COST ANALYSIS OF IMPLEMENTING A SYNCHRONIZATION OR AI PROGRAM-USING DECISION-AID TOOLS

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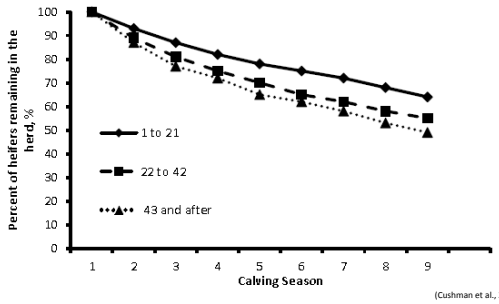
UF-NFREC Case Study

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

Expectations for Every NFREC Female in the Herd

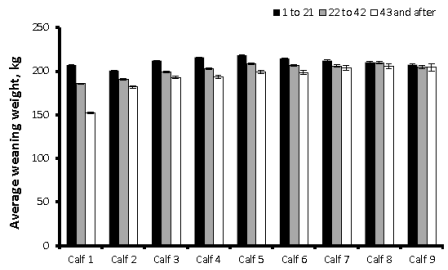
- Must calve by 24 months of age
- Cow must have a calf every 365 days
- Cow must calve without assistance
- Cow must provide sufficient resources for the calf to reach it's genetic potential
- Calf must be genetically capable to perform
- Cows must maintain their body condition score for
- Must not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

Influence of Calving Period on Reproductive Longevity



(Cushman et al., 2012)

Influence of Calving Period on Weaning Weights



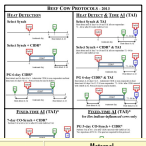
(Cushman et al., 2012)

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



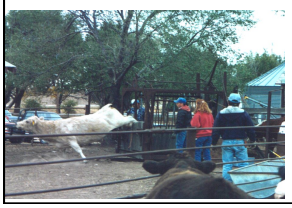
Production							Maternal					
CED Acc	BW Acc	WW Acc	YW Acc	YH Acc	SC Acc		CEM Acc	Milk Acc	MH MQ	MW Acc	MH Acc	$EN
+3	+5.7	+31	+59	+.6	+1.97		+6	+27	1179	+34	+.3	+3.03
88	97	97	96	89	88		91	96	3297	89	89	

Carcass						Ultrasound				
Cwt Acc	Mrb Acc	RE Acc	Fat Acc	%RP Acc	Grp Preg	%IMF Acc	RE Acc	Fat Acc	%RP Acc	Grp Preg
+10	+.14	+.38	+.008	+.87	19	-.14	+.53	-.018	+.74	258
71	73	69	87	68	197	87	87	87	87	453

$Values			
Wean Value ($W)	Feedlot Value ($F)	Grid Value ($G)	Beef Value ($B)
+14.17	+6.66	+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!

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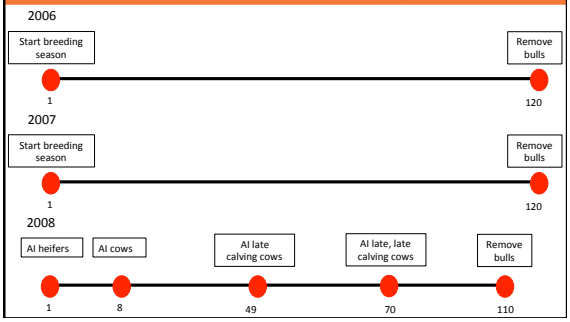

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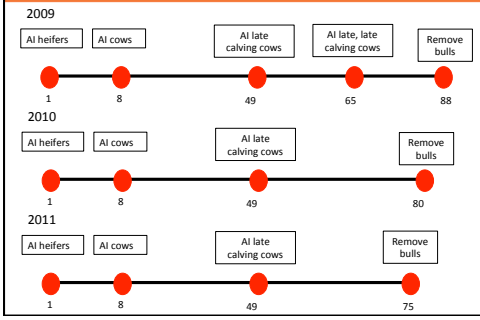
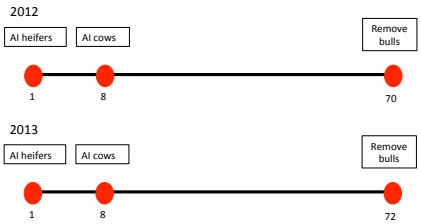
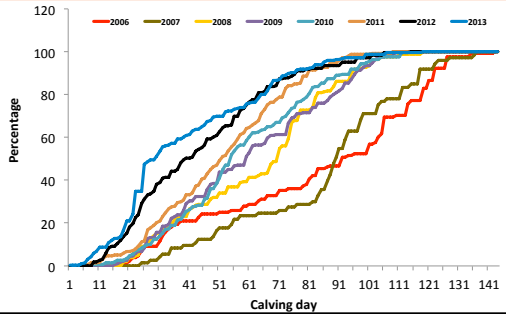


