

Supplementary materials for project titled “Preweaned calf transportation practices in the United States: A cross-sectional survey of dairies, haulers, and calf raisers”.

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Questionnaire

CONSENT TO PARTICIPATE QUESTION

- A. Yes, I agree that I am over 18 years of age and consent to participate in this study
- B. No, I do not consent to participate in this study

Preliminary Identification Question

- Q1.A. Which of the following best describes your operation?
- A. Calf raiser that receives calves that have been transported
 - B. Dairy that does not sell or transport preweaned calves off site
 - C. Dairy that sells and/or transports preweaned calves off site
 - D. Driver

If Answer = A; survey ends

If Answer = B, C, or D, continue to relevant survey questions

If Answer to Q1.A. = B; Display this survey:

QUESTIONS FOR DAIRY THAT SELLS AND/OR TRANSPORTS PREWEANED CALVES OFF SITE

Participant Demographics

- Q1. What is your role on the operation?
- A. Owner
 - B. Manager
 - C. Employee who makes decision about calves
 - D. Other, please specify:

Employee Management Practices

- Q2. Is training provided to employees who handle preweaned calves before transportation?
- A. Yes
 - B. No

If Answer = A. Display Question 7.1 and 7.2:

Q2.1. What type of training is provided to employees who handle preweaned calves before transportation? Select all that apply:

- A. Biosecurity and sanitation
- B. Calf handling
- C. Colostrum management
- D. Disease identification
- E. Neonatal care
- F. Other, please specify:

Q2.2 How is training provided to employees who handle preweaned calves before transportation? Select all that apply:

- A. Trained by another employee (i.e. not a manager)
- B. Trained by manager
- C. Trained through BQAT program
- D. Trained through CCQA program
- E. Trained through FARM program
- F. Video training
- G. Other, please specify:

Calf Transport General Questions

Q4. In the last year, how many preweaned calves were transported off the operation (slider answer):

- A. Replacement heifers: _____
- B. Surplus calves (calves who are not retained for replacement heifers): _____

If Answer to 9.B is > 0 = Display This Question

Q4.1. For preweaned surplus calves born on your operation and are transported off the operation, approximately what percentage are (slider answer):

- Jersey male:
- Holstein male:
- Holstein female:
- Beef x Dairy male:
- Beef x Dairy female:

Q5. Where do you send the majority ($>50\%$) of preweaned surplus calves from your operation?

- A. Auction or livestock market
- B. Calf ranch (raise animals for beef production)
- C. Heifer calf raiser

- D. Veal facility
- E. Other, please specify: _____

Q6. Within the last year, approximately what percentage of preweaned calves were transported off-site at (slider question):

- Less than 24hrs:
- 1 day:
- 2 days:
- 3 days:
- 4-7 days:
- 7-14 days:

Q7. Within the last year, approximately what percentage of your preweaned calves were transported to operations (slider question): (these are rough numbers)

- < 50 miles away:
- 50-150 miles away:
- 151-300 miles away:
- 301-450 miles away:
- 451-600 miles away:
- 600-750 miles away:
- 751-900 miles away:
- >900 miles away:
- I do not know:

Q8. How soon after birth is the first colostrum feeding provided to the majority (>50%) of preweaned **replacement heifers**? (*Source 5*)

- A. < 1 hour
- B. 1-2 hours
- C. 3-4 hours
- D. 4-5 hour
- E. \geq 6 hours

Q9. How soon after birth is the first colostrum feeding provided to the majority (>50%) of preweaned **surplus calves** that are transported off site? (*Source 5*)

- A. < 1 hour
- B. 1-2 hours
- C. 3-4 hours
- D. 4-5 hour
- E. \geq 6 hours

Q10. How much colostrum is fed to preweaned **surplus calves** prior to transportation?

- A. 1L
- B. 2L
- C. 3L
- D. 4L

Q11. How much colostrum is fed to preweaned **replacement heifer calves** prior to transportation?

- A. 1L
- B. 2L
- C. 3L
- D. 4L

Q12. Do you measure the quality of colostrum to estimate IgG?

- A. Yes
- B. No

Q13. Do you provide milk to preweaned calves prior to transportation?

- A. Yes
- B. No

If answer to Q18. = A, display this question

Q13.1. Prior to transportation, when is milk last provided to preweaned calves?

