



BREEDING
TO FEEDING™

Connecting Supply and Demand for Over 10
Years

RIVERVIEW LLP

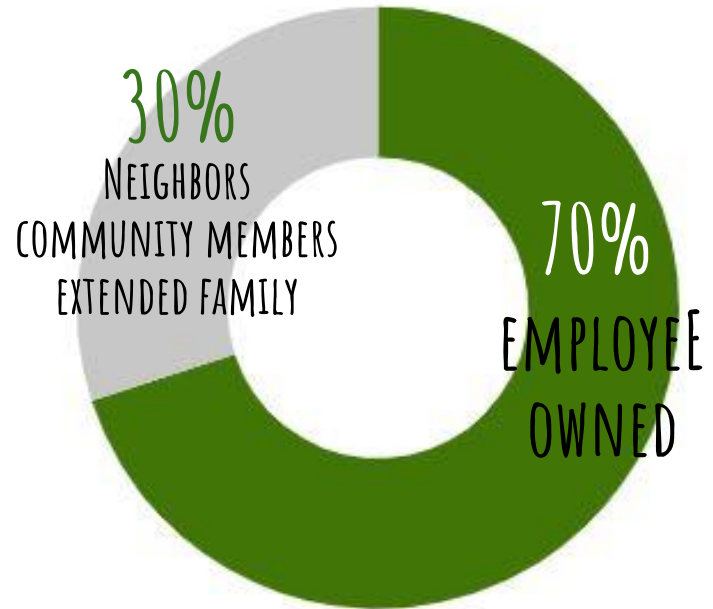


PROVIDING A CULTURE OF OPPORTUNITY FOR PASSIONATE PEOPLE AND INNOVATIVE IDEAS



COMPANY SNAPSHOT

Ownership:



Headquarters: Morris, MN

Operations: MN, SD, NE,
NM, AZ

1,300+ full-time
employees



THE RIVERVIEW WAY

LAND

CROPS

COWS

MILK
BEEF

PROCESSING

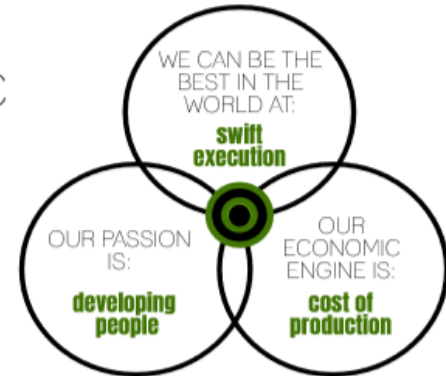
CONSUMER



providing a culture of opportunity for passionate people and innovative ideas

CORE VALUES

STRONG WORK ETHIC
SPIRIT OF HUMILITY
KEEP IT SIMPLE
INTEGRITY
CANDOR



PROVIDING A CULTURE OF OPPORTUNITY FOR PASSIONATE PEOPLE AND INNOVATIVE IDEAS



SEGMENTS

CENTRAL SERVICES

Construction

Permitting

Finance/Accounting

Human Resources

Community Relations

Education

IT

BEEF

92k marketings/year

3k genetic cows

650+ bulls sold
annually

Breeding to
Feeding™

CROPS

54k acres

Forage

Manure

Trucking

DAIRY

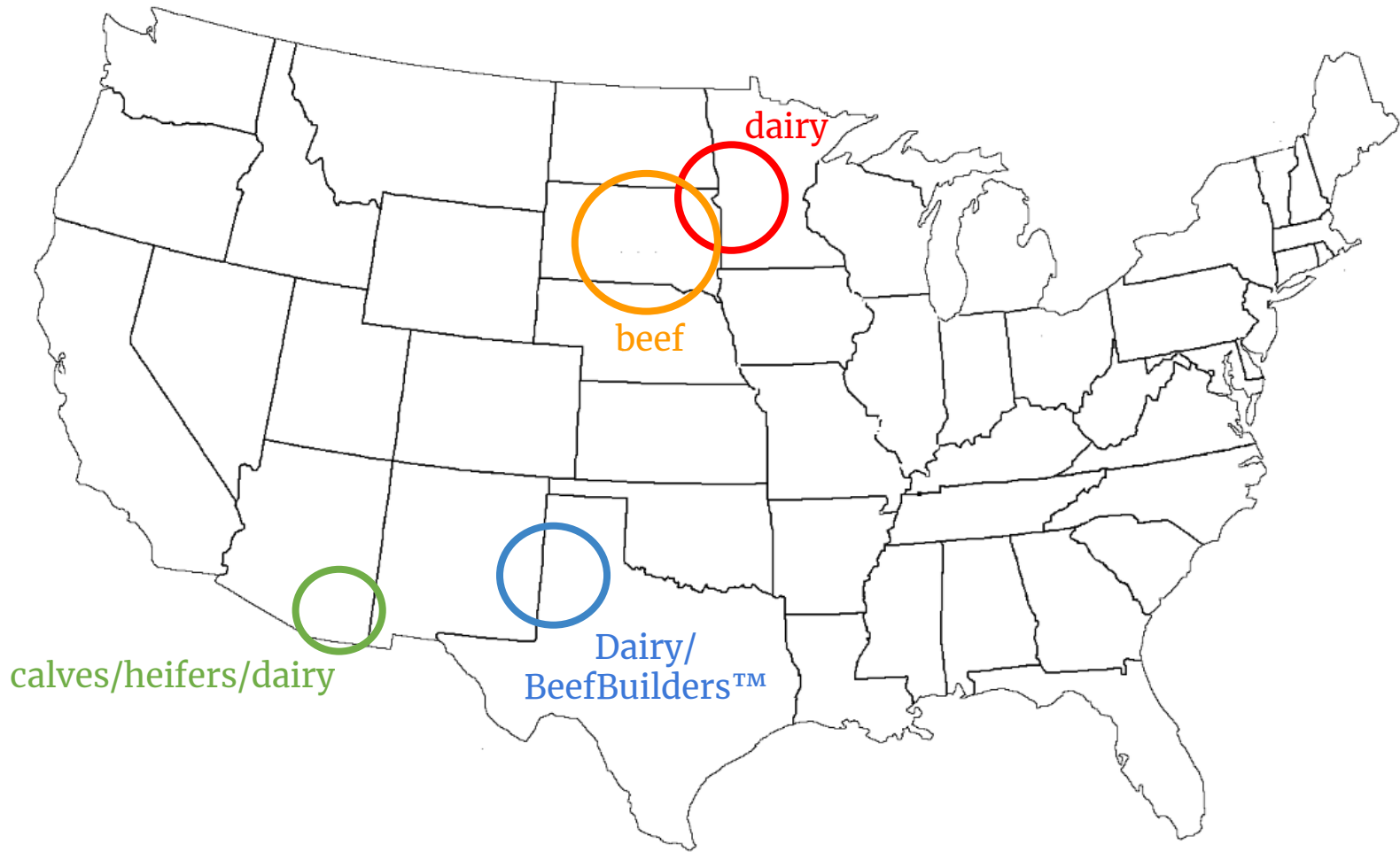
120k milking cows

100k heifers



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BEEF SYSTEM

92,000 marketings
45,000 head capacity
Remaining custom fed

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SEEDSTOCK SYSTEM

2,500 registered cows
1,000 commercial cows
650+ bulls sold annually
Homo Black, Homo Polled



How do dairies use beef semen?



- Sexed semen on their best performing animals, typically the heifers which have their highest genetic potential, and younger cows
- Beef is used on those cows that have a difficult time getting pregnant, are older cows, or the dairy does not want to pass along their genetics
- Beef semen is more commonly being used in first service breedings as well

Riverview breeding strategy goals:

- No conventional dairy semen is used whatsoever, every pregnancy is maximized
- Sexed dairy semen for heifer creation is used in strategic cow populations and along genetic lines
- All other pregnancies are to terminal beef sires focusing on conception and carcass merit

In many dairies today, hardest to breed cows in the herd are still the bulk of the beef semen candidates!



History of Breeding to Feeding™



2009 - Dairy market lows, declining value in dairy bull calves.

