

# Comparison of owning a bull vs. AI for producers of various sizes



Robert Wells, Ph.D., PAS  
Livestock Consultant  
Noble Foundation

*Pearl*

# Why AI?

- More early calves
- Uniform calf crop
- Higher quality genetics than you could afford to buy in the bull.
- Reduce time for genetic progression
- Can select for calving ease
- Strategically plan matings
- Increased marketability of calves
- Sexed semen





**Cow Gestation Length: 283 days**

**Days in a year: 365 days**

**Difference: 82 days**

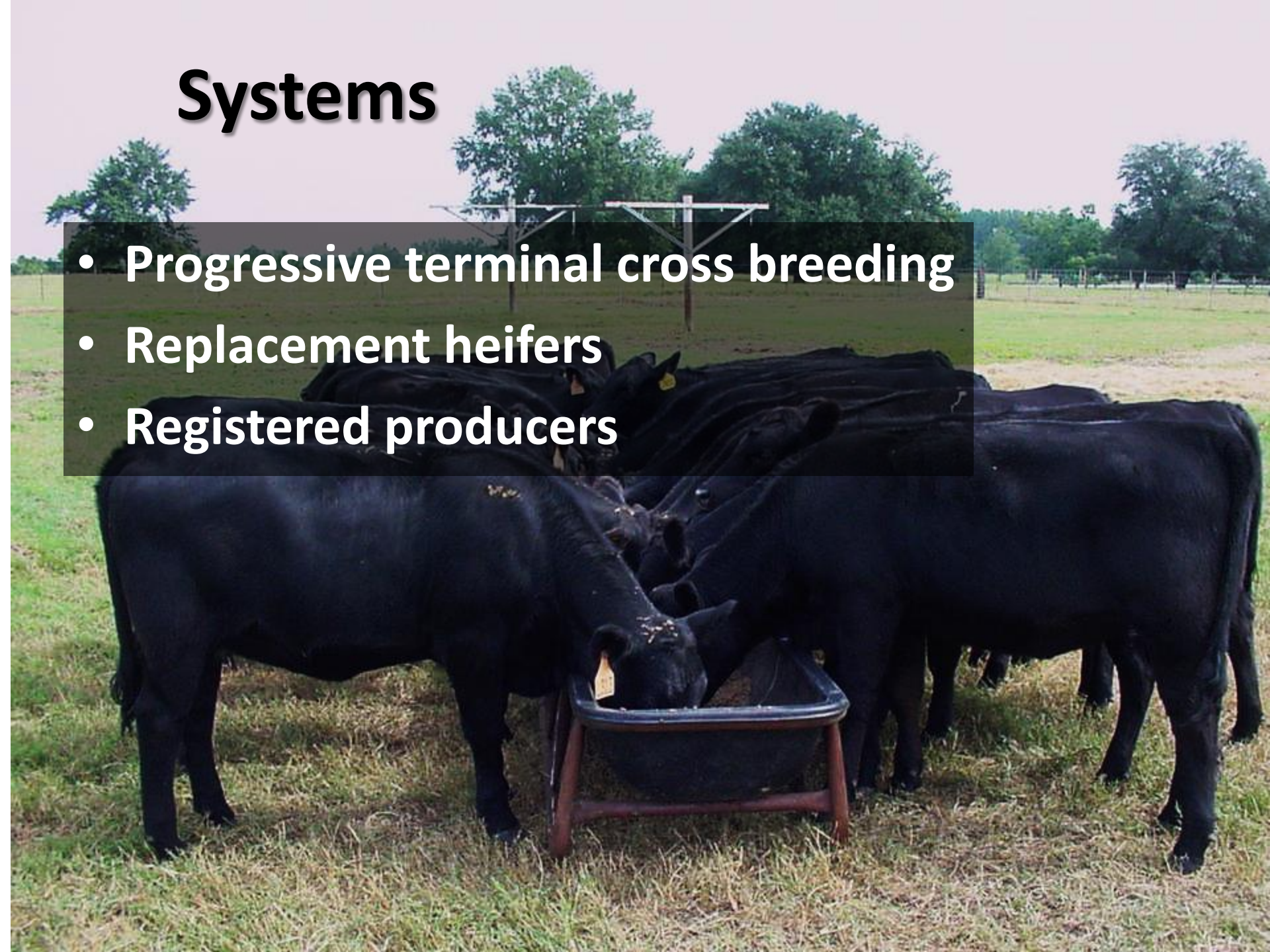
**Goal: 1 calf every year...**





# Systems

- Progressive terminal cross breeding
- Replacement heifers
- Registered producers





