

Cornell University

## **Estrous Synchronization and AI to improve profitability**



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# http://beefcattle.ansci.cornell.edu/



## Beef Cattle Management

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### All Forage Bull Test, 55 day report

Bulls on the All Forage Bull Test were weighed this week. Over the last 27 days the bulls gained 2.4 lbs/day with a cumulative gain of 2.3 lbs/day. For the complete report [click here](#).

This entry was posted in [Uncategorized](#) on [March 13, 2014](#) by [Michael James Baker](#).

### What's a bull worth?

The following article appeared in the Ohio Beef Cattle Letter, <http://beef.osu.edu/beef/beefMar1214.html>. It was a very concise view of looking at the value of a bull. Let me know what you think.

**What is a Bull Worth?** – Patrick Gunn, Iowa State University Extension cow-calf specialist

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# Why estrous synchronization?

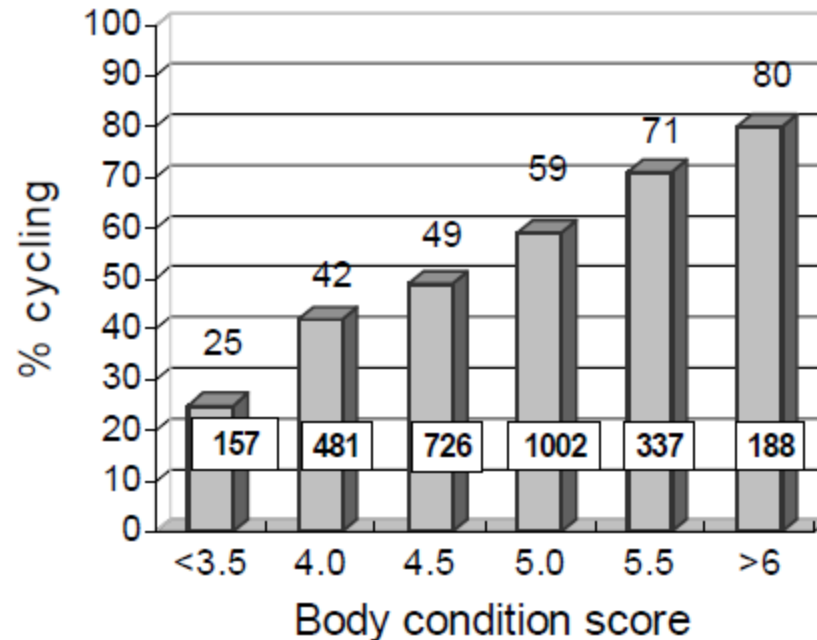
1. More calves in 1<sup>st</sup> days of calving season
  - a. More pounds weaned
  - b. More heifers breeding early (longevity 5.1 yr. vs 3.9 yr.)
2. Labor on part-time farms
3. Greater response to AI in subsequent years



# Tips for successful estrous synchronization and AI

1. Handling facilities
2. Calving distribution - > 50 days pp
3. Weight/parity
4. BCS

Figure 4. Effect of body condition score at breeding on proportion of cows cycling.





# Tips for successful estrous synchronization and AI (cont.)

5. Semen
6. Labor/technicians
7. Heat detection
8. Strict compliance with protocols
9. Animal ID and record keeping



# Successful breeding of heifers

1. Weaning to breeding should be gaining 1.5-2.0 lbs./day
2. Should be 60% of their mature weight at breeding
3. No abrupt change in nutrition 21 days following breeding



# Synchronization methods

1. Heat detection
2. Heat detect and Fixed-time AI (TAI)
3. Fixed-time AI



# Questions to ask

- How many times am I willing to put the cows through the chute?
- How much am I willing to spend?
- What are my expectations for results?
  - US Average is 50%, but varies





# Products used

Type	Commercial Names
GnRH	Cystorelin <sup>®</sup> , Factrel <sup>®</sup> , Fertagyl <sup>®</sup> , OvaCyst <sup>®</sup>
PG	estroPLAN <sup>®</sup> , Estrumate <sup>®</sup> , In-Synch <sup>®</sup> , Lutalyse <sup>®</sup> , ProstaMate <sup>®</sup>
Progestin	MGA <sup>®</sup> (melengesterol acetate) CIDR <sup>®</sup> (progesterone)