UF-NFREC Case Study



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

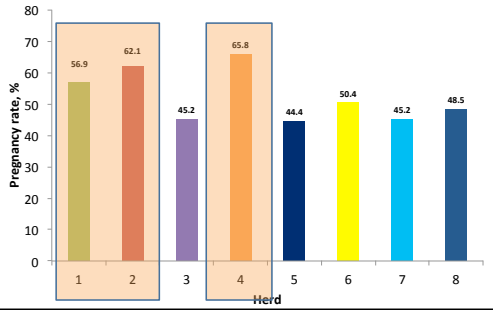
Change in calf value:

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

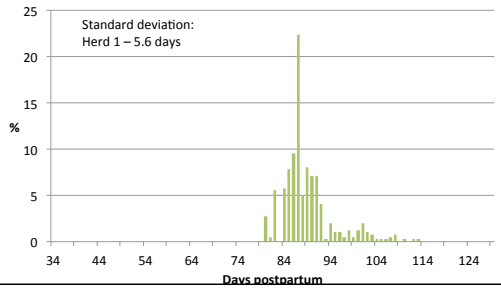
2nd Experiment Case Study

- 1,700 cows in 8 herds

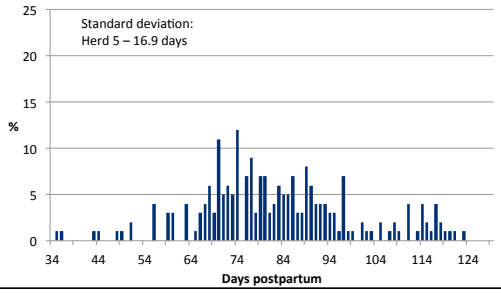
Pregnancy Rates by Herds



Distribution of Days Postpartum – Herd 1

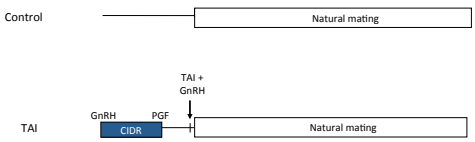


Distribution of Days Postpartum – Herd 5



Economics of Implementing TAI Program

Impact of Fixed-Time AI on Calving and Weaning



(Rodgers et al., 2011)

Impact of Fixed-Time AI on Calving and Weaning

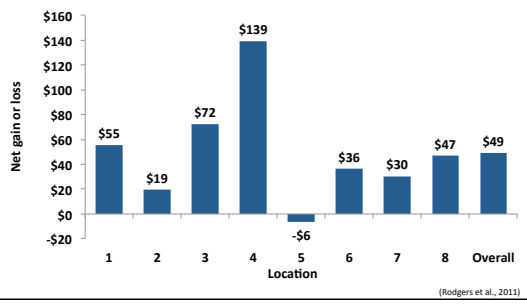
	Treatment	
Item	Control	TAI
No. of cows	615	582
Weaning rate, %	78	84
Weaning weight, lb	387 ± 8[a]	425 ± 8[b]

[ab] Means within row differ (P < 0.01)

38 lbs

(Rodgers et al., 2012)

Gain or Loss per Cow Exposed to TAI



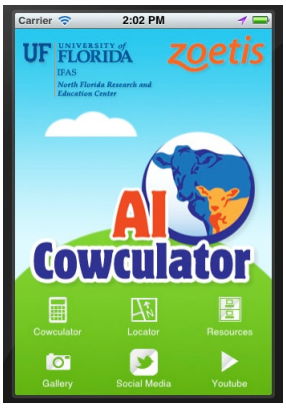
(Rodgers et al., 2011)

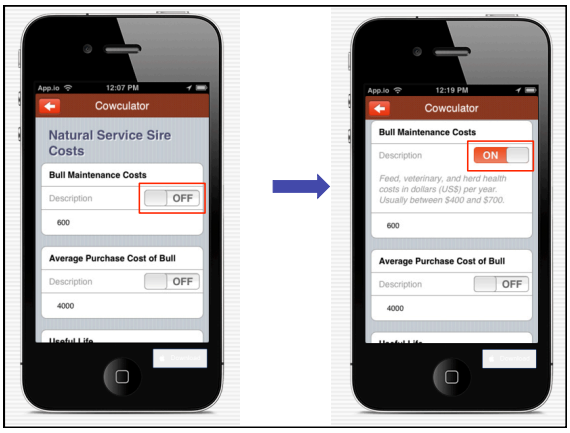
Change in Value based on herd sire costs

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
Gain per cow exposed to AI	$84.73	$113.97	$152.97
Gain per 34 head operation	$2,881	$3,875	$5,201
Gain per 100 head operation	$7,446	$9,434	$12,086