- A. <1 hour prior to transport
- B. 1-3 hours prior to transport
- C. 3-6 hours prior to transport
- D. > 6 hours prior to transport

Q14. Do you provide water to preweaned calves prior to transportation?

- A. Yes
- B. No

If answer to Q19. = A, display this question

Q14.1 Prior to transportation, when is milk last provided to preweaned calves?

- A. <1 hour prior to transport
- B. 1-3 hours prior to transport
- C. 3-6 hours prior to transport
- D. > 6 hours prior to transport

Fitness for Transport

Q15. Do you assess the health of preweaned calves prior to transport?

- A. Yes
- B. No

Q16. Which of the following would deem a preweaned calf **unfit** for transportation? Select all that apply: (*Source6*)

- A. Bone fractures
- B. Dehydration
- C. Difficulty breathing
- D. Disease (e.g. scours/diarrhea, respiratory disease)

- E. Extremely thin (BCS below 2)
- F. Navel inflammation/infection
- G. Non-ambulatory
- H. Open wounds
- I. Severe lameness/Lame on one or more limbs
- J. Other; please specify:

Preconditioning

Q16. Which of the following are included in your preconditioning programs for preweaned calves prior to transportation (other than colostrum, milk, and water)?

(Note: “preconditioning” refers to management practices that are intended to help calves succeed during their next phase of production (i.e. during transportation and after at calf ranches, heifer raisers, veal facilities, etc.)

- A. Antibiotics
- B. Electrolytes
- C. Non-steroidal anti-inflammatory drugs
- D. Supplements (e.g., prebiotics, probiotics, etc.)
- E. Vaccinations
- F. Other, please specify: _____

Q18. Would you be willing to provide additional preconditioning (e.g., antibiotics, electrolytes, non-steroidal anti-inflammatory drugs, supplements, vaccinations, etc.) for preweaned calves prior to transport?

- a. Yes
- b. No

Q18.1. (display if Q18= yes): what would the premium or incentive need to be for you to provide this?

(slider question) _____ \$/head

Other, specify: _____

Operation Challenges and Needs

Q18. What are your top three challenges related to calf transportation?

- Employee training
- Price for calves is too low
- Finding a buyer for calves
- Distance of calf facility from operation
- Preparing calves for successful transportation (i.e. preconditioning).
- Other, please specify: _____

Q19: What are the top three resources that would be most helpful to address challenges related to calf transportation?

- Training programs for employees
- Best practices recommendations

Increased premiums or sale price

Demographics

Q21. What is your current age? (*Source 4*)

- A. 18-29
- B. 30-39
- C. 40-49
- D. 50-59
- E. 60-69
- A. 70 and up

Q22. Which gender do you most identify with?

- A. Man
- B. Woman
- C. Do not identify as man or woman
- D. Prefer not to say

Q23. How many lactating cows are on your operation? (*Source 1, 2*)

- A. Less than 80
- B. 80-200
- C. 200-500
- D. 500-1000
- E. more than 1000

Q24. Where is your operation located in the United States?

- A. Midwest (IA,IL,IN,KS,MI,MN,MS,ND,NE,OH,SD,WI)
- B. Northeast (CT,DE,MA,ME,MD,NH,NJ,NY,PA,VT,RI)
- C. Southeast (AL,AR,FL,GA,LA,KY,MS,NC,SC,TN,VA,WV)
- D. Southwest (AZ,NM,OK,TX)
- E. West (CA,CO,ID,MT,NV,OR,UT,WA,WY)

Q25. How did you hear about this survey?

- A. Convention/Meeting/Workshop
- B. Email
- C. Flyer
- D. Herd Veterinarian
- E. Online advertisement
- F. Other, please specify:

Thank you for taking this survey. To receive a \$15 gift card, please click here (link to a separate survey pops up) to enter an email.

Separate survey:

Email to receive gift card: _____

Would you be interested in participating in workshops, training, or research related to calf transportation? Yes/no

If so, may we contact you at this email? Yes/no

If answer to Q1.A. = C; Display this survey

QUESTIONS FOR OPERATIONS THAT RECEIVE PREWEANED CALVES AFTER TRANSPORTATION

Preliminary Demographics

Q1. Which of the following best describes your operation?

- A. Auction or livestock market
- B. Calf ranch (raise animals for beef production)
- C. Heifer calf raiser
- D. Veal
- E. Other, please specify:

Q2. What is your role on the operation?

