



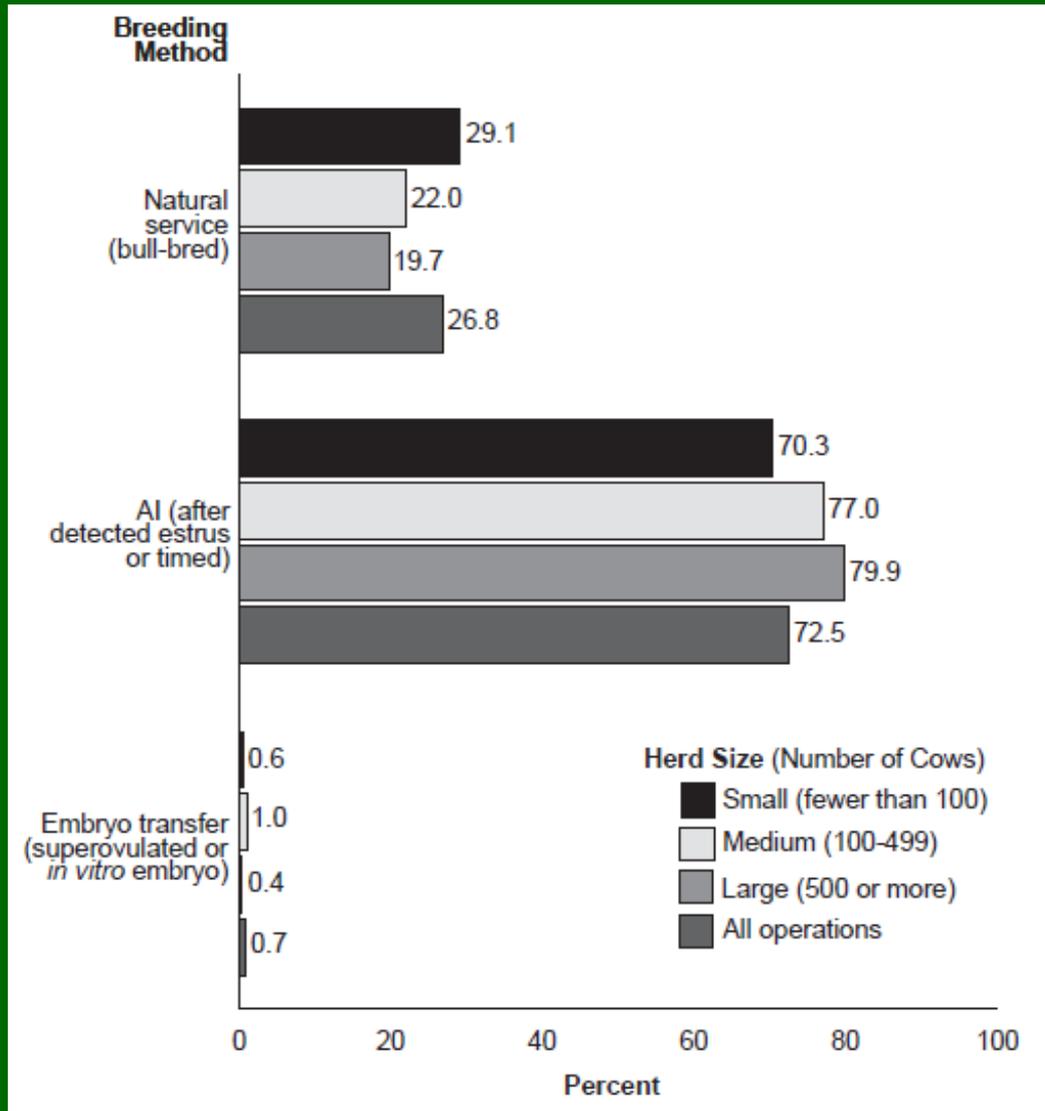
Artificial Insemination; Is it Worth My Time?

