

## Assessing the Economic Impacts of Estrus Synchronization and Fixed-Time AI in Beef Production Systems

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# We know how to synchronize cows!

## ESTROUS SYNCHRONIZATION AND AI IN BEEF CATTLE

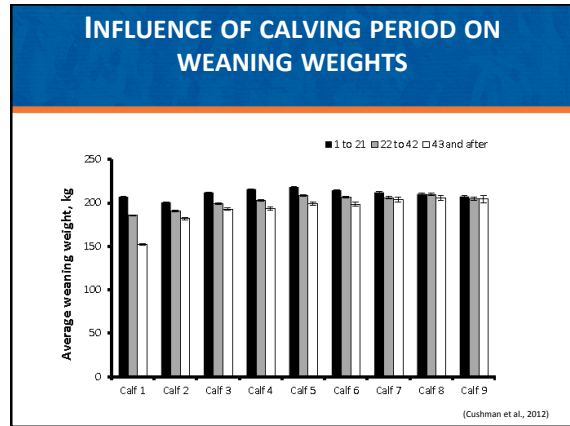
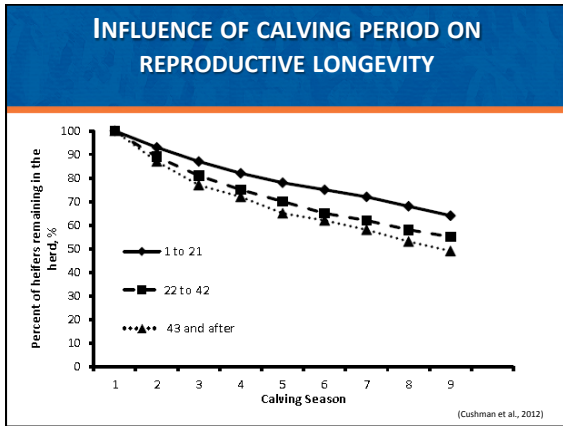
BEEF COW PROTOCOLS - 2014		BEEF HEIFER PROTOCOLS - 2014	
<b>HEIFER BREEDERS</b>	<b>HEIFER BREEDERS &amp; TIME AI (TAM)</b>	<b>HEIFER BREEDERS</b>	<b>HEIFER BREEDERS &amp; TIME AI (TAM)</b>
Subject Stock	Subject Stock + TAM	3 Short PG	Subject Stock + CIB® & TAM
Subject Stock + CIB®	Subject Stock + CIB® & TAM	7-day CIB®-PG	MGA-PG & TAM
PG-6day CIB®	PG-6day CIB® & TAM	MGA-PG	14-day CIB®-PG & TAM
PG-6day CIB® + CIB®	PG-6day CIB® + CIB® & TAM	EXCLUDING AI (TAM)	Short-term Protocols
EXCLUDING AI (TAM)	EXCLUDING AI (TAM)	Long-term Protocols	14-day CIB®-PG
7-day CO-Synch + CIB®	PG 6-day CO-Synch + CIB®	7-day CO-Synch + CIB®	MGA-PG
7-day CO-Synch + CIB®	7-day CO-Synch + CIB®	7-day CO-Synch + CIB®	MGA-PG

## 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 it's genetic potential
- Calf must be genetically capable to perform
- Cows must maintain their body condition score for my conditions
- Must not be crazy (disposition)



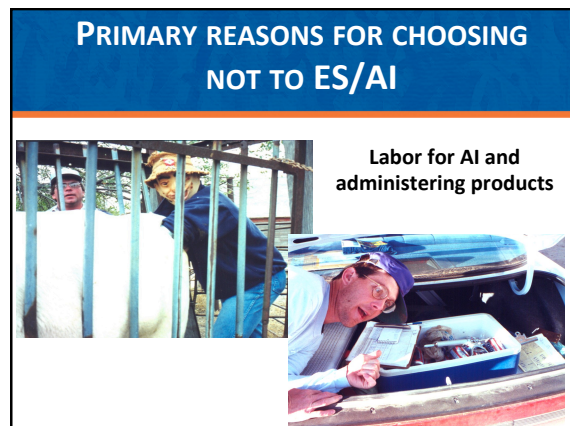
### PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

