Breeding System Opportunities and Costs

Sandy Johnson

ASI Update

Nov. 2015

K-STATE
Research and Extension

http://www.wulfcattle.com/GeneticValue/RedLimousinBulls/Product-Wulf-Xtractor-X233X_17931.aspx

QB

QUALITY BEEF
BY THE NUMBERS

Contact Info:

Mike Kasten

Mike's Bio

Mike Kasten
QB Program Director
(573) 979-0889

The QB mission is to improve profitability of beef cow-calf operations by facilitating the adoption of applied reproductive and genetic technologies that will add value to beef cattle produced and marketed in the U.S. and contribute to improvements in beef quality to satisfy increasing domestic and global demand for high-quality beef.

QB Guidelines

QB Program Overview

QB Program Guidelines

QB Commercial Feed Yard Program

QB By the Numbers - EPD

QB By the Numbers - Economic Indices

QB Newsletters

Spring 2014

Table 3. Frequency of factors contributing to the profitability of AI[1]

	Frequency	Commercial	Multiple	Seedstock
Value of replacements	80			
Reduce calving difficulty	55			
Premium at weaning	46	46	54	38
Raising bulls for others	42	9	52	51
Raising bulls for yourself	38	27	51	30
Premium for carcass	29	26	38	21

[1]Survey asked "How does AI contribute to the profitability of your operation? Please check all that apply."

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AI in a commercial herd

"I don't understand why the whole world doesn't use applied reproductive technologies, at least on heifers,"

Herbert Holzapfel, Holzapfel Ranch Willows, CA

listen at www.appliedreprostrategies.com

A panel of cattlemen spoke about the practical application of applied reproductive technologies (ART) in their operations. Herbert Holzafel of Holzapfel Ranch near Willows, Calif.; Doug Worthington of Vintage Angus, Modesto, Calif.; and Michael Hall, the West coast representative for Wulf Cattle, shared their experiences.

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Table 2. Effect of cattle industry involvement[1] on value of AI-sired calves, semen cost, and years of AI experience

	Value of AI-Sired Calves	Semen Cost	Years AI Experience
Commercial	187 ± 79 [a]	22.2 ± 1.6 [a]	11.4 ± 1.3 [a]
Seedstock	709 ± 63 [b]	29.7 ± 1.3 [b]	16.9 ± 1.0 [b]
Multiple	398 ± 58 [c]	25.6 ± 1.2 [a]	15.4 ± 0.9 [b]

[1] Involvement in the cattle industry: Commercial cow/calf producer, Seedstock producer, Commercial heifer development, AI Technician, Veterinarian, or Other; more than one response was allowed

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Chute-side service available

American Rancher episode visits cattlemen in Missouri who use Genex chute side service

- Google –

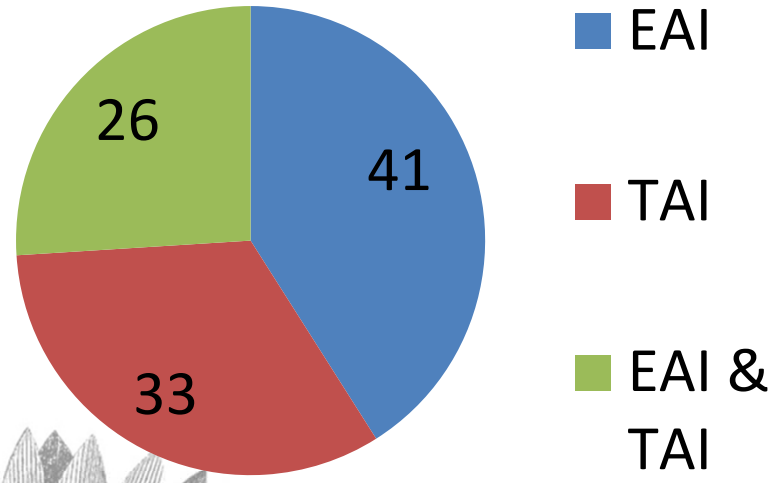
"Genex_Proof_Final_042213"

Darcy Sexson, who blogs at Success is Reason Enough, is always willing to share her pictures with me. Here's one of my favorites because it shows the people involved. So many times we only see the heifers heading to or from the breeding barn, but without a great group of people the project wouldn't be possible. It takes the cooperation of the ranch crew and Genex to make any A.I. project successful!