## Impact of a Progestin on Estrous Response and Synch Preg. Rates

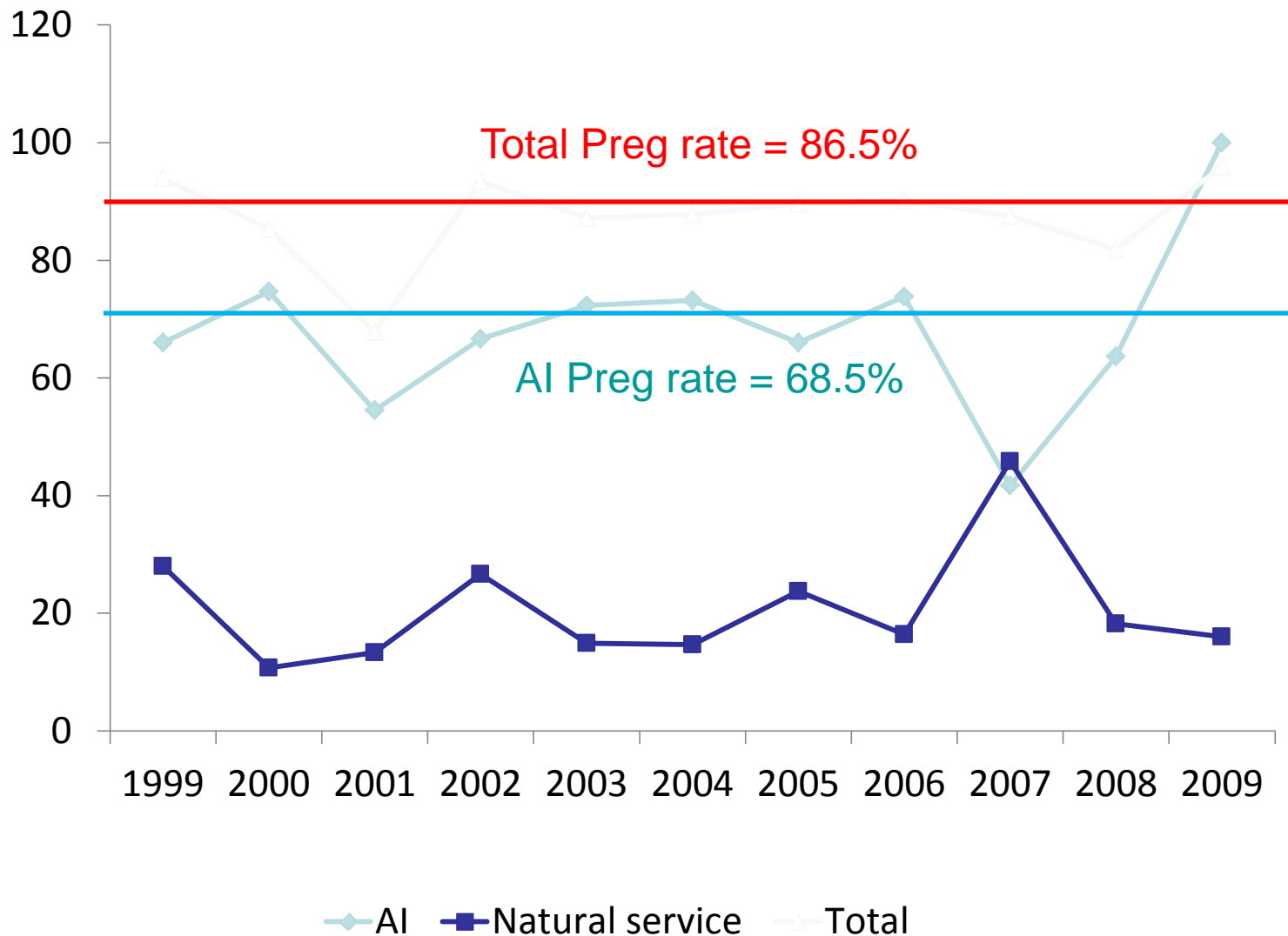
Patterson, et.al.: 2004 NE Applied Repro Conference

Heat detect system	Estrous response	Synch preg. rate
2 shot PG	241/422 = 57%	147/422 = 35%
MGA-PG 17d.	305/408 = 75%	220/408 = 54%
MGA-2 shot PG	327/348 = 93%	243/348 = 70%
MGA-PG 19d.	161/188 = 85%	130/210 = 62%
MGA Select	275/313 = 88%	195/313 = 62%
7-11 Synch	142/155 = 93%	101/155 = 65%





