Heifers to Cows
Heifer Development Goals

- Get heifers bred early in the breeding season
- Minimize difficult calvings
- Wean a market acceptable calf
- Stay in the herd for a long productive life
- Minimize costs
Start With The Right Ones

• Sired by bulls strong in maternal traits
  – Large yearling scrotal circumference
  – Appropriate frame and mature size
  – Desired Milk EPDs
• Above average growth at weaning
  – Out of earlier calving heavier milking cows
  – Good early growth genetics
• Structurally sound and visually right
  – Out of cows with sound udders
  – Good feet and leg structure
  – Some natural muscling and fleshing ability
  – Calm disposition
Preweaning Management

• Implanting
  – Probably best not to implant
  – Do not implant at birth
  – One implant at 2 to 3 months has little negative impact
  – Don’t use multiple implants

• Creep Feeding
  – If results in fat deposition in the mammary tissue, lower future milk production and herd productivity may result
  – Bigger problem for small framed heifers with high milking dams
Preventative Health

• Calfhood vaccinations
  – Branding
    • 7 way
  – Preweaning
    • 7-4-1
  – Weaning boosters
• Prebreeding vaccinations
  – 4-8 months
    • Bangs
  – 6 wks prior breeding
    • 9 way
Feeding Weaning to Breeding

• Heifers should reach 65% of mature weight at breeding
• Mature weight can be estimated from cow weights or frame score
• Heifers should be cycling 60 days before breeding starts
• Body condition score should be 5.5 to 6.0 at first breeding
Target Breeding Weight and Gain

- **Target Gain Example**
  - Cow size: 1300
  - Breeding target: 845
  - Current wt: 550
  - Current date: Oct 25
  - Breeding date: Jun 1
  - Feeding period: 215 da
  - Gain needed: 295
Breed Variation Exists

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<tr>
<th>Breed</th>
<th>Age</th>
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<td>357</td>
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<tr>
<td>Tar X</td>
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<td>Gelb X</td>
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<td>Sim X</td>
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<tr>
<td>Char X</td>
<td>703</td>
<td>384</td>
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</tbody>
</table>

High Gains – younger and heavier at puberty
Low Gains – older and lighter at puberty
Feeding Strategies for Heifers

• As long as heifers reach target breeding weight, there is little difference in how they get there
  – Continuous rate of growth over period
  – Low growth initially followed by flushing
    • Slightly less feed cost
  – Fast growth initially followed by maintenance
  – Stair-step using alternate restricted and compensating periods
    • Tendency for earlier puberty and greater milk
Breeding Management

• Exposing heifers close to puberty to sterilized bulls hastens puberty and increase early conception

• A reproductive exam prebreeding can sift out small pelvic and late maturing heifers
Breeding Management

- Consider breeding 3 weeks ahead of cows
- Limit breeding season to 2 or 3 cycles
- Synchronization allows 3 cycles in 45 days
- PG test 45 to 90 days after breeding
Service Sire Selection

• Select for calving ease
  – Breed choices
  – Individual BW and CE
  – BW and CE EPDS

• Consider AI
  – Proven high accuracy
  – Balanced trait leaders
Synchronization Methods

- **MGA + Prostaglandin**
  - MGA in feed 14 days (.5mg/hd/da)
  - PGF injection 17 days latter
  - Breed on heat or time insemination

- **Synchromate B**
  - Implant and inject
  - Remove implant 9 days latter
  - Breed on heat or time insemination 2X

- **2X Prostiglandin**
  - Two PGF injections 11 days apart
  - Breed on heat or time insemination
Synchronization Methods

- **Ov-Synch**
  - GnRH injection
  - PGF injection day 7
  - GnRH injection day 9
  - Breed day 10

- **CO-Synch**
  - GnRH injection
  - PGF injection day 7
  - GnRH injection and breed day 9
## Heifer Costs – Weaning to Cowherd

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<td>Wean</td>
<td>597</td>
<td>580</td>
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<tr>
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<td>917</td>
<td>841</td>
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<td>68</td>
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<tr>
<td>Win adg</td>
<td>1.9</td>
<td>1.6</td>
<td>1.5</td>
<td>1.6</td>
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<td>Sum adg</td>
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<td>1.2</td>
<td>1.2</td>
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<tr>
<td>Nov wt</td>
<td>1039</td>
<td>1101</td>
<td>1043</td>
<td>1000</td>
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</table>
Economics – Heifer Budget

- **Feed (Oct-Nov)**
  - 1.75 ton hay $69
  - 25 bu grain $38
  - 20 lb salt/min $6
  - 5.5 acres $55

- **Health**
  - Preventative $7
  - Treatments $2

- **Breeding**
  - Bull cost $25

- **Yardage**
  - Fuel, equip, etc

- **Begin value**
  - 550 @ $.94 $517

- **Production costs**
  - F,H,B,Y $227

- **Interest**
  - 10% $74

- **Total** $818

- **Adjustments**
  - 1% death loss $8
  - 10% cull rate $20
  - Cow opportunity $50

