

# Alberta Johne's Disease Initiative

## Dairy Herd Risk Assessment Veterinary Practitioner Guidelines



UNIVERSITY OF  
CALGARY  
VETERINARY  
MEDICINE

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# Acknowledgements

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Use of published materials from the Canadian Johne's Disease Initiative, the Ontario Johne's Education & Management Assistance Program, and the University of Wisconsin is acknowledged.

# Introduction

## What is the AJDI Risk Assessment (JDRA)?

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An essential component of the Alberta Johne's Disease Initiative (AJDI) is completion of a detailed questionnaire to determine those management practices actually being used (or not being used) on the farm that may impact the introduction of *Mycobacterium avium* subspecies *paratuberculosis* (MAP) onto the farm, or the spread within the farm should MAP already be present. These guidelines have been developed to assist Alberta veterinarians to consistently conduct a JDRA as objectively as possible. This will facilitate a frank discussion with the herd owner when developing the farm-specific JD Management Plan (JDMP).

## Why Do a JDRA and Develop a JD Management Plan (JDMP)?

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- ✓ To ensure that management practices affecting the spread of MAP on each Alberta dairy farm enrolled on the program are thoroughly assessed.
- ✓ To guide the herd veterinarian and herd owner in discussing JD and the spread of MAP in a manner specific to that herd and relative to the current farm management.
- ✓ To focus discussion and recommendations for changes in farm management to the best management practices (BMPs) that should yield the most cost-effective results for the herd owner's efforts.
- ✓ To ensure that calf management is included in the risk assessment and routine disease prevention programs, and the herd veterinarian is aware of the actual calf management practices in use.
- ✓ To provide a method to objectively evaluate changes in herd management over time through an annual reassessment of farm practices.

## General Use of the JDRA and JDMP

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Keeping in mind biosecurity measures that minimize iatrogenic spread of MAP and other pathogens to the most susceptible animals/groups on the farm, the general way to proceed on-farm is as follows.

1. With the JDRA form on a clipboard, tour the farm with the herd owner in the following order:
  - Start in the nursery area or calf barn (ensure clean footwear and coveralls)
  - Replacement heifers by increasing age
  - Calving/maternity area(s)
  - Dry cows and close up cows
  - Lactating herd
2. Go through all the questions for each animal management group with the farm owner and/or herdsman. Objectively score what you see in relation to his/her answers.
3. Total the scores for each section of the JDRA.
4. Total the scores from all sections to obtain a final score for the entire JDRA.
5. Based on the answers given, the total and section scores, and the discussions during the assessment, develop an action plan (JDMP) for the coming year.
6. Complete the JDMP form in the spaces provided by writing the recommendation that **both you and the owner agree** is reasonable to implement within the next 12 months; both you and the owner need to sign the form.
7. If this is the second JD risk assessment completed for this herd, compare the results of the current JDRA with the previous risk assessment(s). Look for evidence that the previous recommendation(s) was implemented. Make a note if the recommendation(s) was not implemented and discuss with the owner the reasons for not doing so.
8. With the herd owner's permission, send a copy of the JDRA and the JDMP addressed to:  
Charlotte Pickel, AJDI Coordinator  
University of Calgary Veterinary Medicine  
Room HSC 1631, 3330 Hospital Drive NW  
Calgary AB T2N 4N1  
fax: (403)210-6693  
phone: (403)991-7526  
Both documents will be photocopied and copies will be returned to both the herd owner and veterinarian.

## Tips for Completing the JDRA

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*Note: The AJDI requires six environmental manure samples to test for MAP. The results of these tests will not be available when completing the JDRA and discussing the results with the farm owner. When developing the JDMP, it may be prudent to make the assumption that MAP-infected animal(s) are already present within the herd.*

