

Reproduction - Impact of Estrous Synchronization and AI on Cowherd Performance Over Time

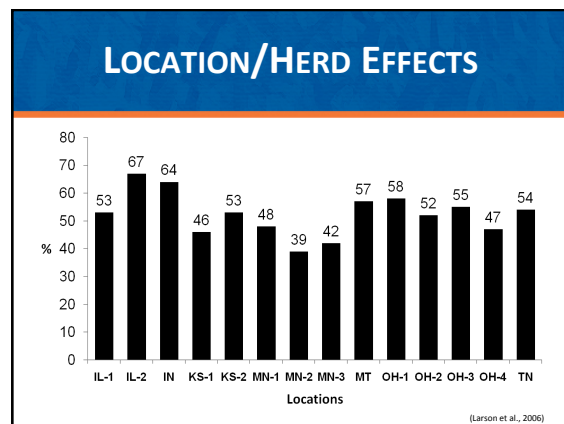
G. Cliff Lamb

UF IFAS
UNIVERSITY of FLORIDA

We know how to synchronize cows!

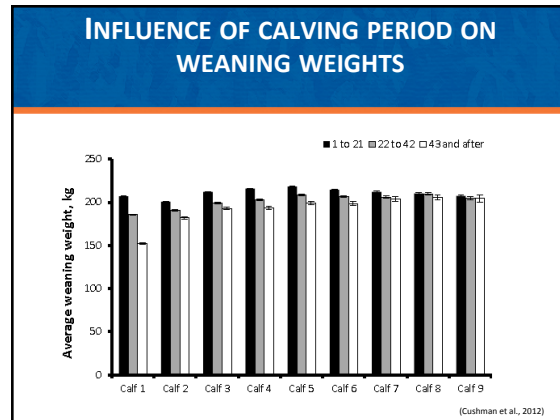
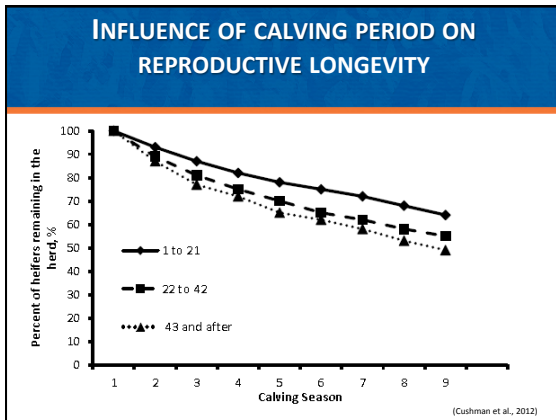
ESTROUS SYNCHRONIZATION AND AI IN BEEF CATTLE

The diagrams illustrate various protocols for estrous synchronization and artificial insemination (AI) in beef cattle. They are organized into sections for 'BEEF COW PROTOCOLS' and 'BEEF HEIFER PROTOCOLS', each with 'Short-term Protocols' and 'Long-term Protocols'. The protocols involve the use of PG (Pregnant Gonadotropin), CIDR (Conjugated Estrogens), and TAI (Timed Artificial Insemination) at different intervals.



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 my conditions
 - Must not be crazy (disposition)

PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

Too many hassle factors!!!

