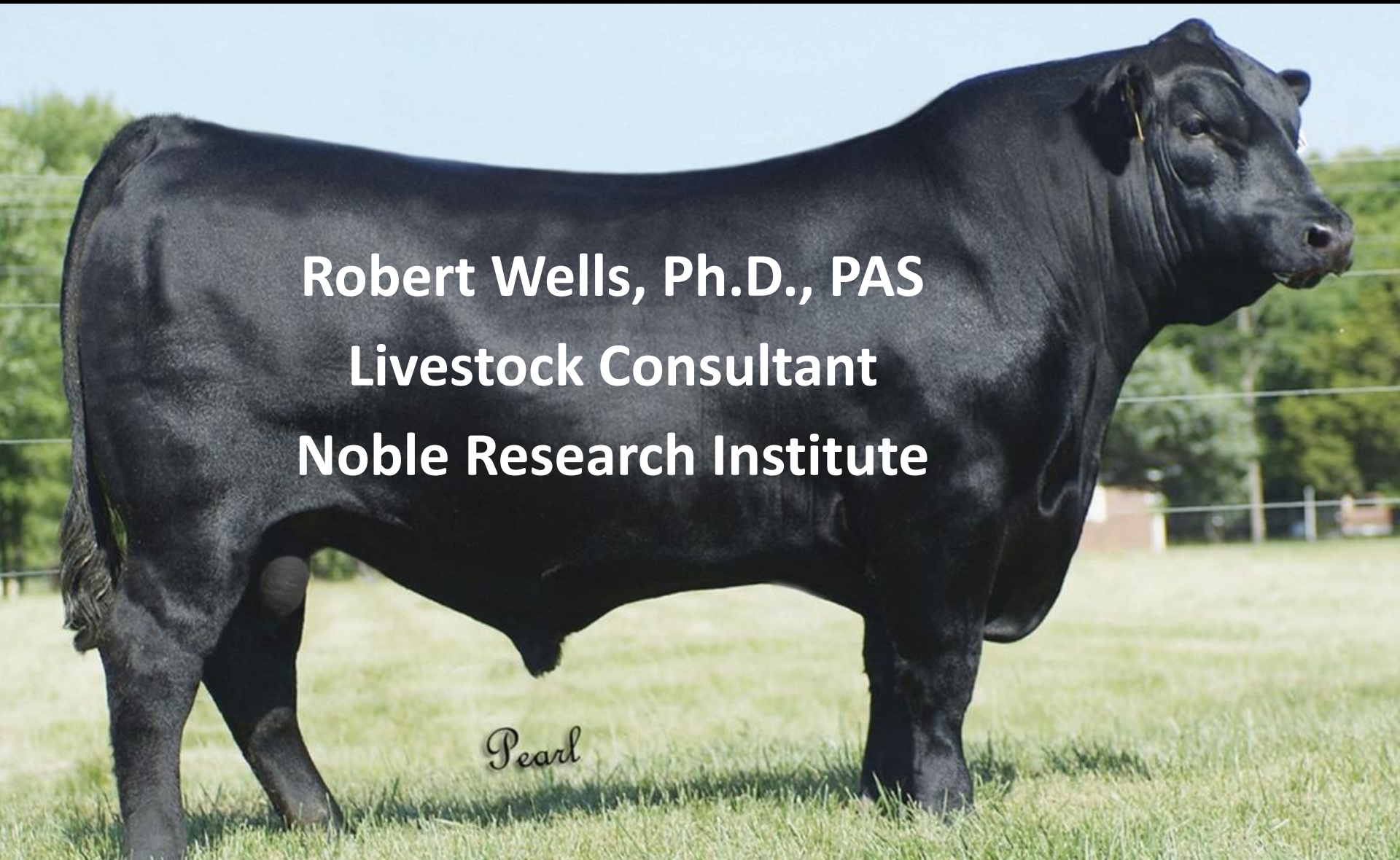
Comparison of owning a bull vs. AI for producers of various sizes