- A. Owner
- B. Manager
- C. Employee who makes decision about calves
- D. Other, please specify:

Calf Care General Questions

Q3. Within the last year, what percentage of your preweaned calves were transported from operations: (slider answer) (*Source 7*)

- < 50 miles away _____
- 50-150 miles away _____
- 151-300 miles away _____
- 301-450 miles away _____
- 451-600 miles away _____
- 600-750 miles away _____
- 751-900 miles away _____
- >900 miles away _____

Q4. Within the last year, what percentage of preweaned calves arrived at your facility in the following age ranges (slider answer):

- Less than 24hrs _____
- 1 day _____
- 2 days _____
- 3 days _____
- 4-7 days _____
- 7-14 days _____

- Q5. Do you assess the health of preweaned calves prior to transport?
- A. Yes
 - B. No

If answer to Q5. = A, Display this question

Q5.1 In the last year, approximately what percent of preweaned calves **arrive** to your operation in these conditions (slider answer):

- Bone fractures _____
- Dehydration _____
- Difficulty breathing _____
- Disease (e.g. scours/diarrhea, respiratory disease) _____
- Extremely thin (BCS below 2) _____
- Failed transfer of passive immunity (I.e., low total proteins) _____
- Navel inflammation/infection _____
- Non-ambulatory _____
- Open wounds _____
- Severe lameness/Lame on one or more limbs _____

Q6. In the last year, approximately what percentage of preweaned calves were affected with the following (slider answer):

- Diarrhea/gastrointestinal _____
- Navel inflammation/infection _____
- Respiratory/pneumonia _____

Q7. In the last year, what percent of preweaned calves that arrived on your operation died before weaning? (slider answer)

Preconditioning

Q8. Do you require your source farms to precondition preweaned calves prior to transportation? (Note: “preconditioning” refers to management practices that are intended to help calves succeed during their next phase of production (i.e. during transportation and after at calf ranches, heifer raisers, veal facilities, etc.)

- A. Yes
- B. No

If answer to Q8= A, Display this question

Q8.1 Which of the following do you require?

- A. Antibiotics
- B. Colostrum
- C. Electrolytes
- D. Milk
- E. Non-steroidal anti-inflammatory drugs
- F. Vaccinations

- G. Water
- H. Other, please specify: _____

Q9. Select the top two preconditioning aspects that you feel are the most important in preweaned calves you purchase.

(Note: “preconditioning” refers to management practices that are intended to help calves succeed during their next phase of production (i.e. during transportation and after at calf ranches, heifer raisers, veal facilities, etc.)

- A. Antibiotics
- B. Colostrum
- C. Electrolytes
- D. Milk
- E. Non-steroidal anti-inflammatory drugs
- F. Vaccinations
- G. Water
- H. Other, please specify: _____

(Follow-up branching question: the two options selected from Q17 will be displayed.)

Q10. How much EXTRA would you be willing to pay (e.g., a premium) for X and Y preconditioning aspects: _____ \$/head

Q11. What are your top three challenges related to calf transportation?

- Employee training
- Price for calves is too low
- Finding a buyer for calves
- Distance of calf facility from operation
- Preparing calves for successful transportation (i.e. preconditioning).

Other, please specify: _____

Q12: What are the top three resources that would be most helpful to address challenges related to calf transportation?

- Training programs for employees
- Best practices recommendations
- Increased premiums or sale price

Demographics

Q13. What is your current age? (*Source 4*)

- A. 18-29
- B. 30-39
- C. 40-49
- D. 50-59

- E. 60-69
- B. 70 and up

Q14. Which gender do you most identify with?

- A. Man
- B. Woman
- C. Do not identify as man or woman
- D. Prefer not to say

Q15. Where is your operation located in the United States?

- A. Midwest (IA,IL,IN,KS,MI,MN,MS,ND,NE,OH,SD,WI)
- B. Northeast (CT,DE,MA,ME,MD,NH,NJ,NY,PA,VT,RI)
- C. Southeast (AL,AR,FL,GA,LA,KY,MS,NC,SC,TN,VA,WV)
- D. Southwest (AZ,NM,OK,TX)
- E. West (CA,CO,ID,MT,NV,OR,UT,WA,WY)

Q16. How many calves on your operation are currently on milk?

