#### 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 naadad 205



#### **Breed Variation Exists**

Breed	Wt
Age	

Her-Ang X	622	357
Tar X	622	349
Gelb X	626	326
Sim X	666	358
Lim X679	384	
Char X	703	384



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 Al
  - 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

	93-94	94-95	95-96	96-97
Wean	597	580	584	524
Frame	5.8	6.4	5.7	5.1
Breed	940	917	841	850
Breed	7.2	6.8	6.8	6.7
% <sup>S</sup> Matwt	75	71	68	72
Win adg	1.9	1.6	1.5	1.6
Sum	.9	1.2	1.2	1.0
NOV wt	1039	1101	1043	1000

# 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
      - Tntal

### **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 Crossberd 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

MATERNAL

**GOALS** 

- 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
  - + MIk 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



- Steer Trait
  - Retail product yield
  - Post weaning growth
  - Fat thickness



#### 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%

— · · ⊢₄

# 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?

#### Reasons to Raise

- Greater opportunity for information
- More accurate selections for genetic merit
- Minimize unfavorable permanent nongenetic 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 ... Cowing 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
- Breeding Date
- Feeding period
- Gain needed
- Target ADG

550 10/15 6/1 225 d 295 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 inonophore or the combination of an ionophore and anthelmintic wormer can reduce age and weight at puberty
- Inonophores 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**

	ND BCIA	ND
	1993-97	FRBM
Feed	112	12002
Pasture	52	57
Health	9	4
Breeding	36	1
Yardage/Overhead	53	41
	\$262	\$221

#### **Replacement Budget**

550 heifer @ \$1/cwt		550
3800 lbs hay @ \$.02		76
1300 lbs grain @ \$.04		52
25 lbs mineral @ \$.16		4
210 days yardage @ \$.25		52
4.5 AUMS pasture @ \$15		67
Health and Veterinary		10
Breeding Fees		25
Death loss (1%)		10
Interest (6%)		41
	Total	\$887

#### Questions - Comments ?

