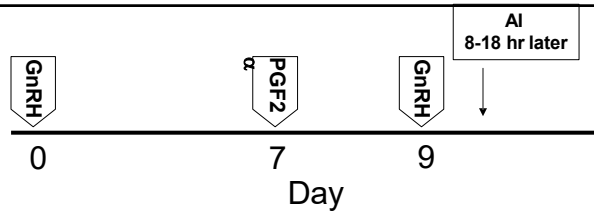
## Control Intra-vaginal Drug Release (CIDR<sup>®</sup>)

- Known as EZ-Breed<sup>™</sup>
- Progesterone release device
- Controlling the estrus cycle by preventing cows coming to estrus.



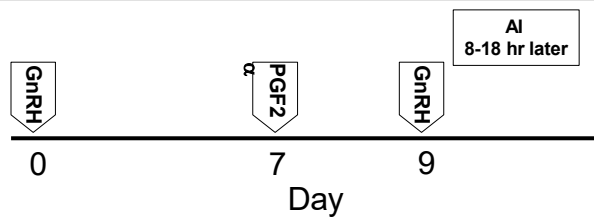
## OvSynch<sup>®</sup> or Timed Artificial Insemination





**Advantages:**

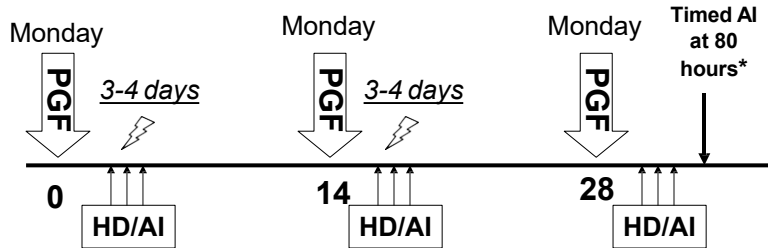
- No need for heat detection
- Increased AI submission rate
  - OvSynch can be beneficial in Hot and humid condition where heat expression is usually low
- A tighter synchrony of ovulation



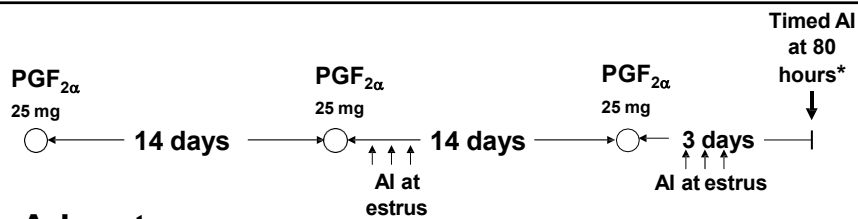
**Disadvantages:**

- Cost of Drugs
  - a reduced dose of GnRH can be as effective
- Labor cost for animal handling
- Less attention to herd and their estrous behavior\*\*
- Low conception rate compared to other breeding program

## Targeted Breeding™ Protocol



\* In the absence of detected estrus, cows are inseminated at a fixed time after the third PGF injection



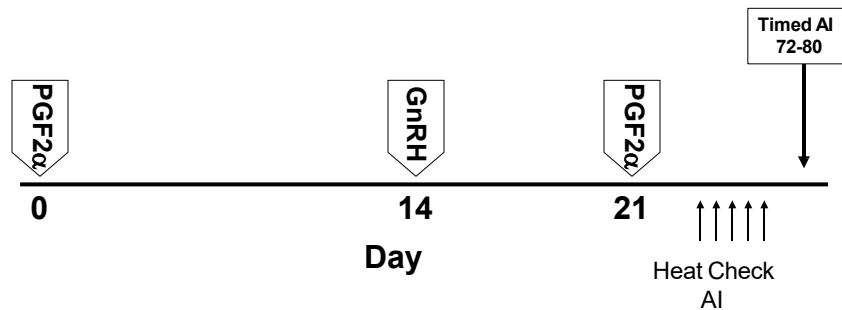
### Advantages

- Less time spent on heat detection
- Less veterinary visit for pregnancy examination
- Providing some natural synchronization of follicular development
- A tighter estrus synchrony compared to single injection of PGF<sub>2α</sub>

**Disadvantages:**

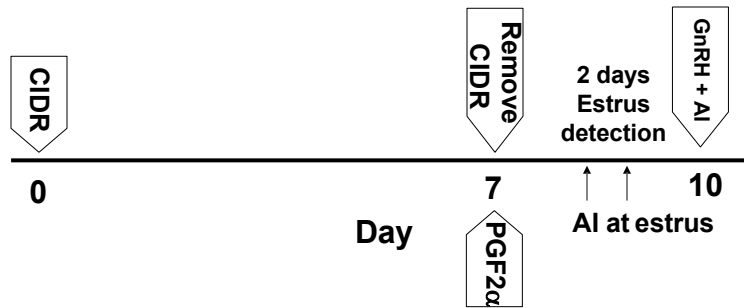
- Cow handling and labor
- Heat from 2-5 days after the 2<sup>nd</sup> injection  
(wide spread)
- Low fertility rate for cows that are timed AI
- Need for heat detection

**Modified Targeted Breeding™ Protocol**





## EZ-Breed (CIDR)



**Advantage: tight synchrony of estrus**

**Disadvantage: ???**

**Which method should I choose?**





## Reproductive Performance Goals Compared to Idaho

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	<u>Goals</u>
Reproductive Cull Rate	< 8 %
% Heat Detection	> 70
Average Days to First Breeding	70 - 75
First Service Conception Rate	60%
Overall Conception rate	50-55%
Breeding Per Conception	2.0
Days Open	< 120
Calving Interval	13 months

**HAPPY A.I.**

