

Supplementary Appendix S1—Questionnaire administered to the manager or owner of each of 84 cow-calf herds in Nebraska (n = 29), North Dakota (23), and South Dakota (32) via telephone during the fall or winter of 2012 (52), 2013 (24), or 2014 (8) to obtain detailed information regarding operation characteristics and management practices as part of a case-control study conducted to determine herd-level factors associated with BRD in nursing calves.

**Calf Pneumonia Case-Control study
Phone questionnaire**

Date: _____

Producer name: _____ **Phone number:** _____

Producer's state (circle one) **NE** **SD** **ND**

Producer's veterinarian: _____

Script:

“Hello. This is _____, from the University of Georgia. I’m calling about the research project on preweaning calf pneumonia that we’re working on with South Dakota State University, North Dakota State University, and the University of Nebraska. Is this a good time to talk? This shouldn’t take more than about 20 minutes.”

[Interviewer: if they say no, make an appointment for a call back. If they say yes.....]

“Thank you. For this research project, I need to ask you a few questions about your operation, your management of your cattle, and the health of your calves. Your answers to these questions will be used to develop management practices that help prevent calf pneumonia.

In case you’re wondering, your individual answers will be kept confidential. We will be summarizing the responses of all participating operations, and those summaries may be presented at meetings of veterinarians and cattle producers, but we will not reveal your individual answers.

Now I’ll begin with the questions. The first few questions will be about your operation and your cattle.

1. Our records indicate that your operation is located in **[name of state circled above]** –is that correct? **yes** **no**

[If they say “no”, ask them what state the operation is located in and record the answer here:

2. In 2012, what percent of your herd is made up of first calf heifers? _____ %

3. During the spring of 2012, how many calves were born alive and survived for more than 48 hours?

[If they need clarification, say: “That is, how many live calves were born, not including those that died before they were 48 hours old?”] _____ **calves**

4. How many calves born in the spring of 2012 lived until weaning? _____ **calves**

5. How many acres do you use for grazing cows and heifers and their calves from calving until weaning? _____ **acres**

Now I’m going to ask you some questions about your general management of your cattle.

6. a. Do you manage your cattle in one large group, or in two or more separate groups?

one group separate groups

[If one group, skip to question 7a]

6.b. How many groups total? _____

7a. Do you separate your cow-calf pairs by calf age, such as in the Sandhills Calving System?

yes no

[If no, skip to question 8]

7.b. Do you keep the groups separated for the entire preweaning period, or do you put two or more groups back together before the calves are weaned?

keep all separated entire period put at least some back together

8. Do you frequently move cattle to different pastures in order to intensively manage your grass?

yes **no**

9. Do your cattle have contact across fences with cattle owned by anyone else?

yes **no**

10. Before the calves are weaned, are the cows and heifers given any kind of supplemental feed?

yes **no**

11. Before the calves are weaned, are the calves given any kind of supplemental feed that the cows and heifers do not have access to (that is, creep feed)?

yes **no**

12. In 2012, did you bring any of the following types of cattle onto your operation from outside sources?

bulls **yes** **no**

replacement heifers **yes** **no**

adult cows **yes** **no**

orphan or grafted calves **yes** **no**

stocker or backgrounding cattle **yes** **no**

feeder cattle **yes** **no**

13. Were any of the cows or heifers that calved in the spring of 2012 synchronized after calving?

[If they need clarification, say: "That is, were they treated in any way to get them to come into heat in a short window of time when you bred them back after they calved?"]

yes **no**

14. Were the cows or heifers that calved in 2012 pregnancy checked by a veterinarian or other individual later in the year, to confirm whether they were bred back after they calved?

yes **no**

15.a. Were any cattle tested for bovine viral diarrhea virus (BVDV) in 2012? **yes** **no**

[If no, skip to question 16]

15.b. Was BVDV identified in any of the cattle that were tested? **yes** **no**

16. Were the cows and calves moved more than 1 mile on foot in 2012? **yes** **no**

Now I'd like to ask you a few questions about the spring 2012 calving season.

17. When was the first calf of the spring 2012 calving season born? _____

18. When was the last calf of the spring 2012 calving season born? _____

19. How many cows and heifers needed assistance calving in the spring of 2012? _____

20.a. Do you bring your cows into a confined area for calving? **yes** **no**

20.b. Do you bring your heifers into a confined area for calving? **yes** **no**

21. What was the average age **in days** of your calves when they were weaned in 2012? _____ **days**

22. What was the average weight of your calves when they were weaned in 2012? _____ **pounds**

This is the final section of the questionnaire, we're almost done! I'd like to finish up by asking you a few questions about calf diseases, and about vaccines and treatments you may give cows or calves.

23. How many calves from the spring 2012 calving season **had scours (or diarrhea)**? _____

[If the answer is 0, skip to question 26a]

24. How many calves did you **treat for scours**? _____

25. How many calves from the spring 2012 calving season **died of scours**? _____

26a. In the spring 2012 season, did you give calves any respiratory vaccines **before weaning**?

yes **no**

[If no, skip to question 27a]

26b. What respiratory vaccines did you give calves **before weaning**?

27a. Did you give cows and/or heifers that calved in the 2012 spring calving season any respiratory vaccines **in the 12 months before they calved in 2012**?

yes **no**

[If no, skip to question 28a]

27b. What respiratory vaccines did you give cows and/or heifers?

28a. Did any cows or heifers have signs of respiratory disease in 2012?

yes **no**

[If no, skip to question 29]

28b. Were any cows or heifers **treated** for respiratory disease in 2012?

yes **no**

29. In terms of things that impact how you manage your cattle or the health of your cattle, was 2012 unusual in any way, compared to previous years?

That's the last question I need to ask you. Thank you very much for your time! Do you have any questions or comments for me or for the other researchers working on the summer pneumonia project?"