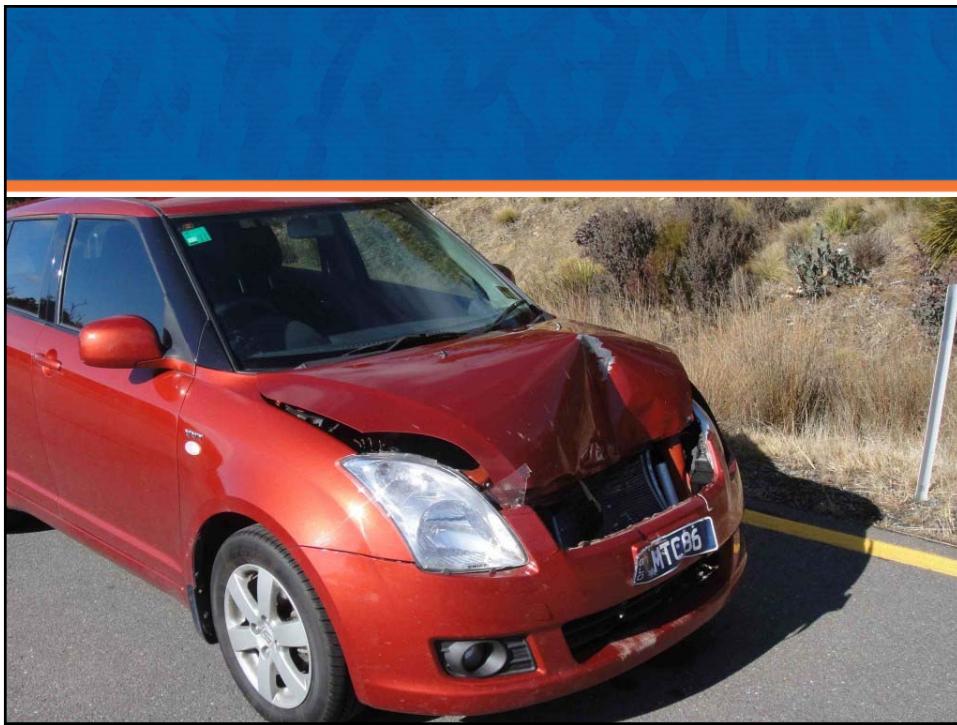


# Reproductive Management Considerations for Herd Expansion



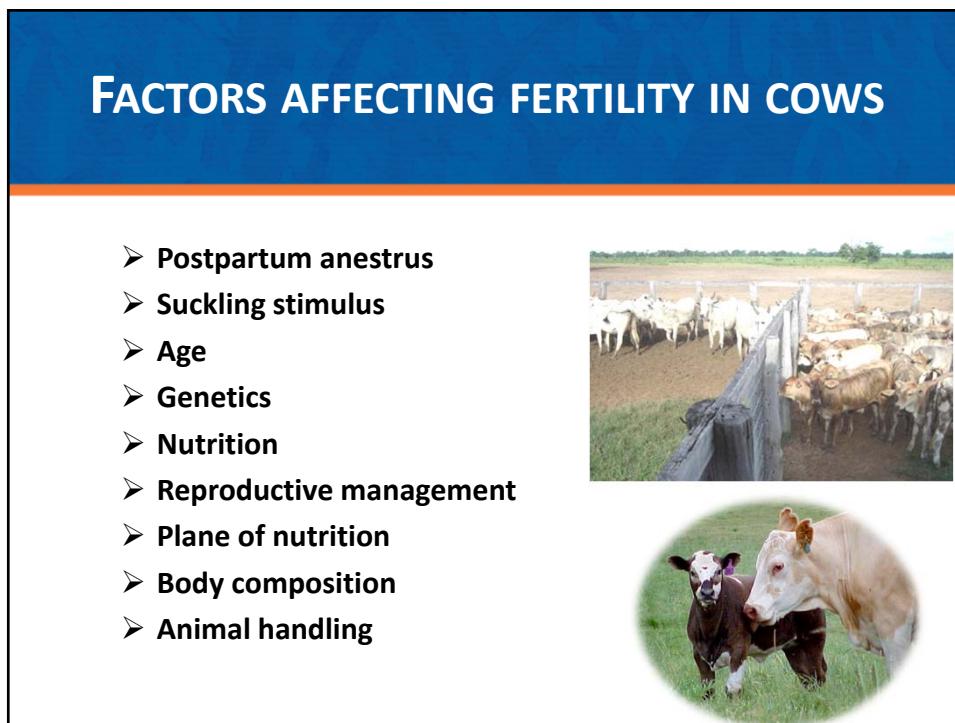
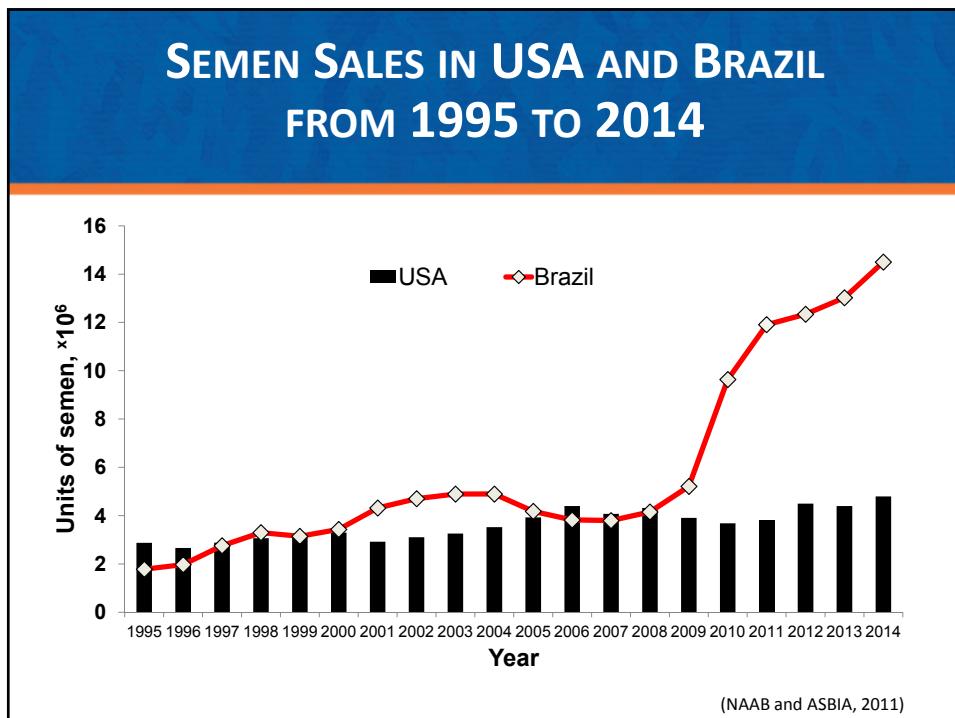
CLIFF LAMB

