What Does it Take to Start an AI Program?

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UF | IFAS
UNIVERSITY of FLORIDA


POLICE
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Artificial insemination (AI) is not suitable for every beef cattle producer!

What are the Advantages of AI?

Are you considering AI for the right reasons?

What are the Advantages of AI?

- The ability to use sires of superior genetic merit (the best bulls of the breed).
- Use of proven sires with high accuracy.
- Producers have the ability to mate specific sires to individual cows.
- AI provides an opportunity to reduce the number of herd bulls needed in cattle operation.

What are the Advantages of AI?

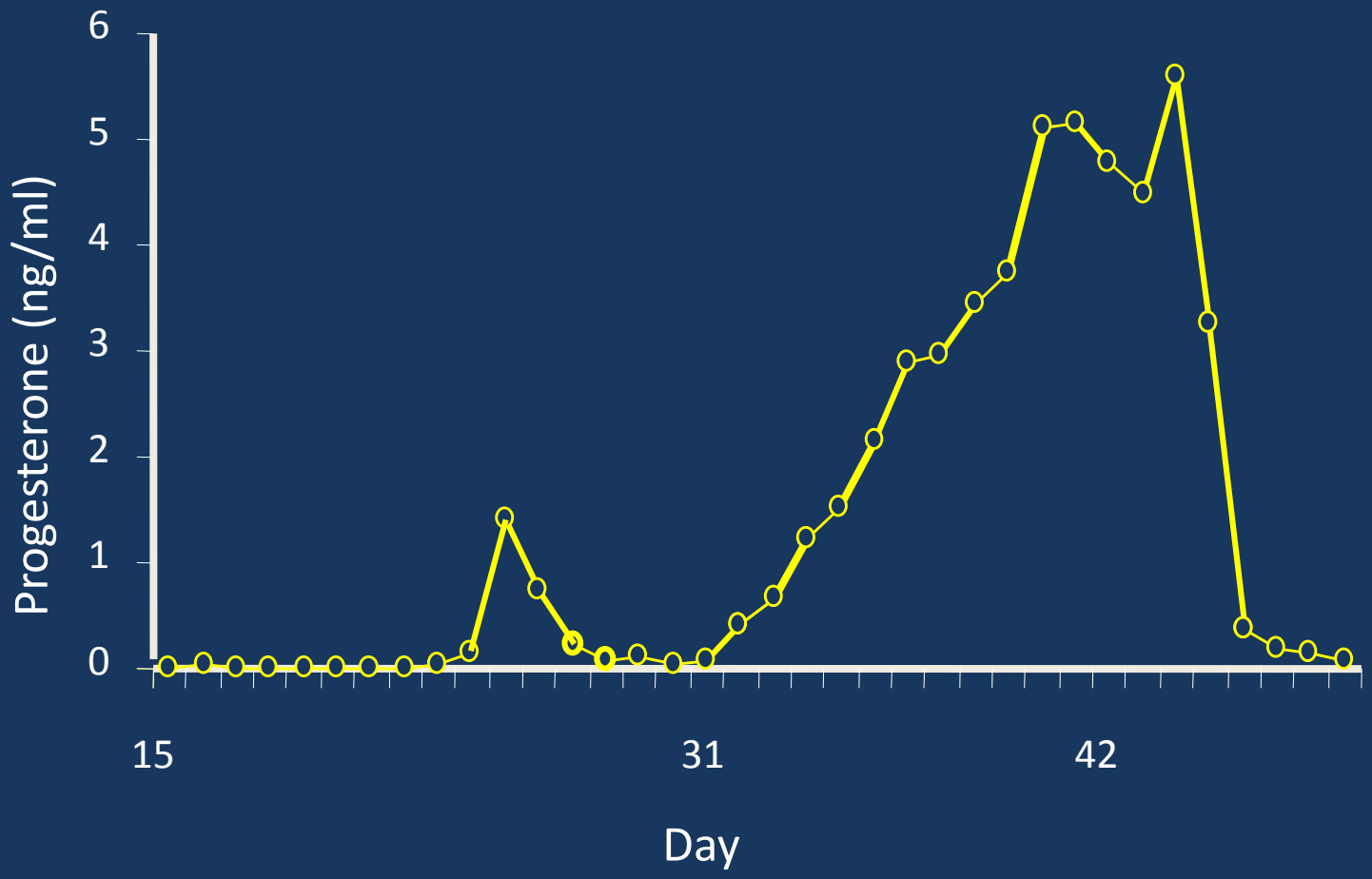
- Increased genetics of offspring.
- Improved reproductive performance of the cow herd. When used in conjunction with estrus synchronization the impact on reproductive performance of the cow herd is extensive.

What causes Anestrus in Beef Cows?

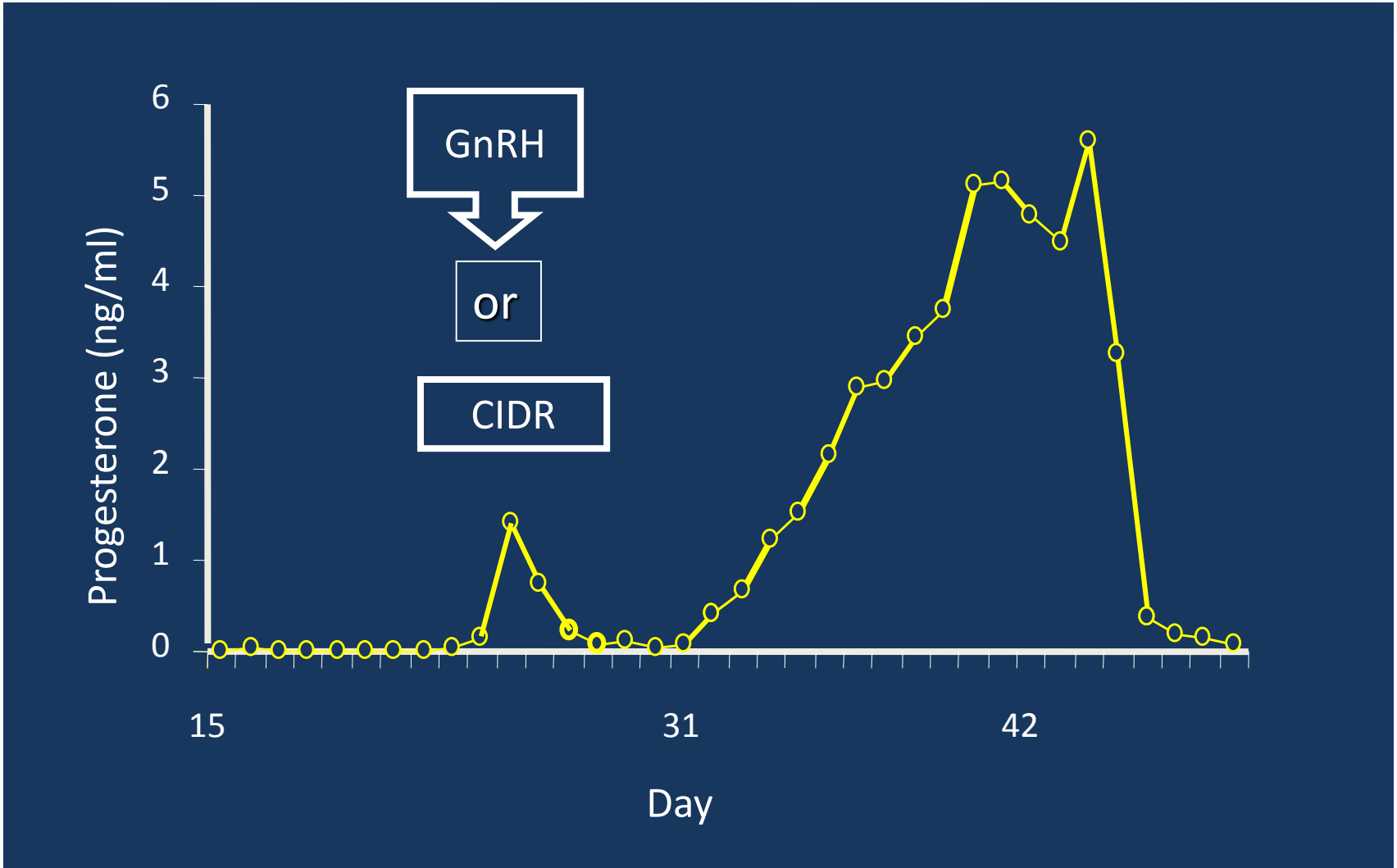
Suckling

Nutrition

Overcoming Postpartum Anestrus



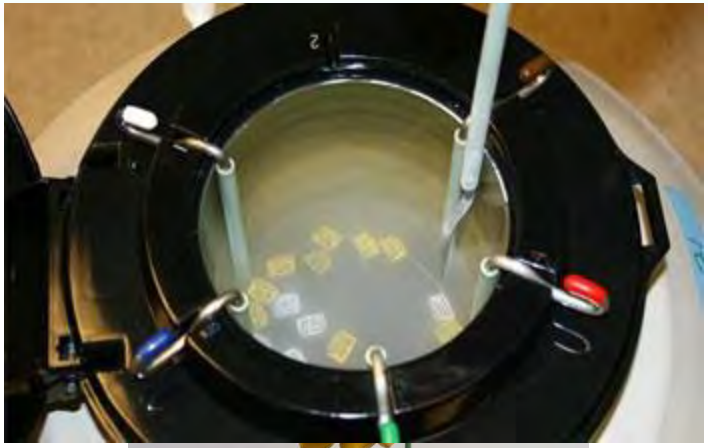
Overcoming Postpartum Anestrus



Items that are NOT Necessary for Establishing an AI Program!