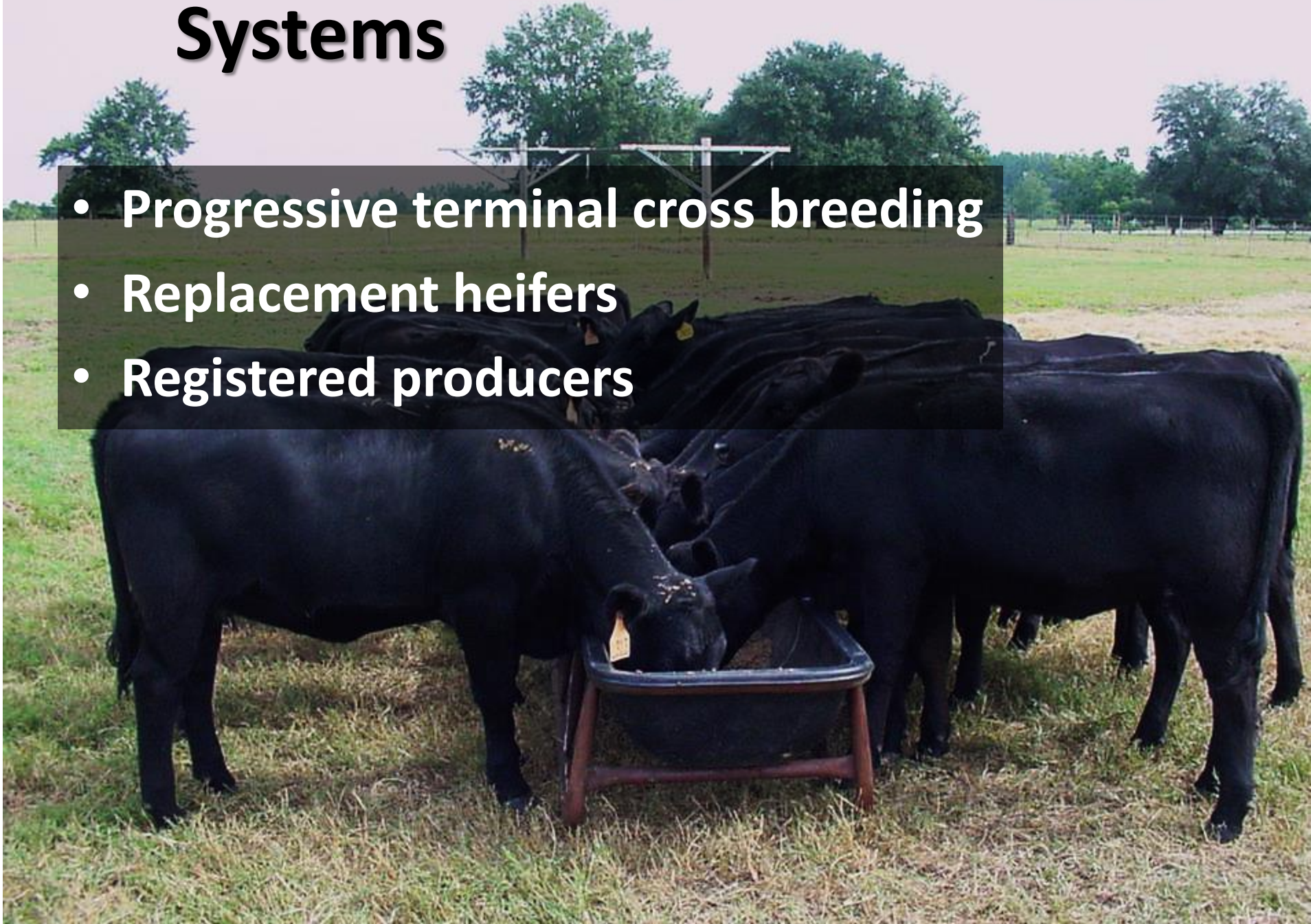
Robert Wells, Ph.D., PAS
Livestock Consultant
Noble Research Institute