# Large Herds; $\geq 50$ hd



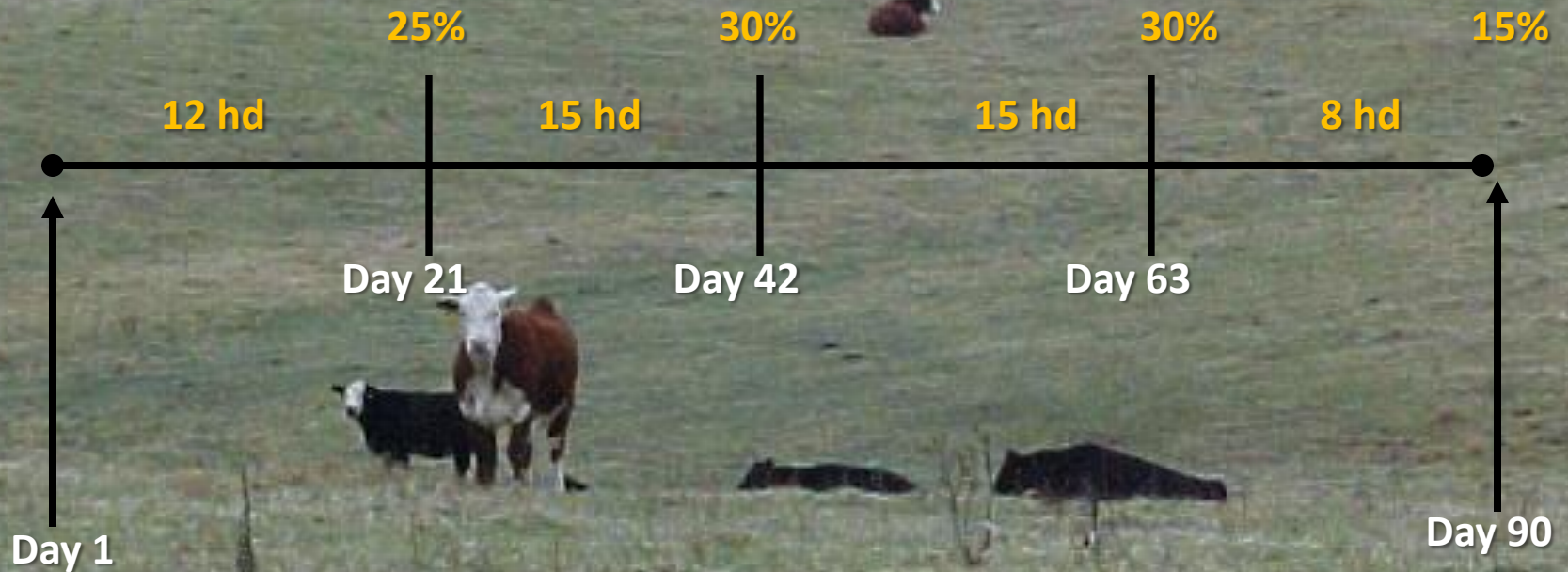


# Tighten Up Calving Season





# Not So Ideal Reproduction Performance (50 head herd)



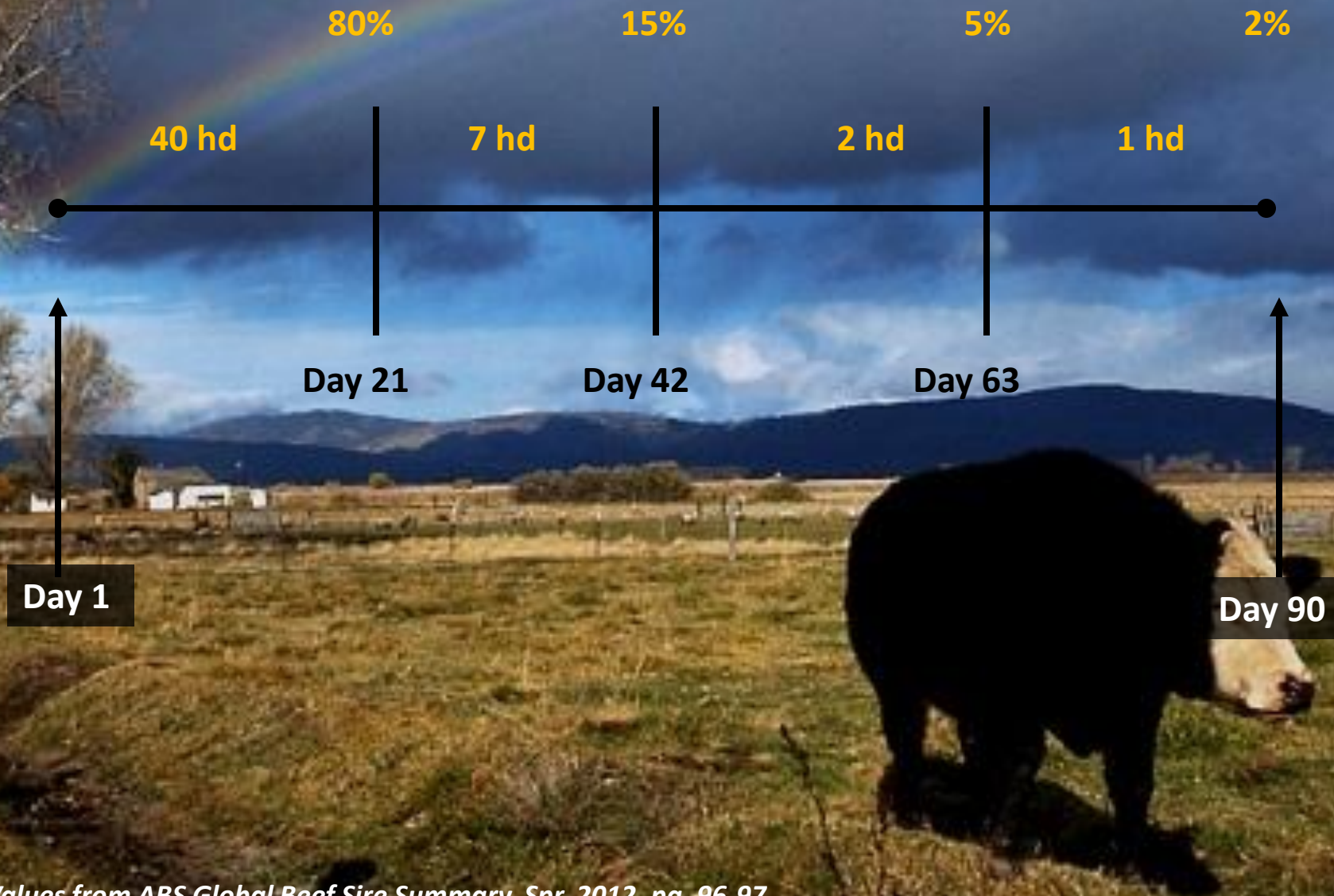
# Weaning Projections

## (Not So Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.
Day 1-21	12	210	2.1	6,252
Day 21-42	15	189	2.1	7,154
Day 42- 63	15	168	2.1	6,492
Day 63-90	8	147	2.1	3,110
Total lbs				23,008
Total \$		@	\$1.69/lb	\$38,883



# Ideal Reproduction Performance (50 head herd)



Values from ABS Global Beef Sire Summary, Spr. 2012, pg. 96-97



# Weaning Projections

## (Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.
Day 1-21	40	210	2.1	20,840
Day 21-42	7	189	2.1	3,338
Day 42- 63	2	168	2.1	866
Day 63-90	1	147	2.1	389
Total lbs				25,432
Total \$		@	\$1.58/lb	\$40,182
Difference				\$1,299