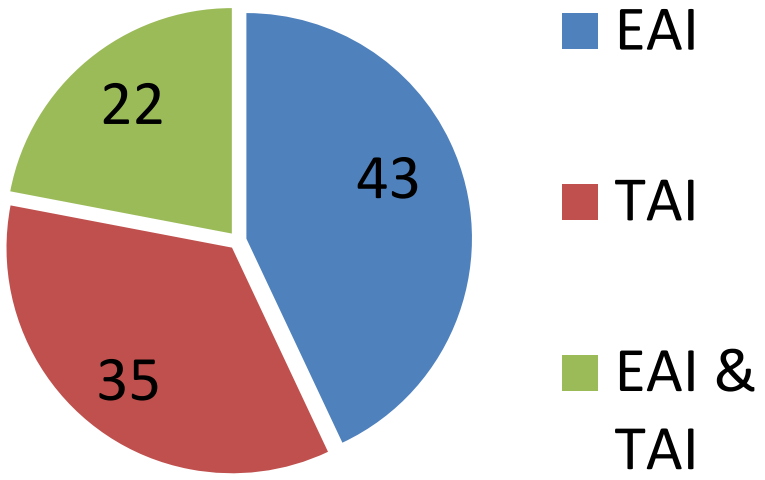
http://crinetsupport.blogspot.com/2015/05/genexchutesideservice-month-of-may.html

Insemination practices

Heifers



Cows



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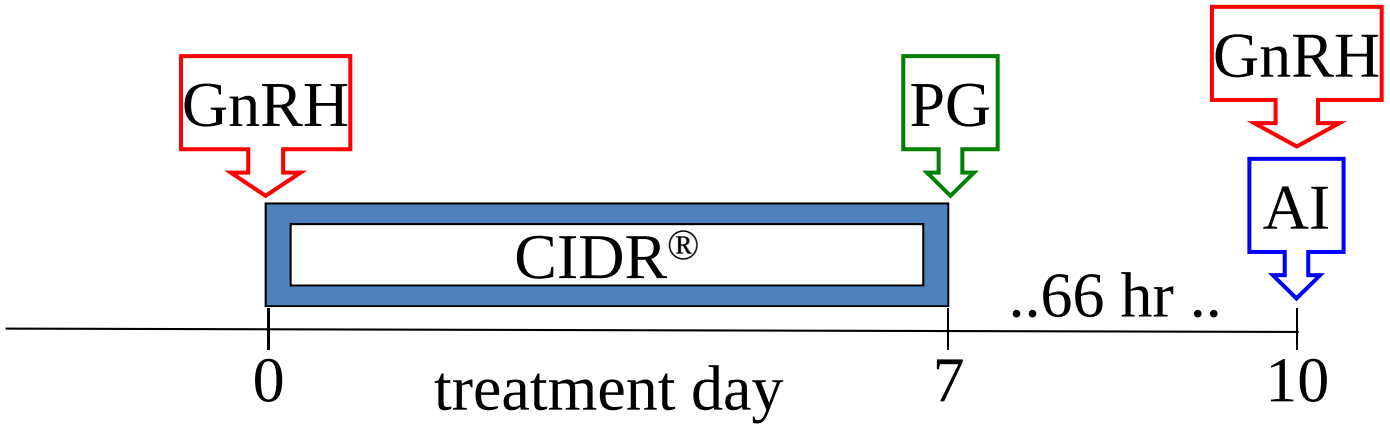
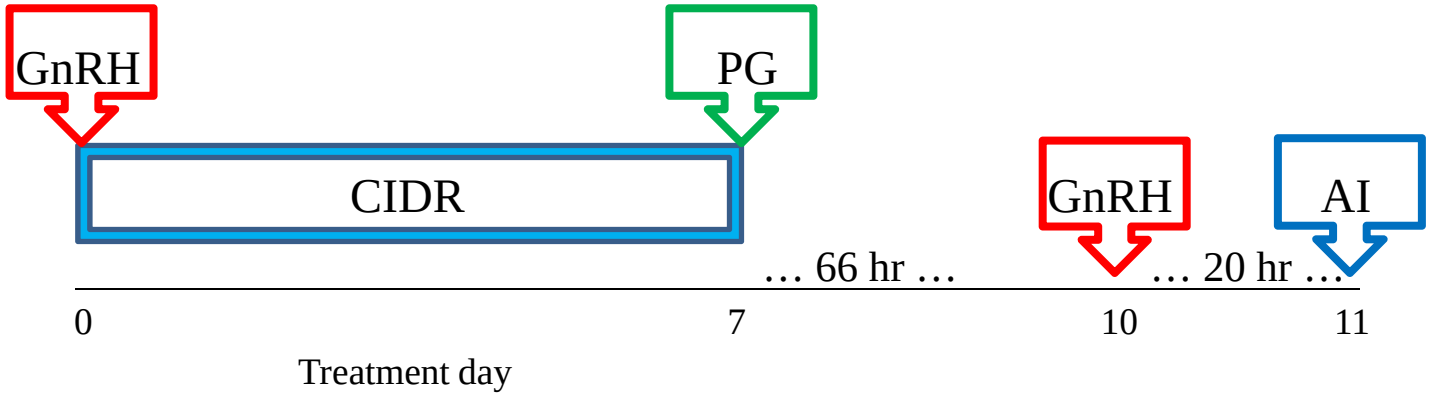
Split time AI with Sexed Semen