December 7th, 2010

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Artificial Insemination (AI) in the US Dairy Herd





Potential Benefits of AI:

Increase Uniformity of Calf Crop

Increase Weaning Weight

Enhance Carcass Value

Improve Genetics of Herd



Potential Benefits of AI:

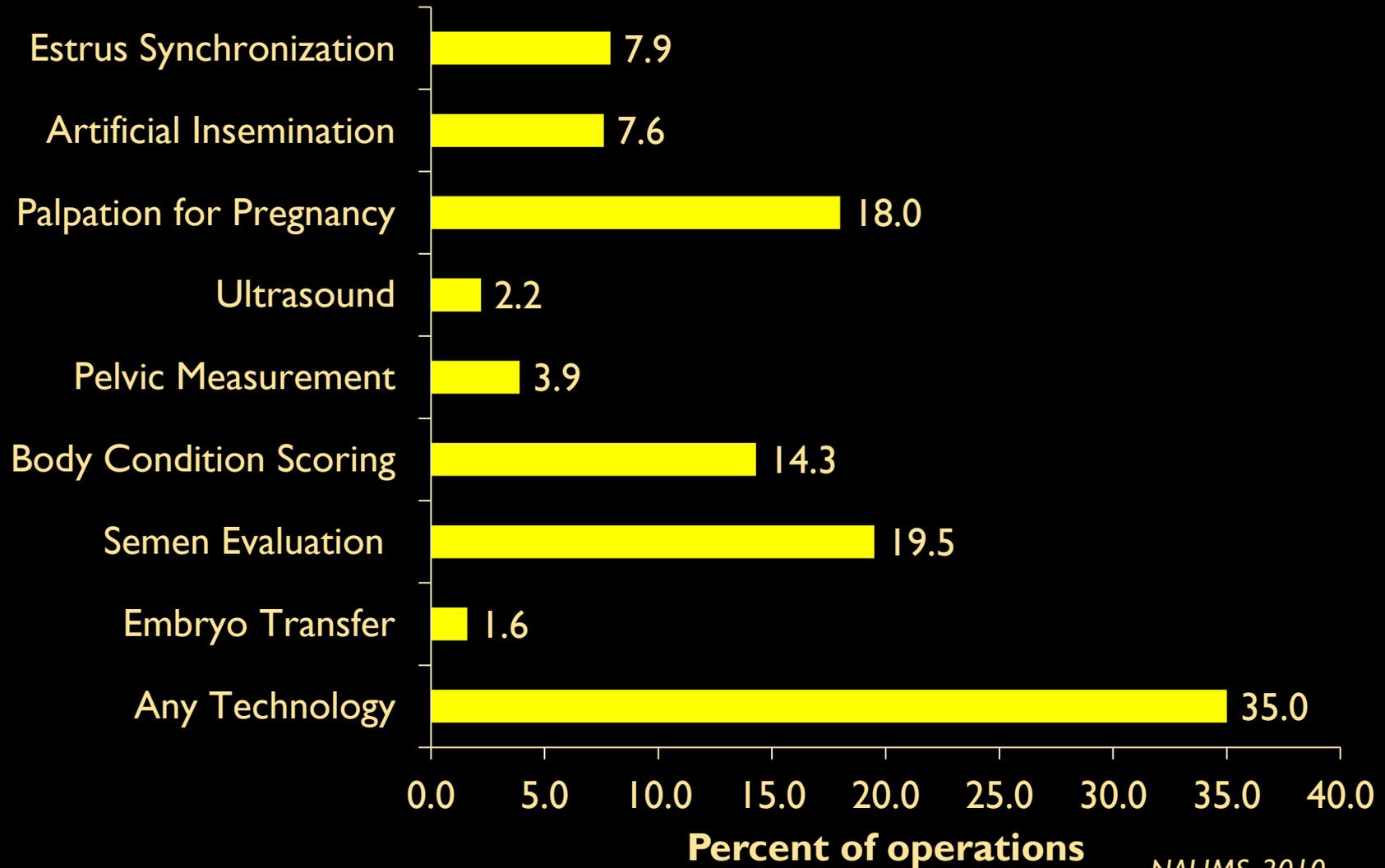
Reduce Risk of Disease

Reduce Birth Weight

Shorten Calving Season

Produce Calves of Known Sex?