**UF|IFAS**  
UNIVERSITY of FLORIDA









## FACTORS AFFECTING FERTILITY IN HEIFERS

- **Body weight**
- **Age**
- **Genetics**
- **Nutrition**
- **Reproductive management**
- **Rate of gain**
- **Plane of nutrition**
- **Body composition**
- **Animal handling**



## UF-NFREC CASE STUDY



**Pregnancy has 4 times  
greater economic impact  
than any other production  
trait!**

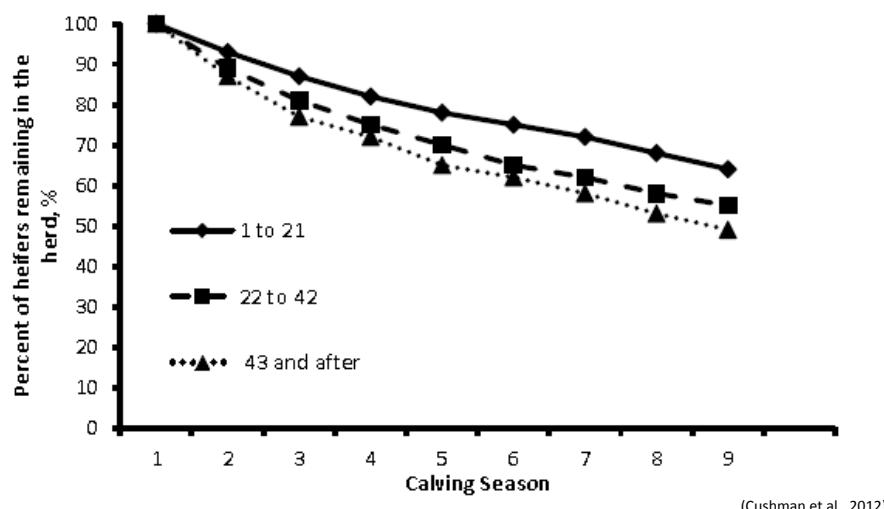
### **MY EXPECTATIONS FOR EVERY FEMALE IN THE HERD**

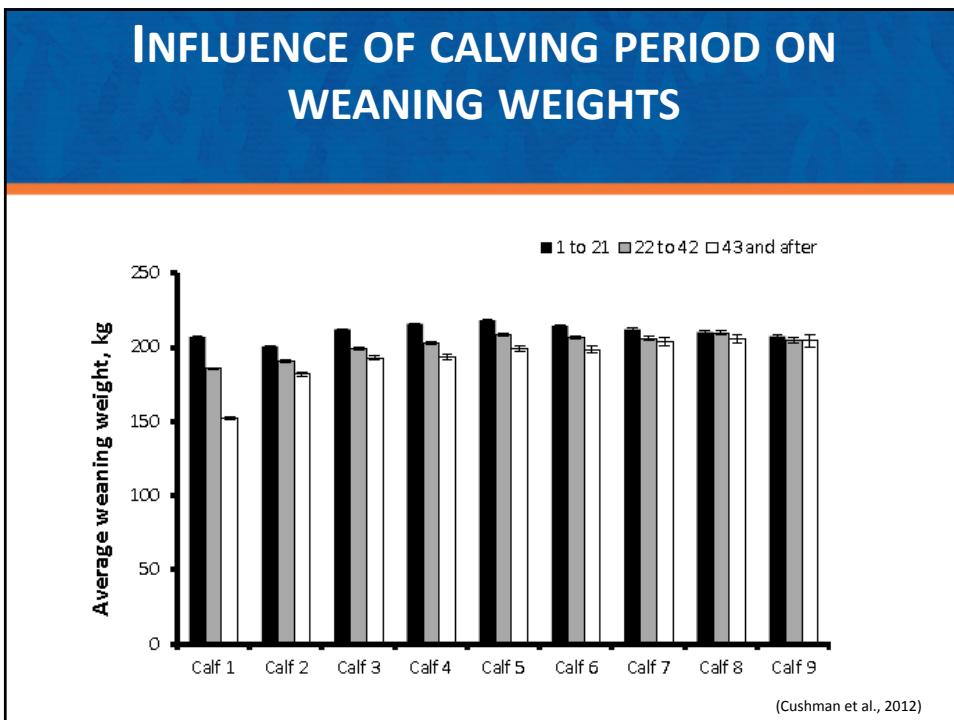
- Must calve by 24 months of age
- Cow must have a calf every 365 days
- Cow must calve without assistance
- Cow must provide sufficient resources for the calf to reach its genetic potential
- Calf must be genetically capable to perform
- Cows must maintain their body condition score for my conditions
- Must not be crazy (disposition)

## KEY MANAGEMENT CONSIDERATIONS

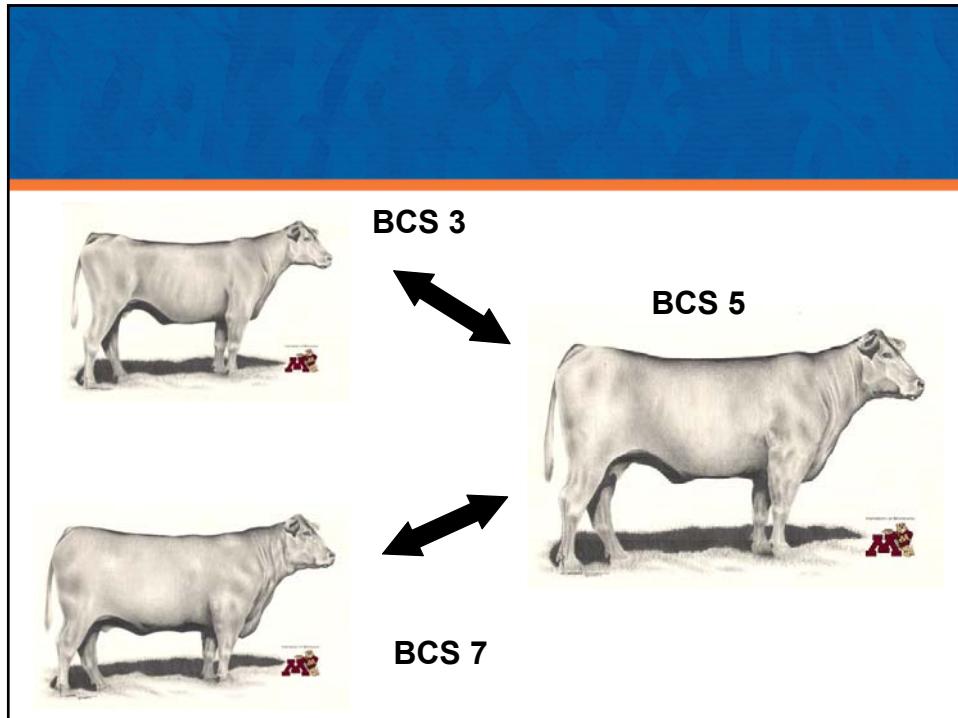
- Only retain heifers that become pregnant during the first 25 days of the breeding season