1. Record and **score what you see on the day you visited the farm**. Do not attempt to speculate about what happens at other times. Low scores indicate low risk, whether on individual questions, sections, or the overall JDRA.
2. You are **scoring both real and potential risks for JD/MAP**. After completing the JDRA when discussing which BMP to implement, consider the evidence for JD/MAP already being on the farm, other management priorities, and other calf health problems that may be present. Target the BMP of highest priority. There may be farms that appear to have no evidence of JD/MAP, yet on completing the JDRA, you may learn that there is a significant potential for a disease like JD to spread should it be introduced in the future. Even if JD/MAP is not already present in the herd, the transfer of many other fecal-oral pathogens, such as *E. coli*, *Cryptosporidium* spp., Rotavirus, Coronavirus, *Salmonella* spp., and BVD, may be occurring because of current management practices.
3. The questions in the JDRA should be a guide for discussions between the veterinarian and herd owner, but don't be limited by these questions, seek as much detail as needed to assign a score. The principle reason for completing the JDRA is to find out what the herd owner is **really and truly doing**, not what he/she knows they **should be doing**. Find out why the management is different than what is ideal, and what the barriers are to doing things in an improved manner.
4. The herd veterinarian must use his/her professional judgement to score management practices or risks identified that are not included in the questions or mentioned in the scoring key. It is a good idea to make a note of these issues in the space provided on the form. This will allow monitoring changes and progress made from one annual JDRA to the next.

# Risk Assessment: Step by Step Guide

*Ensure that you record the farm name and the owner's name, if different, the farm's legal land description or GPS coordinates, and the veterinarian's name on the title page. If completing the JDRA with the herdsman only, note the herdsman's name.*

## Section 1: General JD Risk Assessment

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*Note: for ease of use, the numbers below correspond to the question numbers on the JDRA.*

1. Record dates as **year/month/day** to facilitate data entry.
2. Check the most appropriate box, or make a note if the three housing options are not appropriate. No scoring is required for this question.
3. Enter the number of cows being milked on the day the risk assessment is completed as well as the number of dry cows, breeding bulls, preweaned heifers, heifers between weaning and first calving and bull calves. No scoring required.
4. Is this herd on DHI? If yes, please record the DHI Herd Number. Indicate whether the herd has participated in Canwest DHI or ARD JD testing programs. No scoring required.
5. Evaluate what restrictions are placed on the movement of visitors to the farm. If the owner doesn't know, score as no restrictions.
  - No restrictions to any visitor access to any animals. (10 pt)
  - Visitors restricted from access to mature animals and bred heifers only. (7 pt)
  - Visitors restricted from access to all calves less than one year of age. (4 pt)
  - Visitors restricted from access to all animals **OR** are required to wear clean footwear and clothing when accessing or handling any animal. (1 pt)
6. The owner may not have recognized JD in the herd but if the clinical signs he/she describe to the veterinarian are consistent with JD, a laboratory confirmation is not necessary. 'Don't know' is a good choice if the veterinarian believes the owner does not have a good understanding of what JD looks like, especially if a veterinarian has not been routinely involved in overseeing the health of the animals. It is quite likely that no animals in the herd have ever been tested for JD. Test positive animals would include any cows tested by any means. If the owner doesn't know, assume no animals have been tested for JD.

- Yes, JD has been observed in the herd. (20 pt)
  - Don't know. (15 pt)
  - JD was never observed in the herd **AND** testing for JD in herd was **never** done. (10 pt)
  - JD never observed in the herd **BUT** some negative tests for JD done within 5 yrs. (5 pt)
7. Did you purchase any animals (including bulls) within the past five years?
- Yes, from multiple herds or at public auction. (20 pt)
  - Yes, from a livestock show or purebred auction with known contributors. (15 pt)
  - Yes, but only one or two animals from a single herd. (10 pt)
  - Yes, from a livestock show/auction with cattle only from herds on JD Herd Status program. (5 pt)
  - No herd additions. (1 pt)

7.1. If the answer to question 7 above was yes, then assess what precautions were taken to prevent importing MAP onto the farm. Was the seller asked about JD and whether JD/ MAP existed in the herd?

