

COW WELFARE ASSESSMENT – FREE STALL IN-BARN CHECKLIST

Farm ID: (province-DHI 5 digit e.g. ON10020)
Type: TS or FS (choose 1 answer) → If TS, go to Q106
Pen #: 1 or 2 (choose 1 answer: when more than 1 pen, do check-list for a maximum of 2 pens representing the majority of focal cows)
Date: (yyyy-mm-dd)
Observer: (first name, last name)

N.B.: Animal-based measures/in-barn checklist/management questionnaire refer to the group of high-production cows

SECTION 1 – ACCOMODATION AND HOUSING**1.1. STALL DESIGN**

A) LYING TIME (No measure)

B) HOCK, KNEE AND KNECK INJURIES (No measure)

C) STALL CONFIGURATION

Q100 – FS only. Draw a layout of the pen where the 40 focal cows are kept (e.g. as shown in **Q105**, with feed alleys, concrete walls, etc.):

Q101 – FS only. Count the total number of cows in the pen: cows

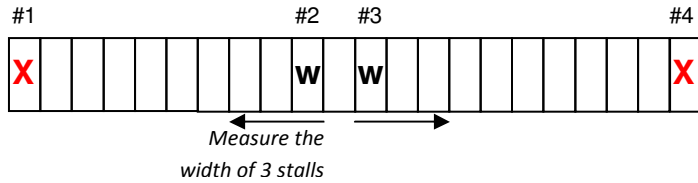
Q102 – FS only. Count the total number of usable stalls: usable stalls

Q103 – FS only. Measure the dimensions of the pen (cm):
 (a) Length: cm (b) Width: cm

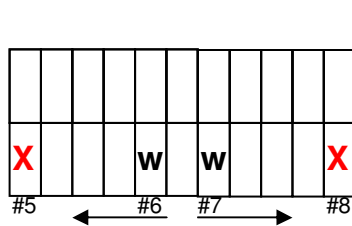
Q104 – FS only. Count the number of cow grooming brushes in the pen:
 (a) Mechanical: brushes (b) Stationary:..... brushes

Q105 – FS only. Select 3 representative row of stalls (at least each type of stalls: head-to-head and face-a-wall), measure the first and the last usable stall for **8 dimensions** (excluding stall width, Cf. Fig 1 p4) (**X** in the following diagram; min. 6/farm, if only 2 rows, add middle stalls of each row). Measure the **average width** of 2 stalls located in the middle of each of the 3 row: find the middle stall and measure the width of 3 stalls on either side of the middle stall, divide this width by 3 to get the average stall width (**w** in the following diagram; min. 6/farm, if only 2 rows, add middle stalls of each row) – as indicated on the diagram:

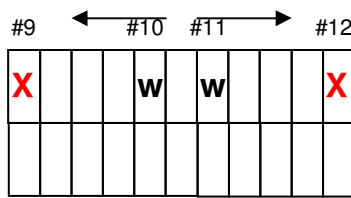
stall-samples



Row #1: which stall is the shortest (#1 or #4)?



Row #2: which stall is the shortest (#5 or #8)?



Row #3: which stall is the shortest (#9 or #12)?

You need to measure stalls with identical base-type. Choose the main stall type. If 50/50, choose the most comfortable.

Mark chosen stall with masking-tape and attribute #.

Fill the following table. Report stall dimensions in cm.

Letters following each dimension is a symbol in Fig. 1 (next page)

Orange columns will be used for scoring.

Stall dimensions (cm)	#1	#2	#3	#4	#5	#6	Average
Stall width ¹	X			X	X		
Stall length (A)							
Bed length (B) ²							
Brisket board height (C) ³							
Height of upper edge of bottom divide rail above stall surface (D)							
Lunge space ⁴							
Neck rail height (E) ⁵							
Distance of neck rail from rear curb of stall (F) ⁶							
Curb height (G)							

Stall dimensions (cm)	#7	#8	#9	#10	#11	#12	Average
Stall width ¹							
Stall length (A)							
Bed length (B) ²							
Brisket board height (C) ³							
Height of upper edge of bottom divide rail above stall surface (D)							
Lunge space ⁴							
Neck rail height (E) ⁵							
Distance of neck rail from rear curb of stall (F) ⁶							
Curb height (G)							

¹ stall width = center-to-center stall divider placement; measure the width of 3 stalls on either side of the middle stall, divide this width by 3 to get the **average stall width**

² bed length = distance from rear curb to brisket board; if no brisket board, distance from rear curb to neck rail (F)

³ brisket board height = height of brisket board above stall surface (bedding surface); if no brisket board indicate NONE

⁴ lunge space = measure if forward and side space obstruction for 76 cm from top of brisket board. If no brisket board, measure horizontally below neck rail but 10 cm above stall surface. If no neck rail, measure 127 cm from curb and 10cm above stall surface. If no obstruction in lunge space indicate YES (1) and if obstruction in lunge space indicate NO (0).