## INFLUENCE OF CALVING PERIOD ON REPRODUCTIVE LONGEVITY

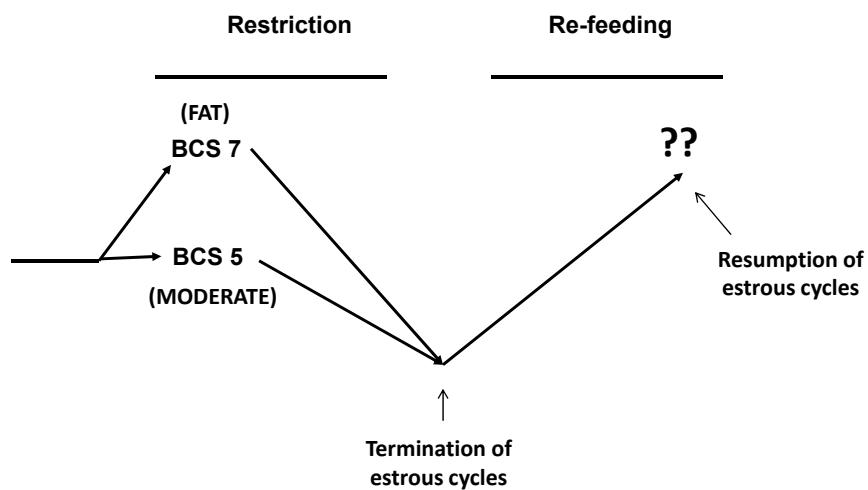




**Estrous cyclicity responses  
of heifers of distinct body  
conditions to energy  
restriction and repletion**



## IMPACT OF CHANGE IN BCS ON REPRODUCTION IN HEIFERS



Cassady et al., (2009)

## CHANGE IN BW, BCS AND DAYS TO ANESTRUS DURING FEED RESTRICTION

Item	Treatments	
	MODERATE	FAT
Initial BW, lb	937 <sup>a</sup>	1,136 <sup>b</sup>
Initial BCS	5.0 <sup>a</sup>	7.1 <sup>b</sup>
BW at anestrus, lb	781	838
BCS at anestrus	3.1	3.3
Days to anestrus	66.5 <sup>a</sup>	155.9 <sup>b</sup>

Cassady et al., (2009)

## CHANGE IN BW, BCS AND DAYS TO 1<sup>ST</sup> ESTROUS CYCLE AFTER INITIATION OF FEED REPLETION

Item	Treatments	
	MODERATE	FAT
BW at anestrus, lb	781	838
BCS at anestrus	3.1	3.3
BW at 1 <sup>st</sup> estrous cycle, lb	1,003 <sup>a</sup>	1,131 <sup>b</sup>
BCS at 1 <sup>st</sup> estrous cycle	5.2 <sup>a</sup>	6.0 <sup>b</sup>
Days to 1 <sup>st</sup> estrous cycle	67.7	78.9

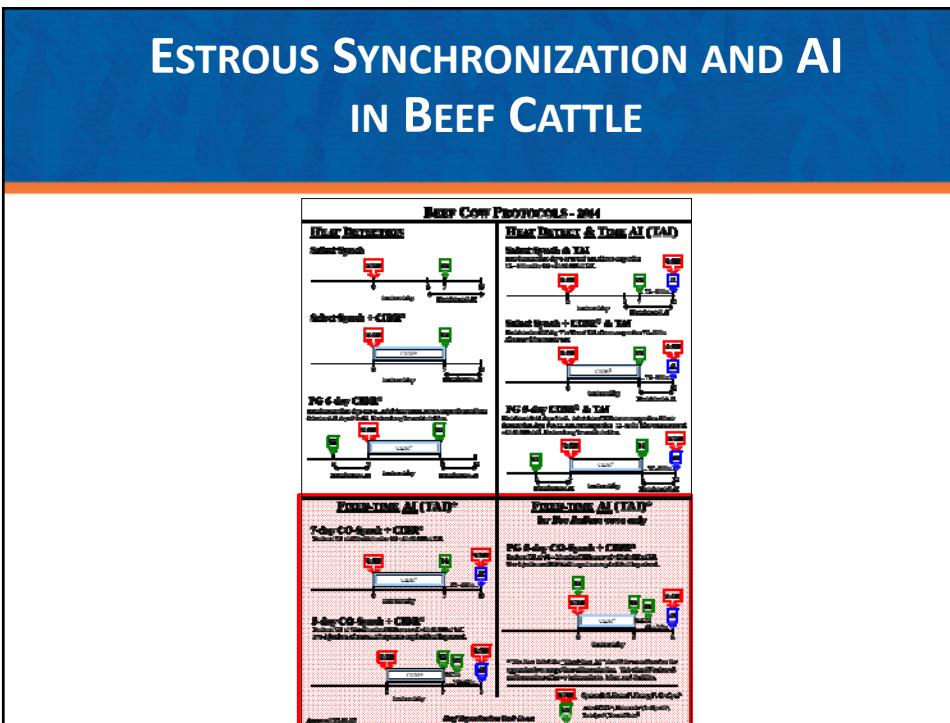
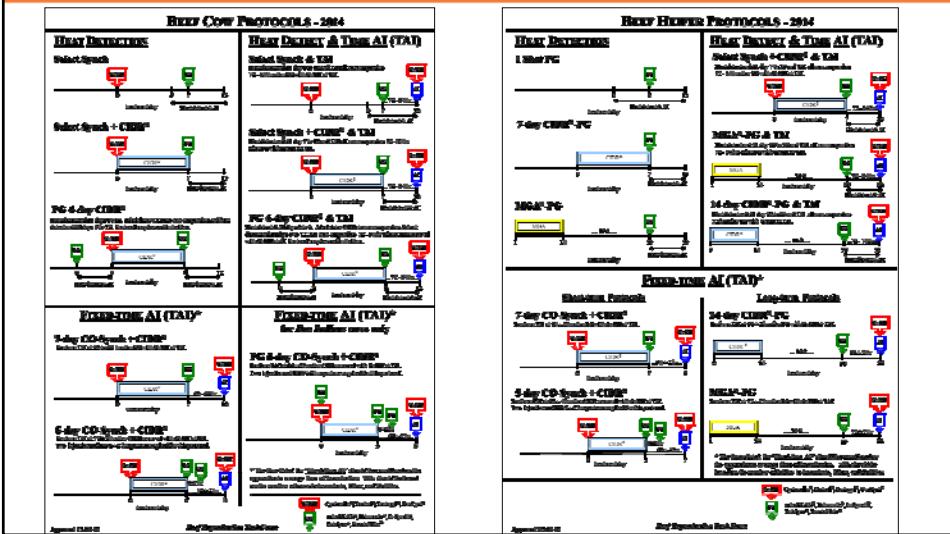
Cassady et al., (2009)

## KEY MANAGEMENT CONSIDERATIONS

- Only retain heifers that become pregnant during the first 25 days of the breeding season
- Expose every female in the operation to estrous synchronization and artificial insemination

We know how  
to synchronize  
cows!

