A survey to compare management and feeding practices of milk-fed dairy calves when fed manually vs. by automated milk feeders

Project funded by:
Dairy Farmers of Canada

Those who complete the survey and provide their e-mail when submitting it, enter into a draw for the chance to WIN 1 of 3 $250!!!

Consent to participate in research
First, you need to consent to participate in this research

_________________________________________________________________________

Your time is valuable!!!
Completing the survey can be done in stages if you wish; you can save what you have done and come back to it later between your farm chores or when you have more time!!!

As you answer questions, a bar will appear above the survey telling you how close you are to being finished. For technical reasons beyond our control, for producers with automated feeders this may appear to move quite slowly at the beginning - but please know that once you reach 55% completion you are almost done and it will go quite quickly from there, we promise!

I have read the information provided below and I agree to participate in this survey.
○ Yes
○ No

_________________________________________________________________________

Section 1. Farm description (for both, producers feeding milk manually and using an automated milk feeder)

1. Farm's location
   Town: __________, Province: __________

2. Producer's Age
   Years old
   ○ Under 18
   ○ 18-24
   ○ 25-34
   ○ 35-44
   ○ 45-54
   ○ 55-64
   ○ 65 or Above
3. Gender
   - Male
   - Female

Cattle at your farm
4. What is the main breed?
   - Holstein
   - Jersey
   - Guernsey
   - Ayrshire
   - Brown Swiss
   - Milking shorthorn
   - Canadian
   - Other

5. Average number of milking cows: __________

6. Average number of calves born/month: ______

7. What type of housing do you have for your heifers and cows?
   Please select the type of housing and check the box if they have access to pasture
   
   Type of housing: Pasture access
   Heifers
   - Tie-stall
   - Free-stall
   - Bedded-pack (loose housing)
   Dry cows
   - □
   Lactating cows
   - □

8. What type of milking system do you have?
   - Automatic milking system (robots)
   - Milking parlour
   - Pipeline milking system

   How many milking robots do you have? __________

What type of milking parlour do you have?
   - Tandem parlour
   - Herringbone parlour
   - Parallel parlour
   - Rotary parlour
9. Do you currently use any of the following automated devices?
Check all that apply
☐ Automated grain feeders for un-weaned calves
☐ Activity collars
☐ Pedometers
☐ Automated manure scraper systems
☐ Feed pushers
☐ Cow brushes
☐ Automated milk/milk replacer feeders for calves

PRODUCERS USING AUTOMATED MILK FEEDERS
(The following sections where only for producers with automated milk feeders)

Section 2. Factors of influence
Reasons for deciding to change to automated milk feeding systems

1. Factors that influenced you to change from manual feeding to automated milk feeders
For the following points please indicate the degree of importance based on how they influenced you to take the decision to switch to automated milk feeders

Scale: Very important, Important, Neutral, Somewhat Important, Not at all Important, Not Applicable.

- Visited a farm with auto feeders/farmer testimonial.
- Heard about them at a meeting.
- Read about them online or in farm press.
- You wanted to improve working conditions.
- You wanted to modernize the barn.
- You wanted to increase interest of next generation by installing high-tech devices.
- To facilitate feeding more milk to calves without increasing labour.
- To facilitate group-housing.
- To reduce labour.
- To raise better calves.

If you had other reasons for changing to automated milk feeders not mention above, please give us details:
Section 3. Producers' perceptions about automated milk feeders

1. Advantages that automated milk feeders have offered to your farm
For the following points please indicate your level of agreement based on your experience and the advantages that automated milk feeders have brought to dairy farms

Scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, Not Applicable.

- Staff spends less time feeding milk or cleaning bottles/buckets/teats.
- Improved working conditions (e.g. not having to feed outside in bad weather).
- Ability to feed more milk to calves without increasing labour.
- Easy way to record calf milk consumption information.
- Earlier detection of sick calves.
- Calves are healthier.
- Calves grow better.
- Calves can express more natural feeding behaviour (i.e. teat-feeding, more meals/day, more milk, gradual weaning).
- Easier group-housing management.
- Calves are more playful.

Based on your experience, are there other advantages of using automated milk feeders not listed above? If so, please write them here:


2. Shortcomings of using automated milk feeders at dairy farms?
For the following points please indicate your level of agreement based on your experience and the shortcomings you have found out using automated milk feeders

- No clear savings in labour.
- The cleaning process is time consuming.
- To be able to offer milk ad libitum (no milk amount limitation), the feeder will not record individual data.
- Feeders break down often.
- Difficulty getting technical support when needed.
- Management of the feeders requires a lot of training.
- Less direct contact with calves.
- Calves are more fearful and aggressive.
Based on your experience, are there other shortcomings associated with using automated milk feeders not listed above? If so, please write them here:

3. Now that you have automated milk feeder(s), what do you think about feeding calves manually (by hand)?
For the following points please indicate your level of agreement based on your experience.