⁵ neck rail height = height below neck rail to stall surface (bedding surface); if no neck rail indicate NONE

⁶ horizontal distance between rear edge of neck rail and rear point of stall curb if no neck rail indicate NONE

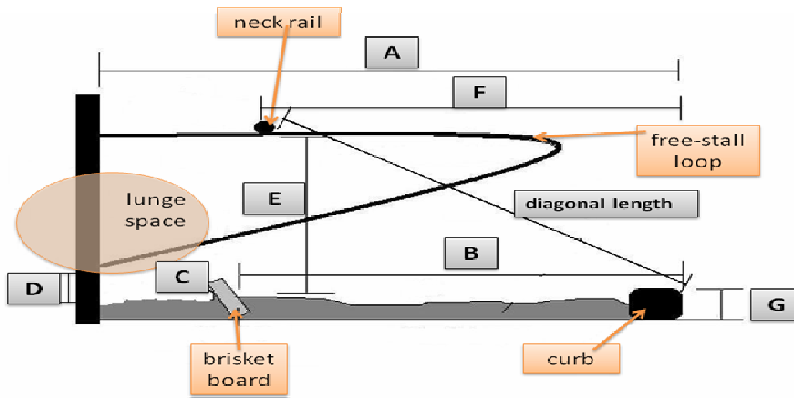


Fig. 1: Free-stall configuration (type: sand-bedded, free-stall design using a wide-loop divider), A: Total length, B: Distance from rear curb to brisket board, C: Height of brisket board, D: Height of upper edge of bottom divider rail above stall surface, E: Height below neck rail, F: Horizontal distance between rear edge of neck rail and rear point of the curb for bedding stalls, G: Rear curb height (adapted from Barrientos et al., protocol UBC cow comfort assessment on US dairy farms)

If you'll need to measure more stalls:

Stall dimensions (cm)	#13	#14	#15	#16	#17	#18	Average
Stall width							
Stall length (A)							
Bed length (B)							
Brisket board height (C)							
Height of upper edge of bottom divide rail above stall surface (D)							
Lunge space							
Neck rail height (E)							
Distance of neck rail from rear curb of stall (F)							
Curb height (G)							

1.2. SPACE ALLOWANCE

A) STALLS(No measure)

B) FEEDERS

Q108 –FS only. Number of cows in the pen: COWS

Q109 – FS only. Measure the length of all feeders in the pens. More commonly, feed is distributed on the floor in front of the pen. In case there are troughs:

If feeder is a rectangular trough = length x 2

If feeder is a circular trough= diameter x 3.14

Feeder	Length (cm)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
total length of bunk linear space (cm)	sum of all lengths =

Q110 – FS only. What is the type of feed barrier? (if more than 1 type, indicate and take measurements on all types)

- A. Post-and-rail Specify (Tick): (a) fixed rail (b) swing rail (c) chain
 height of fixed rail or maximum height for swing rail or chain (from standing floor to below rail)
 (cm):

B. Headlocks

nb of headlocks:

height of headlock (from standing floor to below top of headlock) (cm):

C. Diagonal bars

nb of diagonal bars:

height of diagonal bar (from standing floor to below top of diagonal bar) (cm):

Q111 – FS only. Measure the width of the alley where cows stand to feed (cm):**1.3 STALL MANAGEMENT****A) STALL BASE****TYPE****Q112.** What is the stall base-type (surface under bedding)? (Select one or more answer and count the nb of stalls):

	Nb of stalls	Total nb of stall	% of stalls
A. Concrete			
B. Rubber mat			
C. Geotextile mattress			
D. Sand (deep-bedded)			
E. Waterbed			
F. Dirt (composted/dried manure)			
G. Other Specify:			

B) STALL BEDDING**TYPE****Q113.** What is the stall bedding-type? (Select one or more answer and count the nb of stalls):

	Nb of stalls	Total nb of stall	% of stalls
A. Straw			
B. Sawdust			
C. Woodshaving			
D. Composted manure			
E. Dried manure			
F. Shredded newspaper			
G. Sand			
H. Other Specify:			
I. None			