## ESTROUS SYNCHRONIZATION AND AI IN BEEF CATTLE

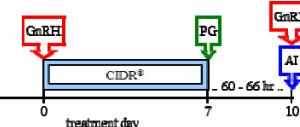


## TAI FOR BEEF COWS

### FIXED-TIME AI (TAI)\*

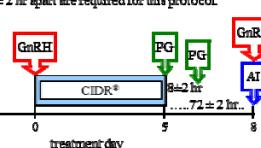
#### **7-day CO-Synch + CIDR®**

Perform TAI at 60 to 66 hr after PG with GnRH at TAI.



#### **5-day CO-Synch + CIDR®**

Perform TAI at  $72 \pm 2$  hr after CIDR removal with GnRH at TAI. Two injections of PG  $8 \pm 2$  hr apart are required for this protocol.



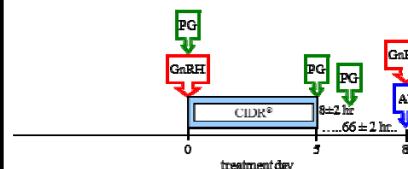
Approved 12-01-13

Beef Reproduction Task Force

### FIXED-TIME AI (TAI)\* for *Bos Indicus* cows only

#### **PG 5-day CO-Synch + CIDR®**

Perform TAI at  $66 \pm 2$  hr after CIDR removal with GnRH at TAI. Two injections of PG  $8 \pm 2$  hr apart are required for this protocol.



\* The times listed for "Fixed-time AI" should be considered as the approximate average time of insemination. This should be based on the number of cows to inseminate, labor, and facilities.

GnRH: Cystorelin®, Farel®; Fertagyl®, OvaCyst®; PG: estraPLAN®, Estrumate®, In-Synch®, Lutalyse®, Prostimate®

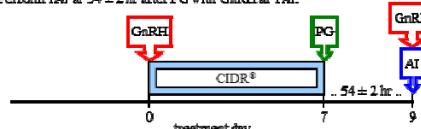
## TAI FOR BEEF HEIFERS

### FIXED-TIME AI (TAI)\*

#### Short-term Protocols

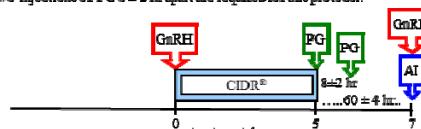
##### **7-day CO-Synch + CIDR®**

Perform TAI at  $54 \pm 2$  hr after PG with GnRH at TAI.



##### **5-day CO-Synch + CIDR®**

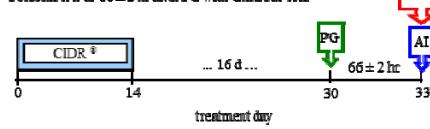
Perform TAI at  $60 \pm 4$  hr after CIDR removal with GnRH at TAI. Two injections of PG  $8 \pm 2$  hr apart are required for this protocol.



#### Long-term Protocols

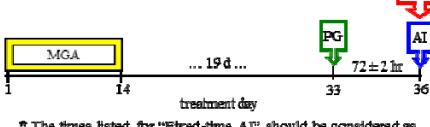
##### **14-day CIDR®-PG**

Perform TAI at  $66 \pm 2$  hr after PG with GnRH at TAI.

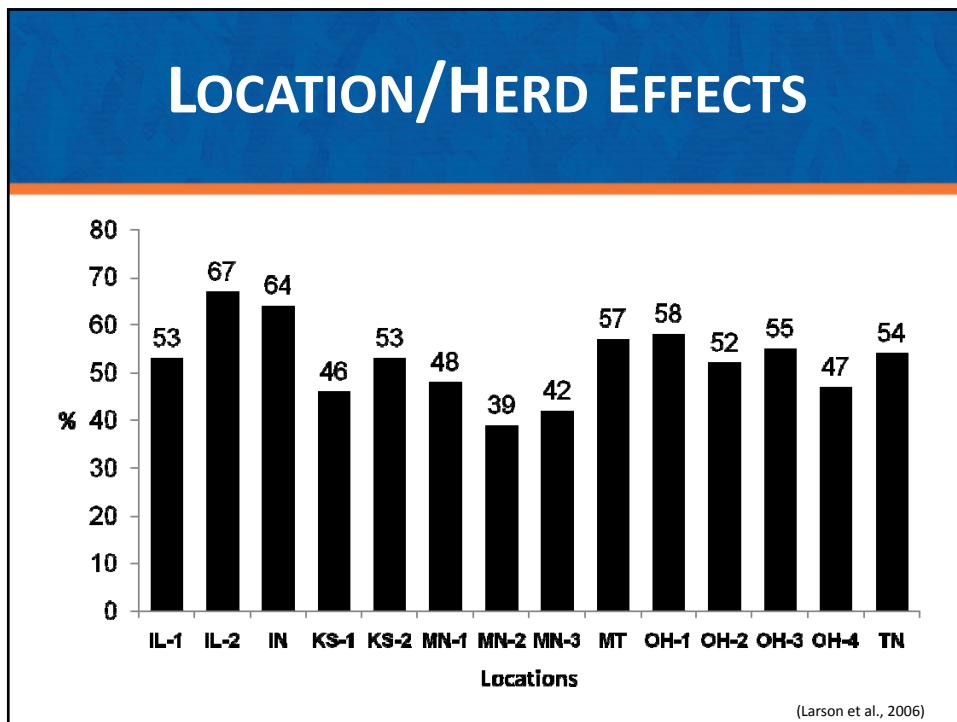


##### **MGA®-PG**

Perform TAI at  $72 \pm 2$  hr after PG with GnRH at TAI.



\* The times listed for "Fixed-time AI" should be considered as the approximate average time of insemination. This should be based on the number of heifers to inseminate, labor, and facilities.