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…
134

Systems

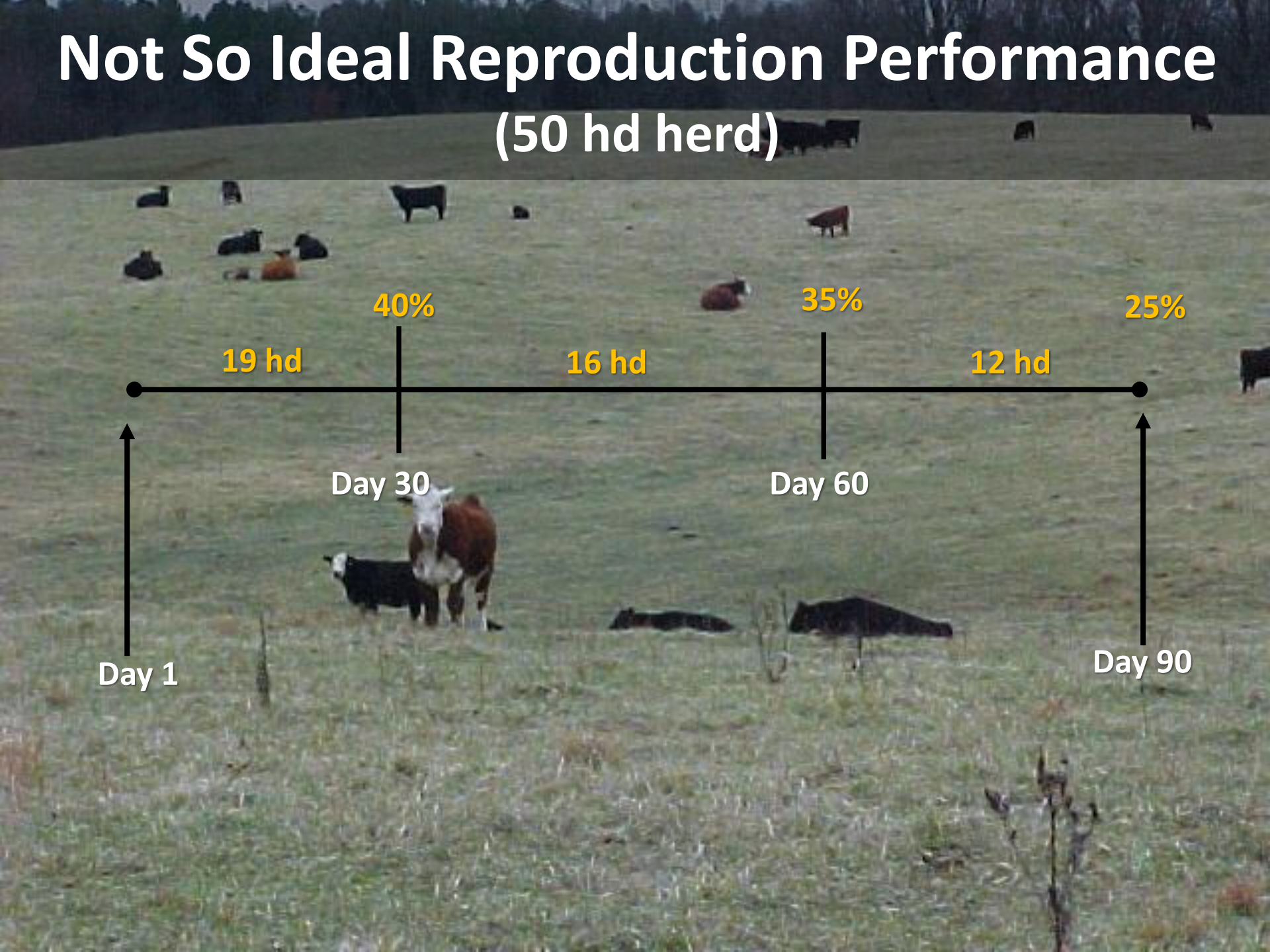


- Progressive terminal cross breeding
- Replacement heifers
- Registered producers

Multiple Bull Herds; ≥ 50hd

Tighten Up Calving Season

Not So Ideal Reproduction Performance
(50 hd herd)