You do not need to be proficient at AI

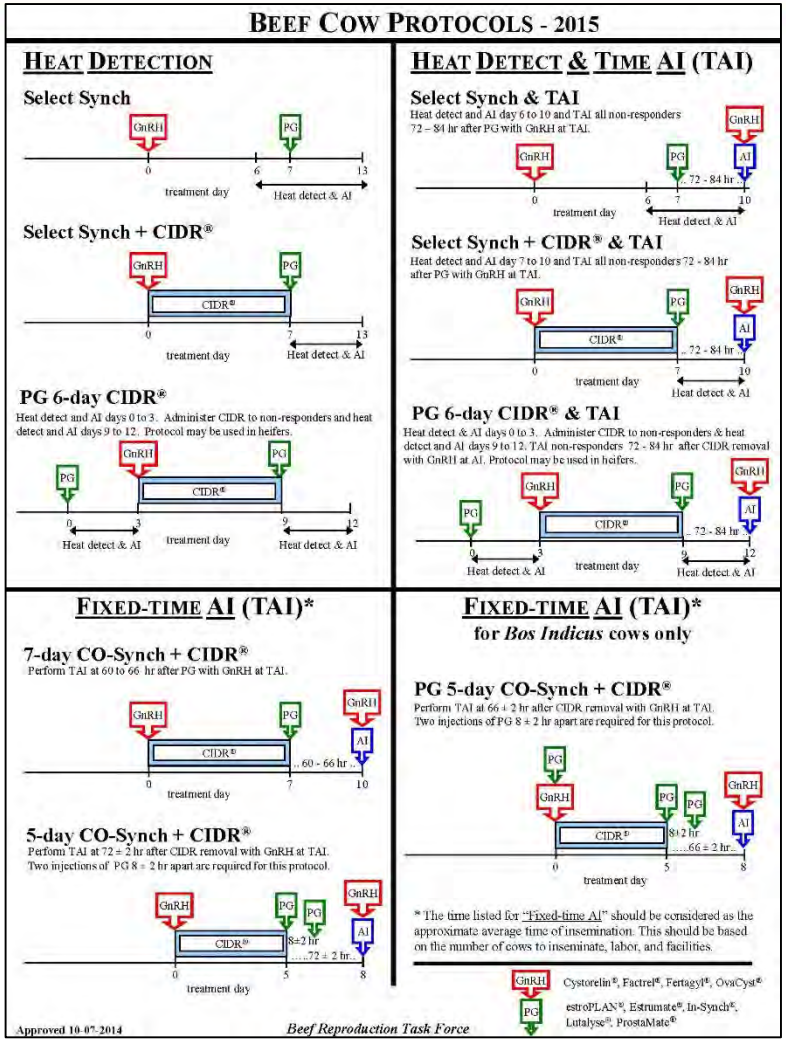
There is no need to own a nitrogen tank for storing semen

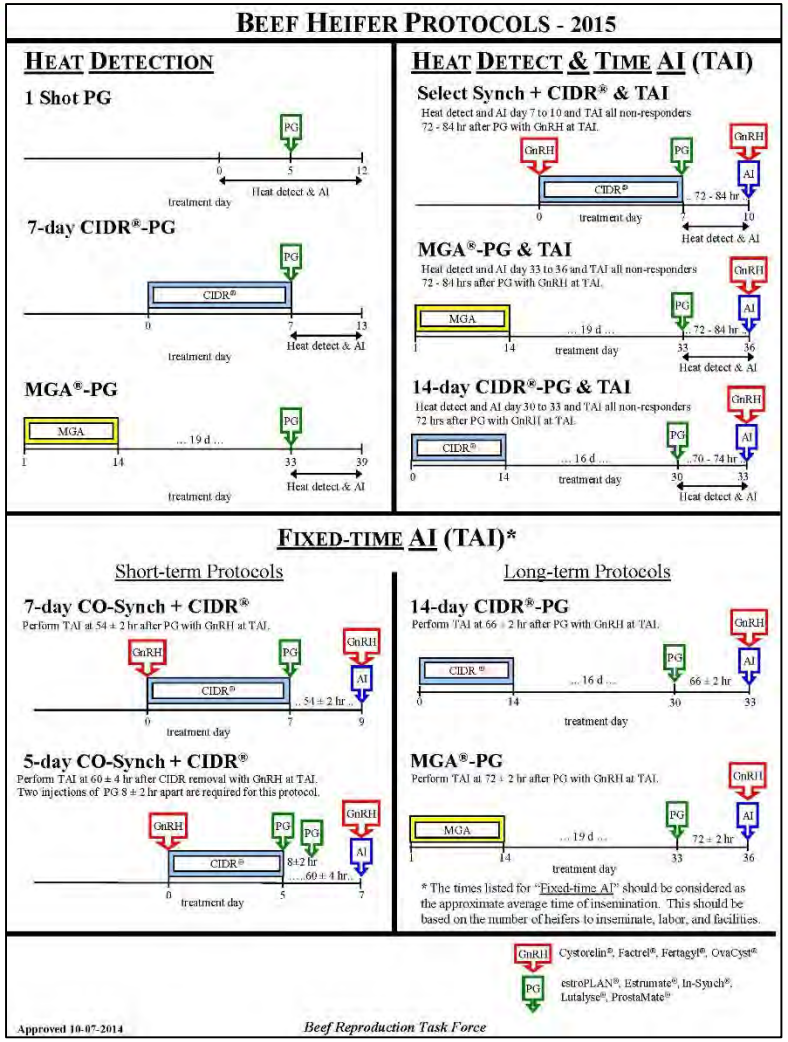


It is not necessary to have AI supplies, such as an AI kit with sheaths, AI guns, and sleeves available

Why are these items not necessary for AI?

Estrus Synchronization and AI in Beef Cattle



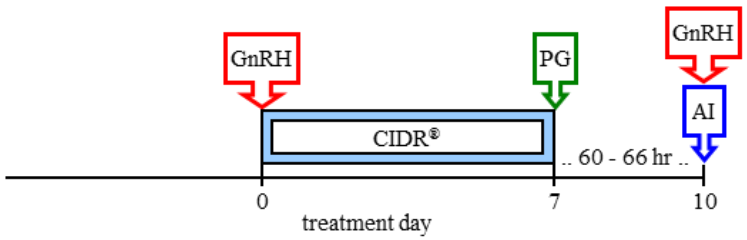


TAI for Beef Cows

FIXED-TIME AI (TAI)*

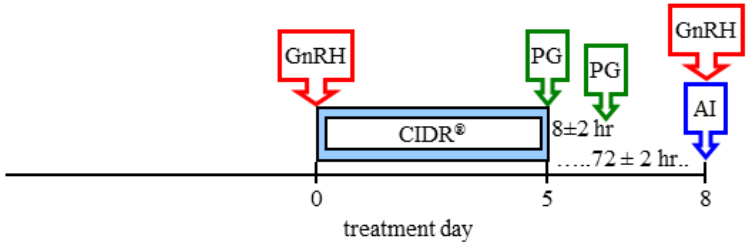
7-day CO-Synch + CIDR®

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



5-day CO-Synch + CIDR®

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



FIXED-TIME AI (TAI)*

for *Bos Indicus* cows only

PG 5-day CO-Synch + CIDR®

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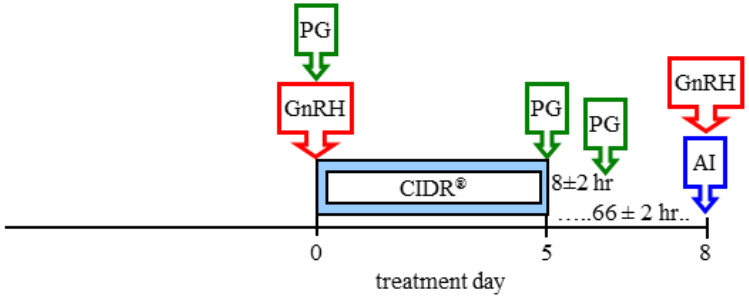


* The time listed for "Fixed-time AI" should be considered as the approximate average time of insemination. This should be based on the number of cows to inseminate, labor, and facilities.

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

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

Approved 12-01-13

Beef Reproduction Task Force

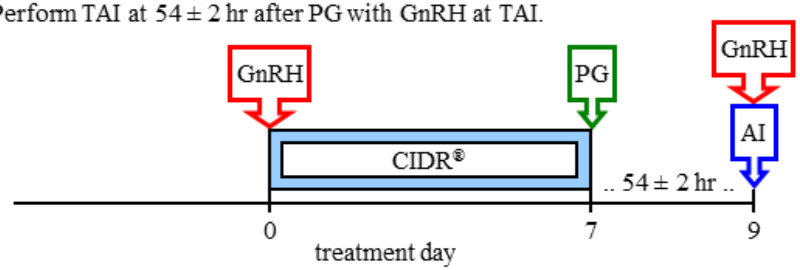
TAI for Beef Heifers

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.
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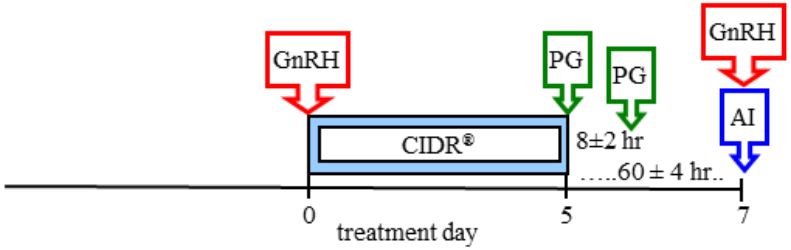
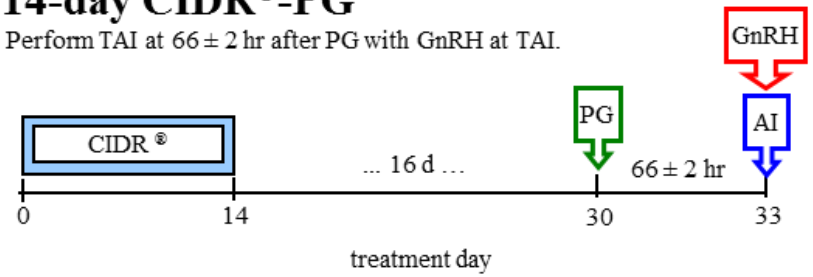


Long-term Protocols

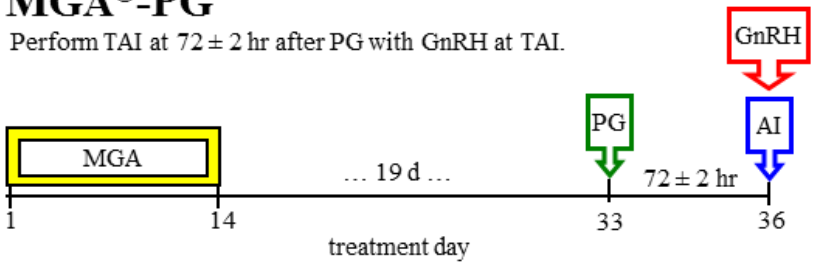
14-day CIDR®-PG

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.