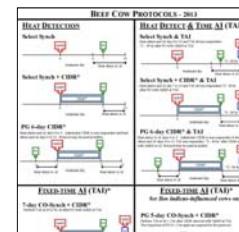


## PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

**Too many hassle  
factors!!!**

## PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

Complicated protocols and sire selection



Production												Maternal											
CED	BW	WW	VW	YH	SC	CEM	Milt	M&H	MW	MH	SEN	Acc	Acc	Acc	Acc	Acc	Acc	Milt	Acc	M&H	Acc	Acc	
+3	+5.7	+31	+59	+6	+1.97	+6	+27	1179	+34	+3	+3.03	.88	.97	.97	.96	.89	.88	.91	.96	3297	.89	.89	
.88	.97	.97	.96	.89	.88	.91	.96	3297	.89	.89	.89												
Carcass												Ultrasound											
Cwt	Mfb	RE	Fat	%RP	Grp	%IMF	RE	Fat	%RP	RE	Grp	Cwt	Mfb	RE	Fat	%RP	Grp	Acc	Acc	Acc	Acc	Acc	
+10	+14	+30	+008	+07	19	-14	+58	-018	+74	258	453	.71	.73	.69	.67	.68	.67	.87	.87	.87	.87	.87	
.71	.73	.69	.67	.68	197	.87	.87	.87	.87														
\$Values												\$Values											
Wean Value (\$W)				Feedlot Value (\$F)				Grid Value (\$G)				Beef Value (\$B)											
+14.17				+6.86				+15.29				+25.22											

## PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

Reliable facilities



## PRIMARY REASONS FOR CHOOSING NOT TO ES/AI



Labor for AI and  
administering products



## PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

TIME!



29:90



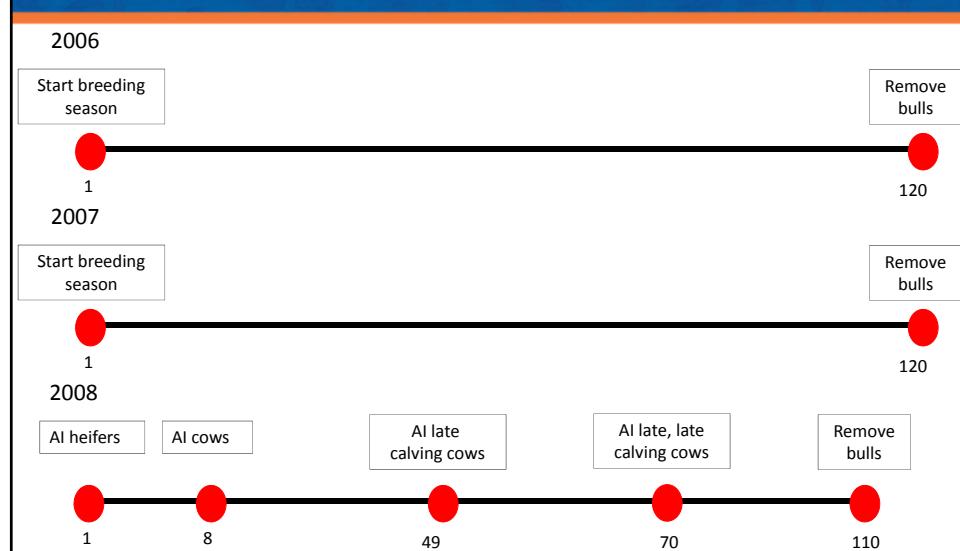
## KEY MANAGEMENT CONSIDERATIONS

- Only retain heifers that become pregnant during the first 25 days of the breeding season
- Expose every female in the operation to estrous synchronization and artificial insemination
- Reduce the length of the breeding season