QUANTITY

Q114. Estimate bedding quantity by measuring at 2 spots near the back of the stall after raking the bedding flat. Use the same stall-samples as **Q105 FS/Q107 TS** as following (*min. 6/farm, if only 2 rows, add middle stalls of each row*):

If unable to rake the bedding (you are unable to measure because it is so little), then write **NONE** (and change for I. in **Q113**)

If organic bedding material or superficial quantity of sand (answers A, B, C, E, F, G, and H for **Q113**):

- A. Little: ≤ 2 cm (equivalent to 1 kg straw = 1 kg of sawdust = 1 kg of woodshaving)
- B. Deep: > 2 cm

If deep-bedded sand (answer D for **Q112**):

- A. Little: > 0 cm below curb height
- B. Deep: = 0 cm below curb height

Place answers (NONE, A or B) in the following table (*Choose 1 answer for each #*):

	#2	#3	#6	#7	#10	#11		
Bedding quantity								

QUALITY (DRYNESS)

Q115. Estimate bedding dryness by using “Stall bedding wetness SOP”. Use the same stall-samples as **Q105 FS/Q107 TS** (*min. 6/farm, if only 2 rows, add middle stalls of each row*):

- A. Dry
- B. Wet
- C. Very wet

Place answers (A, B or C) in the following table (*Choose 1 answer for each #*):

	#2	#3	#6	#7	#10	#11		
Bedding dryness								

C) STALL MANAGEMENT

Q116. How much manure is there in the stalls? Estimate for the same stall-samples as **Q105 FS/Q107 TS** (*min. 6/farm, if only 2 rows, add middle stalls of each row*). Place answers in the following table.

- A. None
- B. Little manure and / or visible wet areas
- C. Manure-free area larger than contaminated area
- D. Contaminated area larger than manure-free area
- E. Entire area contaminated

Place answers (A, B, C, D or E) in the following table (*Choose 1 answer for each #*):

	#2	#3	#6	#7	#10	#11		
Stall cleanliness								

1.4. PEN MANAGEMENT (STANDING AREAS)

Q117 – FS only. What is the type of flooring in front of the feed bunk (standing area) in the pen? (Choose 1 answer, if more than 1 chose I. other)

- A. smooth concrete
- B. textured concrete
- C. grooved concrete
- D. slatted-concrete
- E. smooth rubber
- F. textured rubber
- G. grooved rubber
- H. slatted-rubber
- I. other

Specify:.....

Q118 – FS only. Is the flooring in the pen slippery? Use “Slipperiness of flooring SOP” (Choose 1 answer)

- A. Score 0/Excellent – no slipping or falling
- B. Score 1/Acceptable – less than 3 % of the cows slip
- C. Score 2/Not acceptable – 1 % fall or > 3 % slip
- D. Score 0/Serious problem – 2 % fall or 15 % slip

Q119 – FS only. Estimate the cleanliness level of the standing area in front of the feed bunk in the pen (cleanliness of floors) by using “On-farm feed bunk alley floor cleanliness SOP”:

- A. Score 0/*Clean*: none/≤ 0.5 cm manure thickness – only a film of manure on the floor
- B. Score 1/*A bit dirty*: ≤ 1 cm manure thickness – a fine layer of manure on the floor
- C. Score 2/*Dirty*: 1 to 3 cm manure thickness
- D. Score 3/*Very dirty*: > 3 cm manure thickness - manure comes up right up/covers the toes of your rubber boots

Place answers (A, B, C, or D) in the following table (Choose 1 answer for each #):

	Cleanliness score
#1: 20 min before scraping/flushing	
#2: 20 min after scraping/flushing	

1.5. MILKING PARLOR, HOLDING PENS AND TRANSFER ALLEYS TO THE MILKING PARLOR

Q120 – FS only. What is the type of milking parlor? (Choose 1 answer)

- A. side opening (tandem)
- B. herringbone (fishbone)
- C. parallel (side by side)
- D. rotary (carousel)
- E. no milking parlor (Automatic Milking System/robot)
- F. no milking parlor (tie-stall)
- G. other Specify:

Q121 – FS only. Number of milking units/robots: units/robots

Q122 – FS only (not relevant for AMS). Record the time when the first cow of the group is taken out of the home pen for milking:..... hh:mm *(To estimate milking and holding time)*

Q123 – FS only (not relevant for AMS). Record the time when the last cow of the group is back in the home pen: hh:mm *(To estimate milking and holding time)*

Q124 – FS only. What is the type of flooring in the parlor/robot where the animals stand? (Choose 1 answer, if more than 1 chose I. other)

- A. smooth concrete
- B. textured concrete
- C. grooved concrete
- D. slatted-concrete
- E. smooth rubber
- F. textured rubber
- G. grooved rubber
- H. slatted-rubber
- I. other

Specify:.....