- No precautions were taken. (20 pt)
  - Seller knew about JD, indicated no JD in the herd, but has never tested for JD. (10 pt)
  - Purchased animals were tested negative for JD. (7 pt)
  - Purchased animals from a herd with low risk for JD (on a herd status program). (5 pt)
8. Are any animals in this herd directly commingled with other animals by attending cattle shows? Are vehicles or equipment contaminated with manure from other cattle or species susceptible to JD/MAP?
- Yes, herd members attend cattle shows and/or hauled in vehicles contaminated with manure from other cattle or species susceptible to JD/MAP. (20 pt)
  - Yes, pens are cleaned by custom manure removal operations. (15 pt)
  - Yes, but herd members only attend cattle shows allowing cattle from herds at lower risk for JD/MAP. (5 pt)
  - No herd members attend shows of any kind and equipment used to move animals is cleaned and disinfected. (1 pt)

## Section 2: Pre-weaned Heifer JD Risk Assessment

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*Note regarding Sections 2 and 3. If the farm obtains replacement heifers from a custom heifer raising operation, it is essential to evaluate the risk of MAP on that operation. Young calves are thought to be the most susceptible to becoming infected with MAP. Hence, the JD risk of a dairy farm cannot be adequately assessed without taking into account management practices employed on the custom heifer raising operation that can impact the spread of MAP.*

9. Assess the likelihood that calves raised off-farm might have been exposed to MAP.
  - The custom calf/heifer rearing operation raises animals from multiple sources. (20 pt)
  - The custom calf/heifer rearing operation only has animals from my herd. (10 pt)
  - All natural increase calves/heifers are raised on these premises. (5 pt)
10. Assess **the source** and risk of colostrum for calves. Feeding pasteurized colostrum is the ideal method of preventing transfer of MAP to newborn calves. Feeding colostrum only from its dam to a calf prevents the spread of JD beyond its “family,” although it does not protect the calf born to a MAP-positive cow. Feeding colostrum only from test negative cows could be considered, keeping in mind that existing tests are imperfect, especially in the early stages of infection with MAP, and can yield false negative results. Cows in their first or second lactation are less likely to be shedding MAP and should be a lower risk for producing colostrum containing MAP. There is no AJDI requirement to test cows for MAP infection, unless the herd wishes to participate in the JD herd status portion of the initiative. The assumption in this question is that bull calves are disposed of. If bull calves are raised on the farm, for example for genetic sales, the management of them should be considered when completing this question.
  - Calves are fed colostrum pooled from more than 1 cow. (10 pt)
  - Some calves may be given colostrum from an animal other than their dam. (7 pt)
  - Calves are only given colostrum from their own mother. (4 pt)
  - All calves are only provided pasteurized colostrum. (1 pt)

11. Assess the frequency with which calves are fed non-saleable milk, meaning milk from treated, mastitic or fresh cows. Such a practice increases the risk of MAP. Older sick cows may be more at risk of advanced JD.
  - Non-saleable milk is **always** (weekly) fed to calves. (10 pt)
  - Non-saleable milk is **often** (once or twice a month) fed to calves. (7 pt)
  - Non-saleable milk is **rarely** (once or twice a year) fed to calves. (4 pt)
  - Non-saleable milk is **never** fed to calves. (1 pt)
12. Milk replacer (MR) is unlikely to contain MAP and using it is a valuable BMP to prevent spread of JD, especially when care is taken to ensure that the water and utensils are not contaminated with manure. When scoring this question, pick the highest score option possible on this farm, for example if they mainly feed milk replacer (MR) or pasteurized milk but sometimes feed non-saleable (treated) milk, assess 10 points.
  - Calves are fed bulk tank milk, or milk pooled from several cows. (10 pt)
  - Calves are fed whole milk from individual cows, meaning not pooled. (7 pt)
  - Calves are fed MR/pasteurized whole milk all the time with no exceptions for up to the past 2 years. (4 pt)
  - Calves are fed MR/pasteurized whole milk all the time with no exceptions for more than the past 2 years. (1 pt)
13. Assess whether or not calves are exposed to cow manure in milk or MR by contaminated feeding utensils. Contamination with manure indicates poor attention to overall hygiene and increases the risk of MAP.
  - Regardless of cleaning practices, manure contamination is extensive. (10 pt)
  - Regardless of cleaning practices, some manure is clearly visible. (7 pt)
  - Trace amount of manure is visible **OR** mixing utensils/buckets are washed less frequently than once a day but at least weekly. (4 pt)
  - Mixing utensils and milk buckets are visibly clean and all are washed at least daily with soap and disinfectant. (1 pt)
14. To what degree is calf water or feed contaminated with cow manure?
  - Manure contamination is extensive. (10 pt)
  - Manure is clearly visible in calf feeders and/or water buckets. (7 pt)
  - A scant amount of manure is visible in calf feeders and/or water buckets. (4 pt)
  - All calf feed and water containers are clean with no visible manure. (1 pt)