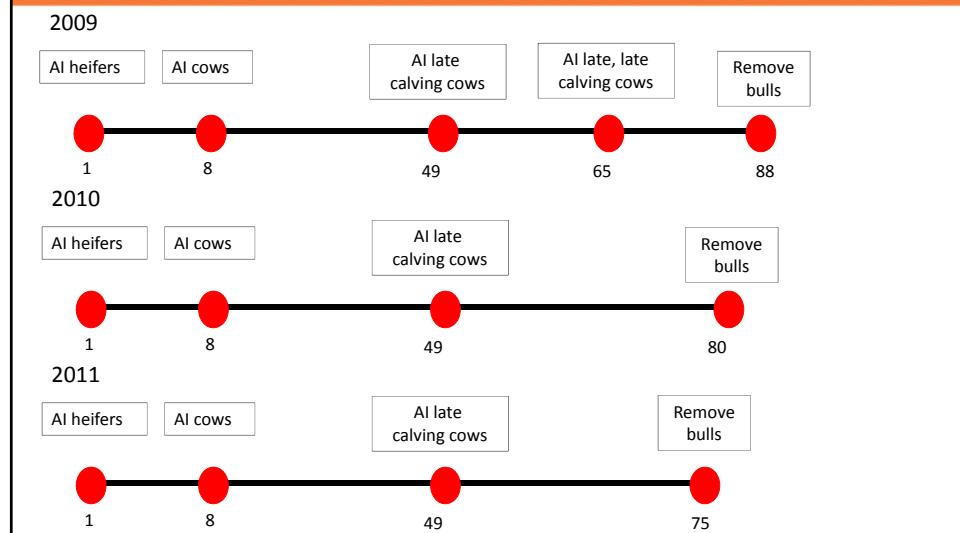
## UF-NFREC CASE STUDY



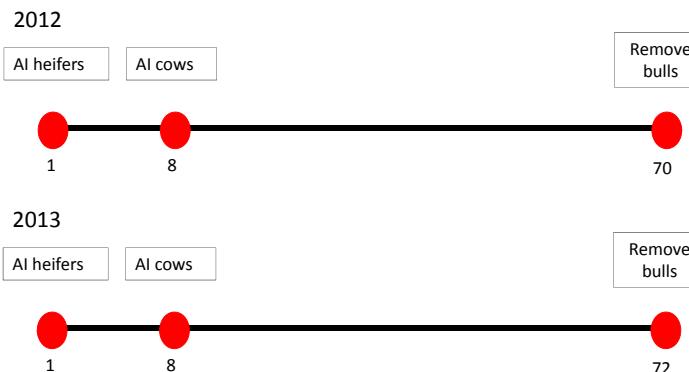
## UF-NFREC CASE STUDY



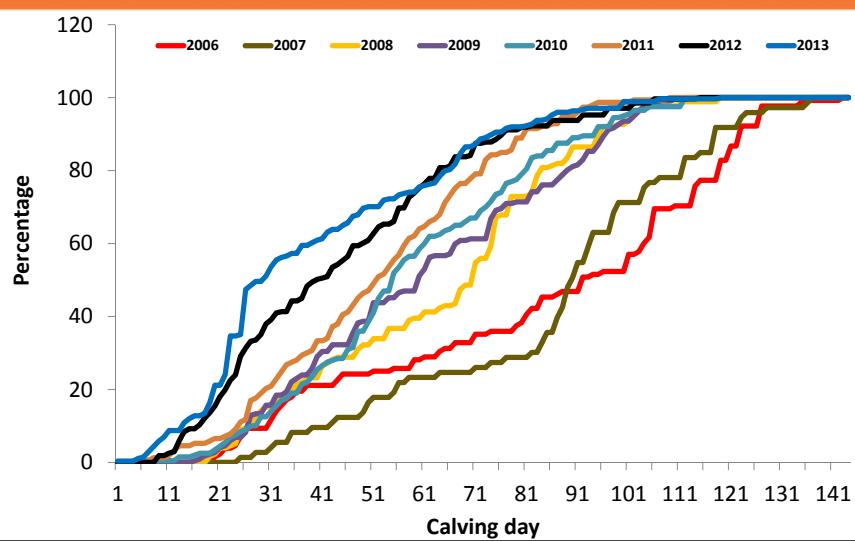
## UF-NFREC CASE STUDY



## UF-NFREC CASE STUDY



## UF-NFREC CASE STUDY



## UF-NFREC CASE STUDY

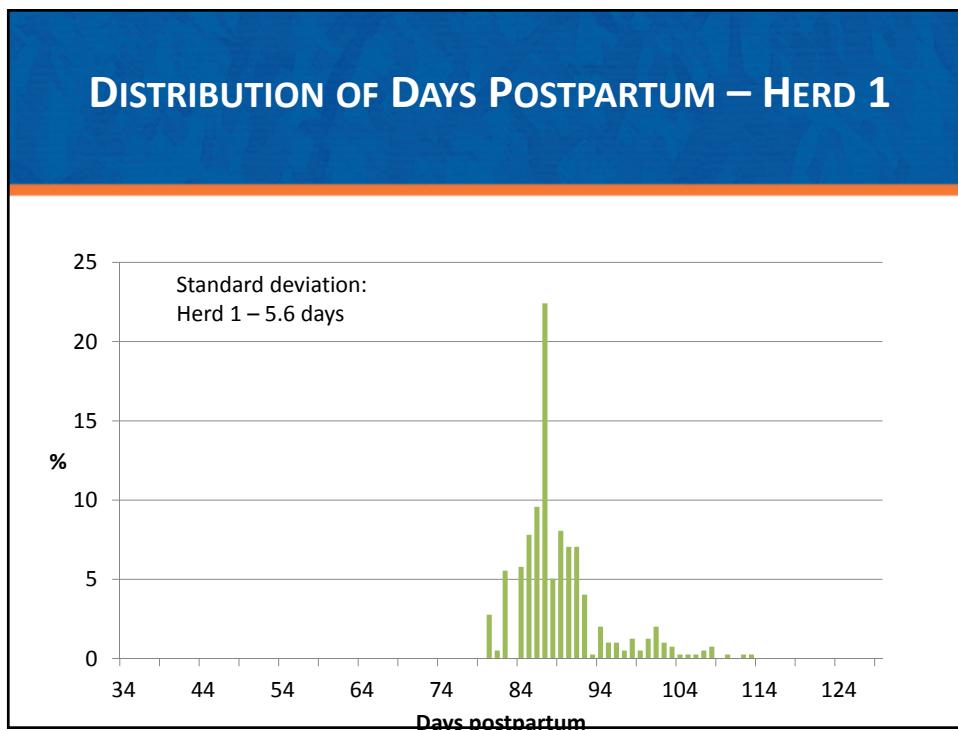
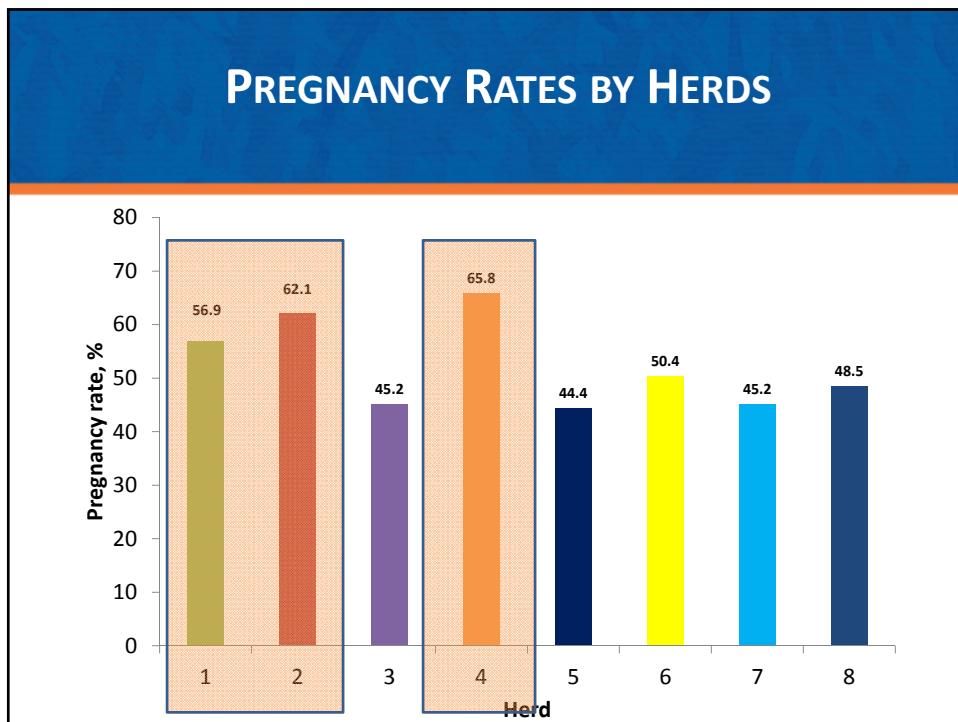
Breeding season pregnancy rates:

Year	2006	2007	2008	2009	2010	2011	2012	2013
PR	81%	86%	84%	86%	82%	94%	92%	93%
Mean calving day	79.2	80.9	59.2	56.2	53.7	47.2	39.5	38.7
BS length	120	120	110	88	80	75	70	72

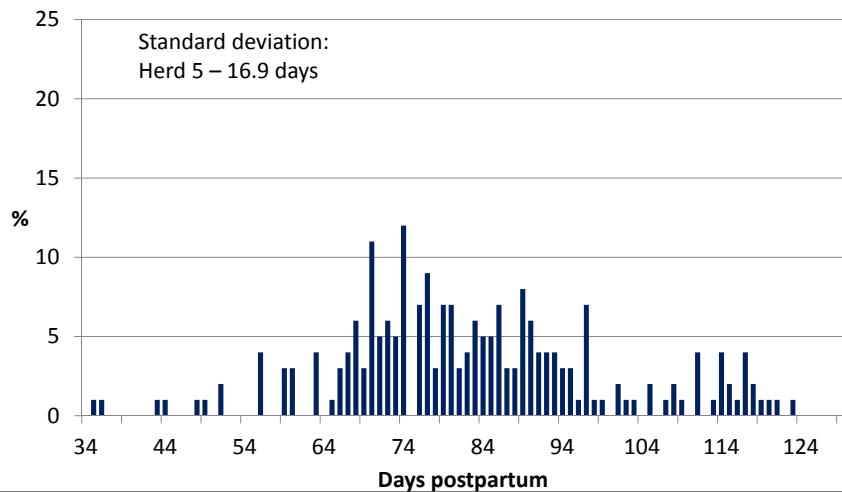
## UF-NFREC CASE STUDY

Change in calf value:

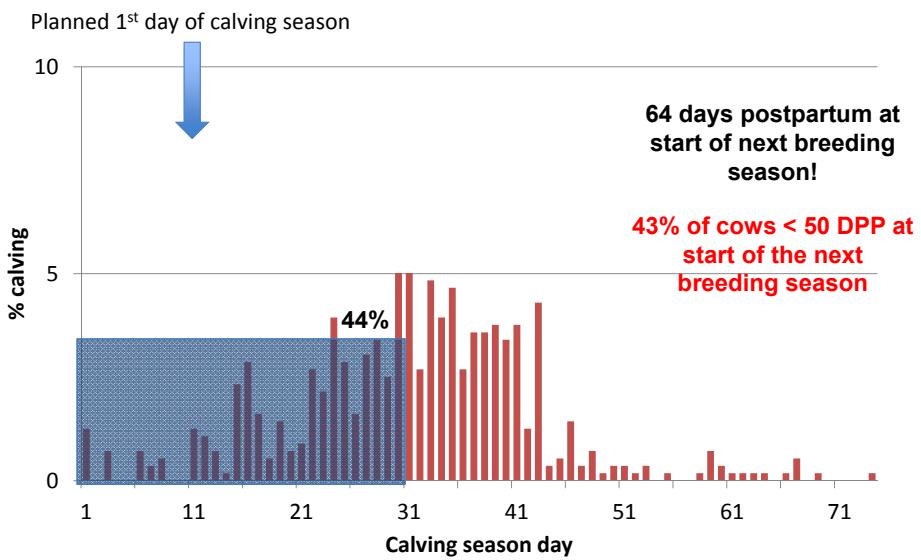
Year	2006	2007	2008	2009	2010	2011	2012	2013
Mean calving day	79.2	80.9	59.2	56.2	53.7	47.2	39.5	38.7
Difference from 2006/2007	0	0	21.7	24.7	27.2	33.7	41.4	42.2
Per calf increase in value	0	0	\$87	\$99	\$109	\$135	\$166	\$169
Herd increase in value	0	0	\$19,100	\$29,700	\$32,700	\$40,500	\$49,800	\$50,700



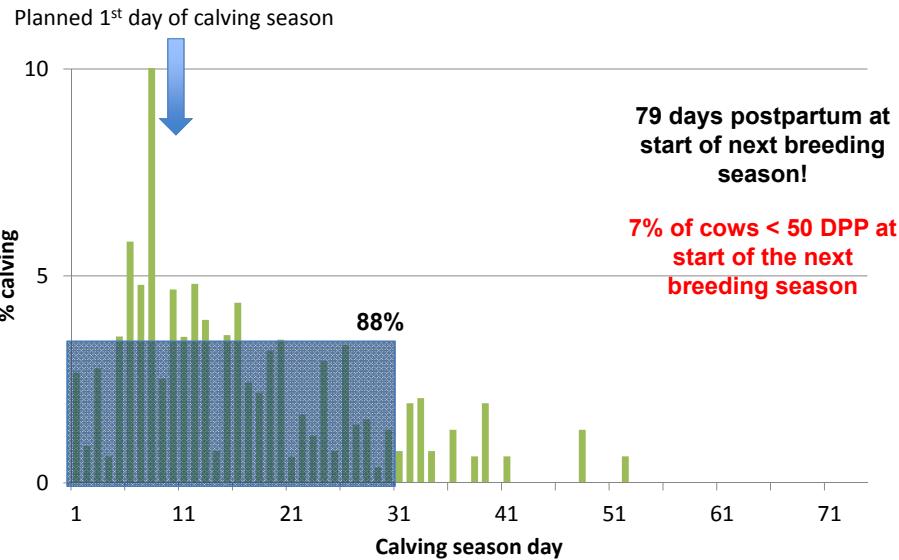
## DISTRIBUTION OF DAYS POSTPARTUM – HERD 5



## CALVING DISTRIBUTION AFTER EXPOSURE TO BULLS



## CALVING DISTRIBUTION AFTER EXPOSURE TO AI AND ES



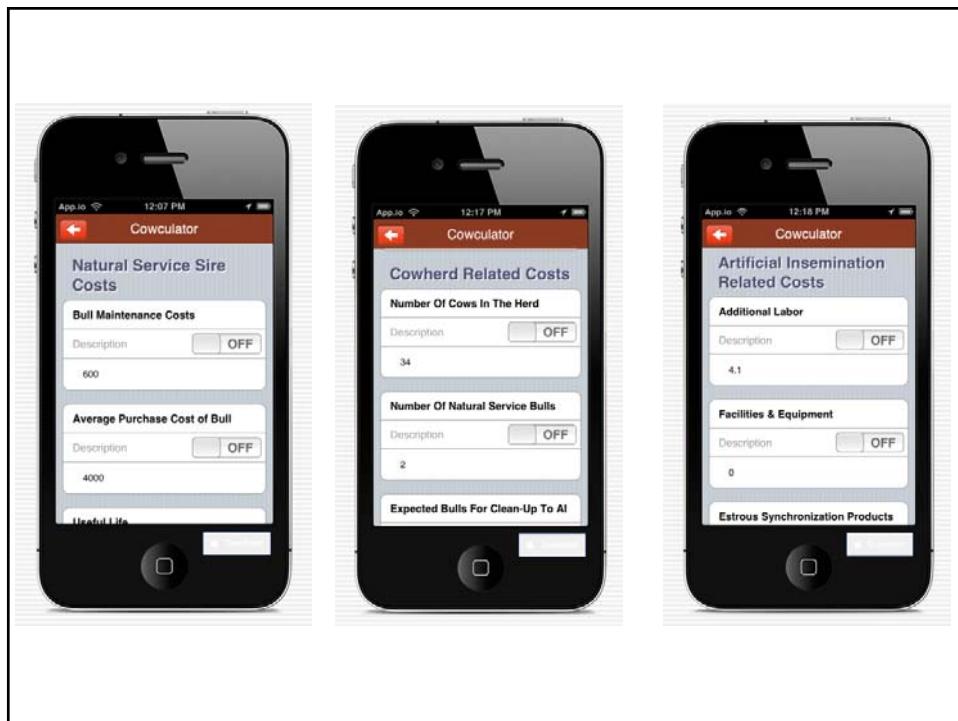
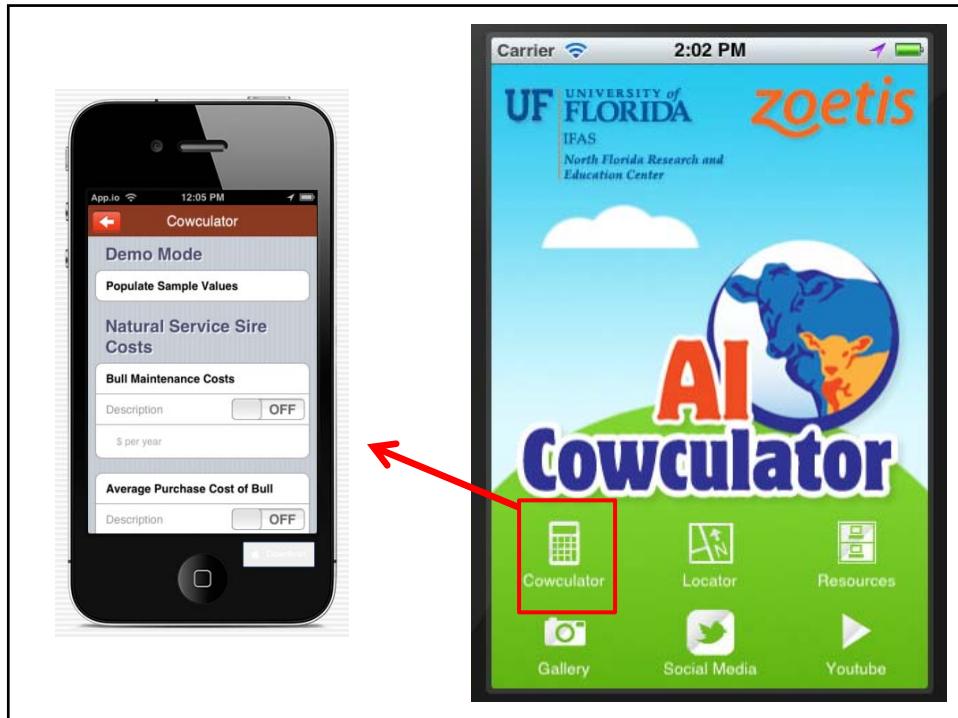
## KEY MANAGEMENT CONSIDERATIONS