PRIMARY REASONS FOR CHOOSING NOT TO ES/AI

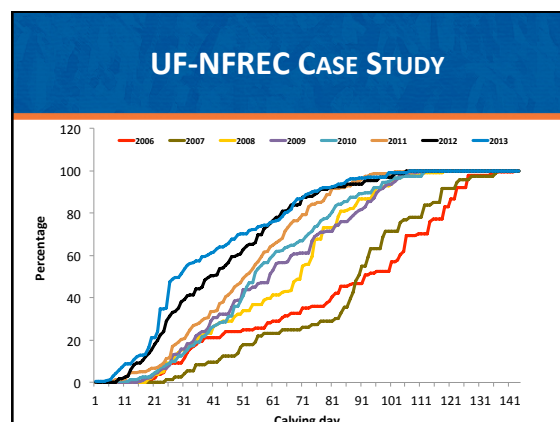
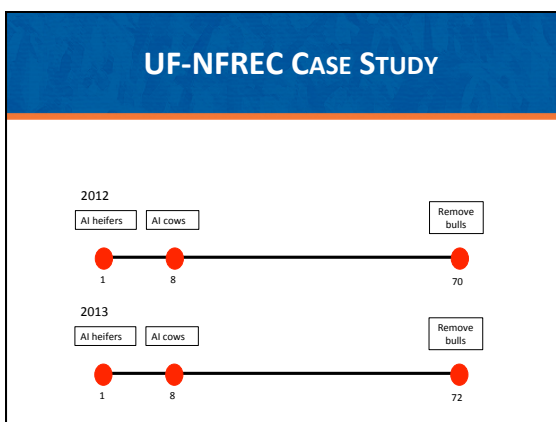
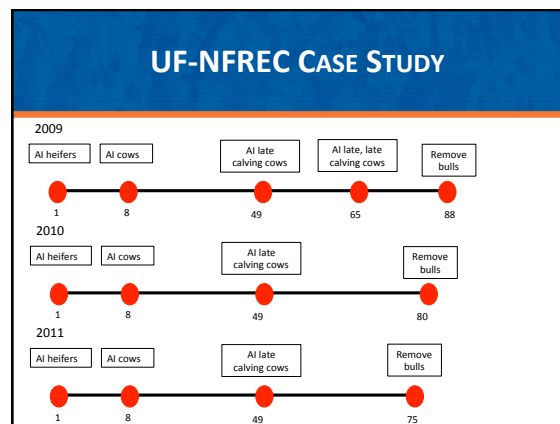
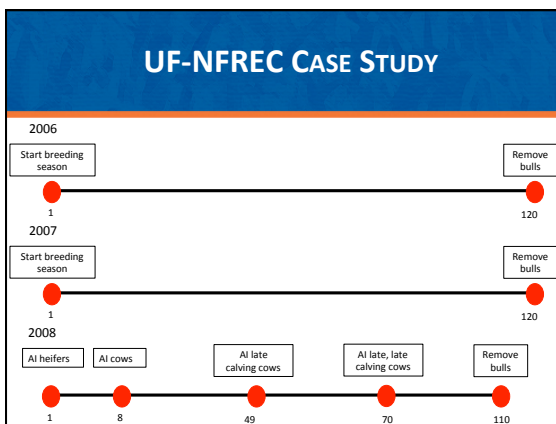
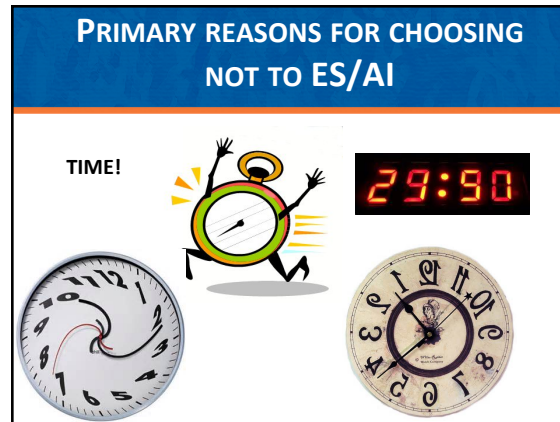
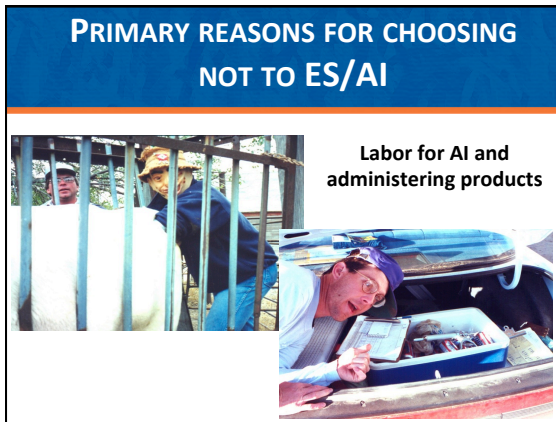
Complicated protocols and sire selection

| Acc | BW | WW | YW | YH | DC | CEM | MMA | MMA | MMA | MMA | BEN |
|-----|------|-----|-----|-----|-------|-----|-----|------|-----|-----|-------|
| Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc |
| +3 | +5.7 | +31 | +58 | +6 | +1.97 | +8 | +27 | 1178 | +38 | +3 | +3.03 |
| 88 | 57 | 97 | 96 | 35 | 88 | 51 | 56 | 3297 | 89 | 89 | |