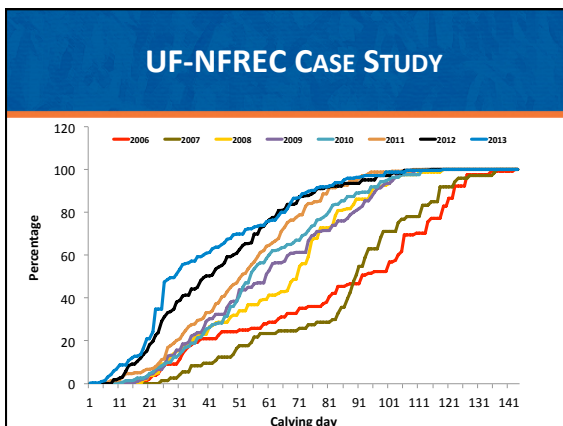
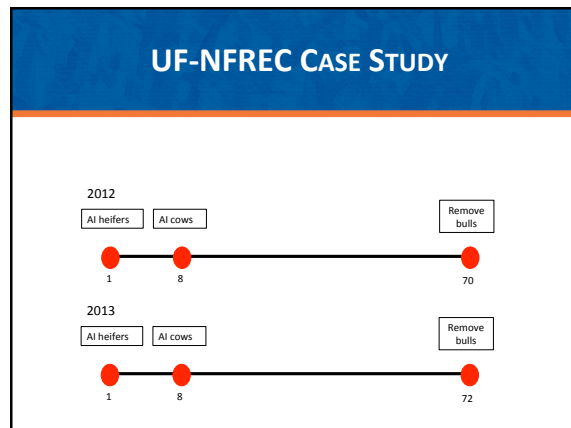
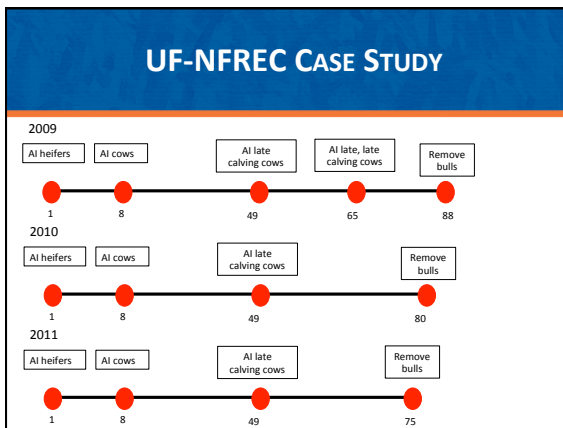
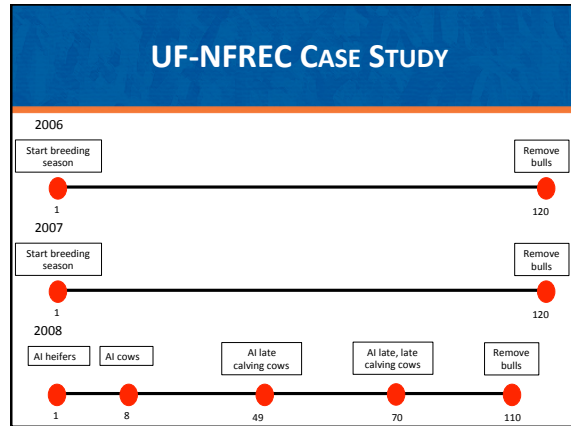
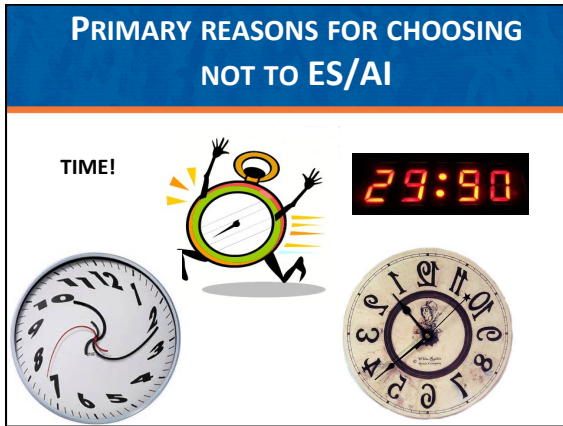
Too many hassle factors!!!

### PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

Complicated protocols and sire selection

Protection										Maternal			
CEU	BW	WW	VW	VH	SC	CEM	MB	MAI	MH	MOI	MH	MH	ESI
Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc	Acc
+3	+3.7	+3.1	+3.9	+6	+1.97	+4	+27	+179	+34	+3	+3	+3	+103
SE	97	97	96	99	86	95	94	2007	89	99	99	99	99





### UF-NFREC CASE STUDY

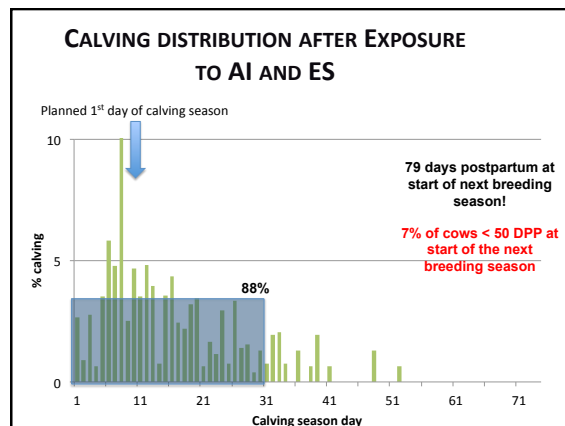
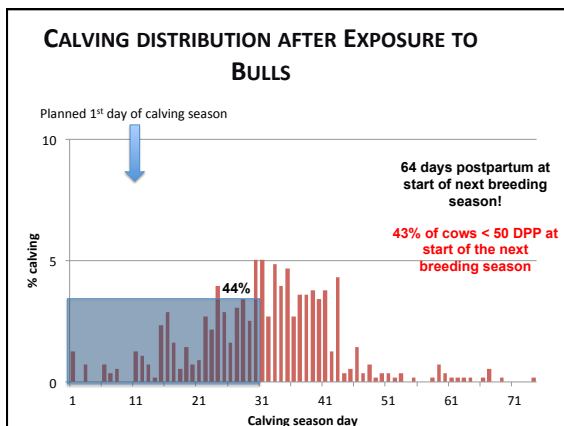
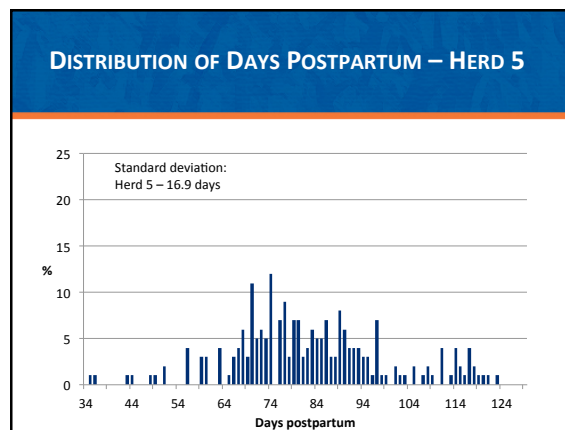
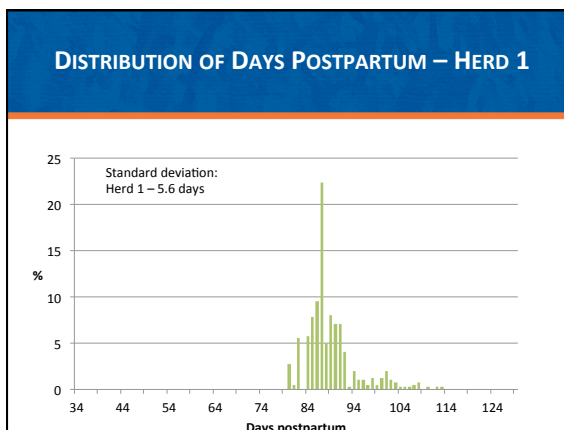
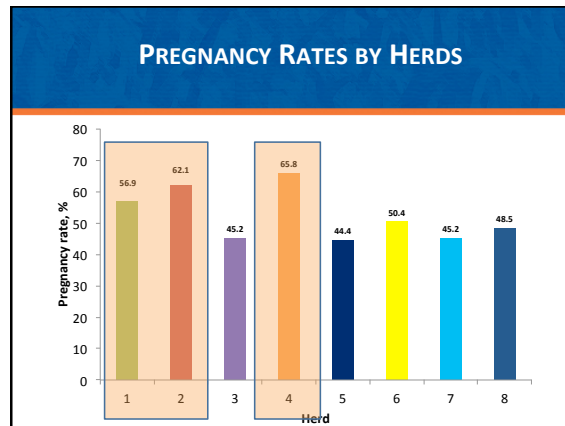
Breeding season pregnancy rates:

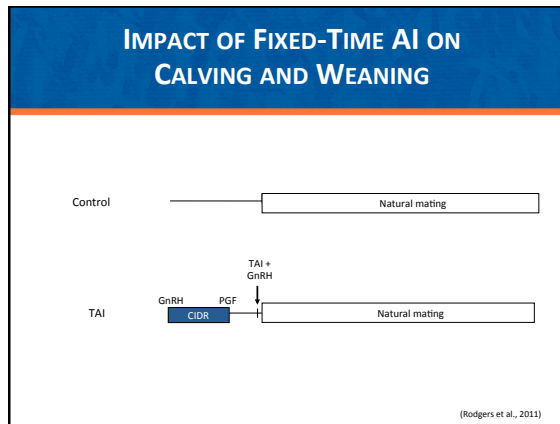
Year	2006	2007	2008	2009	2010	2011	2012	2013
PR	81%	86%	84%	86%	82%	94%	92%	93%
Mean calving day	79.2	80.9	59.2	56.2	53.7	47.2	39.5	38.7
BS length	120	120	110	88	80	75	70	72

### 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



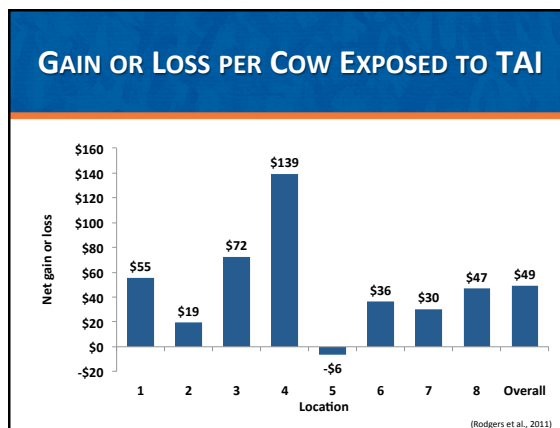


### IMPACT OF FIXED-TIME AI ON CALVING AND WEANING

Item	Treatment	
	Control	TAI
No. of cows	615	582
Weaning rate, %	78	84
Weaning weight, lb	387 ± 8 <sup>a</sup>	425 ± 8 <sup>b</sup>
		38 lbs