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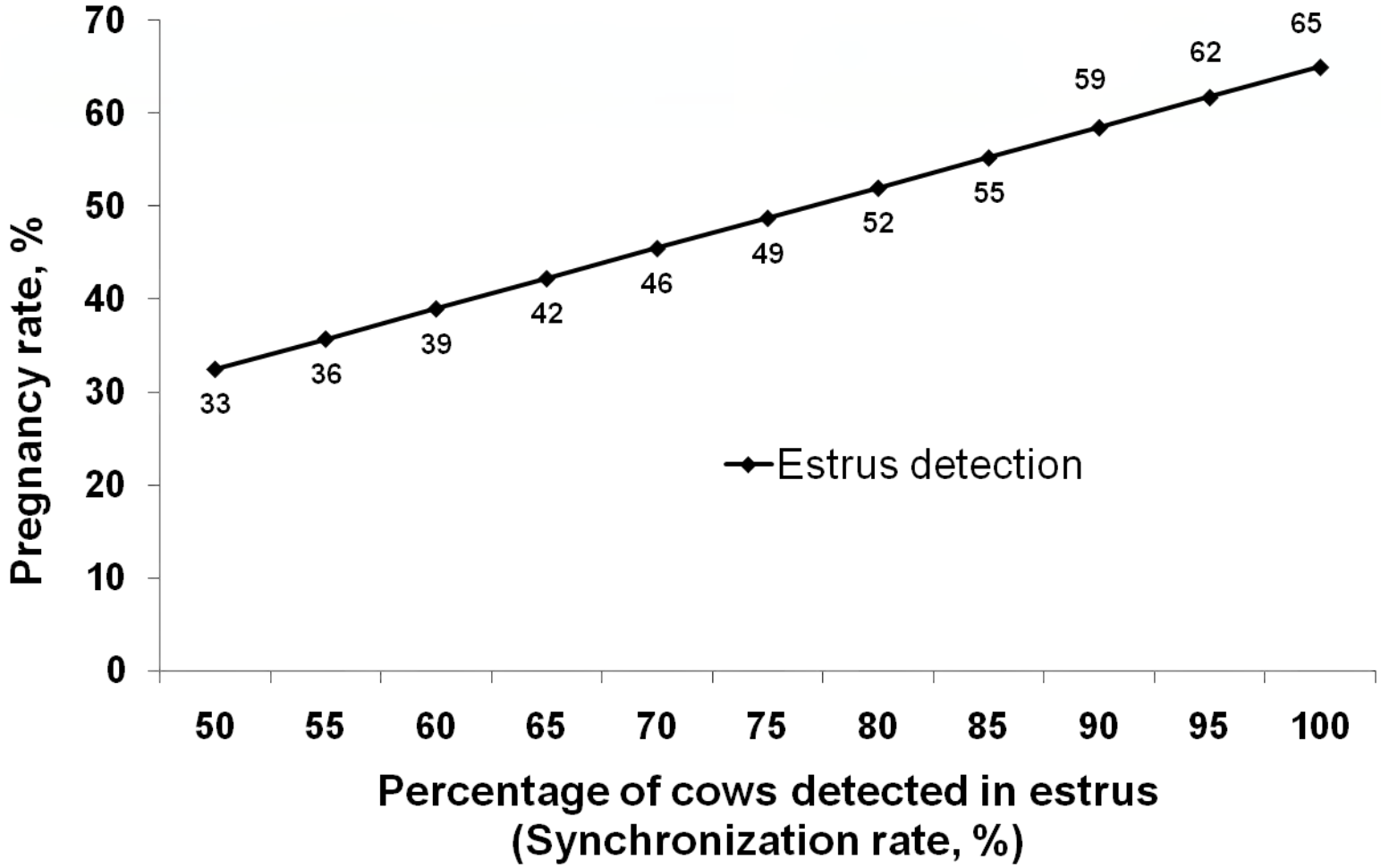
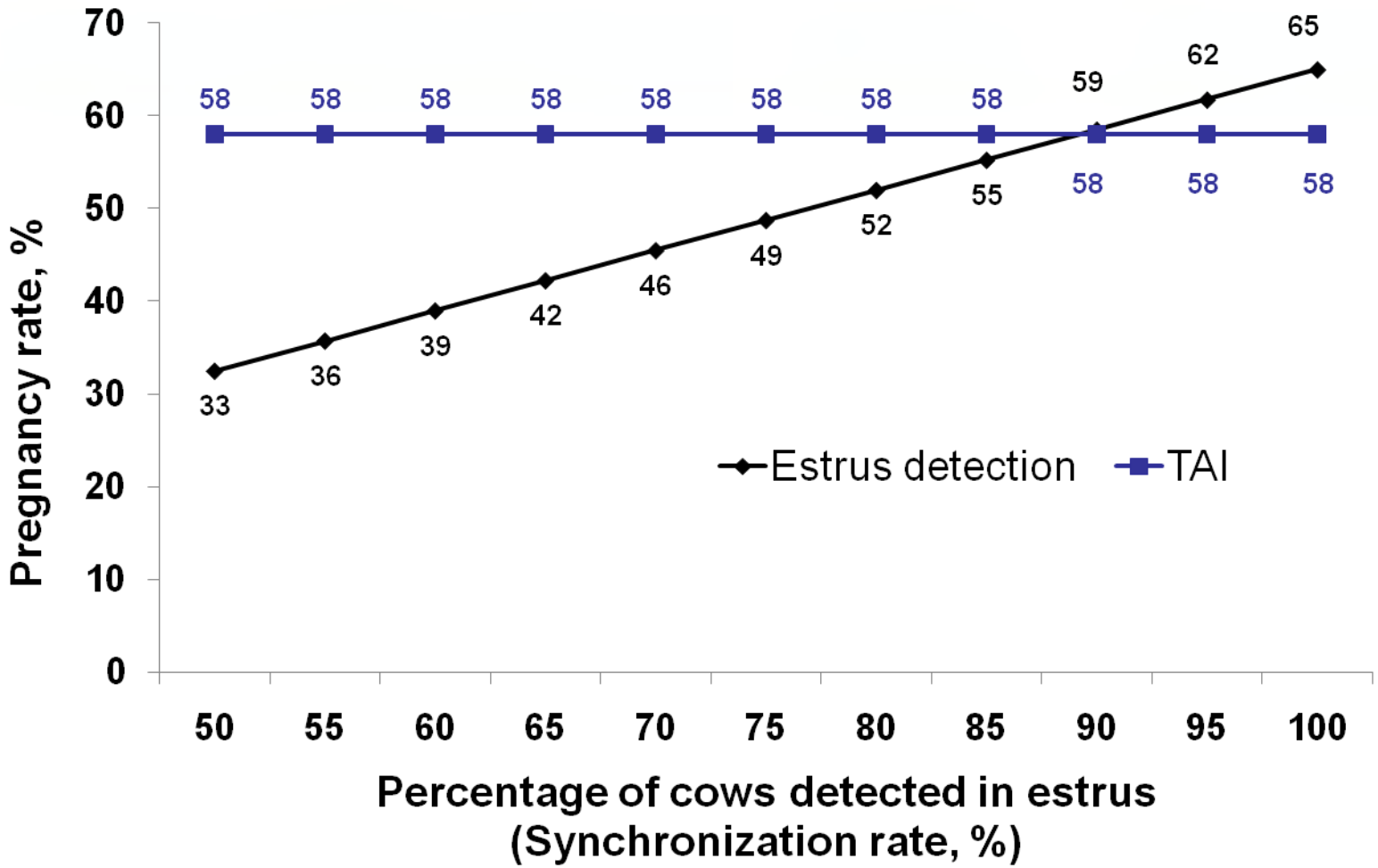
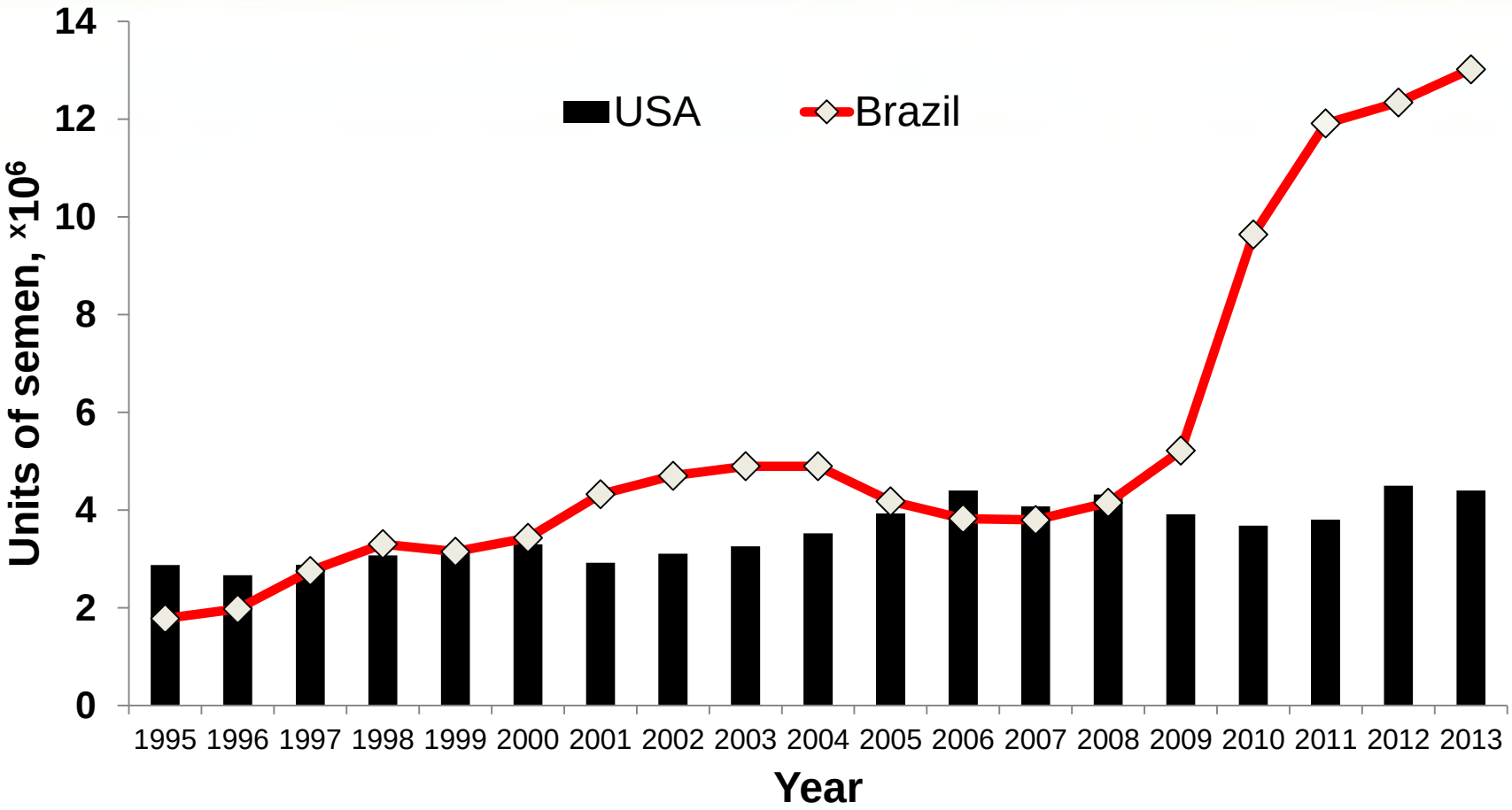
Effect of synchronization rate on pregnancy rates



Effect of synchronization rate on pregnancy rates



Semen Sales in USA and Brazil from 1995 to 2012



(NAAB and ASBIA, 2011)