- It was inefficient.
- It made me more tied to a set schedule.
- It was fine when we were feeding a small number of calves.
- It is fine for only feeding milk during the first days of life of a calf.
- Using manual feeding would make it more difficult to follow the Recommendations of the Dairy Code of Practice regarding calves' care using.
- It is tiring (more work/effort).
- It was limiting the growth and performance of my calves.
- If could still be okay for calves, if they were fed manually 3 times per day, or more.

Based on your experience, are there other opinions you have about manual milk feeding after having now automated milk feeders at your farm? If so, please write them here:

4. Overall, how satisfied do you feel with the automated milk feeders at your farm?
☐ Very Satisfied  ☐ Satisfied  ☐ Neutral  ☐ Dissatisfied  ☐ Very Dissatisfied

5. Would you recommend the use of automated milk feeders to other producers still using manual feeding?
  o Yes
  o No
Section 4. Setting up the automated milk feeder

1. What is the make of your automated milk feeders?
   Please select the make of your feeders from the list. If other, please specify in the box below.
   Make:
   - DeLaval - Förster Technik
   - Lely - Förster Technik
   - GEA - Förster Technik
   - Urban
   - Holm & Laue
   Other, please specify: __________________________

2. What year did you start using automated milk feeders at your farm? _________

3. Before installing automated milk feeders, what was the last MAIN method you used to feed milk to your calves?
   - Open bucket
   - Teat bucket
   - Teat bottle
   - Milk bar (a single milk source [i.e. big bucket] with multiple teats)
   - Other, please specify: __________

4. Before installing automated milk feeders, how often did you feed your calves?
   - 1 time/day
   - 2/day
   - 3/day
   - 4/day
   - Other, please specify: __________

5. Before installing automated milk feeders, on average how much milk in total did you normally offer to each calf per day?
   Litres of milk/day/calf: _______________

6. Did you build a new barn to accommodate the automated milk feeder(s)?
   - Yes
   - No

7. Did you renovate an existing barn or facility to accommodate the automated milk feeder(s)?
   - Yes
   - No

8. How many pens have access to an automated milk feeder? ____________
9. How many automated milk feeders and milk feeding stations (teats) per feeder do you have?
   - Automated milk feeders: _________
   - Milk feeding stations (teats) per feeder: _________

10. Do you have more than one milk feeding station (teats) per pen?
   - Yes
   - No

11. Do your automated milk feeders that serve multiple pens offer simultaneous feeding (i.e. have a pump so that multiple milk feeding stations (teats) can feed at the exact same time)?
   - Yes
   - No
   If no, do you use the "preference mode" to give priority to certain calves to access the feeder?
   - Yes
   - No
   If yes, What criteria do you use to set up "priority"?
     Please check all that apply
     □ Priority for calves that have triggered an alarm because low milk consumption
     □ Priority for calves receiving a special treatment (i.e. medicated)
     □ Priority for calves up to certain age or feeding day (e.g. calves under 7 days old)
     □ Priority for a specific milk feeding station (teat) (i.e. all calves fed at that station)
     □ Priority for calves that have triggered an alarm because poor weight gain
     □ Priority for calves that have triggered an alarm because of illness

12. Do you use specific software (e.g. Kalfmanager) to visualize feeder data on your desktop or laptop computer?
   - Yes
   - No, I check data directly from hand held terminals

Section 5. Management and care of calves during first days of life

• General care and colostrum feeding practices

1. Do you disinfect the umbilical cord (navel)?
   - Yes
   - No
2. How many times do you give colostrum to each newborn calf?