- A. Less than 80
- B. 80-200
- C. 200-500
- D. 500-1000
- E. more than 1000

Q17. In the last year, approximately what percent of preweaned calves that arrive on your operation (slider answer):

- A. Bought by you then sold back to dairy of origin
- B. Bought by you and not sold back to dairy of origin
- C. Originated from own dairy
- D. Purchased from auction market or sale barn
- E. Other; please specify

Q18. From how many dairies do you typically receive preweaned calves? 1

- A. 2
- B. 3
- C. 4
- D. More than 5

Q19. How did you hear about this survey?

- G. Convention/Meeting/Workshop
- H. Email
- I. Flyer
- J. Herd Veterinarian
- K. Online Advertisement
- L. Other; please specify:

Thank you for taking this survey. To receive a \$15 gift card, please click here (link to a separate survey pops up) to enter an email.

Separate survey:

Email to receive gift card: _____

Would you be interested in participating in workshops, training, or research related to calf transportation? Yes/no

If so, may we contact you at this email? Yes/no

If answer to Q1.A. = D; Display this survey

QUESTIONS FOR DRIVERS THAT TRANSPORT PREWEANED CALVES

Level of Experience

Q1. How long have you been working as a transporter for preweaned calves?

- A. Less than 1 year
- B. 1 year
- C. 2 years
- D. More than 2 years

Q2. Do you receive training with specific information about transporting preweaned calves?

- A. Yes
- B. No

If answer = A: Display questions 2.1 and 2.2

Q2.1. What type of training have you received?

- A. Trained by another employee
- B. Trained by manager
- C. Trained through BQAT
- D. Video training
- E. Other, please specify:

Q2.2. How often do you receive training for transporting preweaned calves?

- A. Weekly
- B. Monthly
- C. Yearly
- D. Over a year

Transport Practices

Q3. How many operations do you typically pick up preweaned calves from?

- A. 1
- B. 2
- C. 3
- D. 4

E. More than 5

Q4. How many operations do you typically deliver preweaned calves to?

- A. 1
- B. 2
- C. 3
- D. 4
- E. More than 5

Q5. Where do you pick up the majority (>50%) of preweaned calves that are less than a week old.

- A. Dairy
- B. Cow/calf ranch
- C. Beef ranch
- D. Other; Please specify:

Q6. Where do you deliver the majority (>50%) of preweaned calves that are less than a week old.

- A. Heifer calf raiser
- B. Calf ranch (raise animals for beef production)
- C. Auction or livestock market
- D. Veal
- E. Other, please specify:

Q7. Within the last year, what percentage of your preweaned calves were transported from operations (slider answer):

- < 50 miles away _____
- 50-150 miles away _____
- 151-300 miles away _____
- 301-450 miles away _____
- 451-600 miles away _____
- 600-750 miles away _____
- 751-900 miles away _____
- >900 miles away _____

Q8. Within the last year, approximately how many calves less than 1 week of age did you transport from dairies to calf-raising facilities....

Q9. What are your biggest challenges related to transporting preweaned calves? What resources do you need to address these challenges? _____

Participant Demographics

Q10. What is your current age? (*Source 4*)

- A. 18-29
- B. 30-39
- C. 40-49
- D. 50-59
- E. 60-69
- F. 70 and up

Q11. Which gender do you identify with?

- A. Man
- B. Woman
- C. Do not identify as man or woman
- D. Prefer not to say

Q12. What region(s) in the United States are you typically based in? Select all that apply.

- A. Midwest (IA,IL,IN,KS,MI,MN,MS,ND,NE,OH,SD,WI)
- B. Northeast (CT,DE,MA,ME,MD,NH,NJ,NY,PA,VT,RI)
- C. Southeast (AL,AR,FL,GA,LA,KY,MS,NC,SC,TN,VA,WV)
- D. Southwest (AZ,NM,OK,TX)
- E. West (CA,CO,ID,MT,NV,OR,UT,WA,WY)

Q13. How did you hear about this survey?

- A. Convention/Meeting/Woodshop
- B. Flyer
- C. Herd Veterinarian
- D. Other; please specify:

Thank you for taking this survey. To receive a \$15 gift card, please click here (link to a separate survey pops up) to enter an email.