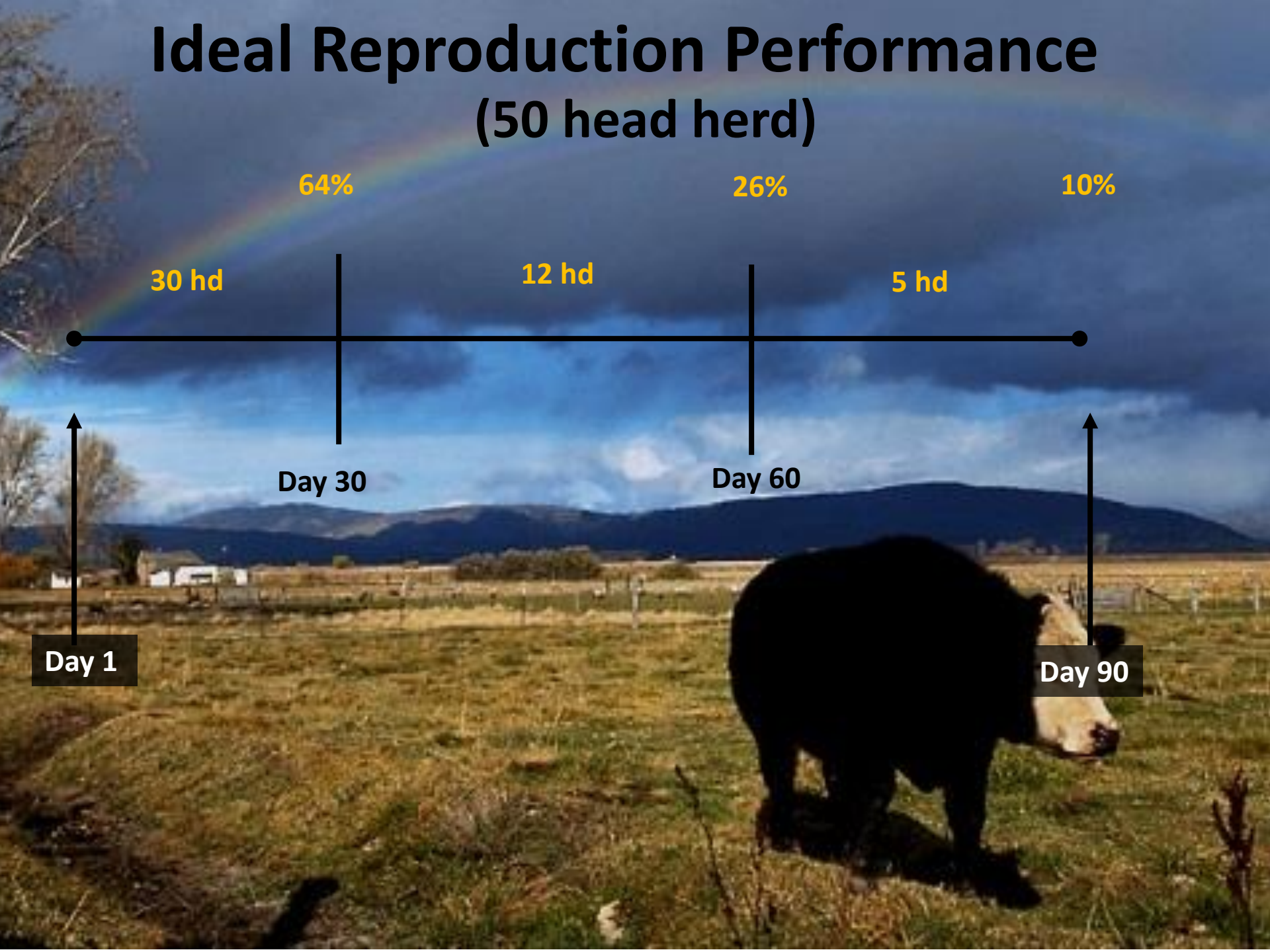


Weaning Projections
(Not So Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.	Calf wt, lbs
Day 1-30	19	209	2.1	9,859	519
Day 31-60	16	179	2.1	7,294	456
Day 60-90	12	149	2.1	4,715	393
	Total lbs			21,868	456
	Total $	@	$1.38/lb	$30,260	

http://www.beefbasis.com/Basis.aspx; 475 lb st, 455 lb hfr, Sell Oct 11, 2017@ Athens Livestock Market $138.38 avg St & Hfr

Ideal Reproduction Performance
(50 head herd)



Weaning Projections
(Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.	Calf wt, lbs
Day 1-21	30	209	2.1	15,567	519
Day 31-60	12	179	2.1	5,471	456
Day 61-90	5	149	2.1	1,965	393
	Total lbs			23,002	490
	Total $	@	$1.37/lb	$31,829	
	Difference			$1,202	

http://www.beefbasis.com/Basis.aspx; 500 lb st, 480 lb hfr, Sell Oct 11, 2017@ Athens Livestock Market $136.78 avg St & Hfr

A.I. will 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 105 lbs (+.5 lb ADG) to AI sired calves.

- Increases total revenue by another **$2,707**

Better Genetics + ideal calving distribution: st = 580 lbs; hfr = 560 lbs; Not ideal calving distribution: st = 535 lbs; hfr = 515 lbs

Weaning Projections
(Ideal Scenario)

	No. Head	Days to Weaning	ADG	Total LBS.	Calf wt, lbs
Day 1-30 *(AI)*	26	209	2.6	16,208	623
Day 1-30 *(bull)*	9	209	2.1	4,670	518
Day 31-60	11	179	2.1	5,015	456
Day 60-90	1	149	2.1	393	393
	Total lbs			26,286	
	Total $	@	$1.30/lb	$34,170	
	Difference	$34,170-$30,260 =		$3,910	

http://www.beefbasis.com/Basis.aspx; 570 lb st, 550 lb hfr, Sell Oct 11, 2017@ Athens Livestock Market $138.38 avg St & Hfr

- Increased weights by shifting to more earlier born calves = $1,202
- Increase in weights by better genetics = $2,707
- Only need one bull rather than 2 = $3500
  - Depreciated over the life of the bull = $700/yr
  - Maintenance cost on the one bull not needed = $500
- Annual Gross Profit of A.I. = $5,109

