Automated Calf Feeders: Keys to Success

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C1+C2+C3+C4+C5 = CALF RAISING SUCCESS

- **C1 = Colostrum**
  - Critical with all management systems

- **C2 = Calories**
  - Automated feeding allows the feeding of more calories

- **C3 = Cleanliness**

- **C4 = Comfort**

- **C5 = Consistency**
  - Milk is delivered at the same temperature and concentration every time
Why consider an automated calf feeding system?
AUTOMATED CALF FEEDING- ADVANTAGES

- Consistency of feeding
  ▪ Water- Powder-Temperature
  ▪ Mixing- Measuring
  ▪ Data Collection
- Sick Calf Identification
- Easy to manage an accelerated feeding program
- Labor Saving
MOB FEEDERS
LOW COST MODEL

- Small batch size
- Fewer settings
- Less information
- More manual cleaning required
HIGHER LEVELS OF AUTOMATION
OTHER BRANDS

Other Models
COMPONENTS OF AN AUTOMATED CALF FEEDER

• Mixing unit
• Nipple feeders
• Computer and program
Milk Replacer Mixing Bowl
PANEL READERS AND NIPPLE OPTIONS
MILK REPLACER VS PASTEURIZED MILK

Milk Replacer
- Lower labor
- Lower equipment cost

Pasteurized Milk
- Use for waste milk
- Lower overall cost??
MILK REPLACER FEEDING
PASTEURIZED MILK
CHALLENGES?

▪ Misconception of the feeder
▪ Ventilation
▪ Colostrum management
▪ Failure to clean machine
▪ Vaccination program
▪ Communication with your Veterinarian
KEYS TO SUCCESS

▪ Colostrum management
▪ Starting calves on milk and starter
▪ Number of calves per nipple
▪ Ventilation
▪ Cleanliness
  – Calf housing area
  – Feeder
▪ Calf observation & Records
STARTING CALVES ON FEEDERS

- **Start right on feeder if:**
  - Age spread is very narrow
  - Keep animal numbers low
  - Close observation
  - Assist with drinking

- **Start at 2-4 days if:**
  - They are aggressively eating

- **Start 10 – 14 days:**
  - minimizes health issues in groups
  - Need more individual pens
START ON FEEDER OR INDIVIDUALLY
CALVES PER NIPPLE

- Time-lapse video studies
- Calf numbers/pen ie. 12 or 24
- Can feed 4-8 feedings/day, calves choose 5-6
- Unrewarded visits indicate calf health and satiety M.B. Jensen, Danish researcher

Farmer observations
- 18-20 calves per nipple – calves do great
- 20-22 calves per nipple – calves do OK
- >25 calves per nipples – some calves struggle
HOUSING

- 30 to 35 sq. feet per calf is ideal.
- What about air quality? How do we manage this?
- A.I.R. = Adequate, Incoming and Removal. Small calves do not generate a lot of body heat which limits convection air currents.
VENTILATION

- Most barns have positive pressure air tubes
- 4 exchanges in the winter months
- 40 exchanges in the summer months
- How do hutch calves compare?
- Do we struggle with issues in hutches?
CLEANLINESS

- LOTS of bedding
- Clean bedding often
- Clean hoses and nipple regularly
BEDDING SOURCE

- Wet bedding is another source of bacterial contamination. Around the feeder is generally very wet. Keep it dry also.
- Ammonia at the bedding surface, which is also the calf level. Combination of urine, manure and wet bedding leads to release of ammonia.
- What goes in does come out.....more powder = more water intake. Greater gains!
CHECKLIST FOR CLEANING FEEDER

▪ Switch nipples daily
▪ Clean hoses, discard once a week
▪ Periodically clean mixing unit itself
▪ Replace hose from mixing unit to feeder hose every 6 months
KEEP GOOD RECORDS
### CALVES NEEDING ATTENTION

The image shows a data sheet with columns for Status, A/E, Group, Plan, End, Time, Entitlement, L, %, L, %, and L/min. The data is displayed in a grid format with rows indicating different calves or groups of calves.

- **Status**: Appears to categorize the calves into different groups or conditions.
- **A/E**: Likely refers to an activity or event associated with each group.
- **Group**: Identifies the specific group within the study.
- **Plan**: Might indicate a planned schedule or activity.
- **End**: Represents a deadline or the end of a period.
- **Time**: Indicates the time associated with certain events.
- **Entitlement**: Could be the amount or number of resources allocated.
- **L**: Might represent a measure or count for each group.
- **%**: Percentage values associated with each entry.
- **L/min**: Likely a measurement of volume per minute for certain activities.