# days of colostrum feeding:
- Only during 1st 24 hours of life
- During first 2 days of life
- During first 3 days of life
- During first 4 days of life

# colostrum feedings/day: ______________________

3. When is the first meal of colostrum usually given?
- Within 6 hours of birth
- Within 12 hours
- Within 24 hours
- Other, please specify: _______________

4. How much colostrum in total do you give in the first 12 hours of life?
- 2 litres or less
- 4 litres
- 6 litres
- Other, please specify... _______________

5. Do you assess colostrum quality?
- Yes
- No
- Sometimes

6. What do you use to assess colostrum quality?

Please select all that apply
- Colour/consistency
- Colostrometer
- Refractometer
- Other, please specify: _______________

7. How do you offer colostrum to the calves?

Please select all that apply
- Open bucket
- Teat bucket
- Teat bottle
- Esophageal tube
- Other, please specify: _______________
**Housing practices during the first days of life**

8. How long do you keep the calf with the dam?
   ☐ Immediate removal
   ☐ Between 1-2 hours
   ☐ Between 3-6 hours
   ☐ Between 7-12 hours
   ☐ Between 12-24 hours
   ☐ Other, please specify: ____________

9. What is the main reason for you to have this practice?
   Explain briefly: ______________________________________________________

10. After dam-calf separation, do your calves go right away into the automated milk feeder pen?
   o Yes
   o No

11. Once the dam and calf are separated, where do you house your calves?
    Indoor vs. outdoor  Individual vs. group
    Housing  o Indoor pen  o Individual
    o Outdoor pen  o Pair
    o Outdoor hutch  o Group

   If other type of housing is used, please specify here: _________________

12. What bedding material do you use for calves during first days of life?
   o Straw
   o Sawdust
   o Dried manure solids
   o Sand
   o Mix of straw and sawdust
   o Other, please specify
• **Milk feeding practices before introducing calves into the automated feeder pen**

13. **What is the main type of milk you use to feed calves before they go to automated milk feeders?**
   Please select the MAIN type you use at your farm.
   - Whole milk (saleable)
   - Waste milk (transition cow milk, milk from treated cows)
   - Milk replacer
   - Other

14. **Do you pasteurize the milk before feeding calves?**

15. **Do you acidify the milk or milk replacer before feeding calves?**
   - Yes
   - No
   - Not necessary because I use commercial acidified milk replacer

16. **Do you use another type of additive to preserve the milk or milk replacer (e.g., Hydrogen peroxide)?**
   - Yes, please specify: _____________
   - No

17. **How much milk per day do you offer to calves during the period prior to introduction to the automated feeder pen?**
   Litres/day: ______

18. **How many times per day do you feed your calves during the period prior introduction to the automated feeder pen?**
   # meals/day: ______

19. **How do you offer milk to your calves during the period prior introduction to the automated feeder pen?**
   - Open bucket
   - Teat bucket
   - Teat bottle
   - Milk bar (a single milk source [i.e. big bucket] with multiple teats)
   - Other, please specify: ______________________

20. **Do you warm up the milk before feeding?**
   - Yes
   - No
Section 6. Transitioning calves to the automated milk feeder

1. What criteria do you use to decide when to move a calf to automated milk feeder pen?
You move your calves to automated milk feeding based on:
Select all that apply.
☐ Age
☐ Health (vigor)
☐ Smartness
☐ Weight
☐ Amount of milk consumed per day before introduction
☐ Disbudding day
☐ Other, please specify: _____________

2. On average, at what age do you usually move calves to automated milk feeding?
___________ days old.

3. How do you train the calves to use the automated milk feeder?
Please check all the steps that apply. If no one is applicable or you have additional steps, please select "Other" and use the box below to complement the answer.

☐ Calf does not get fed before going into the automated milk feeder pen.
☐ Calf is manually fed and immediately introduced into the automated milk feeder pen.
☐ Calf is introduced into the automated milk feeder pen and it is allowed to explore.
☐ Calf is introduced and is immediately pushed into the automated milk feeding station until it starts to suck.
☐ Calf is introduced and is manually fed in the automated milk feeding station.
☐ Other. Please explain in the box below.

Other ways of training calves to use automated milk feeders:

4. How many times per day during the first day of introduction, do you push the calf into the automated milk feeder chute?
☐ Once
☐ Twice
☐ 3 times
☐ As many as required until calf drinks by its own
☐ Other, please specify:
5. How many days do you help the calf to go into the automated milk feeder chute and suck?
  ○ Only during the first day
  ○ During 2 days
  ○ During 3 days
  ○ As many as required until calf drinks by its own

6. On average, would you say that the majority of calves start drinking from the feeder without problem the first day of introduction and no more pushing is required the following days?

7. Based on you experience on how fast calves learn to use the automated milk feeder, write what percentage of your calves fall into each of the 3 following categories:
   • Percentage of calves that learn the first day of introduction (fast learning): ___%
   • Percentage of calves that take a couple of days to learn: ___%
   • Percentage of calves that take more than 3 days to learn: ___%

8. If a calf definitely does not learn how to use the feeder, what do you do?
   □ Move it to an individual pen and feed it manually during all the milk feeding period
   □ Discard the calf
   □ I do not know, it has never happened in my farm
   □ Other, please specify: ____________

9. How much is the maximum time you wait for deciding that a calf did not learn how to use the feeder and remove it from the group? ____________
Section 7. Management and care of automated milk-fed calves

• **Feeding Practices**

We previously asked you about type of milk fed to calves during first days of life. If the same type of milk is fed to calves through automated milk feeders select YES, if it is different select NO.