Normal fixed-timed AI protocol



Modification for non-estrous cows



OPTIMIZING THE USE OF SEX-SORTED SEMEN IN FTAI

	Pregnancy rates		
Estrus	**Conventional Semen @ 66 hr**	**Sex-sorted Semen @ 66 hr**	**Sex-sorted @ 66 hr with delay of non-estrous**
Yes	**77%^{a}** *(81/105)*	**51%^{b}** *(53/104)*	**42%^{b}** *(47/111)*
No	**37%^{c}** *(42/113)*	**2%^{d}** *(3/113)*	**36%^{c}** *(40/110)*
Total	**56%** *(123/218)*	**26%** *(56/217)*	**39%** *(87/221)*

- Treatment x estrous expression interaction ($P < 0.0001$)
- Pregnancy rates within a row with different superscripts are different ($P < 0.0001$)

Thomas et al., 2015

Specialization

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Cost Per Pregnancy – Natural Service

	Bull Purchase Price				
Cow:Bull	**$5000**	**$5500**	**$6000**	**$6500**	**$7000**
15	133	144	155	166	177
20	100	108	116	124	132
25	80	86	93	99	106
30	66	72	77	83	88
35	57	62	66	71	76
40	50	54	58	62	66
50	40	43	46	50	53

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KSU-Bull vs AI Breeding Costs.xls --- A spreadsheet to evaluate the economic costs and benefits of natural (bull) breeding versus artificial insemination (AI) in beef herds.

Version 10-26-2015

INPUTS vs CALCULATED VALUES

In the Comparison, *Bull carrying cost details* , and *AI cost details* tab all blue numbers are inputs and all black numbers are calculated from these inputs (green values are "pulled" from another tab).

DESCRIPTION OF INPUTS:

Several input cells (i.e., blue number) have a red diamond in the upper right hand corner of the cell. By moving your mouse cursor over this diamond, a brief description of the input will be displayed on the screen.

MACROS

This spreadsheet uses macros to print the three different pages, however printing can also be done manually by highlighting the desired range and using the menu print commands.

Developed by:

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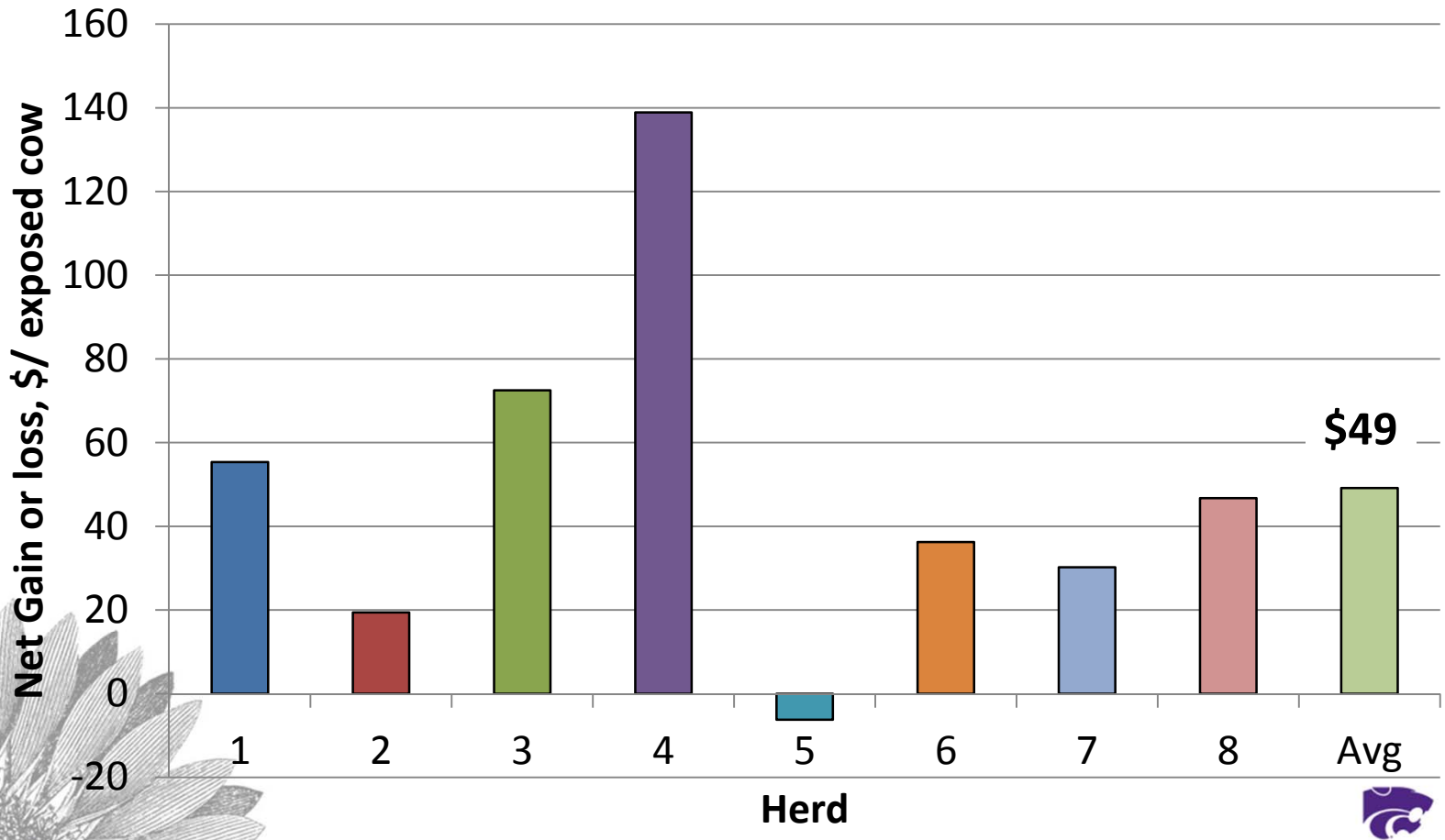
Comparison of Bull vs. AI Breeding Costs

	100% bull power	AI plus Clean-up bulls
Cost		
Annual Bull Cost/Female Exposed		
Number of females bred	100	100
Cow-to-bull ratio (cows per bull)	25	25
Number of bulls needed	4.0	2.0
Cost per female exposed	$74.64	$37.32
Total Breeding Cost per Female Exposed	$74.64	$98.32
Final Pregnancy rate, %	92.0%	92.0%
Total Breeding Cost per Female Bred	$81.13	$106.87
Benefit		
Added Value of A.I. Sired Calf at Weaning, $/hd	n/a	$50.00
(due to age, genetics, gender, etc.)		
Total Cost per Female Bred	**$81.13**	**$79.37**