# Pregnancy rate in the Empire Heifer Development Program





# Estrous Synchronization Systems Abound

Each has its own unique timing

MGA/PGF

7-11 Synch

Two shot PGF

CO-synch+CIDR

Hybrid Synch

Select Synch

MGA Select

Hybrid Synch+CIDR

Ov-synch

Presynch

Heat Synch

Resynch

One shot PGF

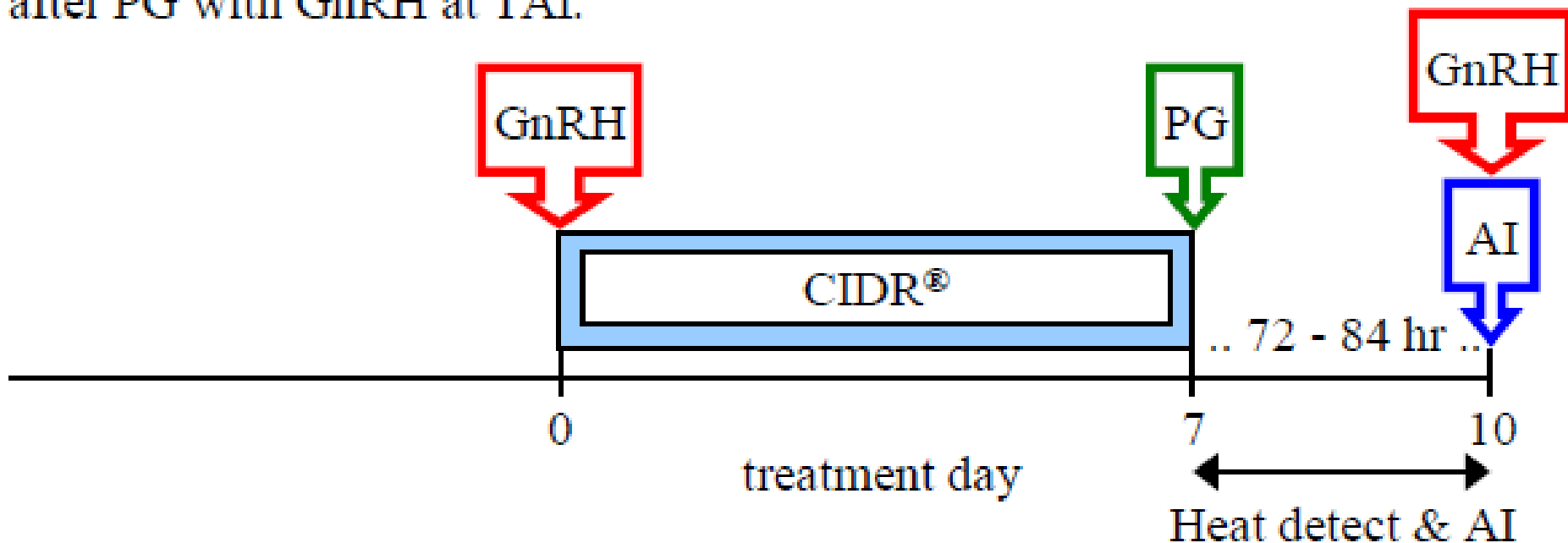
CIDR/PGF

CO-synch



# Select Synch + CIDR<sup>®</sup> & TAI

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



# Estrus Synchronization Planner

[http://www.iowabeefcenter.org/estrus\\_synch.html](http://www.iowabeefcenter.org/estrus_synch.html)



**Estrus Synchronization Planner**



<u>Budget assumptions</u>	NS	AI
Number of cows	25	25
Pregnancy rate (cows)	90%	95%
Heifer replacement rate	20%	20%
Number of heifers	5	5
Pregnancy rate (heifers)	85%	90%
Average weaning weight of calves	575	598
Average calf value	\$ 1.50	\$ 1.50 /lb
Bulls required	1	1
Average purchase price of bulls	2750	2750/hd
Salvage value of bulls	1700	1700/hd
Useful life of bull	3	3
Annual bull maintenance expense	650	650
Probability of bull loss	20%	20%
Interest rate	5.5%	5.5%
ES-AI Pregnancy rate		65%



	<b>NS</b>	<b>ES-AI</b>	
WW EPD	47	70	
Added pounds	0	23	
Value	\$0	\$35	
Calf receipts	<b>\$ 863</b>	<b>\$ 897</b>	
No. live calves-cows	23	24	
CE EPD	5	12	
Additional calves	-1	0	
No. live calves-heifers	4	5	
Receipts per herd	<b>\$ 22,425</b>	<b>\$ 25,565</b>	<b>\$ 3,140</b>





Expenses		Annual	
Purchase	2750	917	
Maintenance	650	650	
Interest	151	50	
Risk of bull loss	445	445	
Total expense		\$ 2,062	
Salvage value	1700	-567	
Annual ownership expense		\$ 1,495	
Total cost of ES-AI		1359	
Cost per cow, ES-AI	\$ -	\$ 45	
Cost per cow, NS	\$ 50	\$ 50	
Total breeding cost per cow	\$ 50	\$ 95	
Total cost per calf born	\$ 58	\$ 100	
Total herd breeding cost	\$ 1,495	\$ 2,854	\$ (1,359)
Added calf value			\$ 3,140
		NET	\$ 1,781



<b>Summary</b>	-----per herd-----		-----per cow-----	
	NS	AI	NS	AI
<b>Receipts/cow bred</b>	\$ 22,425	\$ 25,565	<b>\$748</b>	<b>\$852</b>
<b>Difference</b>		<b>\$ 3,140</b>		<b>\$105</b>
<b>Expenses</b>				
ES-AI	\$ -	\$ 1,359	\$ -	\$ 45
NS/cow	<u>1495</u>	<u>\$ 1,495</u>	<u>\$50</u>	<u>\$ 50</u>
Total breeding exp/cow bred	\$ 1,495	\$ 2,854	\$50	\$95
<b>Difference</b>		<b>\$ 1,359</b>		<b>\$45</b>
Breeding exp/calf born	\$ 1,495	\$ 2,854	\$ 58	\$ 100
<b>Difference</b>		<b>\$ 1,359</b>		<b>\$43</b>
Net return/calf born	\$ 20,930	\$ 22,710	\$ 690	\$ 752
<b>Difference</b>		<b>\$ 1,781</b>		<b>\$62</b>



# Summary

- Strict adherence to protocols
- Handling facilities
- Cow BCS
- Most benefit when increasing herd size to take advantage of technology





# Questions??