Separate survey:

Email to receive gift card: _____

Would you be interested in participating in workshops, training, or research related to calf transportation? Yes/no

If so, may we contact you at this email? Yes/no

1. https://www.ers.usda.gov/webdocs/publications/45868/17034_err47b_1_.pdf
2. https://www.aphis.usda.gov/animal_health/nahms/dairy/downloads/dairy14/Dairy14_dr_PartI_1.pdf
3. https://www.dairyfarmers.ca/Media/Files/proaction/Canadian_Cattle_Transport_Regulations.pdf

4. Wilson et al. 2023 survey
<https://borealisdata.ca/dataset.xhtml?persistentId=doi:10.5683/SP3/IOEVKM>

5. <https://pubmed.ncbi.nlm.nih.gov/33889605/>

6. Canadian Cattle Transportation Regulations

7. <https://academic.oup.com/jas/article/90/6/1929/4764682?login=true>

Precondition definition from: <https://livestock.extension.wisc.edu/articles/what-is-included-in-a-preconditioning-program/>

8. https://www.aphis.usda.gov/animal_health/nahms/dairy/downloads/dairyheifer11/NDHR_S%20questionnaire_1.pdf

Supplementary Table 1. Number and percentage (n, %) of all dairy operations that reported transporting the majority of calves (> 50%) in each age category in 2022, by calf class and region.

	Midwest			West			Northeast			Southeast			Southwest		
	RH ¹ (n = 21)	BD (n = 34)	DB (n = 30)	RH (n = 9)	BD (n = 11)	DB (n = 10)	RH (n = 2)	BD (n = 4)	DB (n = 6)	RH (n = 2)	BD (n = 1)	DB (n = 2)	RH (n = 2)	BD (n = 1)	DB (n = 1)
< 24 h	3, 14.3	3, 12.0	3, 10.0	5, 55.6	6, 60.0	6, 60.0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	1, 50.0	1, 100	1, 100
1 d	2, 9.5	5, 20.0	3, 10.0	2, 22.2	2, 20.0	2, 20.0	0, 0	1, 25.0	1, 16.7	0, 0	1, 100	1, 50.0	0, 0	0, 0	0, 0
2 d	5, 23.8	0, 0	5, 16.7	0, 0	0, 0	1, 10.0	0, 0	0, 0	2, 33.3	2, 100	0, 0	1, 50.0	0, 0	0, 0	0, 0
3 d	2, 9.5	4, 16.0	4, 13.3	1, 11.1	2, 20.0	1, 10.0	0, 0	2, 50.0	2, 33.3	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
≥ 4 d, but before weaning	9, 42.9	13, 52.0	15, 50.0	1, 11.1	0, 0	0, 0	2, 100	1, 25.0	1, 16.7	0, 0	0, 0	0, 0	1, 50.0	0, 0	0, 0

¹RH = Replacement heifer, BD = Beef-on-dairy, DB = Dairy bull.

²The categories “4-7 d,” “7-14 d,” and “≥ 14 d, but before weaning” were combined into ≥ 4 days for analysis.

Supplementary Table 2. Timing of the first colostrum feeding in 2022 for the majority of calves (> 50%) prior to transport reported by all dairy operations (n, %), by calf class and region.

Time after birth	Midwest			West			Northeast			Southeast			Southwest		
	RH ¹ (n = 21)	BD (n = 34)	DB (n = 30)	RH (n = 9)	BD (n = 11)	DB (n = 9)	RH (n = 2)	BD (n = 4)	DB (n = 6)	RH (n = 2)	BD (n = 1)	DB (n = 2)	RH (n = 2)	BD (n = 1)	DB (n = 1)
< 1 h	11, 52.4	13, 38.2	15, 50.0	3, 33.3	3, 27.3	3, 33.3	0, 0	1, 25.5	2, 40.0	1, 50.0	0, 0	1, 50.0	0, 0	0, 0	0, 0
1 to 2 h	8, 38.1	15, 44.1	9, 30.0	5, 55.6	7, 63.6	4, 44.4	1, 50.0	1, 25.5	2, 40.0	0, 0	0, 0	0, 0	2, 100	1, 100	1, 100
≥ 3 h	2, 9.5	6, 17.6	6, 20.0	1, 11.1	1, 9.1	2, 22.2	1, 50.0	2, 50.0	1, 20.0	1, 50.0	1, 100	1, 50.0	0, 0	0, 0	0, 0

¹RH = Replacement heifer, BD = Beef-on-dairy, DB = Dairy bull.