The data seems to be monitored and recorded using a DeLaval device, indicating a focus on dairy farming or livestock management, with a particular emphasis on calf care and feeding.
AUTOMATED CALF FEEDING - CHALLENGES

- Group Housing = greater potential for disease exposure
  - Respiratory disease exposure can increase due to “shared” air
  - Scour disease exposure can increase due to “shared” nipple

- Cleaning
What have we learned?

Calves need >30 sq. ft. each

**Plenty** of bedding

Respiratory problems are common

Calves need 30 – 50 minutes/day nipple station time

Starter feeder limits intake if overstocked, ie. Need more feeders
ECONOMICS

Mixing control unit - $20,000
Computer $  4,000
Nipple feeders $  2,000
Calf starter units $  5,000
### Economics of Automatic Calf Feeding Systems

**Positive Impacts**

**Increased Incomes**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Increased Incomes</td>
<td>$0</td>
</tr>
</tbody>
</table>

**Decreased Expenses**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Calf Treatment</td>
<td>$0</td>
</tr>
<tr>
<td>Reduced Feeding Labor</td>
<td>$14,408</td>
</tr>
<tr>
<td>Reduced Calf Management Labor</td>
<td>$2,483</td>
</tr>
<tr>
<td>Reduced Labor Management</td>
<td>$2,920</td>
</tr>
</tbody>
</table>

**Total Decreased Expenses**  $19,811

**Total Positive Impacts**  $19,811

**Annual Value to Quality of Life** = $2,000

**Annual Value of Software** = $750

**1st Lactation Milk Production Gain** = 18,240

**Net Financial Impact**

- with QoL and Herd Software: $-547
- with QoL, Software, and Milk Gain: $17,693

**Negative Impacts**

**Increased Expenses**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Recovery Cost of Feeder (Dep &amp; Int)</td>
<td>$13,460</td>
</tr>
<tr>
<td>Increased Insurance Costs</td>
<td>$150</td>
</tr>
<tr>
<td>Increased Milk Replacer Intake</td>
<td>$5,453</td>
</tr>
<tr>
<td>Increased Pasturized Milk Intake</td>
<td>$0</td>
</tr>
<tr>
<td>Increased Calf Starter Intake</td>
<td>$570</td>
</tr>
<tr>
<td>Increased Calf Treatment</td>
<td>$30</td>
</tr>
<tr>
<td>Increased Utilities and Supplies</td>
<td>$525</td>
</tr>
<tr>
<td>Increased Records Management</td>
<td>$2,920</td>
</tr>
</tbody>
</table>

**Total Increased Expenses**  $23,108

**Decreased Incomes Expected**

**Total Decreased Incomes**  $0

**Total Negative Impacts**  $23,108

**Estimated Payback Period, Years**  n/a

**Estimated Payback Period, Calves**  n/a

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Available at: [http://www.extension.iastate.edu/dairyteam/calves-heifers](http://www.extension.iastate.edu/dairyteam/calves-heifers)
How much time do you spend feeding calves?

–40 calves bucket fed a day
  ▪ 5-10 are < 10 days old
  ▪ 35 10 – 50 days old
  ▪ In hutches or calf facility?
  ▪ What part of your time will be replaced?

–40 calves on automatic feeder at 1 minute a day
  ▪ .67 hours per day
  ▪ 21 hours a month
  ▪ At $10.00 an hour
–Labor Savings
How do we make this pay?

More free time for other things

More timely feeding

Feed out bull calves
CHECKLIST FOR CALF FEEDER

- Make sure enough milk replacer is in hopper!
- Once every 6 months clean hopper.
- Calibrate machine at least every month. Replacers need to be calibrated every ton batch.
- Make sure electrodes are mineral deposit free.
- Manually clean machine periodically.
- Set up a maintenance plan with your dealer. Every 6 months is a good target.
SUCCESSFUL MANAGEMENT

- 1. Colostrum management
- 2. Isolating the calves at birth
- 3. Adequate housing
- 4. Ventilation
- 5. Ration management
- 6. Hygiene
- 7. Care for the calves
TAKE HOME MESSAGE

▪ The Calf Feeder does exactly what it is meant for…feeding calves.
▪ Human error?
▪ Human Management?
▪ Successful management is dependent on achieving high performance of many variables.
▪ Q & A
CHECKLIST FOR AUTOMATIC CALF-FEEDER

Swap nipples daily

Discard nipples after each group

Be confident in your ventilation and climate control