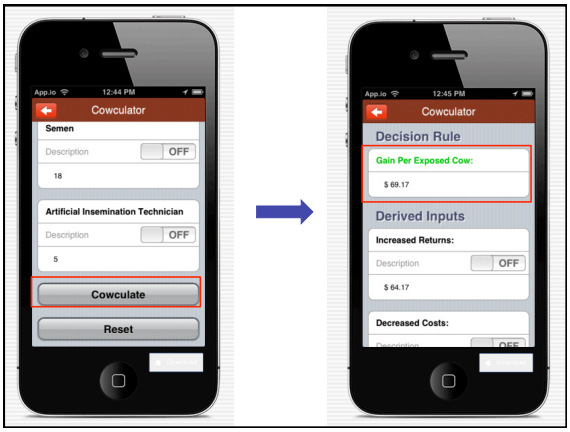
AI Cowculator

Google Play Store
or
Apple iTunes

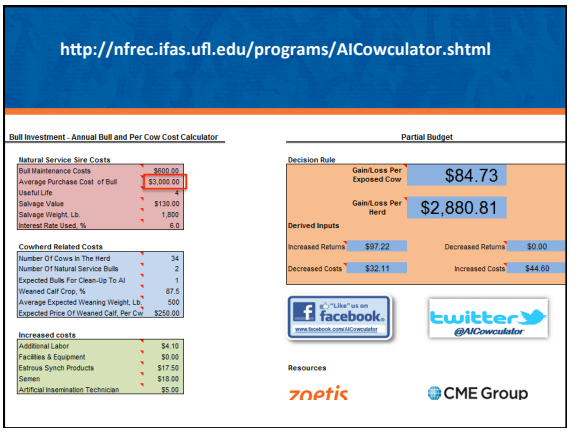



Cowculator
Natural Service Sire Costs
Bull Maintenance Costs
Description
OFF
600
Average Purchase Cost of Bull
Description
OFF
4000
Cowculator
Bull Maintenance Costs
Description
ON
Feed, veterinary, and herd health costs in dollars (US$) per year. Usually between $400 and $700.
600
Average Purchase Cost of Bull
Description
OFF
4000

Cowculator
Natural Service Sire Costs
Cowherd Related Costs
Artificial Insemination Related Costs


Cowculator
Semen
Description
OFF
18
Artificial Insemination Technician
Description
OFF
5
Cowculate
Reset
Cowculator
Decision Rule
Gain Per Exposed Cow:
$ 69.17
Derived Inputs
Increased Returns:
Description
OFF
$ 64.17
Decreased Costs:

AI Cowculator
Page
Activity
Insights
Settings
Build Audience
Help
AI Cowculator
Product/Service
Timeline
About
Photos
Likes
Manage Tabs
572
Find New Customers


http://nfrec.ifas.ufl.edu/programs/AICowculator.shtml
Bull Investment - Annual Bull and Per Cow Cost Calculator
Natural Service Sire Costs
Bull Maintenance Costs $600.00
Average Purchase Cost of Bull $3,000.00
Useful Life 4
Salvage Value $130.00
Salvage Weight, Lb. 1,800
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
Weaned Calf Crop, % 87.5
Average Expected Weaning Weight, Lb. 500
Expected Price Of Weaned Calf, Per Cw $250.00
Increased costs
Additional Labor $4.10
Facilities & Equipment $0.00
Estrous Synch Products $17.50
Semen $18.00
Artificial Insemination Technician $5.00
Partial Budget
Decision Rule
Gain/Loss Per Exposed Cow $84.73
Gain/Loss Per Herd $2,880.81
Derived Inputs
Increased Returns $97.22
Decreased Returns $0.00
Decreased Costs $32.11
Increased Costs $44.60
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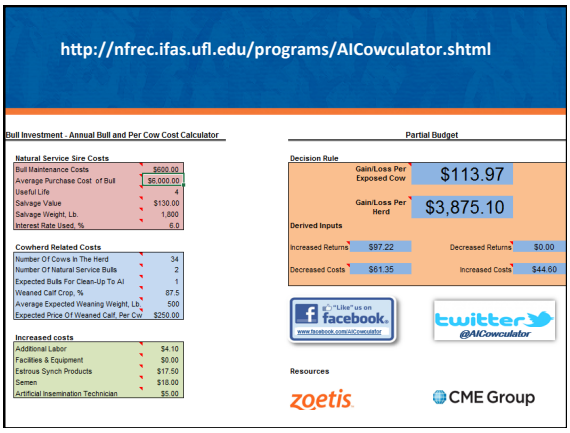
@AICowculator
Resources
zoetis
CME Group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Decision Rule
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Gain/Loss Per Herd $3,875.10
Derived Inputs
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Decreased Returns $0.00
Decreased Costs $61.35
Increased Costs $44.60
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zoetis
CME Group

THANK YOU!