Genetics Company Contacts

ABS Global, Inc., 1525 River Rd DeForest, Wisconsin, 53532
Phone: 608-846-3721

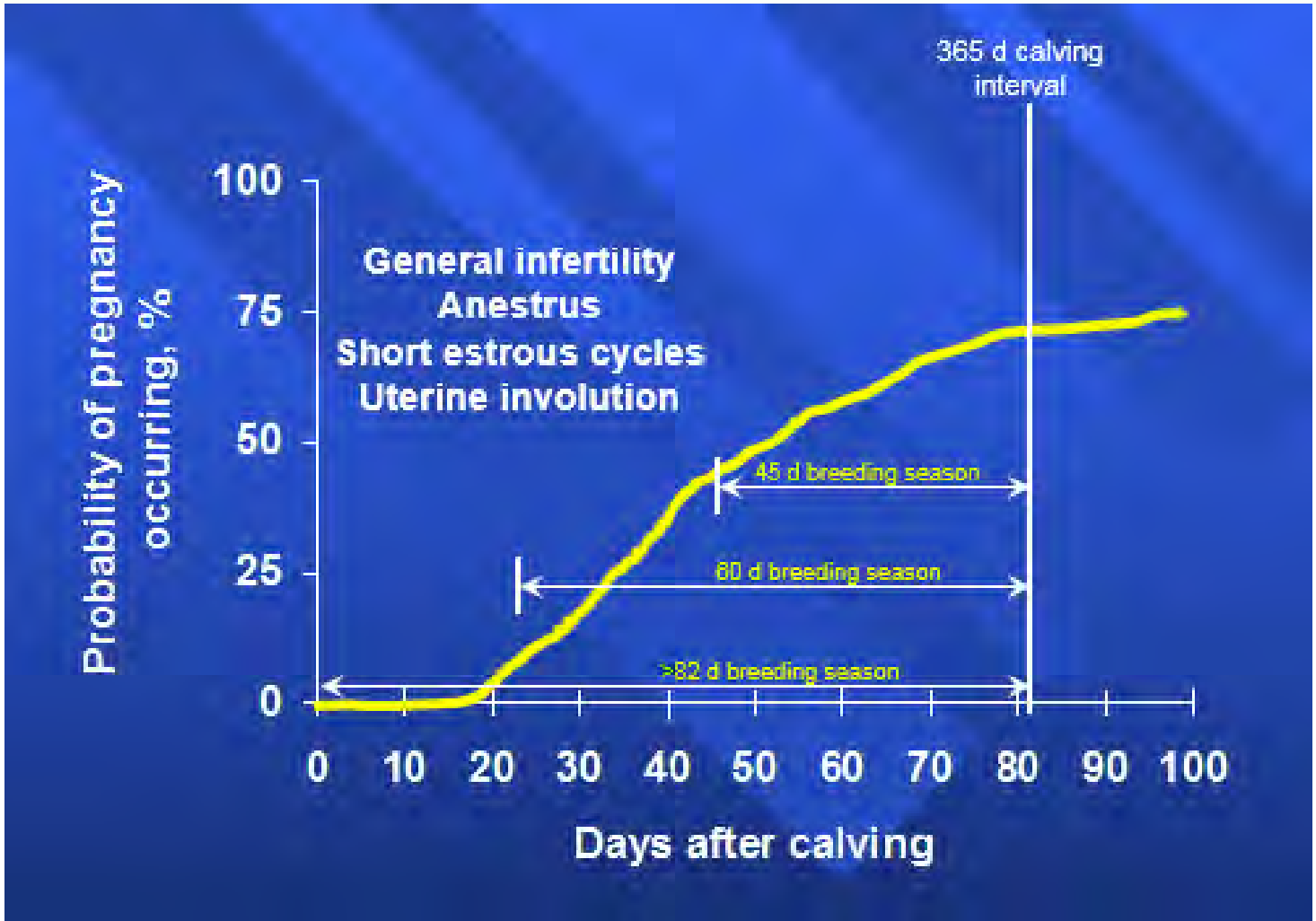
Genex Cooperative, Inc., 100 MBC Drive
P.O. Box 469, Shawano, Wisconsin 54166
Phone: 715-526-2141 or 888-333-1783

Select Sires, Inc., 11740 U.S. 42 North, Plain City, Ohio 43064
Phone: 614-873-4683

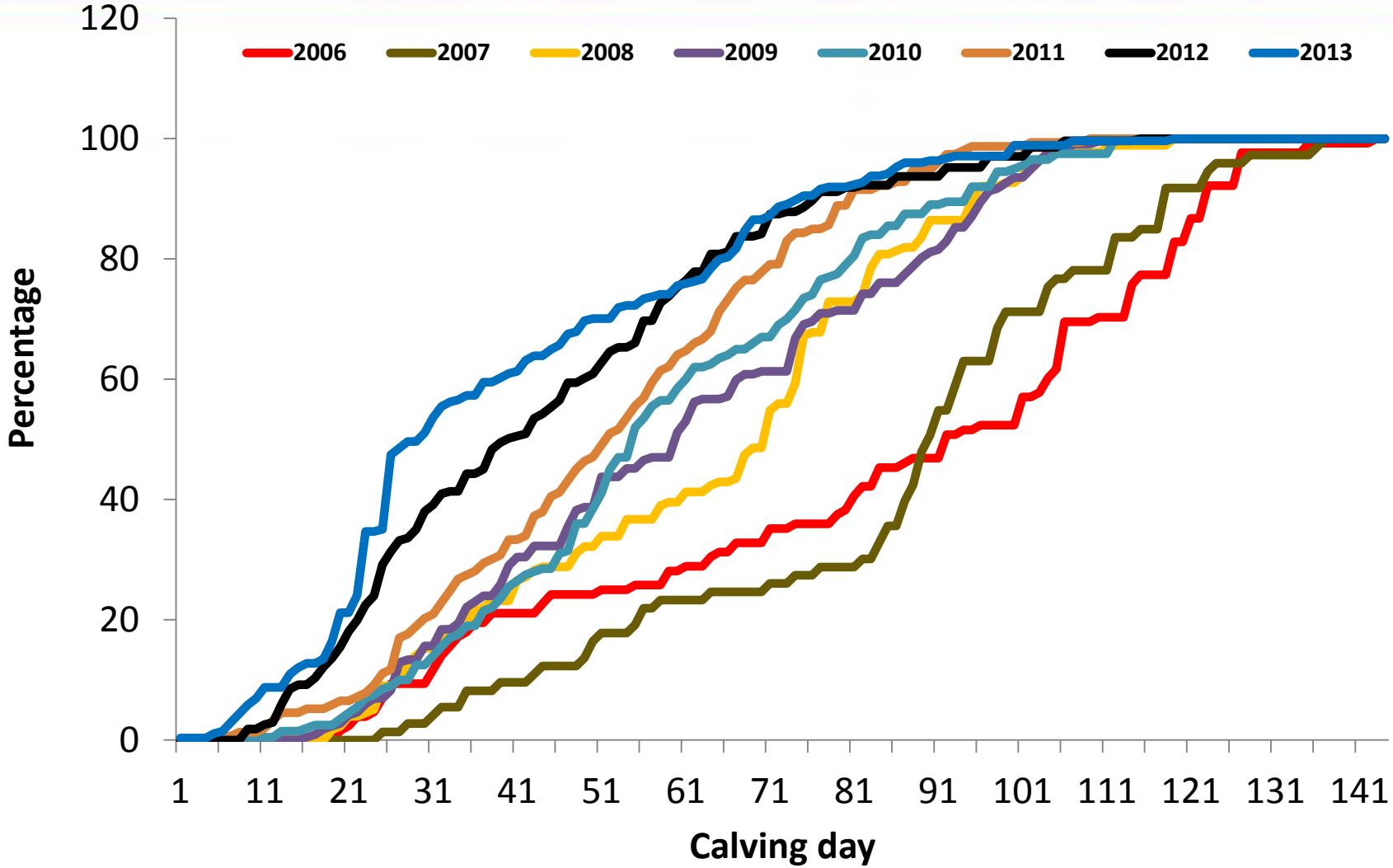
Accelerated Genetics, E10890 Penny Lane, Baraboo, Wisconsin 53913
Phone: 608-356-8357 or 800-451-9275

What are Some Important Requirements to Developing a Sound AI Program?

Have an established breeding season



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

Ensure that the nutritional status of the herd allows for cows to reinitiate estrous cycles soon after birth

Facilities that allows producers to restrain cattle in such a way that they can administer pharmaceutical products and artificially inseminate cows

Know which traits are important for your herd and identify and purchase semen from proven AI sires

TRAIT	CED	BW	WW	YW	RADG	YH	SC
EPD	+13	-0.8	+55	+102	+.22	+0.3	+1.72
ACC	.89	.95	.93	.91	.68	.90	.91

TRAIT	CEM	MILK	H/Dt	MW	MH	HP	DOC
EPD	+12	+26	229	+22	+0.4	+14.7	23
ACC	.76	.85	809	.71	.70	.34	.82

TRAIT	CW	MARB	REA	FAT	Carc	Str	Total
EPD	+38	+.57	+.17	+.035	27	18	593
ACC	.71	.75	.74	.74	89	55	1702

$ VALUES			
$EN	$W	$G	$B
-1.08	+63.24	+26.42	+90.83

Individual Performance		
BW	70	
205	724	115 ratio
365	1335	124 ratio
SC	42.1	12 Mo.
YFS/FS	N/A	
Weight	N/A	
Height	57.5	Mat.
Born: 1/22/05		

When possible, utilize semen from a major semen company rather than using custom collected semen

ABS Global, Inc., 1525 River Rd DeForest, Wisconsin, 53532
Phone: 608-846-3721

Genex Cooperative, Inc., 100 MBC Drive
P.O. Box 469, Shawano, Wisconsin 54166
Phone: 715-526-2141 or 888-333-1783

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Phone: 608-356-8357 or 800-451-9275

Familiarize yourself with the pharmaceutical products used in the estrus synchronization protocol and be sure that the correct product is administered at the correct time.

GnRH Products

Cystorelin®
Factrel®
Fertagyl®
OvaCyst ®

PGF Products

estroPLAN®
Estrumate®
In-Synch®
Lutalyse®
Prostamate®

Progesterone Products

Melegestrol Acetate (MGA)
CIDR

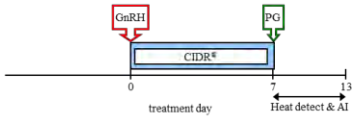
Estrus Synchronization and AI in Beef Cattle

Beef Cow Protocols - 2014

Heat Detection

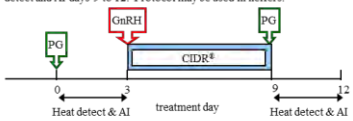
Select Synch

Select Synch + CIDR®



PG 6-day CIDR®

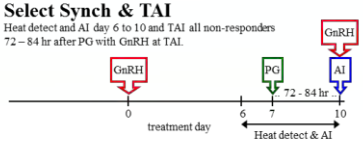
Heat detect and AI days 0 to 3. Administer CIDR to non-responders and heat detect and AI days 9 to 12. Protocol may be used in heifers.



Heat Detect & Time AI (TAI)

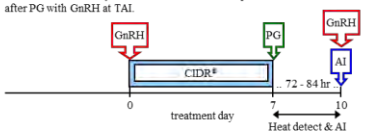
Select Synch & TAI

Heat detect and AI day 6 to 10 and TAI all non-responders 72 – 84 hr after PG with GnRH at TAI.



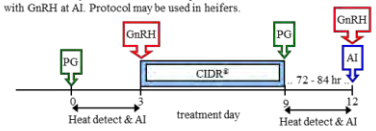
Select Synch + CIDR® & TAI

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



PG 6-day CIDR® & TAI

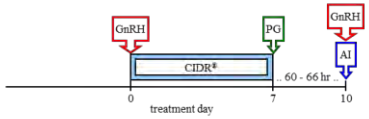
Heat detect & AI days 0 to 3. Administer CIDR to non-responders & heat detect and AI days 9 to 12. TAI non-responders 72 - 84 hr after CIDR removal with GnRH at AI. Protocol may be used in heifers.