2009-2010 - Started using sexed dairy semen and conventional beef semen.

Late 2010 - Started using Limousin and the first doses of homo black low BW EPD semen went in to cows.

2011 - The first Wulf Limousin x dairy calves (BeefBuilders™) were born, no calving difficulties, began implementing a limousin beef strategy in all our jersey dairy herds.

2012 - Harvested the first BeefBuilder™ calves with phenomenal results.

2013 - Began marketing the program “Breeding to Feeding™” exclusively with Genex

2014 - Expansion to marketing with other A.I. companies

2017 - Connecting harvested BeefBuilders™ back to their respective sire for phenotypic results information

2018 - New B2F index developed using actual carcass results from BeefBuilder offspring for better predictive reliability

2019 - B2F index refinement

2020 - Large pen studies of feed efficiency in BeefBuilder™ offspring tied to individual sire performance by dam type





Initial Results - 2012



Feedlot Performance Comparison

| | LM x JE No Zilmax | Jersey Steers No Zilmax | LM x JE Steers Zilmax | Jerseys Steers Zilmax |
|--------------------------|----------------------|----------------------------|--------------------------|--------------------------|
| # Head | 14 | 8 | 14 | 10 |
| Start Wt (lbs) | 1180 | 945 | 1124 | 1032 |
| Avg Daily Gain (ADG) | 2.73 | 1.21 | 3.24 | 1.53 |
| Feed to Gain (FTG) | 8.5 | 14.88 | 7.64 | 13.78 |
| Harvest Wt (lbs) | 1443 | 1056 | 1422 | 1167 |
| Agj 63% Harvest Wt | 1481 | 1081 | 1461 | 1199 |
| Hot Carcass Weight (HCW) | 909 | 680 | 896 | 736 |
| Adj 63% ADG | 3.28 | 1.49 | 3.66 | 1.82 |
| Adj 63% FTG | 7.18 | 12.1 | 6.77 | 11.47 |
| Grading | | | | |
| % Prime | 8% | 0% | 0% | 10% |
| % Choice | 92% | 88% | 64% | 70% |
| % Select | 0% | 13% | 36% | 20% |
| Yield Grade (YG) | 3.12 | 2.456 | 2.09 | 2.302 |
| REA | 13.87 | 11.37 | 15.74 | 12.36 |
| Marbling | 600 | 494 | 470 | 497 |
| Back Fat (BF) | 0.498 | 0.263 | 0.356 | 0.231 |

BeefBuilders had considerably higher Feed to Gain, ADG, and heavier hot carcass weight with a larger REA



Advantages of Beef x Dairy

- Year-round availability for feedlots
- Tightly held genetic population of dairy dams
- Consistent carcasses - with the right management and genetics
- Consistency in marketing availability for packers
- Improved cutability from straight bred dairy animals





Disadvantages of Dairy and Beef x Dairy Product

Packer Concerns:

- Narrow strips and ribs
- Low yielding carcasses
- Quality control
- Carcasses that show “dairy characteristics”
- Little consistency among many Beef on Dairy animals and programs in the marketplace today

Feedlot Concerns:

- Feed efficiency
- Carcass performance
- Traceability
- Survivability
- Genetic validation





What is **our strategy**?

- Start with a genetic foundation that makes sense and addresses the shortcomings of dairy type cattle
 - This led us to Limousin as the foundation of the program
 - Looking at EPD's alone were not enough to validate what “might” work on dairy cows successfully
- **Systematically address and continue to improve** upon the needs of a dairy
- **Systematically address and continue to improve** upon the needs of the cattle feeder
- **Systematically address and continue to improve** upon the needs of the packer and end user

Keeping the needs of all 3 in balance ensures the sustainability of the program





What are the barriers for a bull to succeed?

- **We settled on a breed as our foundation - but now what?**
 - Dairy concerns:
 - Conception
 - Calving Ease
 - Gestation length
 - Feeder Concerns
 - Marketability
 - Growth
 - Feed efficiency
 - Survivability
 - Dairy confirmation carcasses
- **A successful Beef x Dairy bull needs to meet the following:**
 - **High Fertility**
 - **Calving Ease**
 - **High Growth**
 - **Feed efficient**
 - **Genetically change the carcass conformation and perform well on the rail**



What is **Breeding to Feeding™**?