Net gain or loss from fixed-timed AI



Rodgers et al., 2012

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AI Cowculator

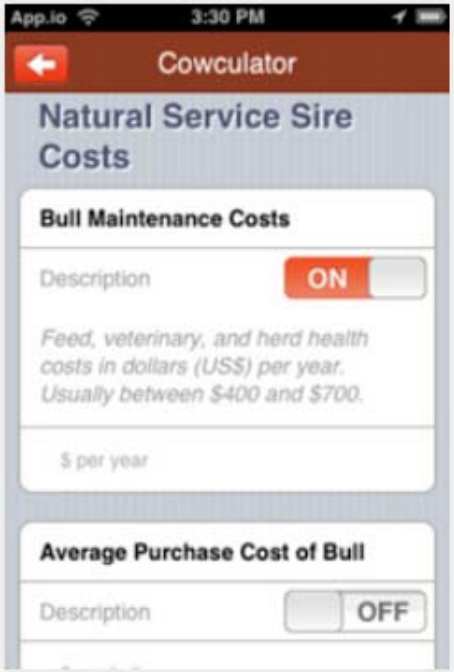
AppInnovators - June 10, 2013
Tools

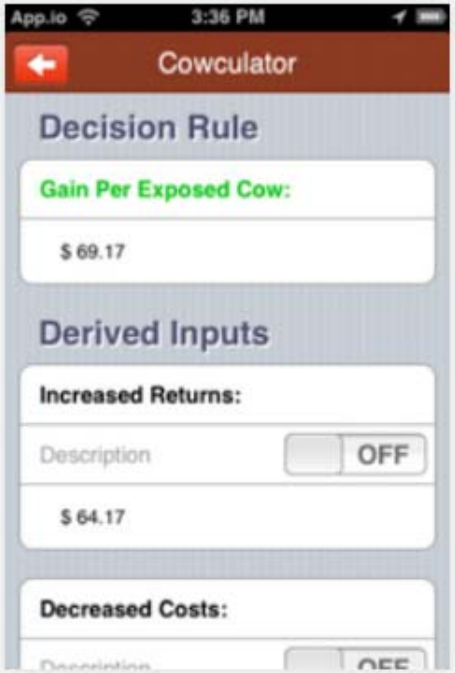
Installed

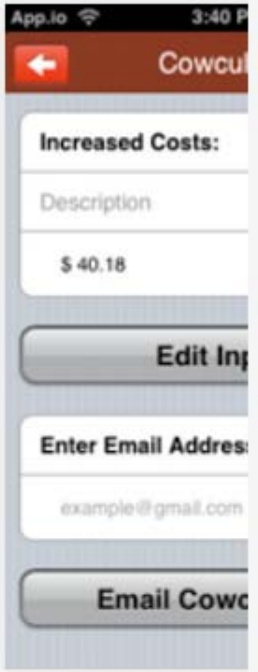
For iphone and androids

This app is compatible with your device.

+1 +3 Recommend this on Google







AI Cowculator Inputs

- Bull Maintenance cost
- Bull purchase price
- Useful life of bull
- Salvage value
- Interest rate
- Number of natural service bulls
- Number of bulls for clean up after AI
- Number of cows
- Expected weaning wt.
- Price of weaned calf
- AI labor cost
- AI facilities & equipment
- Synchronization products cost
- Semen cost
- Technician cost

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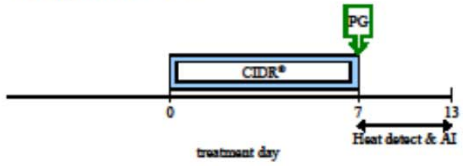
BEEF HEIFER PROTOCOLS - 2014

HEAT DETECTION

1 Shot PG

7-day CIDR®-PG

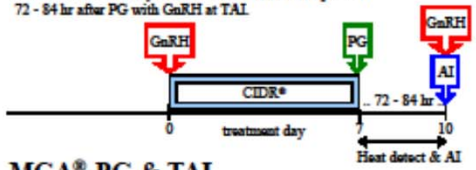


MGA®-PG

HEAT DETECT & TIME AI (TAI)

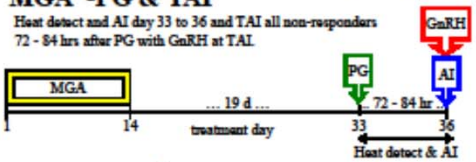
Select Synch + CIDR® & TAI

Heat detect and AI day 7 to 10 and TAI all non-responders
72 - 84 hr after PG with GnRH at TAI.



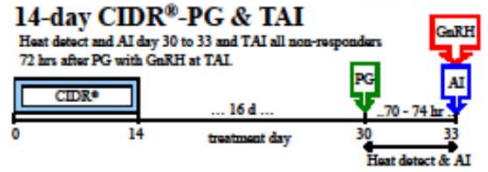
MGA®-PG & TAI

Heat detect and AI day 33 to 36 and TAI all non-responders
72 - 84 hrs after PG with GnRH at TAI.



14-day CIDR®-PG & TAI

Heat detect and AI day 30 to 33 and TAI all non-responders
72 hrs after PG with GnRH at TAI.

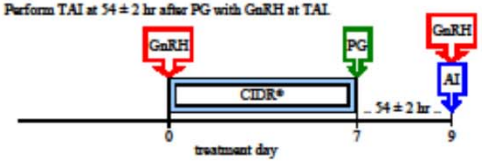


FIXED-TIME AI (TAI)*

Short-term Protocols

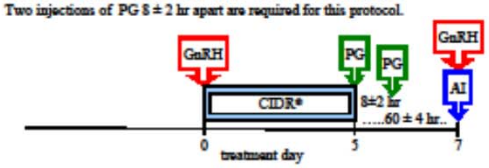
7-day CO-Synch + CIDR®

Perform TAI at 54 ± 2 hr after PG with GnRH at TAI.