Costs of Timed AI

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

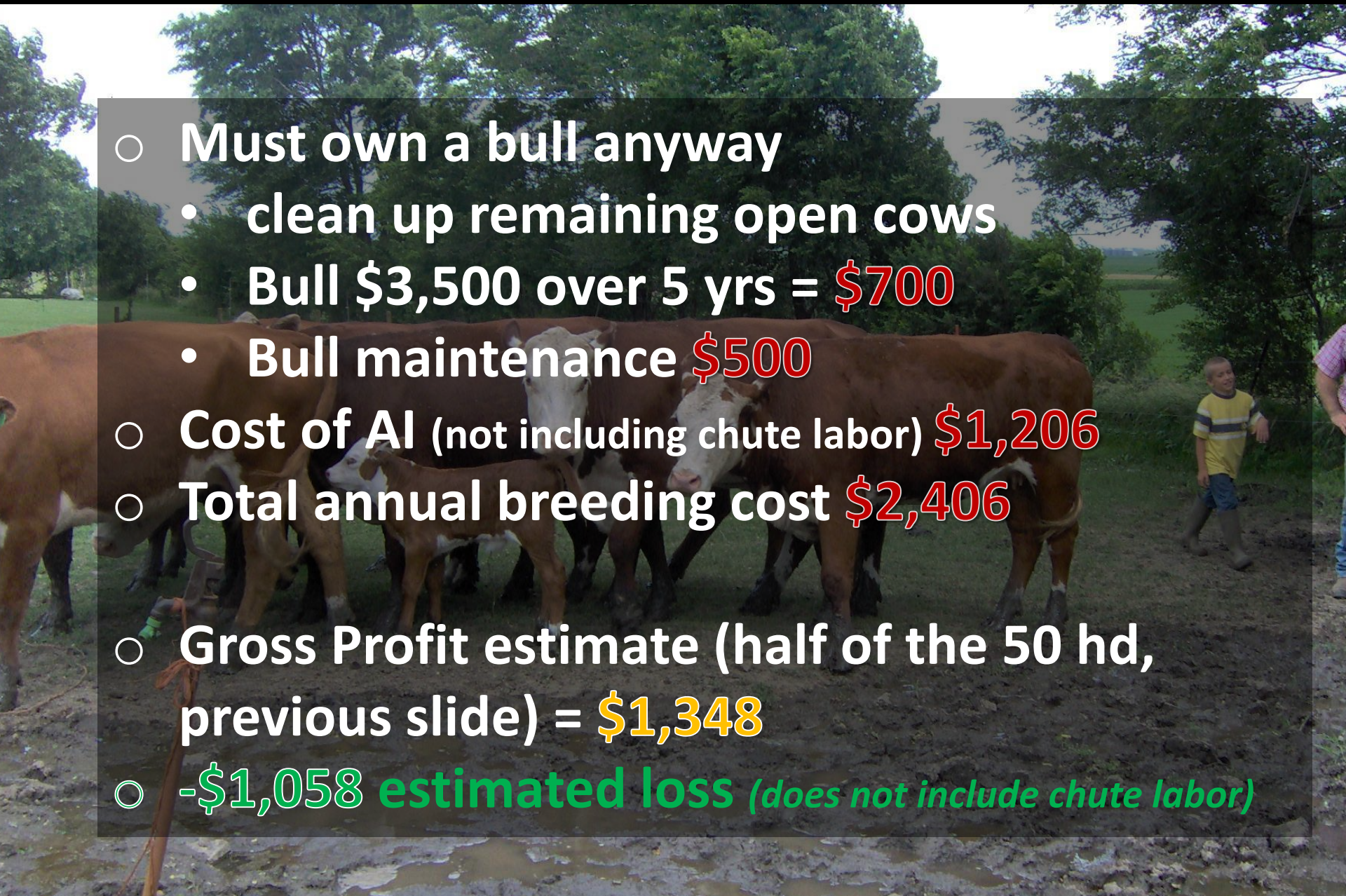
*Does not include labor costs

- Annual Gross Profit of A.I. = **$5,109**

- Cost of A.I. of 50 hd = $2,413 *($48.25*50)*

Annual net profit of A.I. = $2,697 per 50 hd of calves

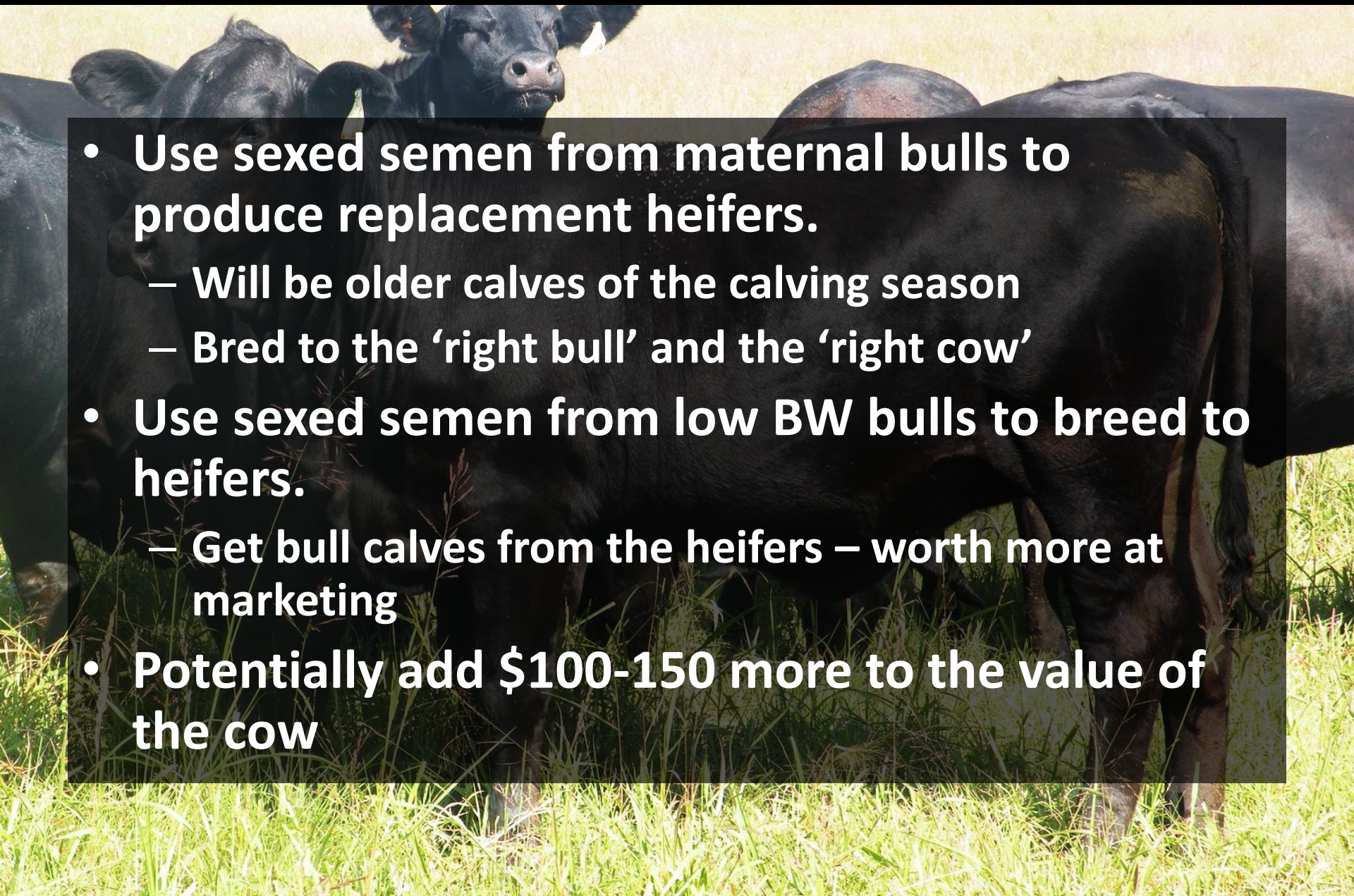
<25 hd, A.I. is difficult to justify