- **Breeding to Feeding™** is Riverview/Wulf Cattle's beef on dairy program.
 - The program is totally integrated and operated by Riverview/Wulf Cattle from the beef genetics used on dairy cows up to harvest of the animal.
- The sires we use for “Breeding to Feeding™” are called “Breeding to Feeding™ sires.”
 - The sires are custom-made with the dairy cow in mind.
 - Custom-made for both Jerseys and Holstein cows.
 - Sires are proven on Riverview dairies prior to ever being used on other dairy farms.
- The calves that are the result of Breeding to Feeding™ sires used on dairy cows are called “BeefBuilders™”.
 - Today, Breeding to Feeding™ sires used to make BeefBuilder™ calves, with the accompanying fertility and calving ease data proven in the Riverview dairy system are **available to the industry.**





Breeding to Feeding™ Sire Creation

Cow Matings at Sandy Ridge Ranch

Prospect Sires - Indexing

Sire Proof Process - Actual Results

Top Performers become Breeding to Feeding™ sires

Carcass data from BeefBuilders™ by Breeding to Feeding™ sire



- 2,500 head registered Limousin, Lim-flex®, and Angus herd
- **Custom matings for black, polled, birthweight, and carcass merit potential sires**

- Prospect sires are evaluated on a comprehensive B2F index with many traits balancing calving ease, gestation, and feedlot traits and carcass traits
- **They are collected and moved on to testing for**
 - Fertility
 - Calving Ease

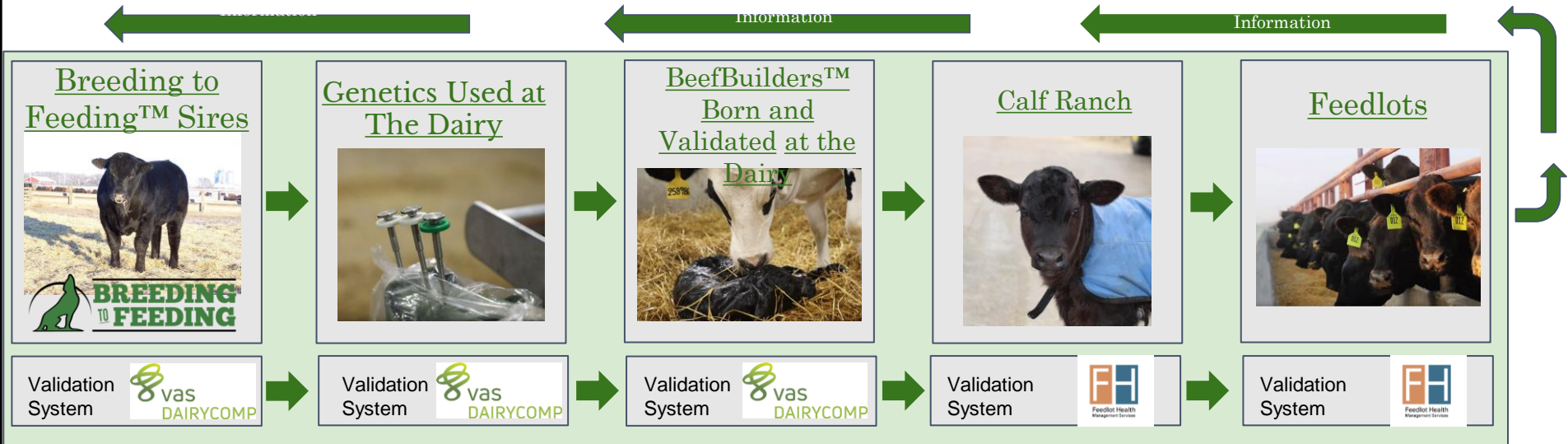
- Each sire must pass three rounds of fertility testing totaling a minimum **2,000 observations across 10 different Riverview dairies, in both Holsteins and Jerseys utilizing A.I. breeding records**
- Calving Ease evaluated on ~ 400 calves out of each sire
- **Accurate birthweights are recorded on every single BeefBuilder calf born on a Riverview site with scales and protocols checked for accuracy weekly**