5-day CO-Synch + CIDR®

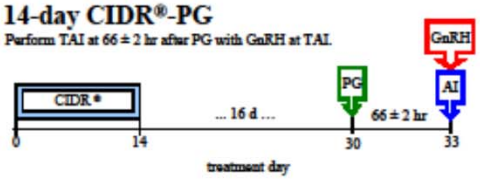
Perform TAI at 60 ± 4 hr after CIDR removal with GnRH at TAI.
Two injections of PG 8 ± 2 hr apart are required for this protocol.



Long-term Protocols

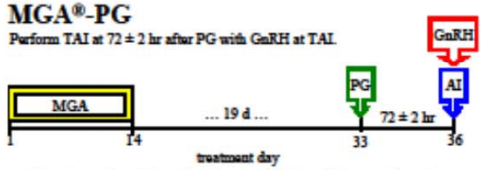
14-day CIDR®-PG

Perform TAI at 66 ± 2 hr after PG with GnRH at TAI.



MGA®-PG

Perform TAI at 72 ± 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.

GnRH Cystorelin®, Factrel®, Fertagyl®, OvaCyst®

PG estroPLAN®, Estrumate®, In-Synch®, Lutalyse®, ProstaMate®

Approved 12-01-13

Beef Reproduction Task Force

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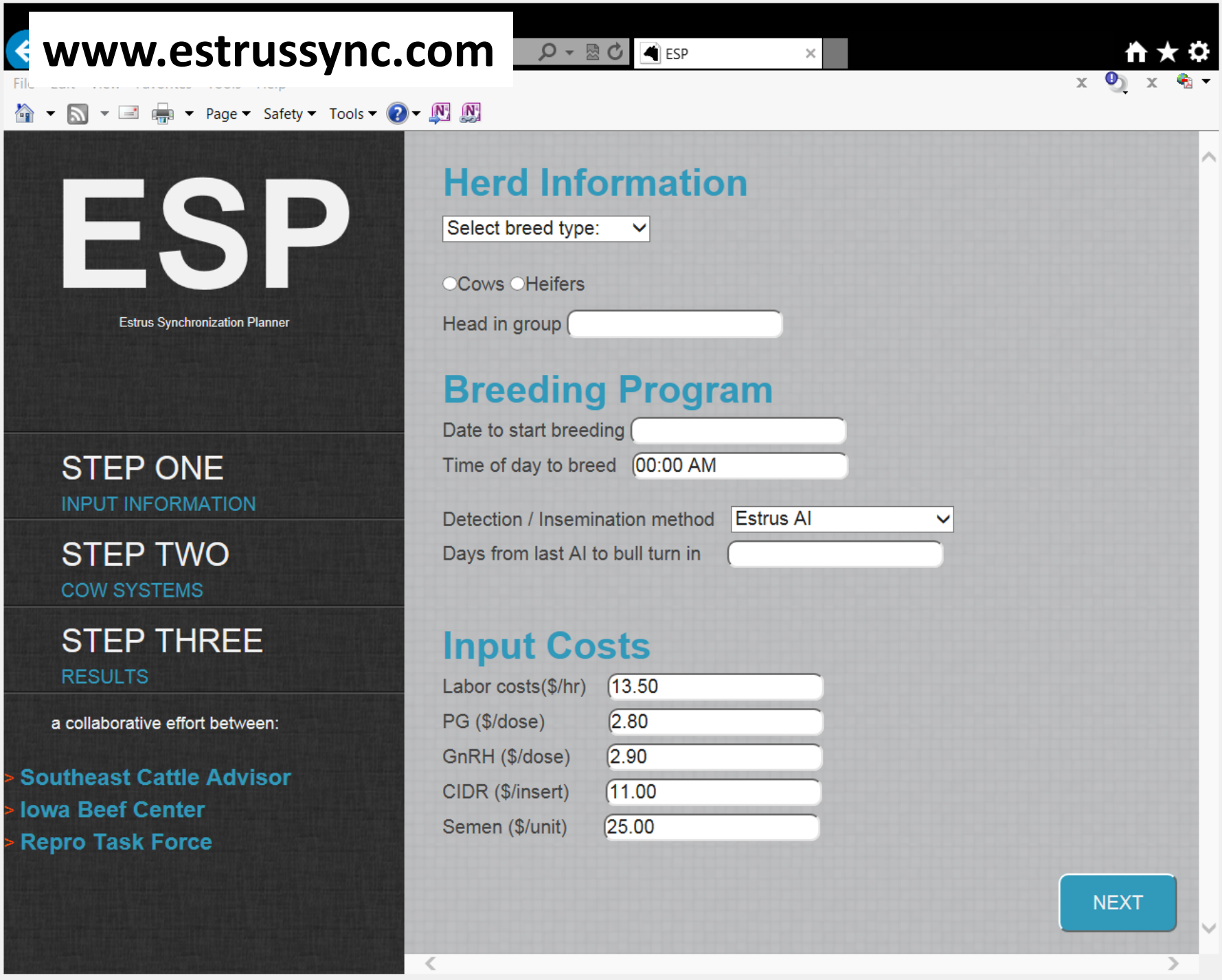
www.estrussync.com