# Increase in Calf Quality (weaning weight)

- Assume same breeding seasons as before but increased potential for weaning weight.
- Using a high quality terminal cross bull to maximize weaning weight, add 75 lbs (+.36 lb ADG) to AI sired calves.
- Increases total revenue by another **\$1,244**



# Weaning Projections

## (Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.
Day 1-21 ( <i>AI</i> )	30	210	2.46	17,898
Day 1-21 ( <i>bull</i> )	9	210	2.1	4,689
Day 21-42	8	189	2.1	3,338
Day 42- 63	2	168	2.1	866
Day 63-90	1	147	2.1	389
Total lbs				27,657
Total \$		@	\$1.50 lb	\$41,426
Difference		\$41,426-\$40,182 =		\$1,244

- Increased weights by shifting to more earlier born calves = **\$1299**
- Increase in weights by better genetics = **\$1244**
- Only need one bull rather than 2 = \$6,000
  - Depreciated over the life of the bull = **\$1,200/yr**
  - Maintenance cost on the one bull not needed = **\$600**
- Annual Gross Profit of A.I. = **\$4,343**



# Costs of Timed AI

	Unit Cost
CIDR	\$ 10.25
GnRH + PG	\$ 8.00
Semen	\$20.00
Technician	\$10.00
AI Cost/Cow	\$48.25*

\*Does not include labor costs



- Annual Gross Profit of A.I. = **\$4,343**
- Cost of A.I. of 50 hd = **\$2,412** ( $\$48.25 \times 50$ )

**Annual net profit of  
A.I. = \$1,931  
per 50 hd of calves**





# <25 hd, A.I. is difficult to justify

- 
- Must own a bull anyway
    - clean up remaining open cows
    - Bull \$6,000 over 5 yrs = **\$1,200**
    - Bull maintenance **\$600**
  - Cost of AI (not including chute labor) **\$1,206**
  - Total annual breeding cost **\$3,006**
  - Gross Profit estimate (half of the 50 hd, previous slide) = **\$965**
  - **-\$2,041 estimated cost** *(does not include chute labor)*