- Must own a bull anyway
  - clean up remaining open cows
  - Bull $3,500 over 5 yrs = $700
  - Bull maintenance $500
- Cost of AI (not including chute labor) $1,206
- Total annual breeding cost $2,406

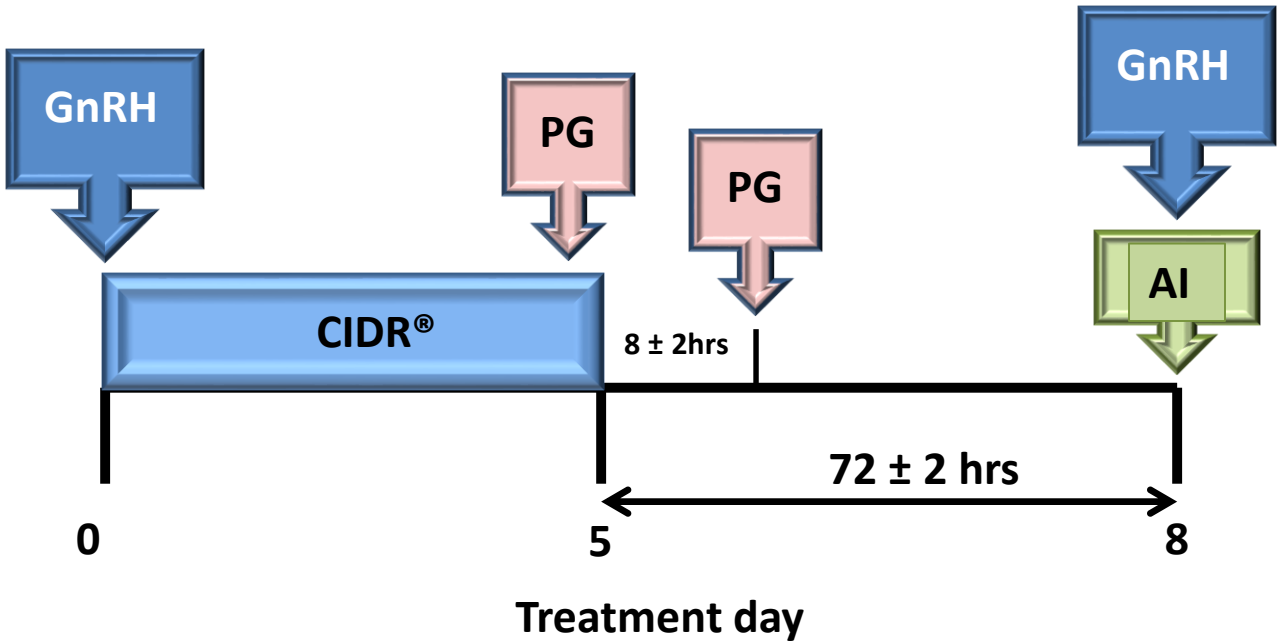
- Gross Profit estimate (half of the 50 hd, previous slide) = $1,348
- -$1,058 estimated loss *(does not include chute labor)*