Estrus Synchronization Planner

Free download at

http://iowabeefcenter.org/estrus_synch.html

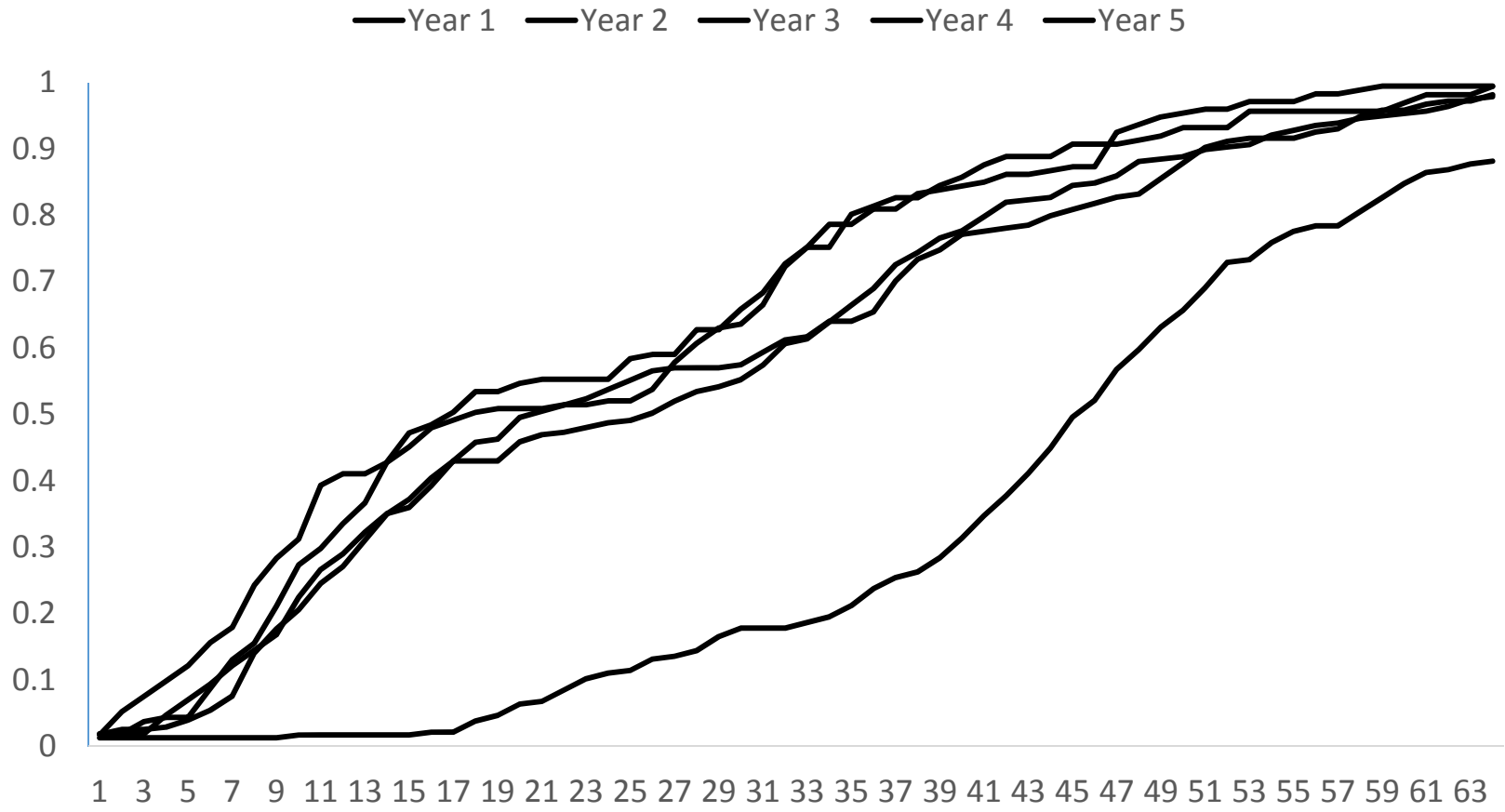
Features

- Recommended systems for cows & heifers
- Select systems by type
  - Heat detect & AI systems
  - Heat detect & cleanup AI systems
  - Fixed-Timed AI Systems
- List of daily activities
- Generates Barn Calendar
- Cost per AI pregnancy
- Support materials