(If no, person will be directed to questions on milk type, pasteurization and acidification)

1. **What is your milk feeding program?**
   Please for each of the periods that compose your milk feeding schedule specify the length (# of days) and the volume of milk offer per day per calf

<table>
<thead>
<tr>
<th># of days in each period</th>
<th>Milk volume (litres/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
<td></td>
</tr>
<tr>
<td>Period 2</td>
<td></td>
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<tr>
<td>Period 3</td>
<td></td>
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<tr>
<td>Period 4</td>
<td></td>
</tr>
<tr>
<td>Period 5</td>
<td></td>
</tr>
</tbody>
</table>

2. **What is the minimum meal size?**
   Litres: __________

3. **What is the maximum meal size?**
   Litres: __________

4. **What other feed do you offer to automated milk fed calves and at what age do you start offering it?**
   Amount: Restricted amount or Ad Libitum (calf can eat/drinks all she wants)
   - ☐ Calf starter (concentrate): Amount: _______ Age: _______
   - ☐ Hay: Amount: _______ Age: _______
   - ☐ Total Mixed Ration: Amount: _______ Age: _______
   - ☐ Straw: Amount: _______ Age: _______
   - ☐ Water: Amount: _______ Age: _______
   - ☐ Other. Please specify: ___________: Amount: _______ Age: _______
• **Housing and pen management**

5. What type of housing do you have for automated milk-fed calves?
   - Indoor housing
   - Outdoor housing

6. What is the bedding material for pens with automated milk feeders?

<table>
<thead>
<tr>
<th></th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straw</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Sawdust</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Dried manure solids</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Sand</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other: _______</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

7. How often do you add more bedding material to pens with automated milk feeders?
   - Once a day
   - Once a week
   - Twice a week
   - 3 times a week
   - Every 2 weeks
   - Every 3 weeks
   - Once a month
   - When necessary. Please specify what criteria you use: ______________________
   - Other, please specify: ______________________

8. What is the maximum number of calves you keep in a group pen?
   Average of the maximum number of calves per pen with automated milk feeders:

9. What is the maximum age difference within a group of calves in a pen (approximately)?

10. What type of ventilation do you have for calves fed with automated milk feeders?
    Please select all that apply
    - Natural ventilation - outdoor
    - Natural ventilation - open barn/pen
    - Natural ventilation - curtain barn
    - Artificial ventilation - positive pressure ventilation
    - Artificial ventilation - negative pressure ventilation
    - Other, please specify: ___________
11. Do calves share airspace with heifers and/or cows? _________

12. During cold months, do you allow deeper bedding for insulation?
   o Yes
   o No

13. Do you have another source of heating in the calf barn?
   o Yes. Please specify: ______________________
   o No

14. Do you provide an outdoor shelter?
   o Yes. Please specify: ______________________
   o No

15. How often are automated milk feeder pens cleaned (all bedding removed)?
   o Never
   o Weekly
   o Every 2 weeks
   o Monthly
   o Every 2 months
   o When all calves in the pen are weaned
   o Other, please specify: ______________________

16. How often are automated milk feeder pens disinfected? _________

• Weaning program

17. How do you decide when to start weaning a calf?
   Please select all that apply
   □ Based on age
   □ Based on starter intake
   □ Based on weight
   □ Based on general appearance
   □ Based on previous illness

18. Are weaned calves removed immediately from the pen? _________

19. For how long after weaning do calves stay in the pen?
   o Between 1-2 days
   o Between 3-4 days
   o Between 5-7 days
   o 2 weeks
   o 3 weeks
20. Where do the weaned calves go?
- To another outdoor pen
- To another pen in the same barn
- To heifer barn
- To lactating or dry cow barn
- Other, please specify: ______________________

• Monitoring calves' health

1. How often do you perform physical health checks?
Checking the calves closely
- Daily
- Once a week
- Twice a week
- Every two weeks
- Every four weeks
- Other, please specify: ______________________

2. How often do you check the hand held terminal of the feeder to monitor calves’ performance data (feeding behaviour data)?
- Once a day
- Twice a day
- 3 times a day
- Every time person in charge is in the barn.
- Other, please specify: ______________________

3. What performance data from the automated milk feeder do you use more often to identify sick calves?
Please rank in order of importance based on your experience.