15. Assess the degree of risk in pre-weaned calf housing area for contact with cows or cow manure. Can drainage from cows ever flow through the pre-weaned housing area?
- Calves are raised in close proximity to or indirect contact (drainage) with cows. (10 pt)
  - Calves are raised in group pens until weaning. (7 pt)
  - Calves are raised in individual pens but have contact through partitions. (4 pt)
  - Calves are raised in individual hutches/pens with no contact through partitions. (1 pt)
16. Assess the degree of exposure of calves to MAP by people contaminated with cow manure.
- Staff never clean their boots **and** change coveralls before feeding/handling calves. (10 pt)
  - Staff **sometimes** clean boots **and** change coveralls before feeding/handling calves. (7pt)
  - Staff **always** clean boots **and sometimes** change coveralls before feeding/handling calves. (4 pt)
  - Staff always, **without fail**, clean boots **and** change coveralls before feeding/handling calves. (1 pt)

### Section 3: Weaned to First Calving Heifer JD Risk Assessment

In this section, you must assess all the various groups of heifers on the farm and discover whether there is any exposure to cows or cow manure. Ensure that you see or enquire about all heifer groups on the farm. If there are multiple groups of heifers, you don't need to score each group, rather focus your attention on the youngest group in the weaned category and the oldest group in the breeding category, OR score the group where you think there is the highest risk for MAP exposure. The goal of this RA is to identify potential risks on the farm. If bull calves are being raised for breeding purposes, they should be included in this section but DO NOT need to be scored as a separate group.

17. Assess the degree to which weaned or bred heifers are exposed to cows, cow manure or runoff.
- Heifers share pens or pasture with lactating or dry cows. (10 pt)
  - Heifers are housed near cows for variable periods of time with some direct (fence line) contact with cows, **AND/OR** share the same handling system, **AND/OR** are exposed to cow manure via runoff or splashing. (7 pt)
  - Heifers are housed near cows for only a short time with no direct contact or exposure to cow manure via runoff or splashing. (4 pt)
  - Heifers are never housed with or near cows and have no exposure to cow manure runoff or splashing. (1 pt)

18. Assess the hygiene of the heifer feed bunks and water troughs. Contamination with manure indicates poor attention to overall hygiene and increases the risk of MAP.
- Manure build up in housing **OR** extensive contamination of mangers and water troughs, regardless of cleaning practices. (10 pt)
  - Manure clearly visible **OR** mangers and water troughs cleaned <1/month. (7 pt)
  - Waterers and feed bunks have a trace amount of visible manure and mangers and water troughs are cleaned more than once a month. (4 pt)
  - Waterers and feed bunks clean with no visible manure contamination and water troughs are cleaned more than once a month. (1 pt)
19. Is feed equipment used to remove manure, or is left over feed from cows ever fed to heifers of any age? The concern raised here is for the risk of fecal contamination of feed, either by contaminated feeding equipment, or via manure splashing into bunks by older animals. Saliva from older animals is not a concern for spread of MAP. Fecal contamination increases the risk of MAP for younger animals fed left over feed.
- Feeding equipment is used to remove manure for cows or other age groups. (10 pt)
  - Feeding equipment is never used to remove manure **BUT** left over feed from cows is fed to heifers less than one year of age. (7 pt)
  - Feeding equipment is never used to remove manure **BUT** left over feed from cows is fed to heifers over one year of age. (4 pt)
  - Feeding equipment never used to remove manure **AND** left over feed is never fed to calves or heifers. (1 pt)
20. Assess the overall heifer hygiene and cleanliness.
- Manure is present above the hocks/knees **AND** is present on the flanks. (10 pt)
  - Manure is present on hind/forelegs up to the hocks/knees **OR** present on the flanks. (7 pt)
  - Manure is present on hind or forelegs but not above dewclaws. (4 pt)
  - Heifers have no manure visible on hind legs, forelegs or flanks. (1 pt)
21. Assess the exposure of heifers to manure spread on forage or pasture in the same year. Note whether the pasture on which heifers graze is susceptible to runoff from pastures on which older animals graze or cultivated fields on which manure was spread within 12 months.
- Manure is spread on pasture on which heifers graze in the same year. (10 pt)
  - Manure is spread on land next to pasture on which heifers graze in the same year. (7 pt)
  - Manure is spread on land from which forage is fed to heifers the same year. (4 pt)
  - Manure is never spread on pasture on which heifers graze the same year, nor on land from which forage is fed to heifers the same year. (1 pt)