IBC Iowa Beef Center

K-State Research and Extension

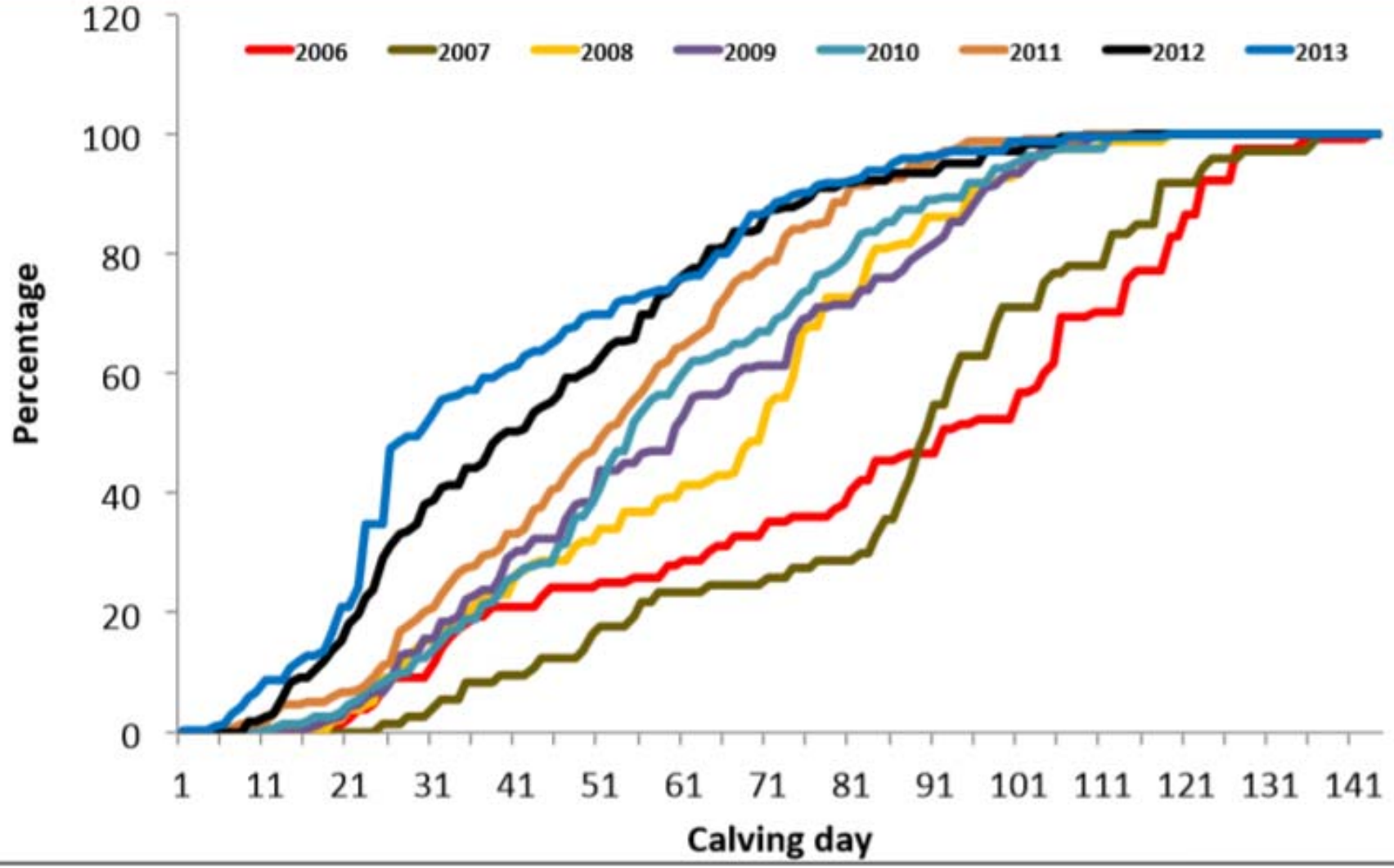
Figure 2. Cumulative proportion of cows calving in the same herd over time. Year 1 unsynchronized and natural service, in subsequent years, synchronization and fixed-timed AI followed by cleanup natural service.



Attitude towards AI

http://www.mirandaochocki.com/attitude-changes-everything/

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

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www.beefrepro.info