<table>
<thead>
<tr>
<th>Performance Data</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>I do not used it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk intake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of visits to the feeder</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Drinking speed</td>
<td></td>
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</tbody>
</table>

4. When do you decide to do a physical health check to a calf that shows negative changes in performance based on the hand held terminal data?
Please explain briefly (for example when milk intake has decrease 50% over certain period of time you go and examine the calf)
5. When performing physical health check, what are the top 3 signs you check first?
   - Position of ears
   - Attitude (weak, depressed)
   - Signs of diarrhea
   - Runny nose
   - Body temperature
   - Coughing
   - Dehydration
   - Eye secretion

6. What do you think are the main health problems in your calf barn?
Please rank the given options in order of importance based on your experience. "Other" options are provided in case you have health problems not listed.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Not applicable</th>
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<tbody>
<tr>
<td>Diarrhea</td>
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<td>○</td>
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<tr>
<td>Respiratory problems</td>
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<tr>
<td>Navel infections</td>
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<td>Injuries</td>
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<tr>
<td>Other #1:</td>
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<td>Other #2:</td>
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<tr>
<td>Other #3:</td>
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</table>

Please specify what specific health problems you meant for "Other", above.

Final section (8). Person in charge of calves' care

The following demographic data are collected only for the purpose of determining features of people in charge of looking after the calves at dairy farms.

1. In a given year, how many people are in charge of calves' care on your farm?
   - 1 person
   - 2 people
   - 3 people
   - 4 people
   - 5 people
   - Other, please specify: ___________
2. Who is the person looking after the calves?
   - Producer/Owner/family member
   - Farm hired staff
   - Volunteers
   - Other, please specify: ___________

3. Age, gender and education level of the person(s) looking after the calves
   Specify for each person:
   - Gender: Male, female.
   - Education level: none, primary school, high school, college or higher
   - Age

4. In a given year, do the people in charge of calves' care tend to be the same?
   Check all that apply
   - Yes, personnel is pretty constant
   - No, personnel rotates quite often

Would you like to be part of the second part of this project? (question only for producers with automated milk feeders)

We are especially interested in the experiences of dairy farmers using automated calf feeders. In the second stage of our project we will be visiting some of these farms.

If you might be willing to let us visit your farm please provide us with your contact details and we will be in touch.

Providing your contact information is in no way a commitment on your part to be involved in the second part of this project it is just to say that you may be willing to have us visit your farm, and answer a few more questions.

Name
Email
Telephone
Number
Good time(s) to try and reach you
Section 2. Factors of influence
Reasons for using manual feeding to offer milk to calves

1. Factors that have influenced you to use manual feeding methods
For the following points please indicate the degree of importance based on how much they influence you to continue using manual milk feeding

Scale: Very important, Important, Neutral, Somewhat Important, Not at all Important, Not Applicable.

- This method has been in the family for generations
- Small farm size
- Manual feeding is low input cost
- Have heard no positive experiences with automated milk feeders from other producers
- High cost of investing in new facilities for group housing
- High cost of investment in new equipment (i.e. automated milk feeders)

If you have other reasons that have influenced you to use manual feeding, please give us details:

Section 3. Producers' perceptions about their milk feeding system (manual)

1. Advantages that manual feeding has offered to your farm
For the following points please indicate your level of agreement based on your experience and the advantages that manual feeding has brought to your farm

Scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, Not Applicable.

- Direct contact with calves every day facilitates detection of illness.
- Direct contact with calves every day facilitates handling of animals.
- Feeding calves is relatively straight forward for staff to learn to do.
- Manual feeding can be done without concerns about technical issues (e.g. power failure).
- Individual feeding (e.g. one bottle/calf) reduces risk of disease transmission.
- Individual housing reduces risk of disease transmission.
Based on your experience, are there other advantages of using manual feeding not listed above? If so, please write them here:


2. Shortcomings of using manual feeding for offering milk to calves
For the following points please indicate your level of agreement based on your experience and the shortcomings you have found out using manual feeding

• No savings in labour.
• Cleaning process of buckets, bottles and/or teats is time consuming.
• Time consuming to feed each calf.
• Difficult working conditions in winter if calves are in outdoors housing (e.g. hutches).
• Difficult to give more than 2 or 3 feedings per day.
• Difficult to give large milk amounts to calves per day.
• Measuring milk amount or milk replacer powder quantity is time consuming.
• Difficult to get time off from farm activities.