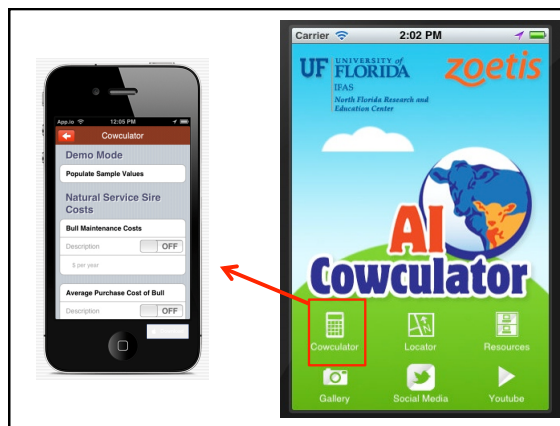
<sup>a,b</sup> Means within row differ (P < 0.01)

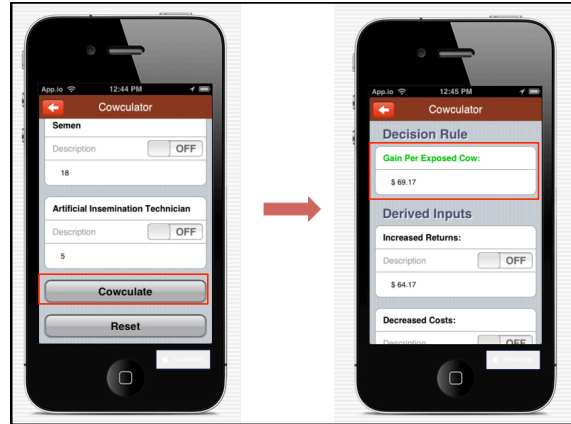
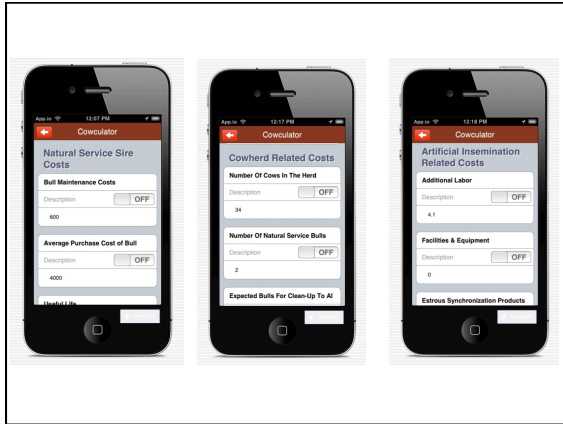
(Rodgers et al., 2012)



### 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://nfre.ifas.ufl.edu/programs/AICowculator.shtml>

**Bull Investment - Annual Bull and Per Cow Cost Calculator**

Category	Item	Value
Natural Service Sire Costs	Bull Maintenance Costs	\$600.00
	Average Purchase Cost of Bull	\$8,000.00
	Useful Life	4
	Salvage Value	\$100.00
	Salvage Weight, Lb.	3,000
Interest Rate Used, %	6.0	
Cowherd Related Costs	Number Of Cows In The Herd	34
	Number Of Natural Service Bulls	2
	Expected Bulls For Clean-Up To AI	1
	Wheaned Cal Crop, %	87.5
	Average Expected Weaning Weight, Lb.	500
	Expected Price Of Weaned Cal, Per Cow	\$250.00
Increased costs	Additional Labor	\$4.10
	Facilities & Equipment	\$0.00
	Estrous Synchron Products	\$17.50
	Semen	\$18.00
	Artificial Insemination Technician	\$5.00

**Partial Budget**

Category	Value
Decision Rule	
Gain/Loss Per Exposed Cow	\$113.97
Gain/Loss Per Herd	\$3,875.10
Derived Inputs	
Increased Returns	\$97.22
Decreased Returns	\$0.00
Increased Costs	\$61.35
Increased Costs	\$44.60

Resources: [zoetis](#), [CME Group](#)

Social media links for Facebook and Twitter are also present.