Supplementary Table 3. Number and percentage (n, %) of all dairy operations that included each practice in their preconditioning program for calves prior to transport in 2022, by calf class and region.

Practice	Midwest			West			Northeast			Southeast			Southwest		
	RH ¹ (n = 21)	BD (n = 34)	DB (n = 30)	RH (n = 9)	BD (n = 11)	DB (n = 10)	RH (n = 2)	BD (n = 4)	DB (n = 6)	RH (n = 2)	BD (n = 1)	DB (n = 2)	RH (n = 2)	BD (n = 1)	DB (n = 1)
Antibiotics	4, 19.0	2, 5.9	2, 6.7	1, 11.1	1, 9.1	1, 10.0	1, 50.0	1, 25.0	1, 16.7	1, 50.0	0, 0	0, 0	1, 50.0	1, 100	1, 100
Electrolytes	9, 42.9	6, 17.6	5, 16.7	0, 0	1, 9.1	2, 20.0	1, 50.0	2, 50.0	3, 50.0	1, 50.0	0, 0	0, 0	0, 0	1, 100	1, 100
Navel antiseptic	20, 95.2	31, 91.2	28, 93.3	8, 88.9	9, 81.8	7, 70.0	2, 100	3, 75.0	6, 100	2, 100	1, 100	2, 100	1, 50.0	1, 100	1, 100
Supplements	7, 33.3	9, 26.5	8, 26.7	1, 11.1	2, 18.2	2, 20.0	0, 0	0, 0	1, 16.7	1, 50.0	0, 0	1, 50.0	1, 50.0	1, 100	1, 100
NSAIDs ²	2, 9.5	1, 2.9	1, 3.3	2, 22.2	1, 9.1	1, 10.0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	1, 50.0	1, 100	1, 100
Vaccines	12, 57.1	13, 38.2	8, 26.7	6, 66.7	3, 27.3	2, 20.0	1, 50.0	0, 0	0, 0	1, 50.0	1, 100	0, 0	1, 50.0	1, 100	1, 100
Nothing	0, 0	2, 5.9	0, 0	1, 11.1	2, 18.2	3, 30.0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 100	0, 0

¹RH = Replacement heifer, BD = Beef-on-dairy, DB = Dairy bull.

²Nonsteroidal anti-inflammatory drugs.

Supplementary Table 4. Number and percentage (n, %) of all dairy operations that indicated they would deem a calf unfit for transport with each condition in 2022, by calf class and region.