Based on your experience, are there other shortcomings associated with using manual feedings not listed above? If so, please write them here:


3. Overall, how satisfied do you feel with your manual milk feeding system?
☐ Very Satisfied  ☐ Satisfied  ☐ Neutral  ☐ Dissatisfied  ☐ Very Dissatisfied

4. Have you heard about automated milk feeders for rearing calves?
Please select all that apply
☐ No, I have never heard about automated milk feeders
☐ Yes, I learned about them on a farm tour/visit.
☐ Yes, I learned about them from another farmer who uses one.
☐ Yes, I heard about them at a dairy meeting.
☐ Yes, I read about them online or in farm press.
☐ Yes, a veterinarian told me about them
5. What benefits do you think automated milk feeders could potentially bring to your farm?
Please select all that apply
- They could improve labour working conditions (e.g., not having to feed outside in bad weather, or lifting heavy buckets).
- They could make calf feeding more interesting for the next generation (installing high-tech devices).
- They could facilitate feeding more milk to calves without increasing labour.
- They could facilitate group-housing.
- They could potentially reduce labour.
- Detecting sick calves would be easier.
- Calves could be healthier.
- Calves could grow better.
- They will allow calves to express more natural feeding behaviour (i.e. more meals/day, more milk, gradual weaning).

6. Are you considering changing to automated milk feeding system? _________

7. When would you hope to start using automated milk feeders?
- This year (before 2014 ends)
- Next year (in 2015)
- In a couple of years (before 2017)
- Other, please specify: __________

Section 4. Management and care of un-weaned calves

- General care and colostrum feeding practices

1. Do you disinfect the umbilical cord (navel)?
   - Yes
   - No

2. How many times do you give colostrum to each newborn calf?
   - # days of colostrum feeding: Only during 1st 24 hours of life
   - During first 2 days of life
   - During first 3 days of life
   - During first 4 days of life
   - # colostrum feedings/day: __________________________
3. When is the first meal of colostrum usually given?
   ○ Within 6 hours of birth
   ○ Within 12 hours
   ○ Within 24 hours
   ○ Other, please specify: _____________

4. How much colostrum in total do you give in the first 12 hours of life?
   ○ 2 litres or less
   ○ 4 litres
   ○ 6 litres
   ○ Other, please specify: _____________

5. Do you assess colostrum quality?
   ○ Yes
   ○ No
   ○ Sometimes

6. What do you use to assess colostrum quality?
   Please select all that apply
   □ Colour/consistency
   □ Colostrometer
   □ Refractometer
   □ Other, please specify: _____________

7. How do you offer colostrum to the calves?
   Please select all that apply
   □ Open bucket
   □ Teat bucket
   □ Teat bottle
   □ Esophageal tube
   □ Other, please specify: _____________

* Housing practices *

1. How long do you keep the calf with the dam?
   □ Immediate removal
   □ Between 1-2 hours
   □ Between 3-6 hours
   □ Between 7-12 hours
   □ Between 12-24 hours
   □ Other, please specify: ____________________
2. What is the main reason for you to have this practice?
Explain briefly:

3. Once the dam and calf are separated, where do you house your calves?

   Indoor vs. outdoor   | Individual vs. group
   ---------------------|----------------------
   Housing              | Individual
                        | Individual
                        | Pair
                        | Group

If other type of housing is used, please specify here:

4. For how long do calves stay in this type of housing?

- Until they are weaned
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days
- Other, please specify: __________

5. Where are they moved after?

   Indoor vs. outdoor   | Individual vs. group
   ---------------------|----------------------
   Housing              | Individual
                        | Individual
                        | Pair
                        | Group
                        | Group

If other type of housing is used, please specify here

6. What is the maximum number of calves you keep in a group pen?
(Only for those using pair/group housing)

- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- Between 11 and 15
- Between 16 and 20
- Between 21 and 25
- Between 26 and 30
- Between 31 and 35
- Between 36 and 40
- Between 41 and 45
- Between 46 and 50
- Between 51 and 55
- Between 56 and 60
- More than 60

What is the maximum age difference within a group of calves in a pen (approximately)?

- Less than a week
- 1 week
- 2 weeks
7. What is the primary bedding material for the milk-fed calves?