Fixed-time AI (TAI)*

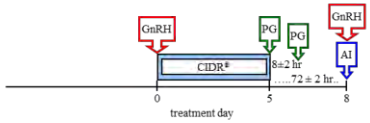
7-day CO-Synch + CIDR®

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



5-day CO-Synch + CIDR®

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



Fixed-time AI (TAI)*

for *Bos Indicus* cows only

PG 5-day CO-Synch + CIDR®

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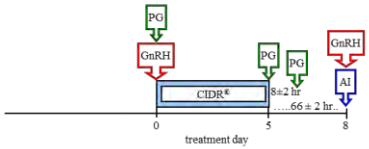

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GnRH Cystorelin®, Factrel®, Fertagyl®, OvaCyst®

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

Approved 12-01-13

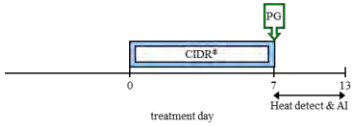
Beef Reproduction Task Force

Beef Heifer Protocols - 2014

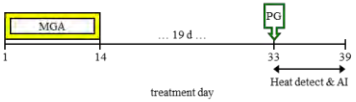
Heat Detection

1 Shot PG

7-day CIDR®-PG



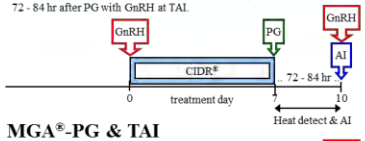
MGA®-PG



Heat Detect & Time AI (TAI)

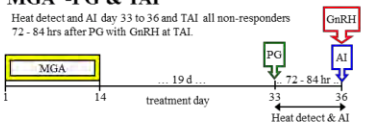
Select Synch + CIDR® & TAI

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



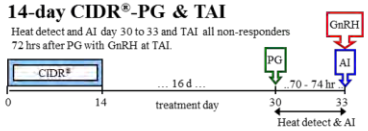
MGA®-PG & TAI

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®

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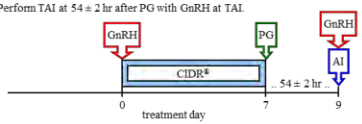
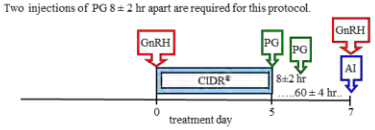


5-day CO-Synch + CIDR®

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.



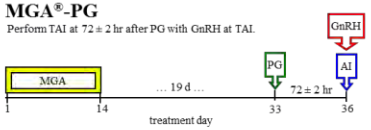
Long-term Protocols

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.



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

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

Approved 12-01-13

Beef Reproduction Task Force

Estrus Synchronization Planner

www.iowabeefcenter.org/estrus_synch.html

Estrus Synchronization Planner

synch 15

Producer Name:
Address:
Town:
Phone Number:

Group:
Prepared by:
Phone Number:

Inputs

Tips

Breed Type: 1=Bos taurus, 2=Bos indicus influence	1
Date to start breeding:	12/1/2014
Time of day you want to breed:	8:30 AM
Protocol: 1=Estrus AI, 2=Estrus AI & Clean-up AI, 3=Fixed-Time AI	3
Synchronization System: select number from lists below	22
GnRH product: 1=Cystorelin, 2=Factrel, 3=Fertagyl, 4=OvaCyst, 5=GONAbreed	1
PG product: 1= Estrumate, 2= EstroPLAN, 3= InSynch, 4=Lutalyse, 5= ProstaMate	1
Days from last AI to bull turn in:	26

Output	
Expected Calving Date:	9/8/2015
CIDR removal:	11/28/14 2:30 PM
Trips Through Chute	3
Equivalent Heifer System	23

Cost Comparison	
Alternative System 1:	16
Alternative System 2:	19

Select number from lists below.

Fixed-Time AI Cow Systems
22 = 7 Day CO-Synch+CIDR with Fixed-Time AI - 66
29 = 5 Day CO-Synch+CIDR with Fixed-Time AI-72
Less Preferred Systems
10 = CO-Synch with Fixed-Time AI
13 = OvSynch
35 = PG 6 Day CIDR with Fixed- Time AI - 69

Fixed-Time AI Heifer Systems
23 = 7 Day CO-Synch+CIDR with Fixed-Time AI - 54
27=MGA + PG with Fixed-Time AI
32=14 Day CIDR+PG with Fixed- Time AI
38 = 5 Day CO-Synch+CIDR with Fixed-Time AI-60
Less Preferred Systems
28=CIDR Select with Fixed-Time AI
36 = PG 6 Day CIDR with Fixed- Time AI - 66

Estrus Synchronization Planner

10/6/14

22 = 7 Day CO-Synch+CIDR with Fixed-Time AI - 66

Producer Name: _____
Address: _____
Town: _____
Phone Number: _____
Group: _____
Prepared by: _____
Phone Number: _____

GnRH= Cystorelin *PG= Estrumate*

Date to start breeding:	12/1/2014
Clean-up bull turn in date:	12/27/2014
Start of calving season:	9/8/2015

CIDR removal: 2:30 PM on 11/28/2014
Fixed time AI done @ 8:30 AM on 12/1/2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
11/16/2014	11/17/2014	11/18/2014	11/19/2014	11/20/2014	11/21/2014	11/22/2014
					* Insert CIDR device in all females * Inject Cystorelin - all females	
11/23/2014	11/24/2014	11/25/2014	11/26/2014	11/27/2014	11/28/2014	11/29/2014
					* Remove CIDRs * Estrumate injection - all females	
11/30/2014	12/1/2014	12/2/2014	12/3/2014	12/4/2014	12/5/2014	12/6/2014
	* Cystorelin injection & Fixed time AI (60-66 hrs after Estrumate)					

Estrus Synchronization Planner App

http://estrussynch.com/

EstruSynch

estrus synchronization planner

Herd Information	Step 1
Select System	Step 2
Results	Step 3

Herd Information

Breed Type:

Bos taurus

Age:

Cow

Head in group:

100

Breeding Program

Date to start breeding:

12/1/2014

Time of day:

7:00 AM

Insemination method:

Fixed-Time AI

Days from last AI bull turn in:

10

Input Costs

Labor costs ($/hr):

13.50

PG ($/dose):

2.80

GnRH ($/dose):

2.90

CIDR ($/insert):

11.00

Semen ($/unit):

25.00

next

a collaborative effort between:

Southeast Cattle Advisor
Iowa Beef Center
Repro Task Force

EstruSynch

estrus synchronization planner

Herd Information	Step 1
Select System	Step 2
Results	Step 3

Recommended

- (•) 7 Day CO-Synch+CIDR with Fixed-Time AI - 66
- ( ) 5 Day CO-Synch+CIDR with Fixed-Time AI

Less Preferred

- ( ) CO-Synch with Fixed-Time AI
- ( ) OvSynch
- ( ) PG 6 Day CIDR with Fixed- Time AI - 69

This system works well in cows.

No estrus detection required.

Fixed time AI can be done at 60 to 66 hrs. post PG injection.

All females require a GnRH injection at fixed-time AI.

This system can initiate estrous cycles in some noncycling females.

Expect lower fertility in cows less than 50 days postpartum at time of PG injection.

back next

a collaborative effort between:

Southeast Cattle Advisor
Iowa Beef Center
Repro Task Force

EstruSynch

estrus synchronization planner

Herd Information	Step 1
Select System	Step 2
Results	Step 3

a collaborative effort between:

Southeast Cattle Advisor
Iowa Beef Center
Repro Task Force

Results

Program Selected:
7 Day CO-Synch+CIDR with Fixed-Time AI - 66

Trips through facility:	3
Labor estimate (hours):	43.8
Cost / female synchronized:	$50.51
Total Cost:	$5051.30

Synchronization and Breeding Schedule

Email Results

1: Fri Nov 21 2014

- Insert one CIDR device in each female.
- Inject Gonadotropin Releasing Hormone (GnRH) to all females.

2: Fri Nov 28 2014

- Remove the CIDR device from each female.
- Inject Prostaglandin (PG) to all females at:
- 1:00 pm

3: Mon Dec 1 2014

- Inject Gonadotropin Releasing Hormone (GnRH) to all females.
- Breed all females at time of GnRH injection at:
- 7:00 AM
- Processed 60 to 66 hours after PG injection.

4: Thu Dec 11 2014

- Turn clean up bulls in with females.
- Immediate addition of clean-up bulls could lead to questions about parentage.

back

FILE MESSAGE McAfee E-mail Scan

Ignore Junk Delete Reply Reply All Forward Meeting IM More Financial Team Email Reply & Delete To Manager Done Create New Move

Delete Respond Quick Steps

Mon 10/6/2014 10:47 AM

do-not-reply <do-not-reply@estrussynch.com>

Estrus Synchronization Results

To Lamb,G. Cliff

Results

Program Selected:

7 Day CO-Synch+CIDR with Fixed-Time AI - 66

Trips through facility:
3
Labor estimate (hours):
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Cost / female synchronized:
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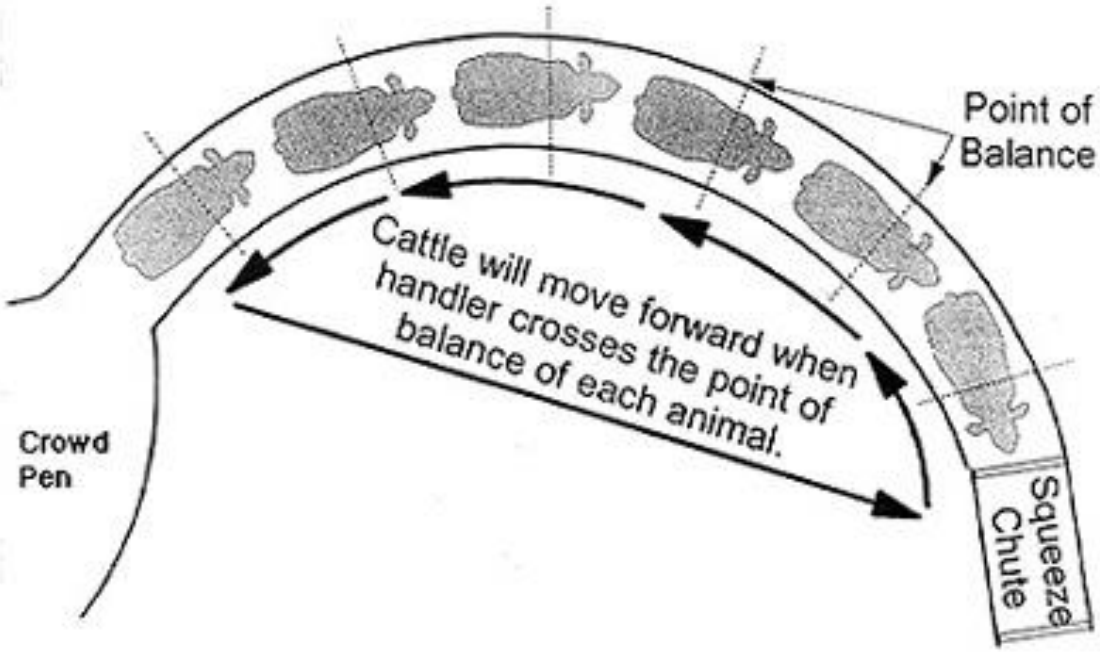
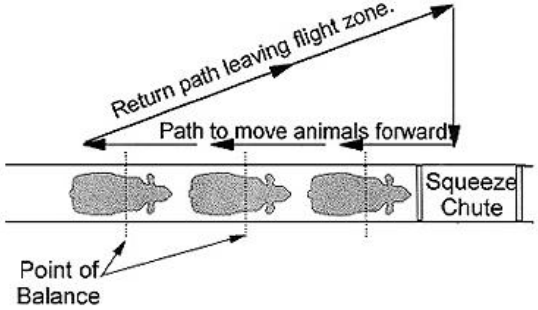
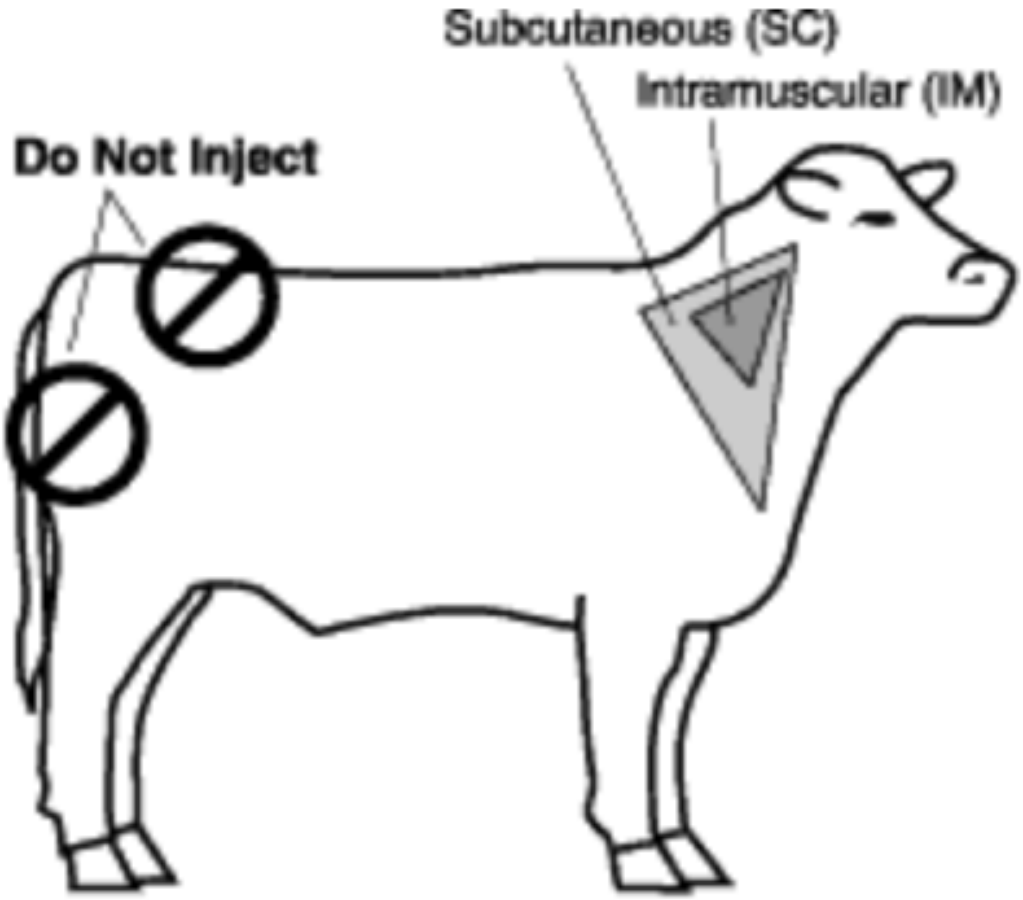
- 7:00 AM

Utilize good animal handling techniques



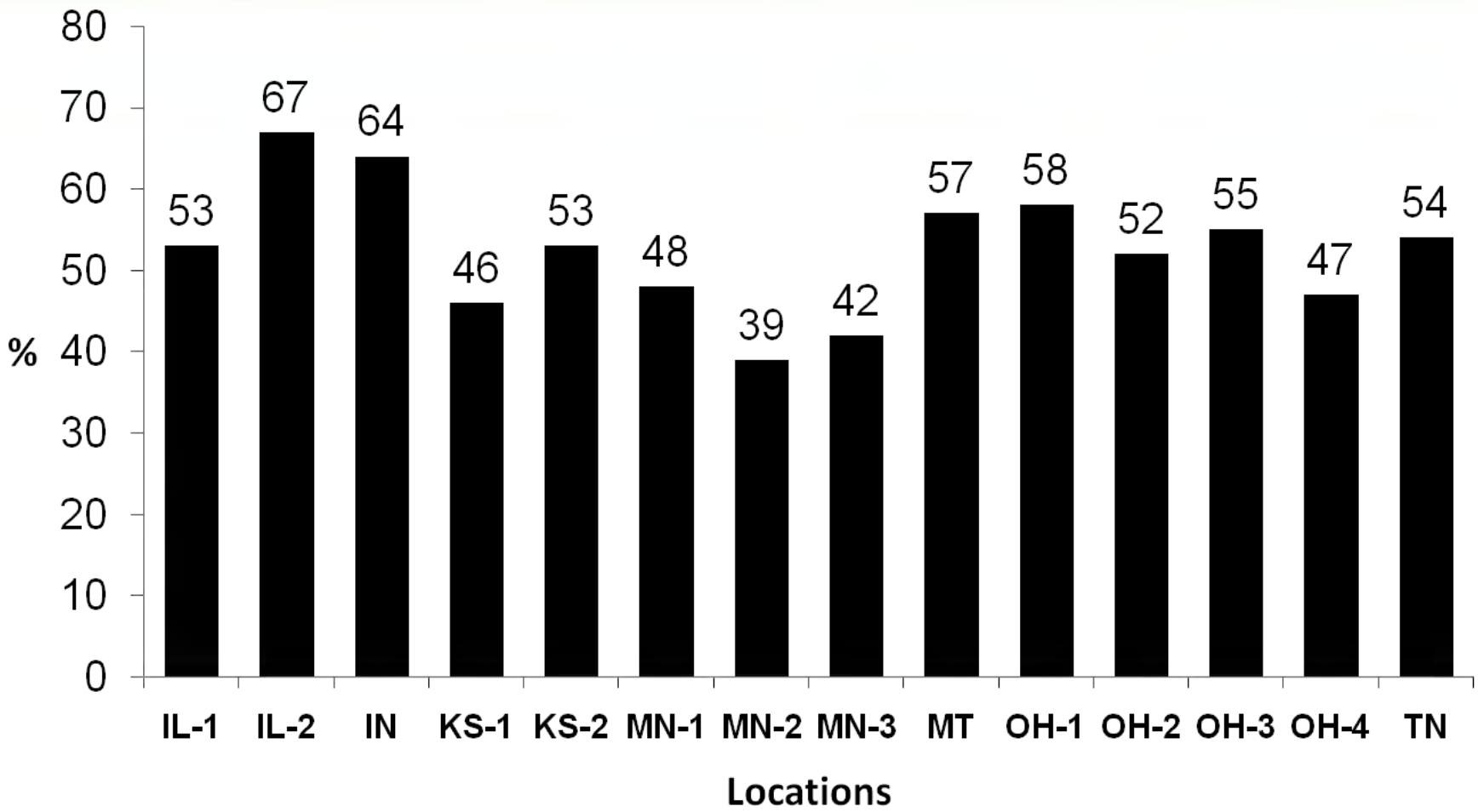


Use good Beef Quality Assurance techniques



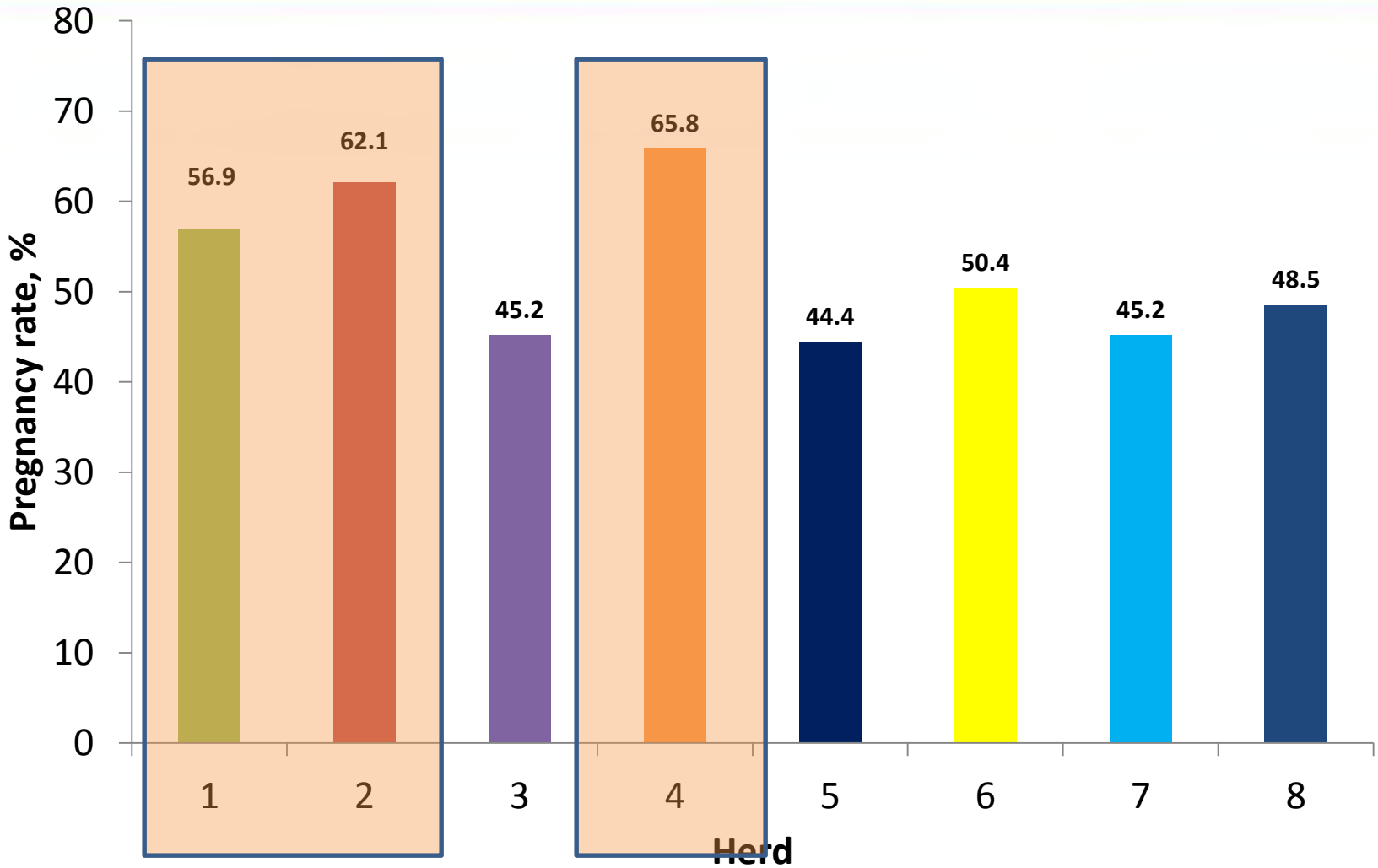
Have realistic expectations from your AI program!