## Section 4: Maternity/Calving Area JD Risk Assessment

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The calving area presents major risks for calves becoming newly infected with MAP. If you believe the risk of transfer of MAP is high on this farm, score it higher. The intent is to discover a) how likely a newborn calf will ingest MAP from contamination of bedding, teat surfaces, or its own or its dam's contaminated skin or hair coat, and b) whether calves are exposed only to their own dam or to multiple cows, either directly or indirectly via environmental contamination.

22. Assess the number of cows and the amount of cow manure a newborn calf is likely to be exposed to. How often does the calving pen/area contain more than one cow?
  - Over 50% of the time, more than one cow is in the calving pen/area. (10 pt)
  - 25% and 50% of the time there is more than one cow in the calving pen/area. (7 pt)
  - Less than 25% of the time there is more than one cow in the calving pen/area. (4 pt)
  - There is never more than a single cow in the calving pen/area. (1 pt)
23. Assess the risk of oral ingestion of MAP by the calf in the calving pen/area. The intent here is to evaluate whether or not bedding is added as necessary to ensure the pen is dry and clean. Visibly score the bedding in the maternity area. Kneel on the bedding for 25 seconds. Is your knee wet? If so, the bedding is inadequate. Score 10 pt, regardless of which choice below best fits.
  - Visible manure covering two-thirds or more of the bedding. (10 pt)
  - Visible manure covering 50% of the bedding. (7 pt)
  - Visible manure covering 10% of the bedding. (4 pt)
  - No visible manure, new bedding has been added and is dry. (1 pt)
24. Score the hygiene of the cow(s) currently in the maternity area. If there are none present, then leave this blank or look at the close up dry cows. Has the hair on the udder been clipped?
  - Manure is present above the hocks **AND** is present on the teats and udder. (10 pt)
  - Manure is present on hind legs up to the hocks **OR** is present on the teats or udder. (7 pt)
  - Manure is present on hind legs but not above dewclaws and not on teats or udder. (4 pt)
  - Cows have no manure visible on hind legs, teats or udder, udder hair clipped. (1 pt)
25. To what degree is the calving pen/area used for sick or lame cows? If JD is known to exist on the farm, are known MAP-infected cows allowed to use the calving pen/area?
  - The calving area is frequently (more than once a month) used by non-calving cows **OR** is used at any time by known MAP-positive cows. (10 pt)
  - The calving area is used occasionally (once a month) by non-calving cows. (7 pt)
  - The calving area is used rarely (once in three months) by non-calving cows. (4 pt)
  - The calving area is **NEVER, EVER** used by non-calving cows. (1 pt)

26. Calving areas can be perfectly clean and well managed but what portion of calves are actually born in these conditions? Are calves ever born in the dry cow pen because moving a cow due to calve was delayed? Calves born on pasture are at reduced risk for MAP infection, depending on the number of cows sharing the pasture and the size of the pasture. The concern is exposing the calf to multiple older animals, or the manure from multiple animals, both of which increase the risk for MAP.
- In the past year, >10% of calves were born outside the calving pen/area. (10 pt)
  - In the past year 6% to 10% of calves were born outside the calving pen/area. (7 pt)
  - In the past year, 1% to 5% of calves were born outside the calving pen/area. (4 pt)
  - In the past year, a calf has never been born anywhere but the calving pen/area. (1 pt)
27. Assess the probability of the calf nursing the cow and being exposed to bacteria on the cow's skin/hair. Is there an attempt to prevent this?
- Over 50% of newborn calves nurse the cow, are left with the cow more than 4 hours, or the owner purposely leaves the calves to nurse. (10 pt)
  - Between 10% and 50% of newborn calves nurse the cow. (7 pt)
  - Less than 10% of newborn calves nurse the cow. (4 pt)
  - No calves born on this farm ever nurse the cow. (1 pt)
28. Evaluate the duration of exposure of the newborn calf to the cow environment.
- Less than 10% of calves are removed from the dam within 30 minutes. (10 pt)
  - Between 10% and 50% are removed from the dam within 30 minutes. (7 pt)
  - Between 50% and 90% of calves are removed from the dam within 30 minutes. (4 pt)
  - At least 90% of calves are removed from the dam within 30 minutes. (1 pt)