Condition	Midwest			West			Northeast			Southeast			Southwest		
	RH ¹ (n = 21)	BD (n = 34)	DB (n = 30)	RH (n = 9)	BD (n = 11)	DB (n = 10)	RH (n = 2)	BD (n = 4)	DB (n = 6)	RH (n = 2)	BD (n = 1)	DB (n = 2)	RH (n = 2)	BD (n = 1)	DB (n = 1)
Bone fractures	18, 85.7	30, 88.2	27, 90.0	9, 100	11, 100	9, 90.0	2, 100	4, 100	6, 100	2, 100	1, 100	2, 100	2, 100	1, 100	1, 100
Coat is still wet	19, 90.5	28, 82.4	26, 86.7	9, 100	8, 72.7	7, 70.0	1, 50.0	3, 75.0	5, 83.3	2, 100	1, 100	2, 100	1, 50.0	1, 100	1, 100
Dehydration	19, 90.5	27, 79.4	23, 76.7	4, 44.4	5, 45.5	3, 30.0	2, 100	3, 75.0	4, 66.7	1, 50.0	1, 100	1, 50.0	1, 50.0	1, 100	1, 100
Diarrhea/scours	16, 76.2	30, 88.2	29, 96.7	4, 44.4	6, 54.5	3, 30.0	2, 100	4, 100	6, 100	1, 50.0	1, 100	2, 100	1, 50.0	1, 100	1, 100
Difficulty breathing	18, 85.7	30, 88.2	27, 90.0	5, 55.6	4, 36.4	4, 40.0	1, 50.0	4, 100	4, 66.7	2, 100	1, 100	2, 100	2, 100	1, 100	1, 100
Extremely thin	15, 71.4	24, 70.6	20, 66.7	3, 33.3	4, 36.4	3, 30.0	1, 50.0	1, 25.0	2, 33.3	2, 100	1, 100	2, 100	0, 0	0, 0	0, 0
Has not received minimum feedings	15, 71.4	21, 61.8	20, 66.7	8, 88.9	9, 81.8	5, 50.0	0, 0	2, 50.0	3, 50.0	1, 50.0	1, 100	1, 50.0	1, 50.0	1, 100	1, 100
Navel inflammation	13, 61.9	25, 73.5	23, 76.7	0, 0	2, 18.2	2, 20.0	1, 50.0	2, 50.0	3, 50.0	1, 50.0	1, 100	2, 100	0, 0	0, 0	1, 100
No ID	18, 85.7	15, 44.1	15, 50.0	6, 66.7	6, 54.5	5, 50.0	0, 0	0, 0	0, 0	1, 50.0	1, 100	0, 0	2, 100	1, 100	1, 100
Premature	12, 57.1	24, 70.6	22, 73.3	3, 33.3	4, 36.4	2, 20.0	0, 0	3, 75.0	3, 50.0	1, 50.0	1, 100	0, 0	1, 50.0	1, 100	1, 100
Respiratory disease	17, 81.0	23, 67.6	25, 83.3	5, 55.6	3, 27.3	3, 30.0	1, 50.0	3, 75.0	4, 66.7	2, 100	1, 100	2, 100	1, 50.0	1, 100	1, 100
Severe lameness	17, 81.0	14, 41.2	27, 90.0	6, 66.7	6, 54.5	6, 60.0	1, 50.0	2, 50.0	5, 83.3	2, 100	0, 0	1, 50.0	2, 100	1, 100	1, 100
Unable to stand unassisted	18, 85.7	10, 29.4	27, 90.0	4, 44.4	3, 27.3	4, 40.0	1, 50.0	1, 25.0	5, 83.3	2, 100	0, 0	2, 100	2, 100	0, 0	1, 100
Unable to walk unassisted	17, 81.0	7, 20.6	27, 90.0	3, 33.3	1, 9.1	3, 30.0	1, 50.0	1, 25.0	5, 83.3	1, 50.0	0, 0	1, 50.0	1, 50.0	0, 0	1, 100

¹RH = Replacement heifer, BD = Beef-on-dairy, DB = Dairy bull.

Supplementary Table 5. Number and percentage (n, %) of dairy operations and operations receiving calves that reported preweaned calves arrived at their facilities with the following conditions after transport in 2022, by region.

Condition	Dairy operations					Operations receiving calves				
	Midwest (n = 4)	West (n = 7)	Northeast (n = 0)	Southeast (n = 0)	Southwest (n = 1)	Midwest (n = 17)	West (n = 4)	Northeast (n = 3)	Southeast (n = 1)	Southwest (n = 2)
Bone fractures	3, 75.0	2, 28.6	-	-	0, 0	4, 21.1	2, 50.0	1, 33.3	1, 100	0, 0
Dehydration	2, 50.0	5, 71.4	-	-	0, 0	9, 47.4	2, 50.0	2, 66.7	1, 100	2, 100
Diarrhea/scours	2, 50.0	6, 85.7	-	-	1, 100	13, 68.4	3, 75.0	2, 66.7	0, 0	2, 100
Difficulty breathing	3, 75.0	5, 71.4	-	-	1, 100	9, 47.4	3, 75.0	0, 0	0, 0	2, 100
Extremely thin	0, 0	0, 0	-	-	0, 0	1, 5.3	3, 75.0	0, 0	0, 0	1, 50.0
Failed transfer of passive immunity	1, 25.0	3, 42.9	-	-	1, 100	9, 47.4	3, 75.0	0, 0	0, 0	1, 50.0
Navel inflammation	3, 75.0	3, 42.9	-	-	0, 0	13, 68.4	2, 50.0	1, 33.3	0, 0	2, 100
Non-ambulatory	2, 50.0	3, 42.9	-	-	0, 0	2, 10.5	2, 50.0	1, 33.3	0, 0	1, 50.0
Premature	0, 0	0, 0	-	-	0, 0	0, 0	2, 50.0	0, 0	0, 0	0, 0
Respiratory disease	2, 50.0	1, 14.3	-	-	1, 100	4, 21.1	2, 50.0	1, 33.3	0, 0	1, 50.0
Severe lameness	0, 0	2, 28.6	-	-	0, 0	4, 21.1	3, 75.0	0, 0	0, 0	1, 50.0

¹Only includes dairy operations that transported and raised their own calves at another location.