- **Total**
Replacement Costs are Significant

- Cost of Replacement
  - $900

- Value of Cull
  - $550

- Replacement Rate
  - 1% death loss
  - 14% sold as culls

- Replacement Cost/Cow
  - $900-$550 * 15%
  - = $ 53.00
Replacement Strategies

• High Cattle Prices
  – Have herd numbers built up at end and beginning of decade
  – Minimize herd culling
    • Only open and unsound
  – Sell heifers
    • High feeder value
    • Would be cows in least profitable years

• Low Cattle Prices
  – Heavy herd culling
    • Late, old, open, unsound, poor producers
  – High heifer retention
    • Low feeder value
    • Will be producing during high price years
  – Be building herd numbers during mid decade
Continuing Heifer Management

• Calving Target
  – 85% of mature wt
  – (1300 * .85 = 1105)
  – BCS 6.0
  – .5 – 1 adg

• Feed and calve separate from mature cows

• Feed supplemental fat in addition to vit/min

• Assist after 2 hrs

• Colostrum supplements to high risk calves

• Grain supplement from calving to pasture

• Wean calves timely
  – Prevent excessive wt loss
  – Allow time to reflesh
Custom Heifer Services

- Increasing number of custom heifer development services are becoming available ranging from weaning to bred back with second calf to 60 day feeding and AI of yearlings
- Consider the opportunity value of labor, feed, facilities, and the final value of heifers in terms of productivity and longevity
Moderate Framed Crossbred Heifers

- That are daughters of
  - Bulls with large scrotal circumference and high maternal breeding values
  - Cows which calve early and produce above average
- Weigh over 500 lbs at weaning
- Were wintered to gain 1.5 lb/day and weigh over 800 at breeding
- Have a pelvic area over 150 sq cm at a year
- Are bred to proven calving ease bulls
- Developed to weigh 1100 lbs at a body condition score of 6 at calving
Have an Excellent Chance of

- Becoming pregnant early as a yearling
- Giving birth to a live calf with minimal difficulty
- Raising their calf to an acceptable weight
- Breeding back on schedule
- and Staying in the herd for many years
“Never underestimate the tremendous importance that proper heifer development can have on a cattle operation”
• Conventional Wisdom
  – “You can’t buy them as good as you can raise them”
  – “you are most likely getting somebody’s second cut”

• Industry Innovation
  – “customers specify breed(s), numbers, mature wt, service sire, and calving date…we market genetically superior, professionally developed replacement heifers”
    Finks Genetics Plus
Keys to Effective Genetic Selection

• A population of heifers sired by bulls which transmit desired maternal characteristics
  – Mature size and Rate of Maturity
  – Milking potential
  – Breed composition

• Information upon which to make individual heifer selection and culling decisions
  – Visual appraisal
  – Production data and measurements
  – Genetic evaluations
• Calving Ease
  – Ability to calve unassisted

• Fertility
  – Reach puberty early and conceive yearly

• Longevity
  – Remain sound and stay in herd a long time

• Low Maintenance
  – Moderate mature size capable of easy fleshing

• Good Growth
  – Adequate milk and growth for thrifty weaning calves
  – Capable of fast efficient gains to 1150 – 1350 finish weights

• Carcass Merit
  – Progeny with muscling and ability to marble to grade CH YG2

• Convenient
Cowherd Genetic Specifications

- **Breed**
  - ANxSM

- **Mature Size**
  - 1200-1300 lbs

- **Milk production**
  - Peak milk 24 lb

- **205 day Calf Weight**
  - 550-600 lb

- **EPD Targets**
  - Avg BW YW MW
  - + Mlk Marb REA SC
Selecting Sires

• Breed
  – Produce adapted crossbred
• Calving Ease
  – Moderate BW
  – High Maternal CE
• Fertility
  – High scrotal circum.
  – High Heifer Preg Rate
  – Moderate Fat Thickness
• Cow Maintenance
  – Moderate mature size & frame score
  – Moderate milk
  – Moderate fat thickness
• Longevity
  – Dam and daughter udder traits
  – Stayability
  – Good disposition
Selecting Sires

• Growth
  – Balanced weaning & yearling weights
  – Optimum milk

• Carcass
  – High REA
  – Balanced fat thickness
  – High marbling
  – High tenderness
Genetic Trade Offs

- **Female Trait**
  - Age at puberty
  - Cow maintenance
  - Conception rate
- **Match Cow to Forage**

- **Steer Trait**
  - Retail product yield
  - Post weaning growth
  - Fat thickness
- **Match Sire to Market Targets**
Don’t overlook maternal heterosis

- Crossbred Cow Heterosis
  - Calving Rate +6.6%
  - Calf survival +2.0%
  - Birth Weight +1.6%
  - Weaning Wt +4.2%
  - Longevity +38%