Reproductive Technology Use in US Beef Herd



NAHMS, 2010



Potential Drawbacks of AI:

- Time and Labor
- Too Complicated
- Cost
- Facilities
- Do Not Work
- “Other”

Top 2 concerns = 55% of Operations



Estrous Synchronization Protocols

Hybrid Synch

Two shot PGF

MGA/PGF

Hybrid Synch+CIDR

Select Synch

7-11 Synch

14 d CIDR-PG & TAI

CO-Synch + hCG

MGA Select

PG-7-d CO-synch +CIDR

Ov-synch

Presynch

CO-synch

MGA-PG & TAI

Resynch

One shot PGF

Resynch

CIDR/PGF

7-d CO-synch + CIDR

5-d CO-synch + CIDR

Select Synch+CIDR & TAI

Heat Synch



What Makes a Good Protocol?

It HAS to work!!!

- 1) Maximum of 3 handlings
- 2) Synchronize cycling and non-cycling cows
- 3) Fixed-Time Insemination

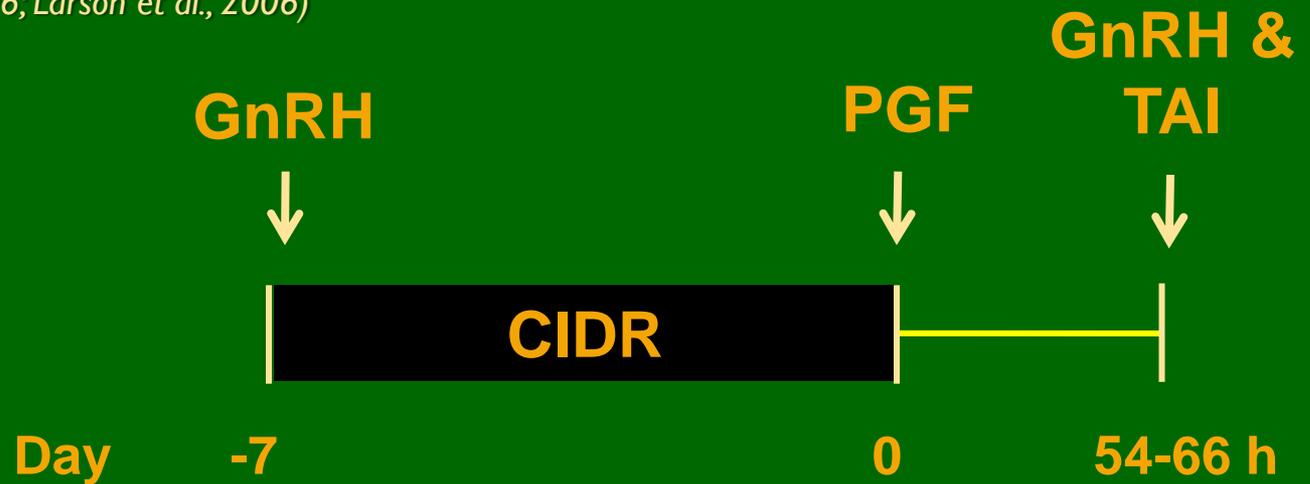




What Works?

CO-Synch + CIDR protocol

(Lamb et al., 2006; Larson et al., 2006)



What do we expect:

~56% pregnant (range of 43-74%)

How many cows does your bull cover in the first cycle?

~50% pregnant (Similar Range)

What Does AI Cost?

GnRH = \$4.40

CIDR = \$9.00

PGF = \$2.00

Semen = \$15.00

Labor = \$4.10

Total = **\$34.50**





What Does AI Cost?

Still need to have cleanup bulls

50% pregnancy rate to AI =

50% the bulls don't have to cover =

50% Fewer Bulls



Determining Bull Cost in a Natural Service Herd

Purchase Price

Feed

Yardage

Health

Interest

Stocking Rate

Useful Life

Depreciation

Death Loss

Salvage Value



Example of Cost

Purchase Price	<u>\$6,000</u>	Useful Life	3
Feed	\$365	Cost over Life	\$7,519
Yardage	\$91	Salvage Value	\$1,260
Health	\$50	Adj Total Cost	\$6,259
First Year	\$6,506	Adj Yearly Cost	\$2,086
Recurring Cost	\$506	Stocking Rate	25
<u>Cost Per Cow</u>		\$83.45	



