1

A little different approach

- Biology of the calf
- Dairy industry challenges (or opportunities)!
- Consumer perspective

Dore Hunt

2

What issues are "driving" our industry?

- Improved financial management
  - Minimizing costs vs optimizing returns?
  - Short- or long-term gains? Preparing for the future vs daily survival??
- Animal "welfare" – Seeking the win:win solutions.
- Labor – availability, effectiveness, efficiency, $$$

3

more Industry "drivers"

- Technology – Data, data, data
  - Minimal "lag"
  - Proactive decision making
  - Don't get "lost in the weeds"!
- Impact on nutrient management plan

4

Primary goal of all heifer rearing programs

- Raise the highest **quality** heifer that can maximize profits when she enters the lactating herd.
- No limitations that detract from her ability to produce milk under the farm's management system.
- Optimize profits by obtaining highest **quality** heifer in lowest possible cost in least amount of time.
- Raise the number of heifers required to meet the goals of the dairy business.

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Financial management – applied to calves!

- Historical = low cost/day
  - Limited milk
  - Early weaning
  - Calf ranch approach – economy of scale, specialization and protocol development – **past and future???**
- What about optimizing returns?

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Low-cost/day rearing – Is this a sustainable goal?

- DCHA goals
  - Survival
    - >97% - 24 h – 60 days

DCHA
DAIRY CALF & HEIFER ASSOCIATION

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DCHA
DAIRY CALF & HEIFER ASSOCIATION

Preweaning morbidity

- Respiratory disease <10%
- Define respiratory disease?
- Ultrasound lungs?
- Impact of respiratory disease on lifetime performance?
  - Rossini et al (2004) – Treat >2X = reduced herd life and increased AOFC.
  - Bach et al (2010) – Treat >4x =1.87 odds of not completing 1st lactation.

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Growth rate

- Double birth weight by 56 days?
- 85 lb. birth weight = 1.5 lb. / day
- What is genetic potential for growth?
- Heifers that completed 2nd lactation grew more between 12 to 65 days of age than those that did not. (Bach, 2010)
- Each lb. of preweaning ADG = 850 - 1,130 lb. more milk in 1st lactation (Soberon et al)

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Optimizing our returns – biology and $$$

Instead of cost/day – cost / lb(g) of gain

Nutrient requirements for maintenance and gain

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$$ / pound gained for 120 lb calf

Thermoneutral conditions

Type of liquid diet	2 qt. twice daily (1lb solids)	3 qt 3x daily (2.25 lb. solids)
Whole milk – 3.25% pr 3.75% fat	$2.95	$2.08
Milk replacer – 20% CP 20% fat 12.5% solids	**$3.23**	$2.07
Milk replacer – 24% CP 20% fat 12.5% solids	$2.63	$1.77
Milk replacer – 26% CP 17% fat 12.5% solids	$2.39	$1.82
Milk replacer – 28% CP 20% fat 12.5% solids	$2.24	$1.67
Milk replacer – 28% CP 25% fat 12.5% solids	$2.31	**$1.62**

Whole or waste milk?
What is cost of waste milk?
What is cost of pasteurizing?

Robert Corbett – May /June 2018 – Dairy Herd Management

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Impact of environment on ADG

- At colder temperatures – energy is diverted from growth to maintenance = Less efficiency and higher cost/gain
- At higher intakes, protein intake may be limiting daily growth and excess energy = more body condition

Whole Milk Intake Quarts	Environmental Temperature (ºF)			
	Allowable gain	68	40	20
4	**Energy**	**.85**	**.36**	**Lose weight**
	Protein		.83	
	$/lb gain	$1.81	$4.27	infinite
8	Energy	**2.47**	**2.1**	**1.9**
	Protein		1.9	
	$/lb gain	$1.25	$1.47	$1.63

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What is daily body weight gain??

- Muscle / protein
- Fat
- Ash – bone
- Water
- "Fill" - digesta contents

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Advantages of body condition in preweaned calf?

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What is “normal” preweaned nutrition for mammals?

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Optimizing returns

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Optimizing returns – raise what you need!

- Cost to rear replacement heifer exceeds their market value.
  - 2019 Dairy replacement cost - $2,094 – $2,607 - J. Karzes.
  - May 7 USDA / AMS - $1,009
- Selling "surplus" heifers is not profitable

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Optimizing returns - cont'd.

- Control involuntary culling rate in milking herd
- Minimize calf mortality
- Optimize potential of what you raise
  - Nutrition – feed them to realize genetic potential
  - Health – minimize impact of disease.
- Biosecurity risk of purchasing replacements.