<table>
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<tr>
<th></th>
<th>Winter</th>
<th>Summer</th>
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<tbody>
<tr>
<td>Straw</td>
<td>☐</td>
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<td>Sawdust</td>
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<td>Other</td>
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</tbody>
</table>

If other bedding material not listed above is used please specify it: ______________________

8. How often do you add more bedding material?

- ☐ Once a day
- ☐ Once a week
- ☐ Twice a week
- ☐ 3 times a week
- ☐ Every 2 weeks
- ☐ Every 3 weeks
- ☐ Once a month
- ☐ When necessary. Please specify what criteria you use: ______________________
- ☐ Other, please specify: ______________________
9. How often are un-weaned calves' pens cleaned (all bedding removed)?
  o Never
  o Weekly
  o Every 2 weeks
  o Monthly
  o Every 2 months
  o When calves are weaned
  o Other, please specify... ______________________

10. How often are un-weaned calves' pens disinfected?
  o Never
  o Weekly
  o Every 2 weeks
  o Monthly
  o Every 2 months
  o When calves are weaned
  o Other, please specify... ______________________

11. What type of ventilation do you have?
    Select all that apply
    ☐ Natural ventilation - outdoor housing
    ☐ Natural ventilation - open barn
    ☐ Natural ventilation - curtain barn
    ☐ Artificial ventilation - positive pressure tubes
    ☐ Artificial ventilation - negative pressure ventilation
    ☐ Other, please specify... ______________________

12. Do calves share airspace with heifers and/or cows?
  o Yes
  o No
13. During cold months, do you allow deeper bedding for insulation?
   - Yes
   - No

14. Do you have another source of heating for the calves?
   - Yes. Please specify: ______________________
   - No

15. Do you provide an outdoor shelter?
   - Yes. Please specify: ______________________
   - No

*Feeding practices*

16. How do you offer milk to the calves after colostrum feeding has finished?
   Please select all the methods you use to feed milk to your calves during the milk feeding period:
   - Open bucket
   - Teat bucket
   - Teat bottle
   - Milk bar (a single milk source [i.e. big bucket] with multiple teats)
   - Other, please specify: ________________

17. Has this always been your method of feeding, or have you switched?
   - Yes, this has always been the method of feeding at our farm
   - No, I switched from ______________________
18. For your choices above, please specify when you use each of your methods of feeding throughout the milk feeding period

<table>
<thead>
<tr>
<th>Age</th>
<th>Open bucket</th>
<th>Teat bucket</th>
<th>Teat bottle</th>
<th>Milk bar</th>
<th>Not applicable</th>
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</thead>
<tbody>
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19. Reasons for using open buckets (for those using buckets)

Please for the following indicate your level of agreement based on your experience at your farm:

Scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, Not Applicable.

- Easier to clean and disinfect
- Easier to fill up with milk
- Calves drink faster reducing time required to feed calves
- They are cheaper
- They do not need to be replaced that often
- Teaches calves to drink earlier so they will also drink water from an early age

Based on your experience, are there other reasons for using open buckets not listed above? If so, please write them here:

20. Do your un-weaned calves perform sucking behaviour?

- [ ] Yes, they suck walls/bars
- [ ] Yes, they suck other calves (cross-sucking)
- [ ] Yes, they suck a teat provided at their pen (enrichment)
- [ ] No, they do not
- [ ] Other, please specify
21. Reasons for using teats (for those using teat bucket/teat bottle/milk bar)
Please for the following indicate your level of agreement based on your experience at your farm:

Scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, Not Applicable.

- They allow calves to have a more natural feeding
- When sucking from a teat, calves have less diarrhea
- Allows calves to have longer meals
- Helps to reduce sucking frequency of bars and walls
- Helps to reduce frequency of cross-sucking

Based on your experience, are there other reasons for using teats not listed above? If so, please write them here:

__________________________

22. Is the teat left available for calves to suck after milk intake has finished?
- Yes
- No
- No necessary because calves have an extra teat attached to the pen (enrichment)

23. What is the main type of milk you use to feed calves?
Please select the MAIN type of milk you use
- Whole milk (saleable)
- Waste milk (transition cow milk, milk from treated cows)
- Milk replacer
- Other, please specify... ______________________

24. Do you pasteurize the milk before feeding calves?
- Yes
- No

25. Do you acidify the milk or milk replacer before feeding calves?
- Yes
- No
- Not necessary because I use commercial acidified milk replacer
26. Do you use another type of additive to preserve the milk or milk replacer (e.g., Hydrogen peroxide)?
- Yes. Please specify: ______________________
- No

27. How much milk per day do you feed to a calf during the first week of life?
Please indicate the amount of milk offered to each calf at each age listed

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<th>Age</th>
<th>1 L</th>
<th>2 L</th>
<th>3 L</th>
<th>4 L</th>
<th>5 L</th>
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28. How much milk per day do you feed to a calf from 2 weeks old to the end of the milk feeding period?
Please indicate the amount of milk offered to each calf at each age listed