Replacement Heifers



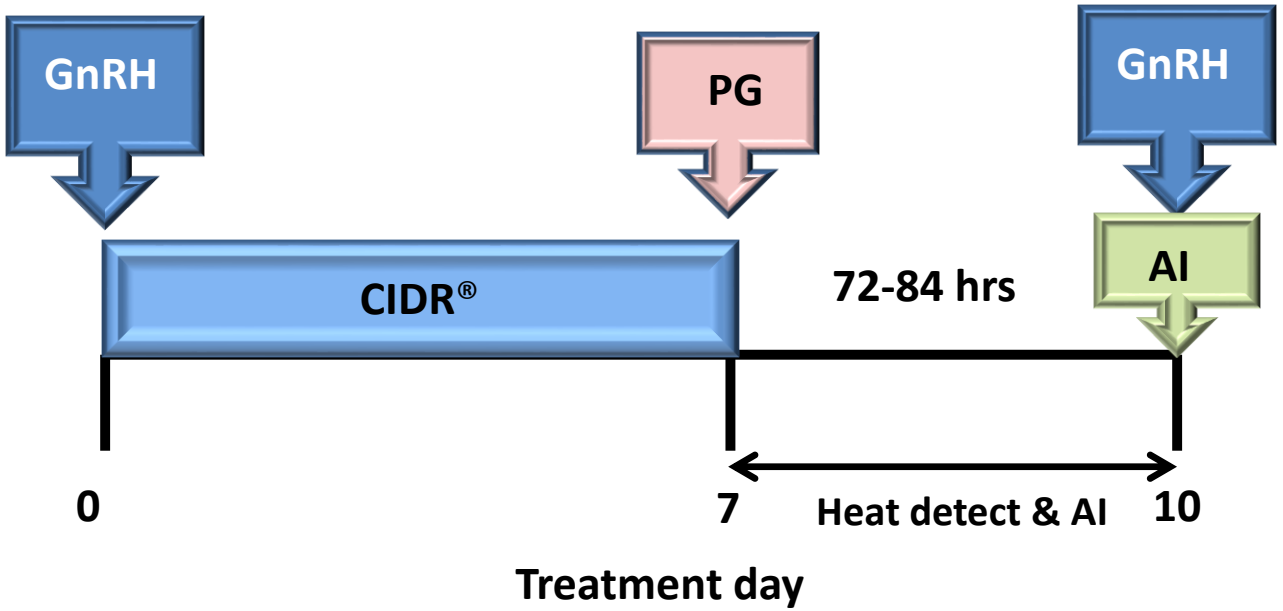
- Use sexed semen from maternal bulls to produce replacement heifers.
  - Will be older calves of the calving season
  - Bred to the ‘right bull’ and the ‘right cow’
- Use sexed semen from low BW bulls to breed to heifers.
  - Get bull calves from the heifers – worth more at marketing
- Potentially add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

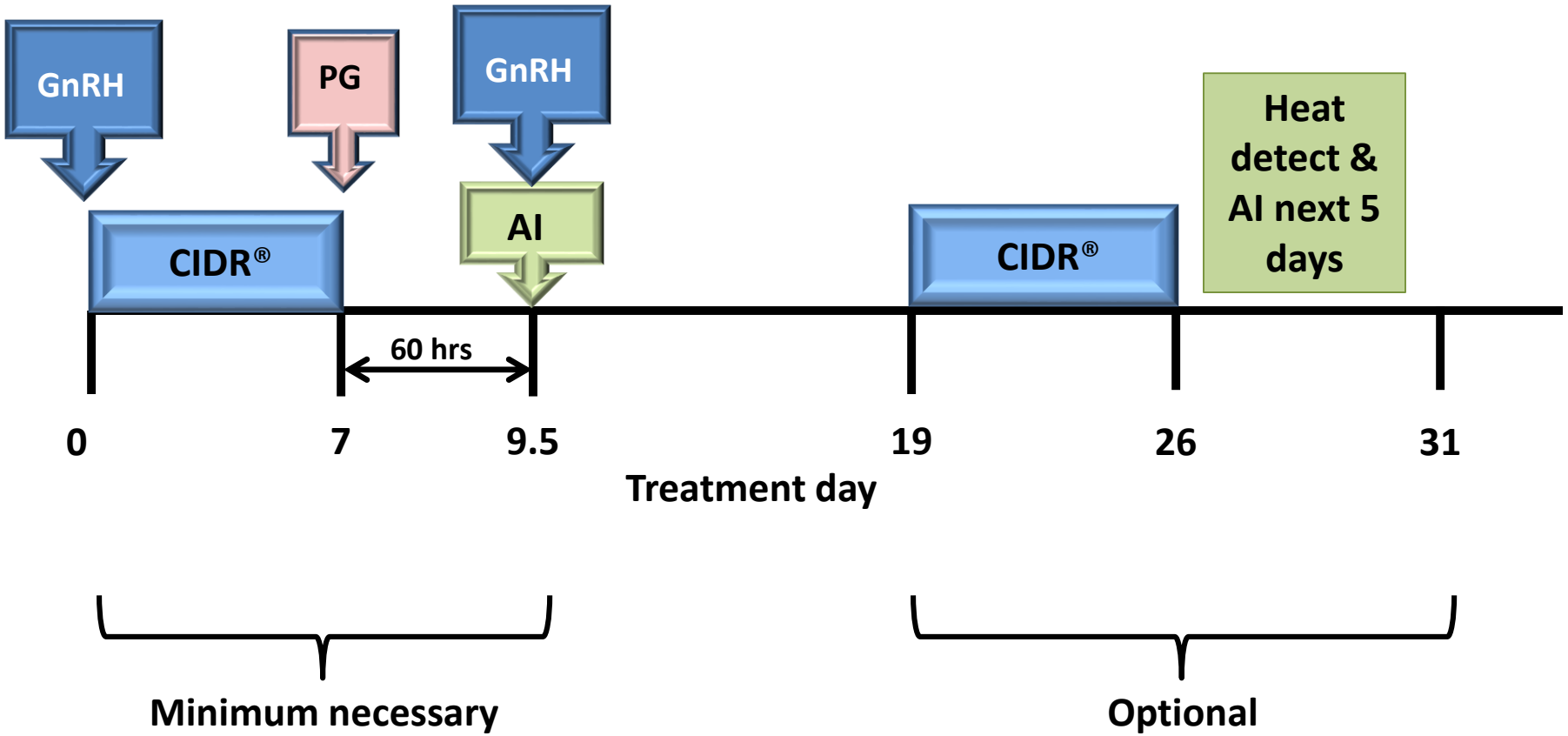
5-day CO-Synch + CIDR®



Select Synch+CIDR®

(Heat Detect & Timed AI)