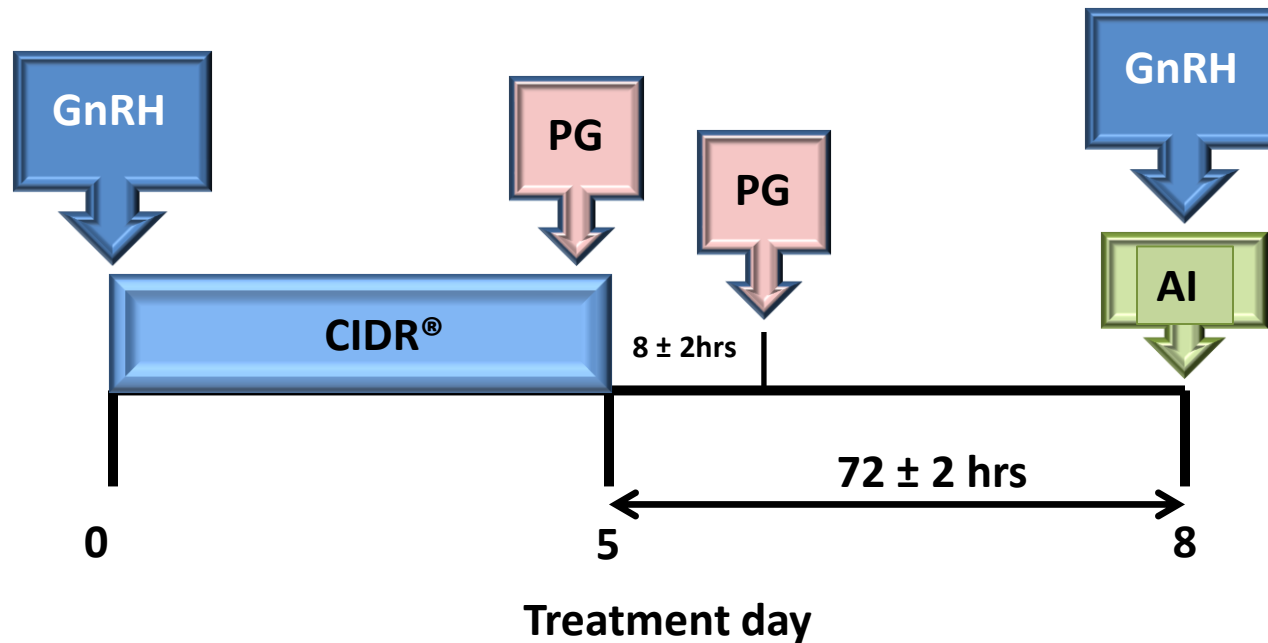


# Replacement Heifers

- Use sexed semen from maternal bulls to produce replacement heifers.
  - Will be older calves of the calving season
  - Bred to the 'right bull' and the 'right cow'
- Use sexed semen from low BW bulls to breed to heifers.
  - Get bull calves from the heifers – worth more at marketing
- Potentially add \$100-150 more to the value of the cow