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<tr>
<th>Age</th>
<th>0 Litres</th>
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Other: ______________________________________________________________________________________
29. In how many meals per day do you split the total amount of milk offered to the calves?
   - 1 meal/day
   - 2 meals/day
   - 3 meals/day
   - 4 meals/day
   - Other, please specify: ______________________

30. Do you warm up the milk before feeding?
   - Yes
   - No

31. What other feed do you offer to automated milk fed calves and at what age do you start offering it?
   Amount: Restricted amount or Ad Libitum (calf can eat/drinks all she wants)
   - Calf starter (concentrate): Amount: _________ Age: _________
   - Hay: Amount: _________ Age: _________
   - Total Mixed Ration: Amount: _________ Age: _________
   - Straw: Amount: _________ Age: _________
   - Water: Amount: _________ Age: _________
   - Other. Please specify: _____________: Amount: _________ Age: _________

• Weaning period

32. How do you decide when to start weaning a calf?
   Select all that apply
   - Based on age
   - Based on starter intake
   - Based on weight
   - Based on general appearance
   - Based on previous illness

33. If you wean primarily based on age, what age would you start weaning your calves?
   Weeks old: ______________
34. How long is the weaning period? ________ days

35. What method do you use for weaning?
   o Diluting the concentration of the milk/milk replacer gradually, over time
   o Reducing the volume of milk the calf is fed gradually, over time

Please explain how you dilute the milk throughout the weaning period

Please explain how you reduce the milk volume throughout the weaning period
For example: "I decrease 1 L of milk every day"

36. Are weaned calves moved immediately to other pen?
   o Yes
   o No

37. For how long after weaning do calves stay in their pen?
   o Between 1-2 days
   o Between 3-4 days
   o Between 5-7 days
   o 2 weeks
   o 3 weeks
   o Other, please specify: ______________________

38. Where do the weaned calves go?
   o To another pen outdoors
   o To another pen in the same barn
   o To a group hutch
   o To heifer barn
   o To lactating or dry cow barn
   o Other, please specify... ______________________
• Monitoring calves' health

39. How often do you perform physical health checks?
Checking the calves closely
- Daily
- Once a week
- Twice a week
- Every two weeks
- Every four weeks
- Other, please specify... ______________________

40. Out of your physical health check routine, what makes you go and do a physical evaluation of a specific calf?
Please rank the options in order of importance based on your experience.

1 2 3 4 I do not used it
Milk intake is decreasing o o o o o
Calf drinks milk slower than usual o o o o o
Calf is weak/depressed o o o o o
Hair coat is dull and rough o o o o o

Please, write up other aspects that are important for you and we did not cover above

41. When performing physical health check, what are the top 3 signs you check first?
1 2 3
Position of ears o o o
Attitude (weak, depressed) o o o
Signs of diarrhea o o o
Runny nose o o o
Body temperature o o o
Coughing  ○ ○ ○
Eye secretion  ○ ○ ○
Dehydration  ○ ○ ○
Decrease milk intake  ○ ○ ○

Please, write up other signs of illness that are important for you and we did not cover above
Please write in brackets the level of importance like for the ones above.

42. What do you think are the main health and performance problems of your milk-fed calves?
Please rank the given options in order of importance based on your experience. "Other" options are provided in case you have health problems not listed.

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<th>1</th>
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<th>7</th>
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Final section (5). Person in charge of calves' care

The following demographic data are collected only for the purpose of determining features of people in charge of looking after the calves at dairy farms.

1. In a given year, how many people are in charge of calves' care on your farm?
   ○ 1 person
   ○ 2 people
   ○ 3 people
   ○ 4 people
   ○ 5 people
   ○ Other, please specify: ____________

2. Who is the person looking after the calves?
   ○ Producer/Owner/family member
   ○ Farm hired staff
3. Age, gender and education level of the person(s) looking after the calves
   Specify for each person:
   Gender: Male, female.
   Education level: none, primary school, high school, college or higher
   Age

4. In a given year, do the people in charge of calves' care tend to be the same?
   Check all that apply
   o Yes, personnel is pretty constant
   o No, personnel rotates quite often

Don't forget... by submitting the survey you have the chance to WIN 1 of 3 $250 prizes!!!!

Please give us your email address and winners will be notified via email once the survey is closed.

Thank you so much!!! We know how valuable your time is! Thus, we really appreciate you took the time and patience to fill up this survey and contribute with our research!