GnRH
PG
GnRH
AI
CIDR®
CIDR®
Heat detect & AI next 5 days
60 hrs
0
7
9.5
19
26
31
Treatment day
Minimum necessary
Optional

Questions

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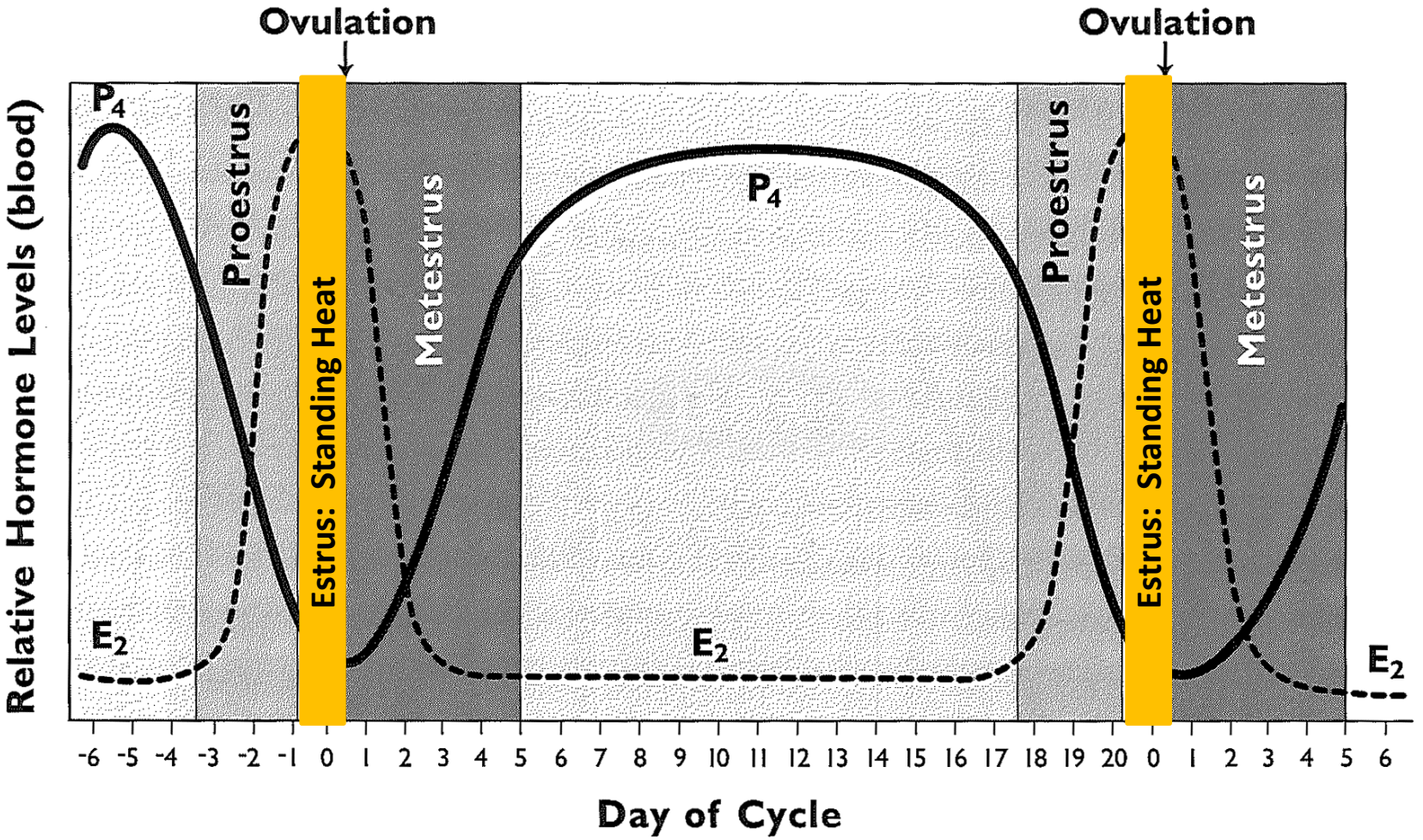

Figure 7-2. Stages of the estrous cycle. Proestrus is characterized by a significant rise in estradiol (E_2). When estradiol reaches a certain level, the female enters estrus. Following ovulation, cells of the follicle are transformed into a corpus luteum during metestrus. Diestrus is characterized by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