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Optimizing returns – **facilities** to promote calf health, labor efficiency and labor effectiveness

- Calf hutch as the "gold standard"???
  - Labor involved in feeding liquid diet, calf starter, bedding, sanitation
  - Impact of weather on labor, retention of labor
  - Impact of weather on calves
  - Minimizing shrink in liquid and dry diet
  - Maintaining quality of liquid and dry diet

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Impact on calf nutrient requirements

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Impact on labor effectiveness

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Impact on controlling shrink

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Calf "welfare"
Calf and consumer perspective

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Impact of calf management systems on calf performance and consumer perceptions

L. Raatz – Wagner Farms

- Paired or group-housed
  - Earlier starter intake
  - Adapt better to novel situations
  - Less stressful weaning

Costa et al, 2016, Jensen et al, 2014

- Impact on behavior as cows????

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Transporting calves to calf rearing facilities?

- Age at shipping?
- Length of "haul" without feed or water?
- US – 28h
- DCHA- 24 h, then 5 hour stop
- AABP - http://aabp.org/Resources/AABP_Guidelines/transportationguidelines-2019.pdf

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Canada – February 2020

Calves may be transported for up to 12 hours as long as dehydration, starvation and exhaustion are prevented.

Once 12 hours is reached, they must be provided with feed, water and rest.

Calves 8 days and under may only be transported once and are prohibited from going to assembly centers.

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Labor availability

- Impact of immigration policy
  - Half of 2.4 million ag worker immigrants are illegal?
  - Green cards?
  - H2A?
  - Pathways to citizenship?

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Minimum wage and overtime

- Washington state – 200,000 farm workers
  - >40 hours/week – overtime pay
- California – phased in >26 or <25 employees
  - 9.5 to 8.0 h/day
  - 55 to 40 h/week

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What can be done to improve labor efficiency and effectiveness?

What can be done to improve labor retention?

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Labor efficiency and effectiveness

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Calf care tasks can be labor intensive

- Maternity – calving, colostrum harvest/storage
- Newborn care – navels, vaccinations, colostrum feeding, transport
- Milk prep / pasteurizer / storage
- Milk replacer
- Milk feeding – bucket or bottle, sanitation
- Calf starter feeding
- Health team
- Housing bedding, maintenance, sanitation

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Impact of housing on labor effectiveness and efficiency?

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Do you have a calf manager or calf feeders?

Calf Manager

- Passionate about calf growth and welfare.
- Open minded to new technology and protocols.
- Detail oriented – sanitation, feeding precision and accuracy
- Observant – calf behavior
- They like data and use it to better "manage" calves in making proactive decisions.

Calf feeder

- Enjoy routine – time of day, days of week, expectations for their work.
- Not especially flexible to new things. This is how we have always done it.
- Not a great communicator
- Inconsistent recording of events and rarely use records.
- Relatively low expectations – low mortality and few calves to treat today.

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Nutrient management

- Inclusion of youngstock and calves in nutrient management plans
- Factor for farms considering calf and heifer growers.
- Accommodate nutrient flow from calf raising facilities

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Facilities for calves and nutrient effluent management

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How do you "manage" your calves?

- to handle or direct with a degree of skill: such as:
- to exercise executive, administrative, and supervisory direction of, **manage** a business
- Hmmm…. Apply this to the calf enterprise

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What does the future hold and are you ready?

- Where is your calf [program now?
- Where do you want it to be?
- How will you get there?
- Is your calf program important to your farm?

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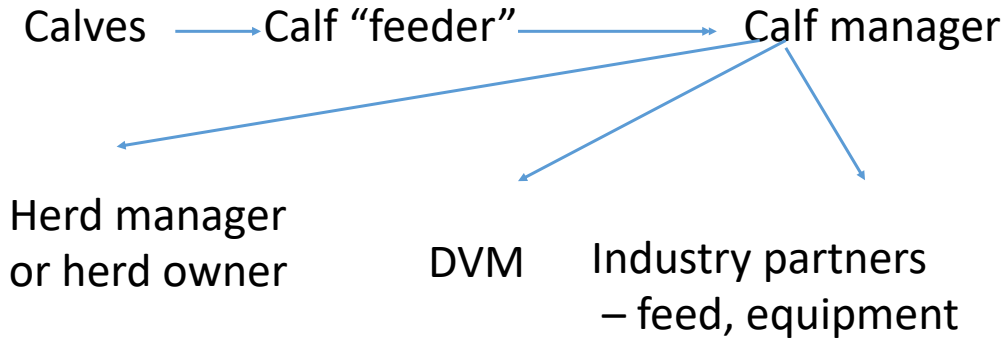
What records do you have to "monitor" your calf program?