| Acc | Mb | RE | Fat | SOP | Grp | NAF | RE | Fat | SOP | Grp |
|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|
| Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc | Acc |
| +18 | +14 | +3 | +20 | +27 | 13 | -14 | +3 | -103 | +78 | 226 |
| 71 | 73 | 68 | 67 | 68 | 197 | 27 | 27 | 27 | 27 | 453 |

| Mean Value (BW) | Fixed Value (RE) | Cost Value (MMA) | Cost Value (BEN) |
|-----------------|------------------|------------------|------------------|
| +14.17 | +4.86 | +15.20 | +22.52 |





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

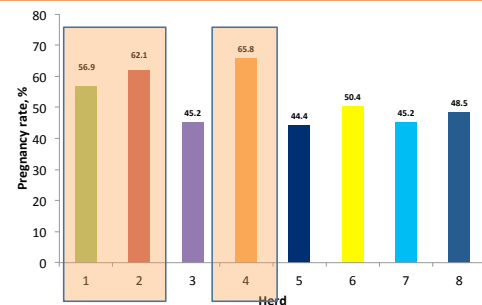
Change in calf value:

| 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 |

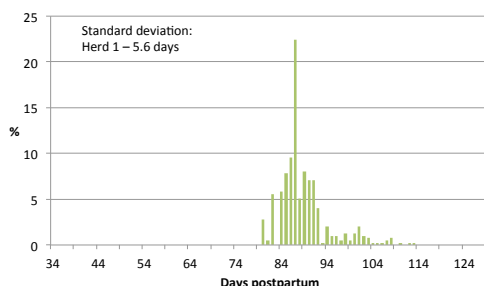
2ND EXPERIMENT CASE STUDY



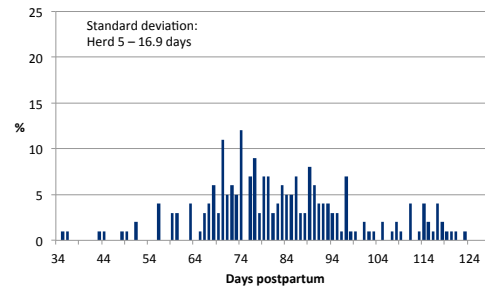
PREGNANCY RATES BY HERDS

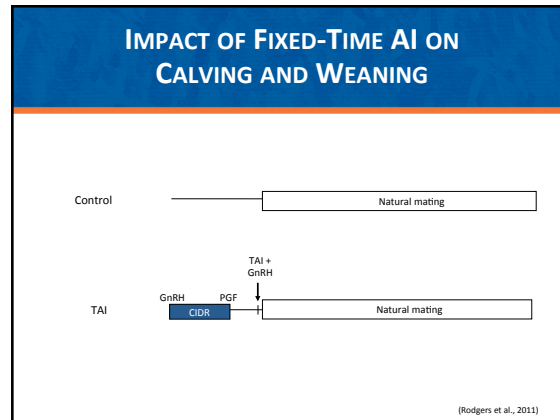


DISTRIBUTION OF DAYS POSTPARTUM – HERD 1



DISTRIBUTION OF DAYS POSTPARTUM – HERD 5



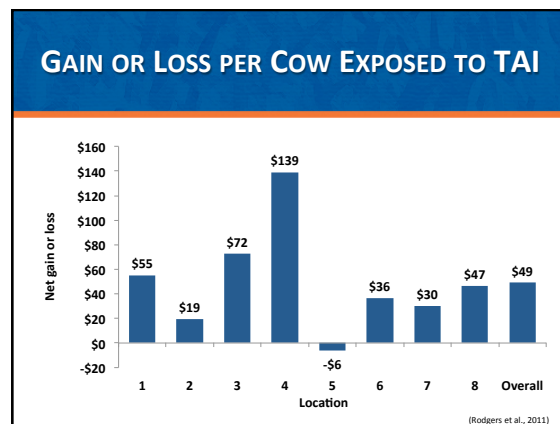


IMPACT OF FIXED-TIME AI ON CALVING AND WEANING

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

^{a,b} Means within row differ (P < 0.01)

(Rodgers et al., 2012)