Location/Herd Effects

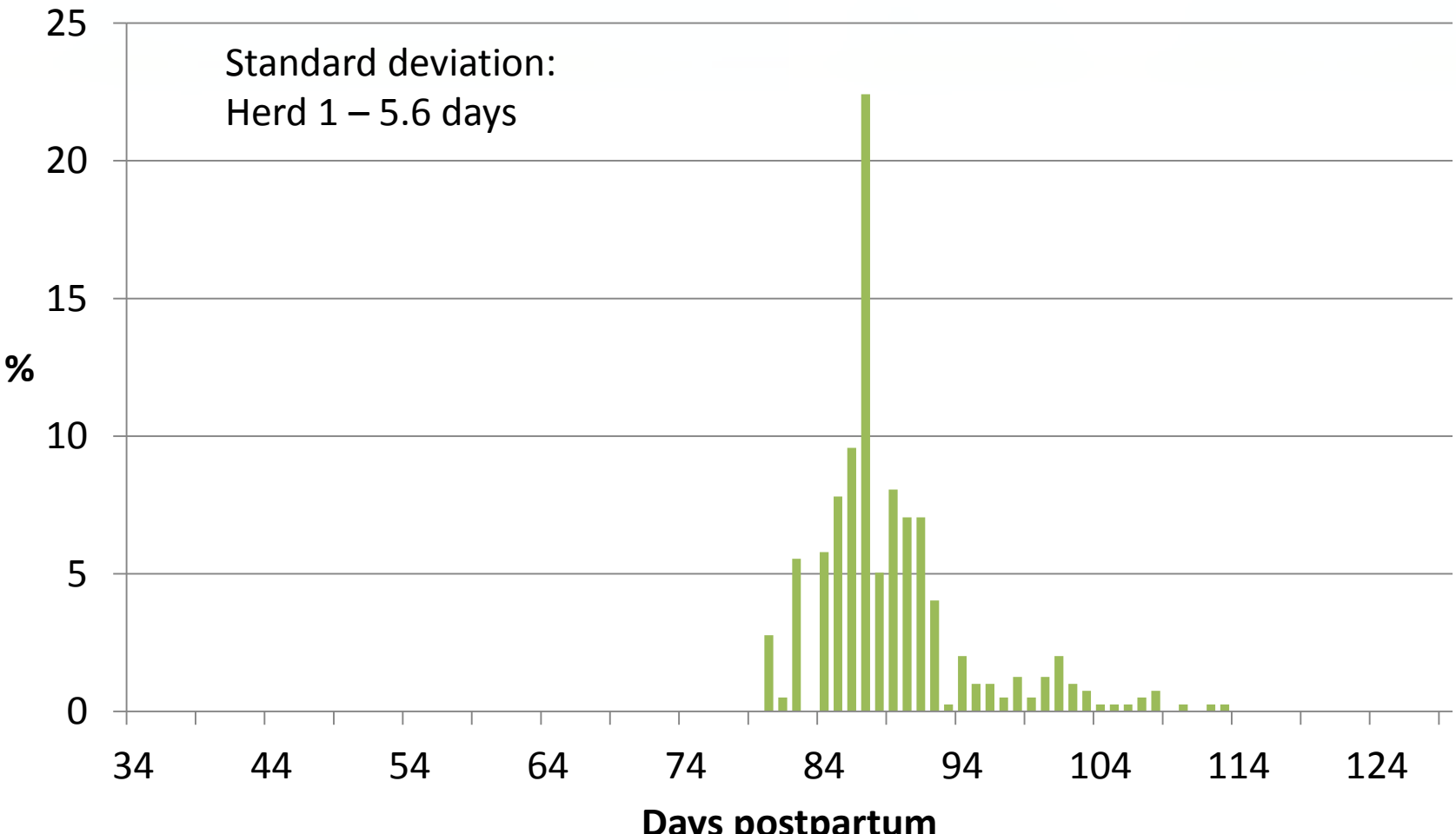


(Larson et al., 2006)