- What is the status of calf program today?
- Communication



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Examples

- Daily monitor – off feed, slow drinkers
  - Weekly or monthly reports
- Vet reports - treats and retreats
- Ultrasound – Pneumonia

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Daily calf monitor

Milk prep

Mixing	AM	PM
No. of calves	235	235
Lbs of Milk	1050	1030
Lbs of water	900	1000
Lbs of milk replacer	150	150
Total lbs of solution	2100	2180
Temperature of solution on truck when leaving barn	105	95

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Daily calf monitor

Feeding

Temperature milk – last calf fed	92	91
Number of slow or non drinkers	2	14
Tag numbers of slow/nondrinkers/did not finish all their milk	2367, 2369	2367, 2369, 2100, 2102, 2105, 2108, 2109, 2110, 2115, 2116 2118, 2120, 2122, 2123

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Daily calf monitor

Health

Document all treatments in log and report abnormal event to DVM or mgr.

Number of scouring calves	0	8
Number respiratory calves	0	0
Number of navel calves	1	2
Deads (immediate report)	0	1
Tag numbers treated E= electrolytes R= Respiratory O= other D = deads	2367e, 2369e, 2100e, 2108e, 2109e, 2110e, 2115e, 2116e	

Comments:

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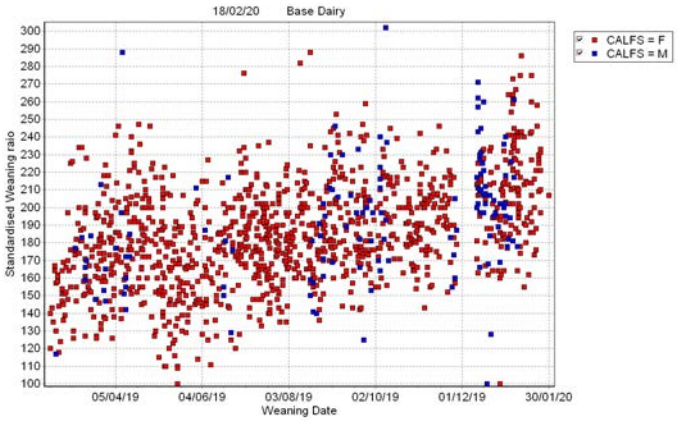
Wean Ratio Graph. Goal >200



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Essentials for calf management

- Calf management team – feeders, managers, herd management, DVM, industry partners
- Communication pathways
- Records – minimal lag and relevant to achieving goals (growth, health, financial.
- Commitment to improvement.

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Impact of technology

- Robotic milking – Are these herds managed differently?
- Apply this mindset to managing calves
- Records
  - Consumption, drink speed, breakoffs, unrewarded visits, treatments

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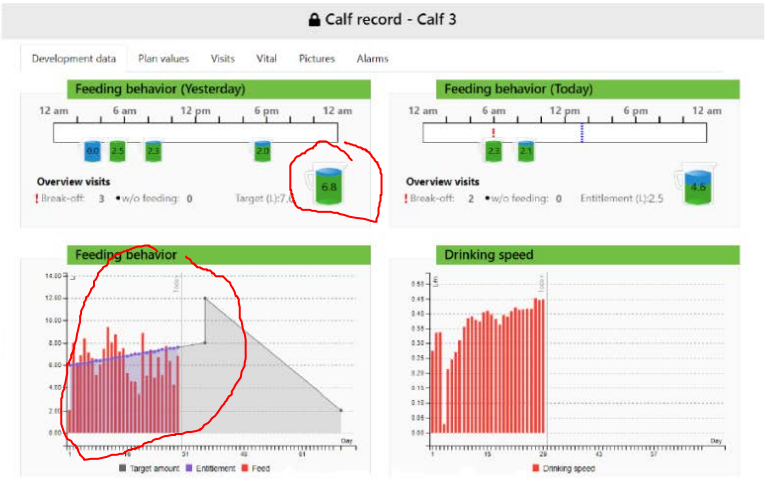
Data from Standard Automatic Calf Feeders

FÖRSTER TECHNIK

- Time when being fed
- Feed intake / time / Level in %
- Breaks
- Drinking speed *
- All values are recorded 24/7 and accessible through Cloud or App



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What are the "bottlenecks" with your calf program?

- Is your calf program important to the herd future?
- Identify bottlenecks
- Prioritize – timeliness, impact on farm profit and sustainability – now and in the future
- Develop a management mindset with calves
- Do what's best for your calves!

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Optimize the calf program for the future!

- Biology of calf growth and development
- Calf behavior – cow behavior
- Labor efficiency, effectiveness and satisfaction
- Nutrient management
- Profit

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