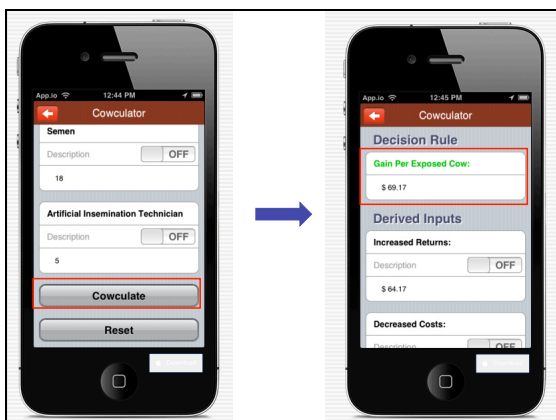
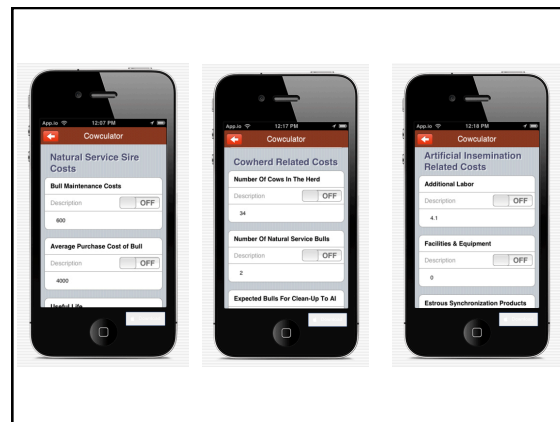
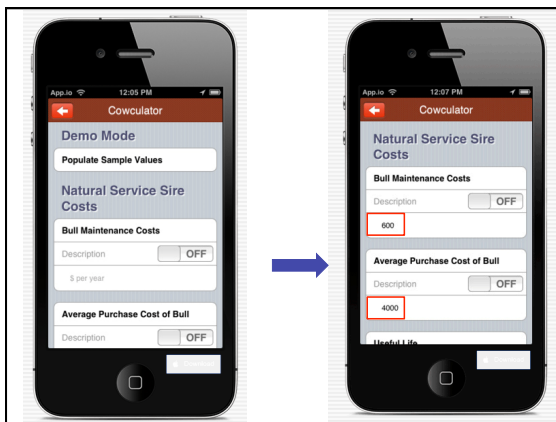
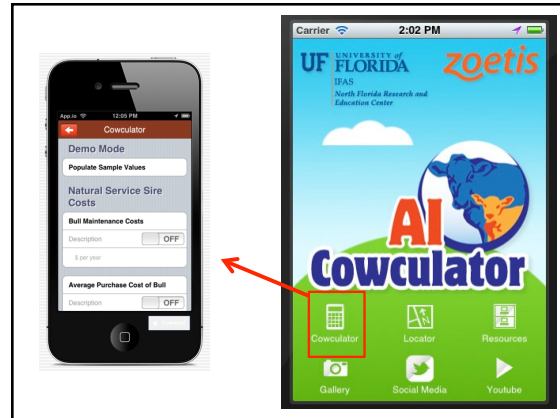


CHANGE IN VALUE BASED ON HERD SIRE COSTS

| | 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 |



Google Play Store
or
Apple iTunes



Bull Investment - Annual Bull and Per Cow Cost Calculator

Natural Service Sire Costs

| | |
|-------------------------------|------------|
| Bull Maintenance Costs | \$600.00 |
| Average Purchase Cost of Bull | \$6,000.00 |
| 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 Cal Crop, % | 87.5 |
| Average Expected Weaning Weight, Lb. | 900 |
| Expected Price Of Weaned Cal, Per Cwt | \$250.00 |

Increased costs

| | |
|------------------------------------|---------|
| Additional Labor | \$4.10 |
| Facilities & Equipment | \$0.00 |
| Extrius Synchron Products | \$17.50 |
| Semen | \$18.00 |
| Artificial Insemination Technician | \$5.00 |

Partial Budget

Decision Rule

Gain/Loss Per Exposed Cow **\$113.97**

Gain/Loss Per Herd **\$3,875.10**

Derived Inputs

| | | | |
|-------------------|---------|-------------------|---------|
| Increased Returns | \$97.22 | Decreased Returns | \$0.00 |
| Decreased Costs | \$61.35 | Increased Costs | \$44.60 |

Resources