Does Reduced Bull Cost Justify AI: \$2,000 Bulls

Herd Size	100	Number of Bulls	4
Stocking Rate	25	Total Bull Cost	\$3,011.67
		Cost Per Cow:	\$30.12
AI Cost per Cow	\$34.50	Bulls Required	2
Total AI Cost	\$3,450.00	Bull Cost	\$1,505.83
Total Cost System	\$4,955.83	Cost Per Cow:	\$49.56
<u>Total Difference</u>		<u>Total Difference/Cow</u>	
\$1,944.17		\$19.44	



Does Reduced Bull Cost Justify AI: \$4,000 Bulls

Herd Size	100	Number of Bulls	4
Stocking Rate	25	Total Bull Cost	\$5,678.33
		Cost Per Cow:	\$56.78
AI Cost per Cow	\$34.50	Bulls Required	2
Total AI Cost	\$3,450.00	Bull Cost	\$2,839.17
Total Cost System	\$6,289.17	Cost Per Cow:	\$62.89
<u>Total Difference</u>		<u>Total Difference/Cow</u>	
\$610.83		\$6.11	



Does Reduced Bull Cost Justify AI: \$6,000 Bulls

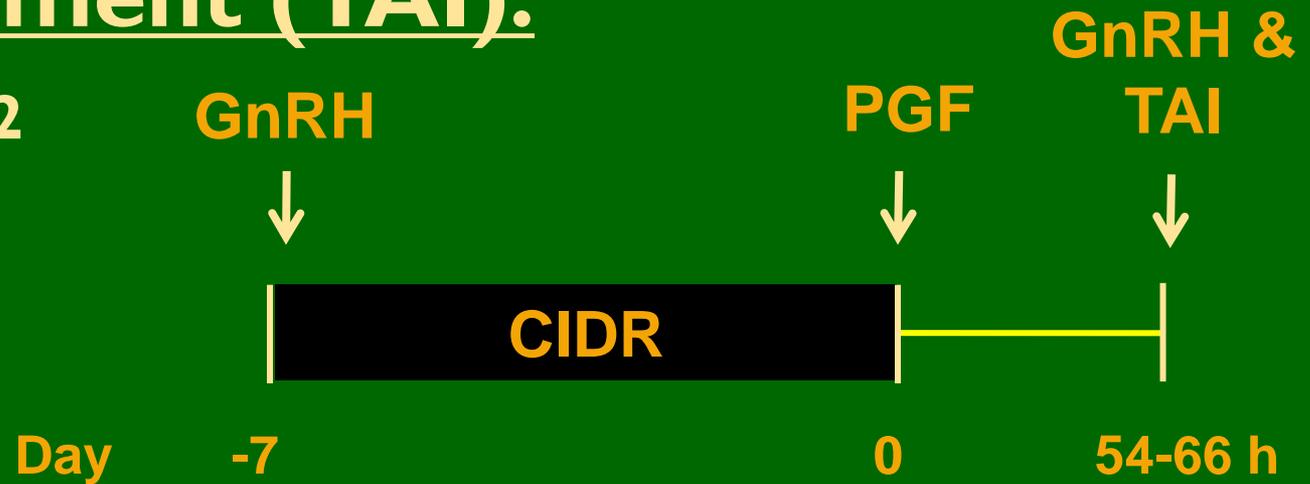
Herd Size	100	Number of Bulls	4
Stocking Rate	25	Total Bull Cost	\$8,345.00
		Cost Per Cow:	\$83.45
AI Cost per Cow	\$34.50	Bulls Required	2
Total AI Cost	\$3,450.00	Bull Cost	\$4,172.50
Total Cost System	\$7,622.50	Cost Per Cow:	\$76.23
<u>Total Difference</u>		<u>Total Difference/Cow</u>	
-\$722.50		-\$7.23	



Evaluation of Systems

Treatment (TAI):

n = 582



Control:

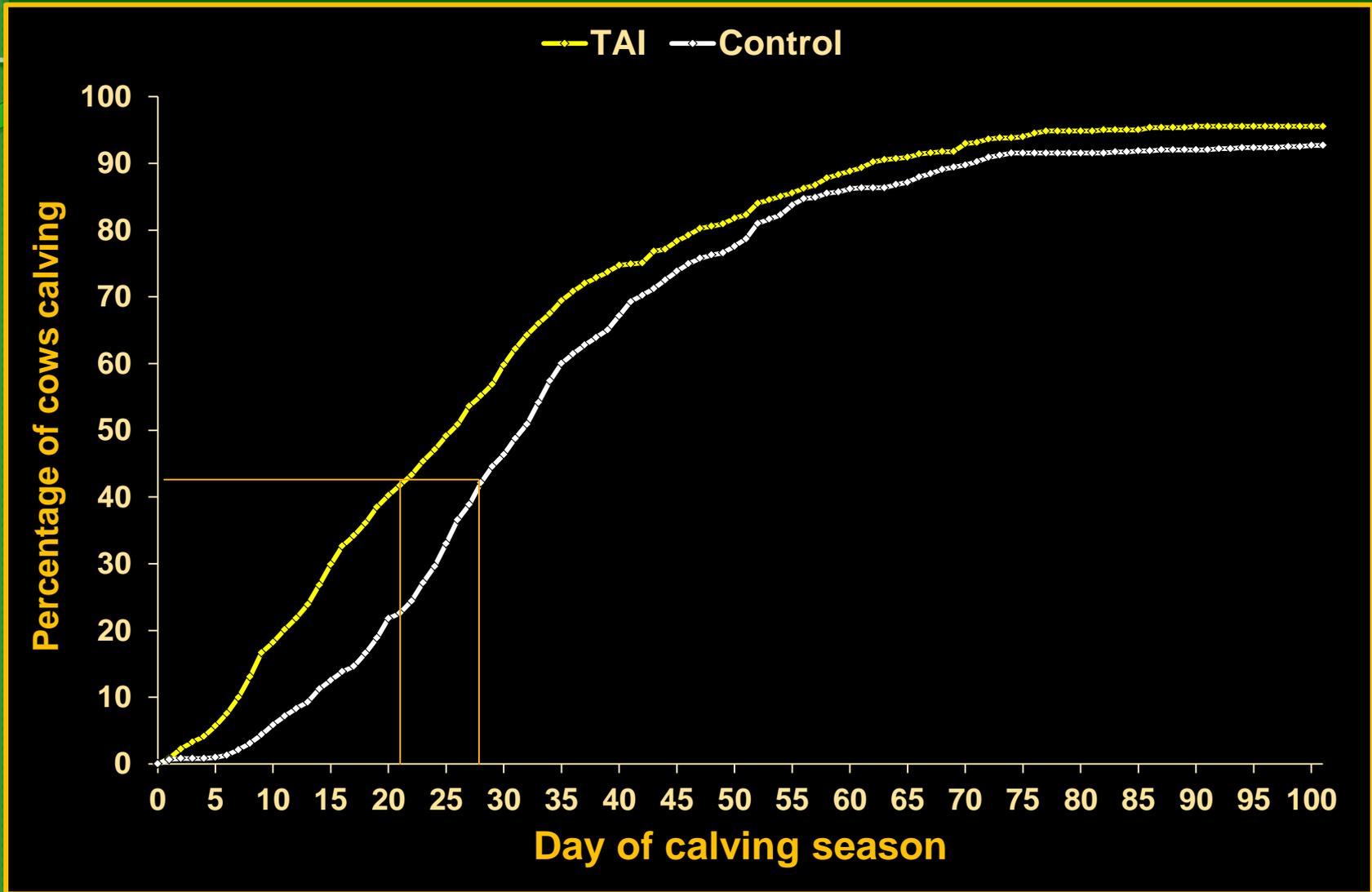
n = 615

Turn in
Bull



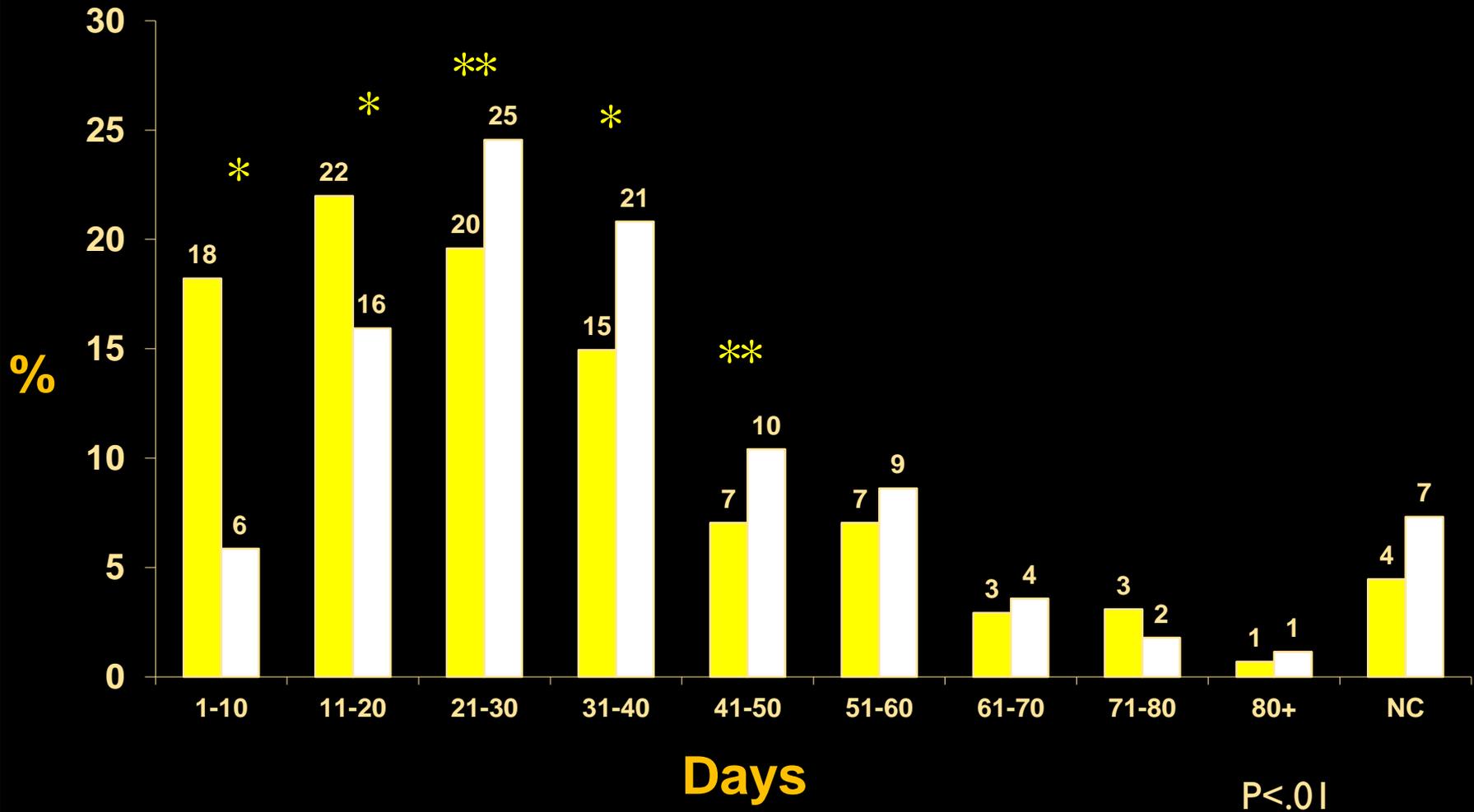


Cumulative Calving Distribution





Noncumulative Calving Distribution





Weaning Results

Item	TAI	Control
Weaning weight, lbs	514	508
Cows weaning a calf, %	84 ^x	78 ^y
Weaning weight per cow exposed, lbs	426 ^x	388 ^y

^{x,y}Means Differ (P < 0.01)



Items of Interest

Calving Distribution/Ease

Weaning Weight

Physical Characteristics

Frame, Muscling, Conformation

Performance beyond weaning

Backgrounding, finishing, metabolism

Longevity in cow herd

Genetic progress over time



Summary

Using AI can reduce expenses in some situations

Bull Price is the major influence on cost

TAI influenced calving distribution

TAI did not alter weaning weight

Using TAI improved lbs weaned/exposed female