- Improvement in weight weaned per cow exposed from crossbreeding
  - Sire breed rotation +16%
  - 4-breed composite +15%
  - 2-breed rotation +16%
Selecting/Culling Heifers

- Culling
  - Birth date
  - Weaning weight
  - Dams production
  - Frame score
  - Soundness
  - Disposition
  - Pelvic area
  - Pregnancy status
  - Thriftiness
  - Femininity
Genetic Reasons to Buy

• Sires selected to maximize steer value
• Eliminates need for calving ease heifer bulls
• Maximize heterosis and complementarity
Questions if your buying

• What do you know about sires?
  – Genetic evaluations for key maternal traits

• Are you getting maternal heterosis?
  – Breed composition

• What do you know about service sires?
  – Genetic evaluation and accuracy for calving ease

• What is the pregnancy status?
  – Breeding season, days bred, expected calving date

• What do you see?
  – Frame size, body condition, structure
Reasons to Raise

- Greater opportunity for information
- More accurate selections for genetic merit
- Minimize unfavorable permanent non-genetic effects
Questions if your raising

• Will sires selected produce a pool of heifers high in maternal traits?
  – Frame score, milk level,

• Can value be added with superior carcass merit?
  – Marbling and muscling

• Are heifers identified and performance evaluated?
  – Birth date, dam records, PG testing,

• Will heifers be mated to proven calving ease sires?
  – AI

• Can a crossbreeding system be
Typical Replacement

• 100 cow herd
• 10 culled in fall
  – 4 open and late
  – 6 old and unsound
• 4 culled in spring
  – Lost calves
• 1 died
• 17 heifers retained
  – 30-40% of heifer calves
Herd Replacement and Expansion vs Price Cycles

• Harlan Hughes –
  – Heifers retained at the high price times of the cattle cycle often are at maximum productivity through periods of low prices
  – Minimize herd replacement and culling at times of high calf prices and sell lots of calves
  – Rebuild and expand with cheap heifers to minimize herd debt and investment

• There can be good market opportunities for developing and breeding heifers in periods of herd expansion
“Cowing up … Cowering down”

- Heifer replacement strategies impact herd profitability
- Retaining the same dollar value of heifers instead of enough heifers to maintain a constant herd inventory projected to increase net worth 20% (ISU 1970-1999 simulation)
- 120 head herd fluctuated from 86 to 138 cows, purchased yearlings use excess forage
Replacement Marketing Opportunities

• Calves at weaning
  – High quality, reputation

• Yearlings in spring
  – Appropriate weight and condition

• Bred Heifer in fall and winter
  – Price is demand sensitive

• Calved Pairs
  – Sensitive to grazing prospects
Replacement Specifications

• Thrifty and Structurally sound
  – Feet, legs, eyes, udder, disposition

• Moderate Frame with average or better Weight
  – FS 5-7
  – Earlier born, milking ability, growth & muscling

• Preferred Breeds and Crosses

• Health background
  – BVD, Johnnes, Luekosis

• Previous Management
  – Implants, creep feeding
Target Breeding Weight

- Mature cow size 1300
- Target weight (65%) 845
- Current Weight 550
- Current Date 10/15
- Breeding Date 6/1
- Feeding period 225 d
- Gain needed 295
- Target ADG 1.3
Nutrient Specs for Growing Heifer
1.5 ADG  500-800 lbs

- DM Intake  12 –18lb*
- TDN  65- 70%*
- Crude Protein  12-10%
- Calcium  .4 -.3 %
- Phosphorous  .24 -.20 %
- Vitamin A  1000 iu/lb
- Vitamin E  5-25 in/lb

*thermoneutral conditions
Implants and Replacement Heifers

• Heifers implanted at birth have substantially lower fertility
• Labeled implants at 30-45 days increase weaning weight 10-30 pounds with a variable and slight effect on fertility
• Multiple implants have adverse effects on reproduction
• Implanting won’t affect milk production
• Implanting increases yearling pelvic area but advantage is lost by calving
• Don’t implant heifers known to retained for replacement
Ionophores and anthelmintics

• Addition of ionophore or the combination of an ionophore and anthelmintic wormer can reduce age and weight at puberty
• Ionophores generally improve gain and feed efficiency by 10-15 percent in forage based rations
• May be particularly useful with smaller heifers with higher pre-breeding gain targets
Value adding Management Strategies

- Pedigree and performance information
- Vaccination history and disease tested
- PG tested - Fetal sexing and aging
- Synchronized breeding and proven service sires
- Individual identification

- Packaging
## Replacement Development Costs

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Replacement Budget

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<td>1300 lbs grain @ $.04</td>
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<td>25 lbs mineral @ $.16</td>
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<tr>
<td>210 days yardage @ $.25</td>
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<td>4.5 AUMS pasture @ $15</td>
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<td>Death loss (1%)</td>
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<tr>
<td>Interest (6%)</td>
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<tr>
<td><strong>Total</strong></td>
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Questions - Comments ?