Q125 – FS only. What is the type of flooring in the holding pens? (Choose 1 answer, if more than 1 chose I. other)

- A. smooth concrete
- B. textured concrete
- C. grooved concrete
- D. slatted-concrete
- E. smooth rubber
- F. textured rubber
- G. grooved rubber
- H. slatted-rubber
- I. other

Specify:.....

Q126 – FS only. What is the type of flooring in the transfer alleys to the milking parlor? (Choose 1 answer, if more than 1 chose I. other)

- A. smooth concrete
- B. textured concrete
- C. grooved concrete
- D. slatted-concrete
- E. smooth rubber
- F. textured rubber
- G. grooved rubber
- H. slatted-rubber
- I. other

Specify:.....

Q127 – FS only. (NOT DONE ANYMORE)

SECTION 2 – FEED AND WATER

2.1. BODY CONDITION SCORING (No measure)

2.2. NUTRITION AND FEED MANAGEMENT

Q128. Check 4 times (at least 1 h in between checks) during your first visit if cows have access to feed (To estimate that cows had a continuous access at feed, with the exception of milking time)

- A. Yes – 90 % of cows have access at feed
- B. No – 90 % of cows do not have access at feed

Place answers (A or B) in the following table (Choose 1 answer for each #):

Time of the check (hh:mm)	Access at feed
#1	
#2	
#3	
#4	

2.3. WATER

Q129. Nb of water points in the pen (FS)/barn (TS): water points

Q130. What type of waterers do cows have? (Choose 1 answer or more)

- A. stationary trough
- B. tip-over trough
- C. trough with balls/anti-frost
- D. bowl
- E. nipple drinker
- F. other Specify:.....

Q131. If troughs (answer A, B or C at **Q130**), measure the length of all waterers in the pens.

If waterer is a rectangular trough = length x 2

If waterer is a circular trough= diameter x 3.14

Waterer	Length (cm)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
total length of linear space (cm)	sum of all lengths =

SECTION 3 – HEALTH AND WELFARE MANAGEMENT

3.1. MAJOR HERD HEALTH ISSUES (No measure)

3.2 LAMENESS IN YOUR DAIRY HERD (No measure)

3.3 LAMENESS MONITORING (No measure)

3.4. CLAW HEALTH/HOOF TRIMMING

A) FOOTBATH

Q133. What are the dimensions (cm) of the footbath (measure the ones that contain the solution)? (Insert measures in table below)

If no use of footbath (answer B to Q30 in management questionnaire), do not fill

	Length (cm)	Width (cm)	Depth (cm)
Footbath 1			
Footbath 2			
Footbath 3			
Footbath 4			

B) HOOF-TRIMMING (no measure)

SECTION 4 - CALVING

4.1. CALVING AREA

Q134. What are the dimensions (cm) of the calving area? (Insert measures in table below)

If regular free-stall or tie-stall (answer E or F to Q42 in management questionnaire), do not fill

	Length (cm)	Width (cm)
Calving area 1		
Calving area 2		
Calving area 3		
Calving area 4		

Q135. What is the flooring-type (surface under bedding) of the calving area? (Insert answers in table below) *If regular free-stall or tie-stall (answer E or F to Q42 in management questionnaire), do not fill*

- A. Concrete
- B. Rubber mat
- C. Geotextile mattress
- D. Sand
- E. Waterbed
- F. Dirt (composted/dried manure)
- G. Other Specify:

	Flooring-type
Calving area 1	
Calving area 2	
Calving area 3	
Calving area 4	

Q136. Is the calving area equipped with a waterer (functioning) and a feeder? (Insert answers in table below)

If regular free-stall or tie-stall (answer E or F to Q42 in management questionnaire), do not fill

- A. Yes
- B. No

	Waterer	Feeder
Calving area 1		
Calving area 2		
Calving area 3		
Calving area 4		

Q137. What is the cleanliness level* in the calving area environment? (Cleanliness of walls, moisture, etc.) (Insert answers in table below). Cleanliness Score: A. Clean; B. Acceptable; C. Unacceptable.

* Use visual chart to answer to the question

If regular free-stall or tie-stall (answer E or F to Q42 in management questionnaire), do not fill

	Cleanliness
Calving area 1	
Calving area 2	
Calving area 3	
Calving area 4	

4.2. CALVING MONITORING (No measure)

SECTION 5 – CODE OF PRACTICES (No measure)