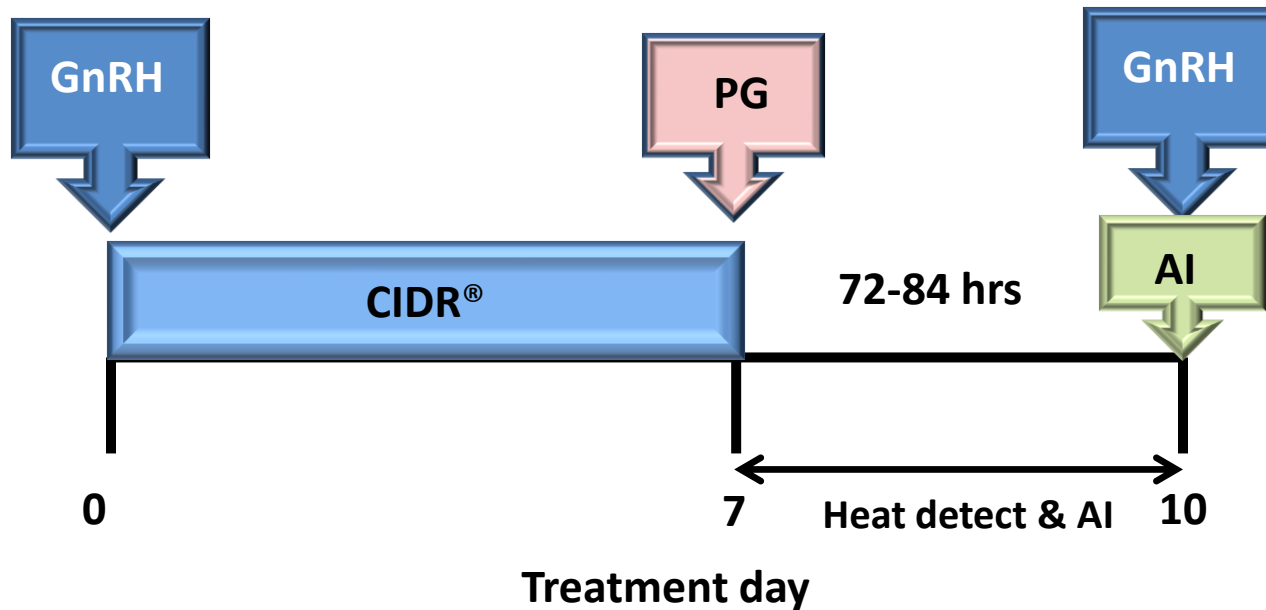


# 5-day CO-Synch + CIDR®

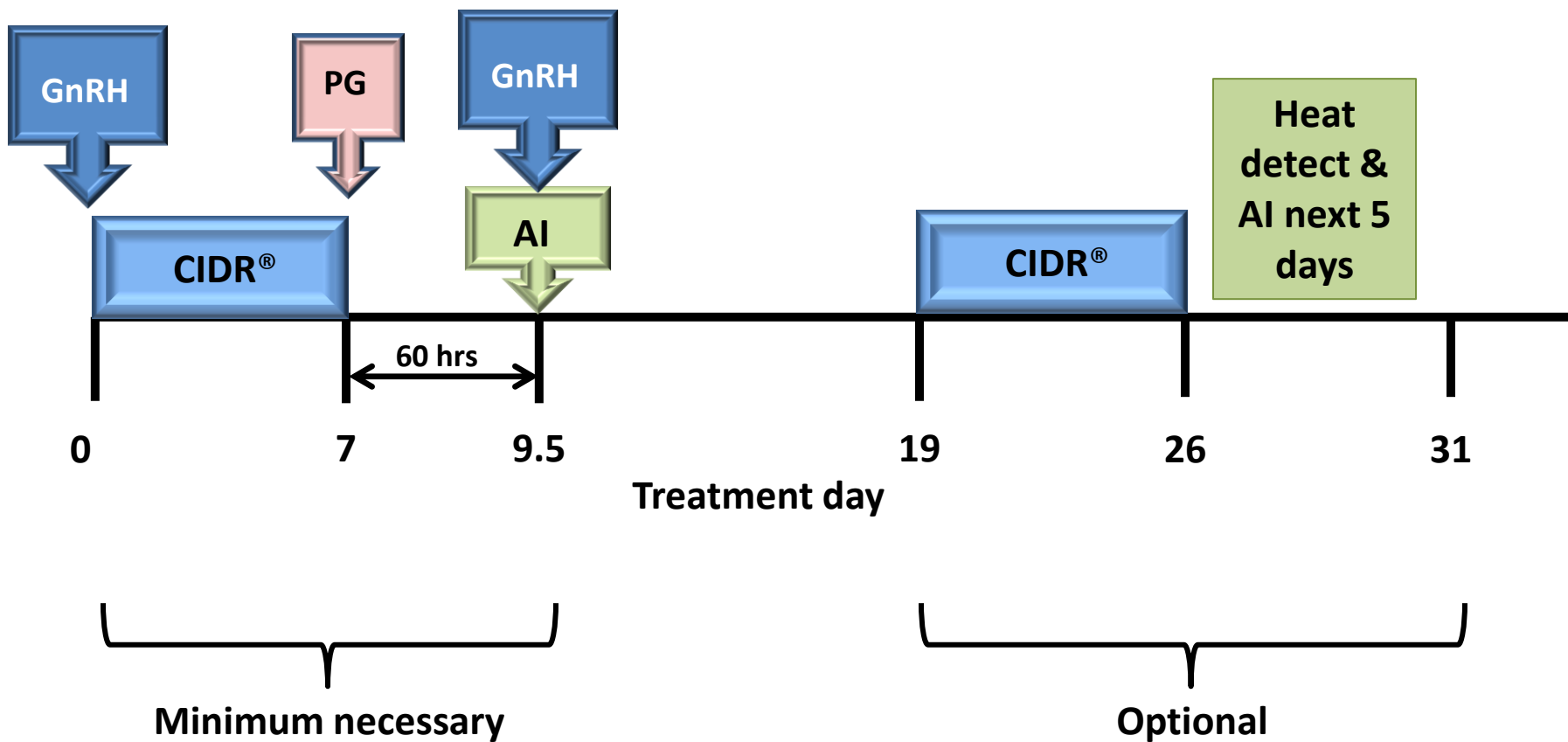


# Select Synch+CIDR®

*(Heat Detect & Timed AI)*







# Questions





**Robert S. Wells, Ph.D., PAS**

**Livestock Consultant**

**[rswells@noble.org](mailto:rswells@noble.org)**

**580-224-6434**

THE SAMUEL ROBERTS

**NOBLE**

FOUNDATION

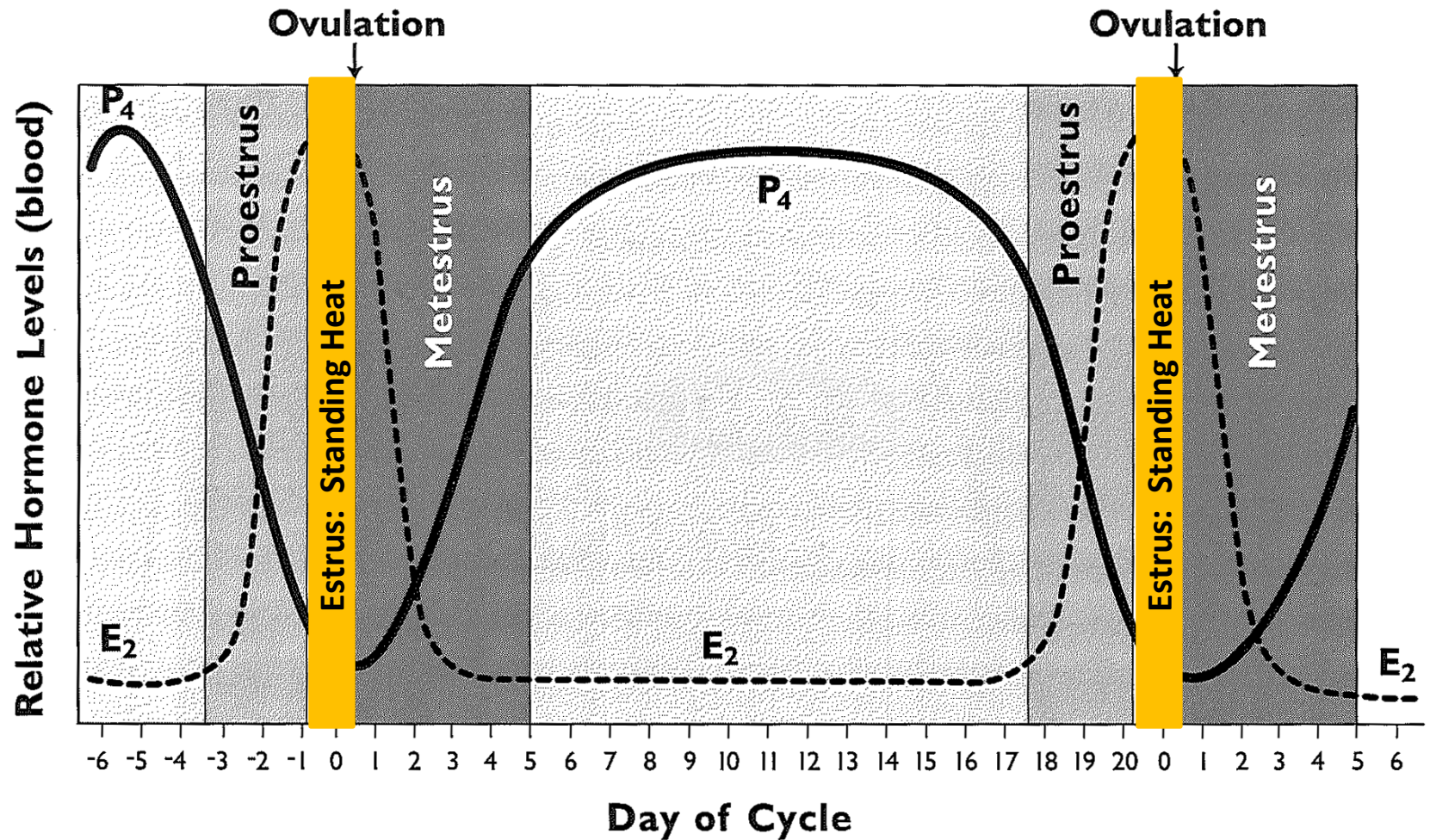


Figure 7-2. Stages of the estrous cycle. Proestrus is characterized by a significant rise in estradiol ( $E_2$ ). When estradiol reaches a certain level, the female enters estrus. Following ovulation, cells of the follicle are transformed into a corpus luteum during metestrus. Diestrus is characterized by a fully functional CL and high progesterone ( $P_4$ ).