- We test **75-100 new sires a year** for fertility and calving ease after being evaluated on the B2F index
- **All Breeding to Feeding™ sires are evaluated monthly** to only keep the highest performing sires in the lineup
- The lineup is continually changing based on best performance results and large influx of newer and improved sires
- The dairy fertility bar is so high, only 1 in 10 sires will pass this rigorous test

- Carcass data back direct from multiple packers
- **Carcass information is tied back from BeefBuilder™ to Breeding to Feeding™ sire**
- **Actual offspring outcomes drives the B2F index standing for sires/genetic lines**
- **BeefBuilder offspring are tagged at birth for feed efficiency testing to a carcass endpoint, which also feeds the B2F index**

Information Flow

Cattle & Information Flow



<https://www.youtube.com/watch?v=UWa-pXZ2IV8>



BeefBuilder™ Performance Over Straight Holsteins

With market fluctuations and Beef x Dairy pricing and supply logistics difficult to predict - some improvements are certain:

- 1.5% absolute improvement in Dressing Percentage over straight Holsteins
- ADG improvement of 10% over Holsteins
- F/G improvement of 11%
- Added value for improved F/G = ~89/head
- Added value for improved carcass performance = ~102/head



BeefBuilder™ Performance

Quality Grading

| Breed of Dam | Prime + Choice | Select |
|--------------|----------------|--------|
| Holstein | 74.79 | 23.13 |
| Jersey | 82.09 | 16.64 |

Performance

| Breed of Dam | Hot Carcass Weight | Carcass Adjusted Outweight | Ribeye Area | Average Birthweight (lbs.) | Average Gestation Length |
|--------------|--------------------|----------------------------|-------------|----------------------------|--------------------------|
| Holstein | 867 | 1377 | 14.62 | 93 | 281 |
| Jersey | 813 | 1290 | 14.55 | 81 | 282 |

Yield Grading

| Breed of Dam | Yield Grade 1 & 2 | Yield Grade 3 | Yield Grade 4 | Yield Grade 5 | Dairy Confirmation |
|--------------|-------------------|---------------|---------------|---------------|--------------------|
| Holstein | 63.07 | 30.8 | 5.68 | 0.44 | 0.48 |
| Jersey | 72.58 | 25.21 | 2.11 | 0.09 | 0.28 |

* Data is based on 30,000 Holstein carcass results and 34,000 Jersey carcass results

*WC BeefBuilder™ Carcass to Sire Database





Summary

- **Breeding to Feeding™ forms a complete system that satisfies demands for:**
 - The fertility performance a dairy needs
 - The feedlot performance a cattle feeder needs
 - The carcass performance the packer needs
 - Complete validation that all players need
- **Beef x Dairy strategies only work when the following will happen:**
 - No push and pull between the dairy needs and feedlot needs
 - Open lines of communications between all parties
 - Sire validation - dairy breeding records is the best way, not calf tagging
 - Carcass phenotype feedback loops
 - Consistent management from day old to harvest
 - The right sire genetics to compliment good dairy/newborn calf management

<https://www.youtube.com/watch?v=LwLTyjr34C0>

Relevant Links

BeefBuilders at the Packer

<https://www.youtube.com/watch?v=Q8YHFkq6SDY>

The 5 C's of Beef on Dairy

<https://www.youtube.com/watch?v=LwLTyjr34C0>

Breeding to Feeding Testing Process

<https://www.youtube.com/watch?v=UWa-pXZ2IV8>

What Makes Breeding to Feeding Unique

<https://www.youtube.com/watch?v=OweFajM4riE>

The Riverview Beef on Dairy Experience

<https://www.youtube.com/watch?v=3vLLy8ho5jk>

What is a BeefBuilder

https://www.youtube.com/watch?v=p_aRvutJ8hA

What is Breeding to Feeding

<https://www.youtube.com/watch?v=Y0MU9rpHeJo>



Questions?