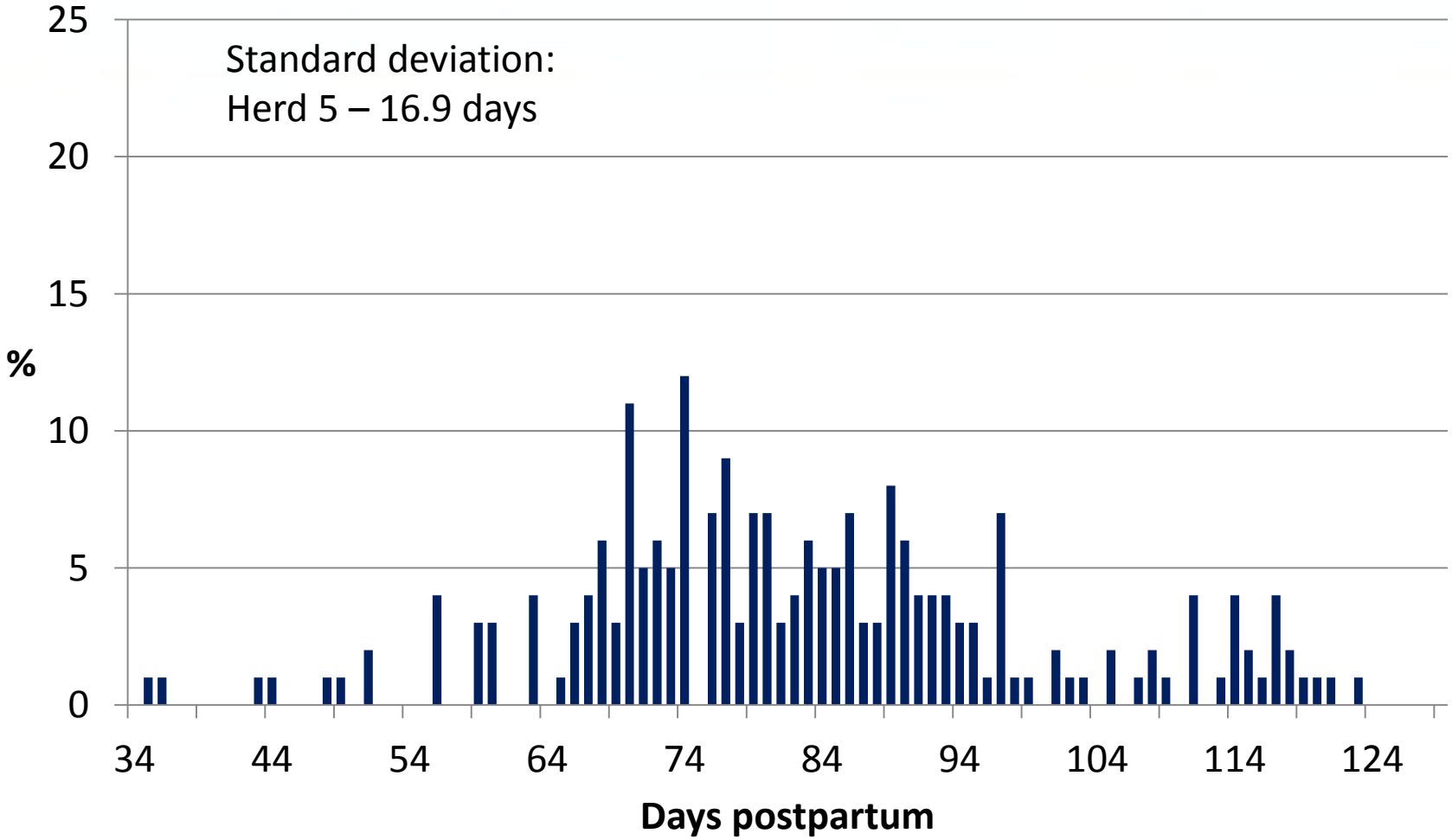
Pregnancy Rates by Herds

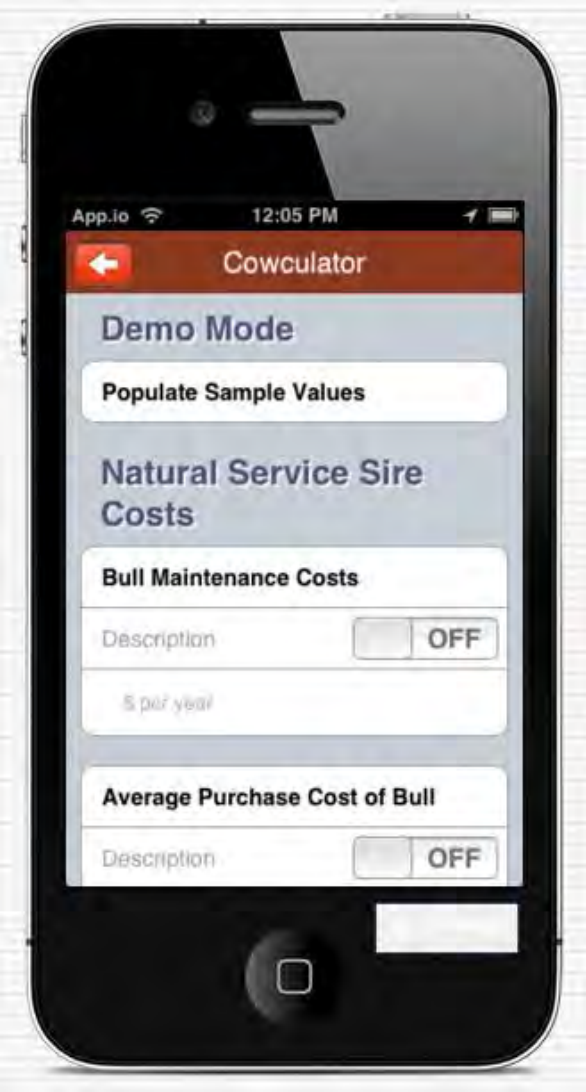


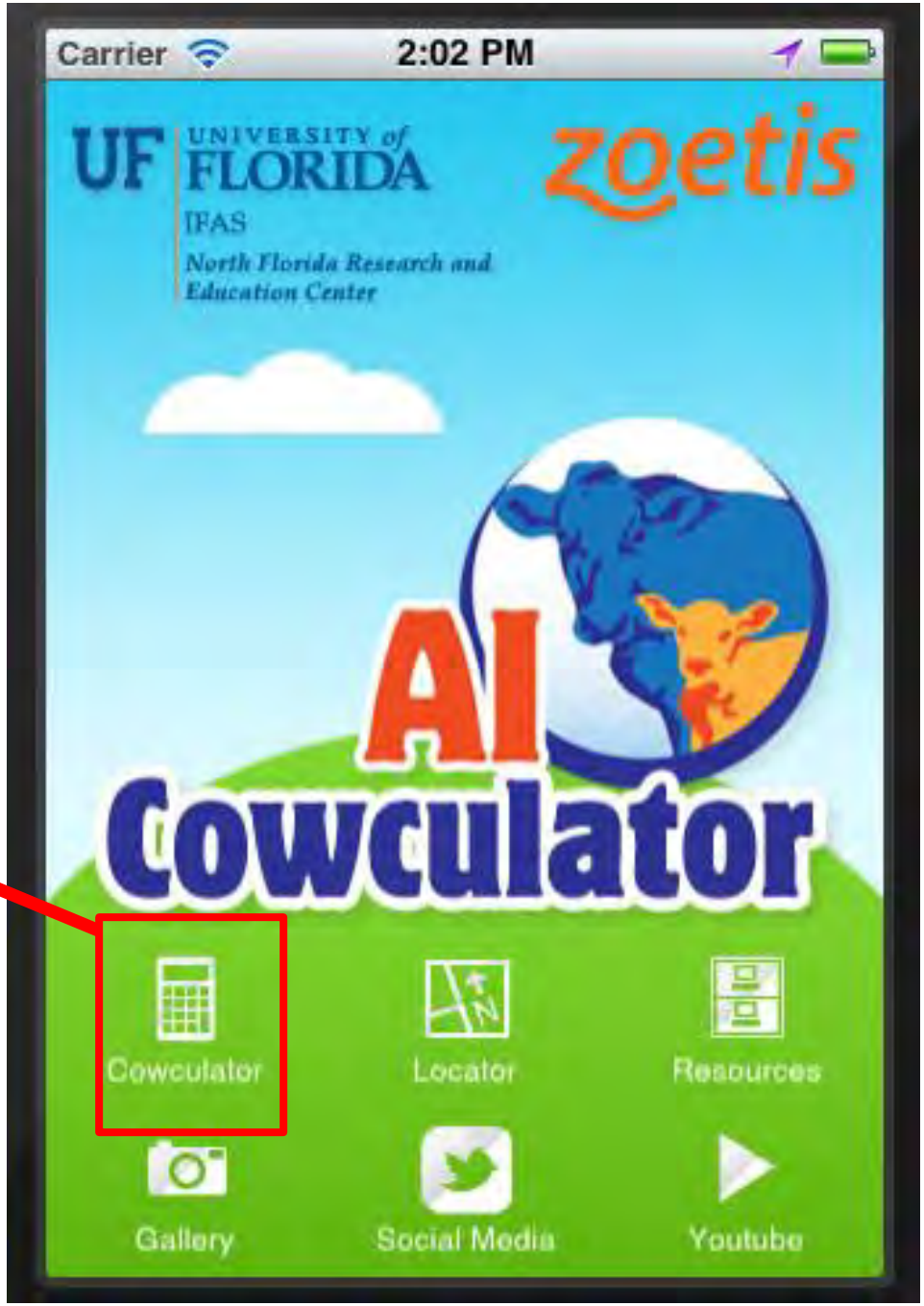
Distribution of Days Postpartum – Herd 1

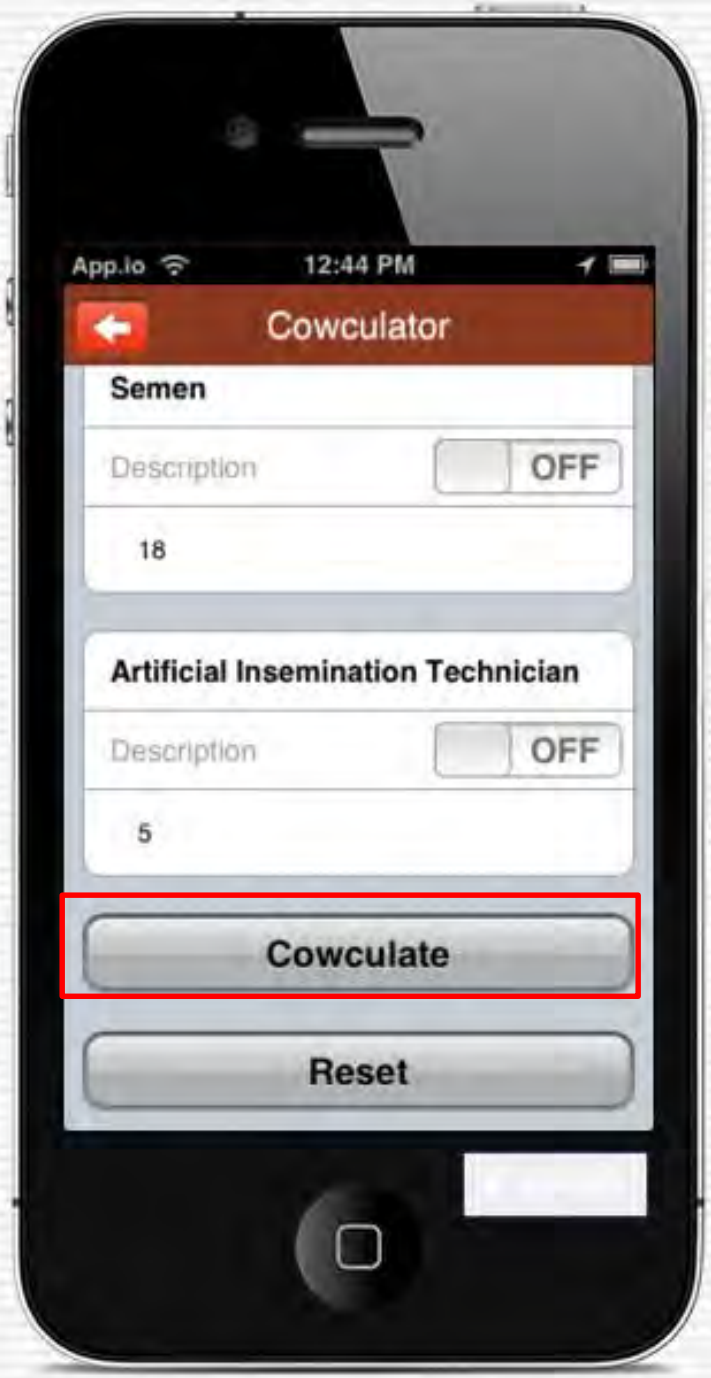


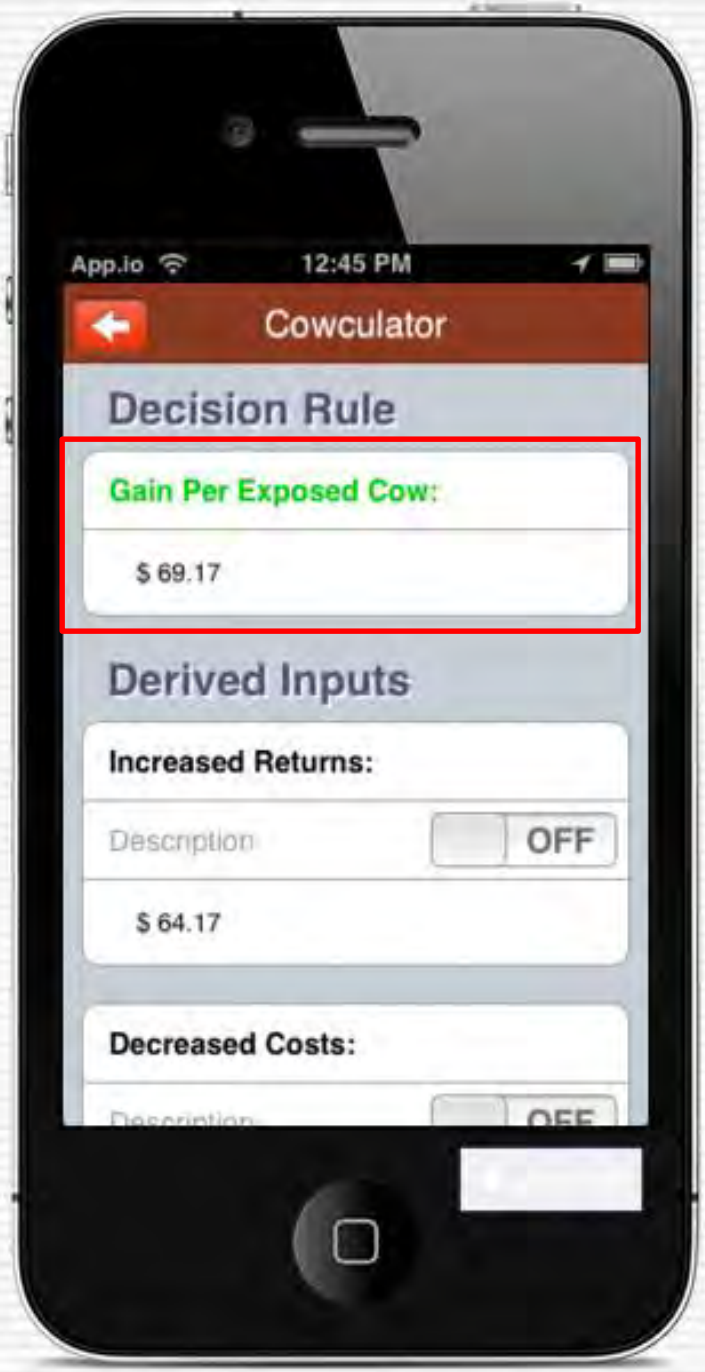
Distribution of Days Postpartum – Herd 5




App.io
12:05 PM
Cowculator
Demo Mode
Populate Sample Values
Natural Service Sire Costs
Bull Maintenance Costs
Description
OFF
5 per year
Average Purchase Cost of Bull
Description
OFF


Carrier
2:02 PM
UF UNIVERSITY of FLORIDA
IFAS
North Florida Research and Education Center
zoetis
AI Cowculator
Cowculator
Locator
Resources
Gallery
Social Media
Youtube


App.io
12:44 PM
Cowculator
Semen
Description
OFF
18
Artificial Insemination Technician
Description
OFF
5
Cowculate
Reset


App.io
12:45 PM
Cowculator
Decision Rule
Gain Per Exposed Cow:
$ 69.17
Derived Inputs
Increased Returns:
Description
OFF
$ 64.17
Decreased Costs:

AI Cowculator

Cliff Home

You are posting, commenting, and liking as **Cliff Lamb** — Change to AI Cowculator

AI Cowculator | Timeline | Recent | Admin Panel

AI Cowculator

360 likes · 8 talking about this

Update Page Info | ✓ Liked | ✓ Following | Message

Product/Service

Simply insert information such as number of cows to be bred, expected calving rates, and some costs and the AI Cowculator will help you determine if it is finacially feasable to AI your cattle.

360

About

Photos

Likes

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	$4,000.00
Useful Life	4
Salvage Value	$105.00
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	$165.00

Increased costs

Additional Labor	$4.10
Facilities & Equipment	$0.00
Estrous Synch Products	$13.08
Semen	$18.00
Artificial Insemination Technician	$5.00

Partial Budget

Decision Rule

Gain/Loss Per Exposed Cow	$69.17
Gain/Loss Per Herd	$2,351.78

Derived Inputs

Increased Returns	$64.17	Decreased Returns	$0.00
Decreased Costs	$45.18	Increased Costs	$40.18

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CME Group

UF IFAS UNIVERSITY of FLORIDA

Beef Reproduction Task Force

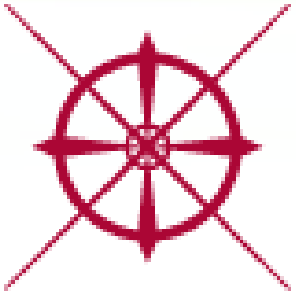
Authors:

Dr. G. Cliff Lamb
Dr. Nicolas DiLorenzo
Darren D. Henry
Vitor R.G. Mercadante
Paula M. Mercadante
Francine Messias

Change in value based on herd sire costs

	Bull Value		
Item	**$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**

SE Cattle Advisor
http://www.secattleadvisor.com/



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THANK YOU!