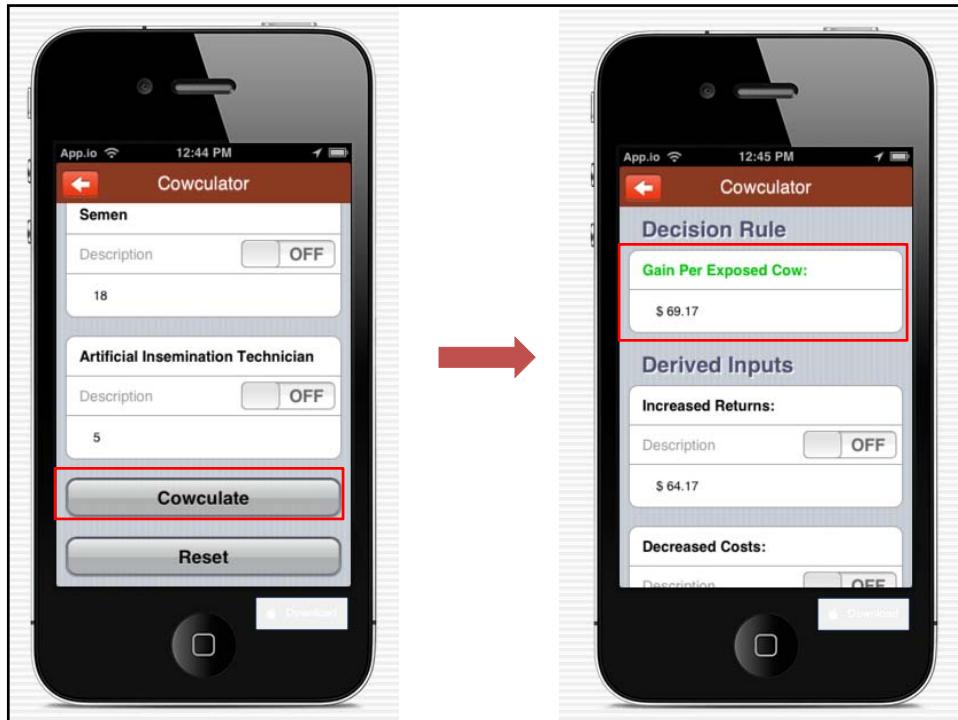
- Only retain heifers that become pregnant during the first 25 days of the breeding season
- Expose every female in the operation to estrous synchronization and artificial insemination
- Reduce the length of the breeding season
- Don't be afraid to cull non-productive females!

## CHANGE IN VALUE BASED ON HERD SIRE COSTS

Item	Bull Value		
	\$3,000	\$6,000	\$10,000
Increased returns (increased value of AI calves)	\$97.22	\$97.22	\$97.22
Decreased costs decreased costs of clean-up bulls)	\$32.11	\$61.35	\$100.34
Decreased returns (Attributed to fewer clean-up bulls included in decreased costs calculation)	\$0.00	\$0.00	\$0.00
Increased costs (additional labor, semen, AI supplies, etc.)	\$44.60	\$44.60	\$44.60
<b>Gain per cow exposed to AI</b>	<b>\$84.73</b>	<b>\$113.97</b>	<b>\$152.97</b>
<b>Gain per 34 head operation</b>	<b>\$2,881</b>	<b>\$3,875</b>	<b>\$5,201</b>
<b>Gain per 100 head operation</b>	<b>\$7,446</b>	<b>\$9,434</b>	<b>\$12,086</b>







<http://nfrec.ifas.ufl.edu/programs/AICowculator.shtml>

Bull Investment - Annual Bull and Per Cow Cost Calculator		Partial Budget	
<b>Natural Service Sire Costs</b> Bull Maintenance Costs: \$600.00 Average Purchase Cost of Bull: \$6,000.00 Useful Life: 4 Salvage Value: \$130.00 Salvage Weight, Lb.: 1,800 Interest Rate Used, %: 6.0		<b>Decision Rule</b> Gain/Loss Per Exposed Cow: \$113.97 Gain/Loss Per Herd: \$3,875.10	
<b>Cowherd Related Costs</b> Number Of Cows In The Herd: 34 Number Of Natural Service Bulls: 2 Expected Bulls For Clean-Up To AI: 1 Weaned Calf Crop, %: 87.5 Average Expected Weaning Weight, Lb.: 500 Expected Price Of Weaned Calf, Per Cw: \$250.00		<b>Derived Inputs</b> Increased Returns: \$97.22      Decreased Returns: \$0.00 Decreased Costs: \$61.35      Increased Costs: \$44.60	
<b>Increased costs</b> Additional Labor: \$4.10 Facilities & Equipment: \$0.00 Estrous Synch Products: \$17.50 Semen: \$18.00 Artificial Insemination Technician: \$5.00		 Like us on Facebook <a href="http://www.facebook.com/AICowculator">www.facebook.com/AICowculator</a>  @AICowculator	
<b>Resources</b>  			



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