## Section 5: Dry Cow/Close Up JD Risk Assessment

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Cows exhibiting chronic diarrhea and progressive weight loss should be tested for JD and if positive should be culled before they calve and increase the risk of contaminating the maternity area with MAP. The existing diagnostic tests have high sensitivity and few false negative results when used on cows exhibiting clinical signs of JD.

29. Assess the hygiene of the feed bunks and waterers. Contamination with manure indicates poor attention to overall hygiene and increases the risk of MAP. Water troughs and feed bunks should be cleaned at least once a month.
- There is extensive manure contamination in mangers and water troughs. (10 pt)
  - Manure is clearly visible **OR** mangers and water troughs are cleaned less than once a month. (7 pt)
  - Water troughs and feed bunks have a trace amount of manure visible. (4 pt)
  - Water troughs and feed bunks are clean with no visible manure contamination. (1 pt)
30. Is feeding equipment used to remove manure **OR** is manure spread on forage crop/pasture exposed to dry cows in the same year?
- Feeding equipment is used to scrape/remove manure. (10 pt)
  - Feeding equipment is never used to remove manure but manure is spread on pasture, **OR** cropland (or drains onto pasture) exposed to dry cows in the same year. (7 pt)
  - Feeding equipment is never used to remove manure, manure is not spread on pasture **BUT** may be spread on crop land (or drains onto pasture) exposed to dry cows in the same year. (4 pt)
  - Feeding equipment is never used to remove manure **AND** manure is never spread on crop land/pasture exposed to dry cows in the same year. (1 pt)
31. Assess the cleanliness of the close up cows. If no cows are due to calve within a month, omit this question and leave blank.
- Cows have manure on the legs above the knees/hocks and on the flanks. (10 pt)
  - Cows have manure on the legs above the knees/hocks but not on the flanks. (7 pt)
  - Cows have manure on the fore and hind legs below the knees/hocks. (4 pt)
  - Cows are clean with no manure on the legs above the fetlocks. (1 pt)

## Section 6: Lactating Cow JD Risk Assessment

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Again, cows exhibiting chronic diarrhea and progressive weight loss should be tested for JD and if positive should be culled. Such animals can shed billions MAP bacteria daily and heavily contaminate the farm environment. They are an important source of infection for other animals in the herd.

32. Assess the general hygiene of the housing, feed bunks and water troughs. Contamination with manure indicates poor attention to overall hygiene and increases the risk of MAP.
  - There is extensive manure contamination in mangers and water troughs. (10 pt)
  - Manure is clearly visible **OR** mangers and water troughs are cleaned less than once a month. (7 pt)
  - Water troughs and feed bunks have a trace amount of manure visible. (4 pt)
  - Water troughs and feed bunks clean with no visible manure contamination. (1 pt)
33. Is feeding equipment used to remove manure or is manure spread on forage crop/pasture exposed to milking cows in the same year?
  - Feeding equipment is used (even occasionally) to scrape/remove manure. (10 pt)
  - Feeding equipment is never used to remove manure but manure is spread on pasture, **OR** cropland draining onto pasture, exposed to milking cows in the same year. (7 pt)
  - Feeding equipment is never used to remove manure **AND** manure is not spread on pasture **BUT** may be spread on crop land exposed to milking cows in the same year. (4 pt)
  - Feeding equipment is never used to remove manure **AND** manure is never spread on crop land/pasture exposed to milking cows in the same year. (1 pt)
34. Assess the cleanliness of the cows.
  - Cows have manure on the legs above the knees/hocks and on the flanks. (10 pt)
  - Cows have manure on the legs above the knees/hocks but not on the flanks. (7 pt)
  - Cows have manure on the fore and hind legs below the knees/hocks. (4 pt)
  - Cows are clean with no manure on the legs above the fetlocks. (1 pt)

