

Milking Facility design to reduce Lameness and for Good Cowflow.

Neil Chesterton

The facilities we are covering in this little article are sometimes called the “Shed”. By milking facilities I mean all the infrastructure from the holding yard gate to the exit race.

Good facilities result in:

Happy staff (less stress, fewer accidents, stay longer, patient)

Happy cows (more milk production, better let down, less problems – mastitis and accidents)

Less lameness – much of the white line injury occurs in yards at milking time – due to pressure from gates, staff and other cows. The design and function of the facilities can be improved to get good cow flow without pressure.

The “needs” of the cow

1. a safe place (no slippery surfaces, protruding pipework, no frightening things)
2. space to turn, to stand (with head down), to reorganise pecking orders.
3. pleasant environment, lighting, noise
4. place that encourages good cow flow

Here is a summary of what I call the “Ideal Shed”

- i. wide entrance gate (same width as race).
- ii. track enters straight into the yard (no sharp turns).
- iii. flow of cows from track straight through yard into bails.
- iv. yard area sufficient for herd (>1.3 sq m/jersey cow – 1.5 sq m/ friesian cow - 1.8 sq m/ Holstein Friesian cow).
- v. non-skid concrete (yard, bails, exit).
- vi. pipe-work - safe design to prevent injury to cows’ hips, point of shoulder, heads.
 - adequate head space at front bail.
 - correct height for breast rails:700mm smaller cows
 1. 760mm larger cows
- vii. no stray voltage.
- viii. direct flow out of bails onto exit track.
- ix. exit track separate to entry track - rejoins 30 - 50 m from shed.
- x. washdown and rain water does not drain onto gravel track.
- xi. backing gate not frightening - no electrified wires, no electrified top gate.
- xii. correct speed for backing gate: round yard – 12 m/minute
 - rectangular yard – 6 m/minute.
- xiii. buzzer or bell on backing gate (so that milker knows it is moving and to wake up cows).
- xiv. hock rail on backing gate.
- xv. sufficient cups for size of herd to keep milking time to 1½ - 2 hours.

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- xvi. “Line-up” area in herring bone entry - room for 3 to 4 cows to line-up to follow into bails.
- xvii. Quick acting front gate eg. curtain gates, scissor, pendulum or guillotine type.
- xviii. Rubber mats at entry to rotary particularly if in bail feeding
Rubber mat at exit off rotary milking platform.

Troubleshooting

Let us now walk through the facilities noting the good and bad in each area. Every shed will be different but cows are good at learning the ropes wherever they are as long as we understand what they like, and what they are afraid of. Here is a list of all the different areas to think of and what could be causing a problem there. Often a very small adjustment can have big results.

Position of shed / milking yards

- preferably central to most of farm
- preferably not at top of a hill

General this applies to all areas

- all surfaces non slip – yard, bails, exit
- keep gravel off all concrete
- no stray voltage
- Pipe work – look for polished bits safe design to prevent injury to cows, hips, point of shoulder, heads. Not too high or too low
- Wash down and rain water not draining onto gravel track

Entrance / transition area from track

- not sloped, especially not sideways slope
- Steps are good (see separate article)
- Enters straight into yard – no sharp turns
- Concrete, not mud
- Preferably separate to exit

Gateway

- wide enough
- same width as track, not a bottle neck
- in right place – leading straight to bales, so that cows can be facing right direction and flow through yard to bales
- no foot bath or grates
- no possibility of bringing gravel onto yard surface
- nib walls should be square

Yard / holding area

- sufficient standing room (see above) this allows re-sorting
- good non slip surface (scabbled, grooved, brushed)
- level or nearly level – 2% will drain, watch sideways slope
- round vs rectangular
- feeding troughs can be a distraction

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- Gates - top gates, design
- speed (6m/min rectangular yard, 12m/min round yards)
 - sound
 - electricity should be removed
- backing gates, design, hock rails
- power (too much torque can run over cows)
 - speeds (6m/min rectangular yard, 12m/min round yards)
 - timer
 - bell /sound
 - electricity should be removed
 - direction of movement on dual purpose gates – the speed should be slow in both directions

Lead in area

- non slip
- straight ahead
- wide enough so that one cow can't block the way
- space ahead (so cows can see)
- lead in rails

Milking area

- good lighting
- noise kept low
- feeding designed to encourage cows in.

Herring bone parlours

- number of cups sufficient for size of herd to keep milking time to 1 ½ - 2 hours
- line up/ lead in area room for 2-3 cows to line up ready to follow into bails
- protection so that cows don't fall in pit from end (rails) or from sides(nib walls)
- non slip flooring
- quick acting front gates – curtain gates
- no chains or bars
- rail heights
- zig zag
- head space at front bail
- exit turning area preferably straight flow out into exit race

Rotary parlours

- number of bales
- speed
- waves
- bridge, lead in
- exit turning area – rubber mats

Exit races

- should only join main track away from shed (30 – 50 m) or entrance will be fouled up.
- teat sprayers

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- foot baths

Most Common Problems I see:

- entrance wrong place
- yard too small
- electricity
- pipe work
- sharp turns
- steep slopes – steps a good idea
- distractions and annoyances eg switches in the wrong place, noisy plant

Anything that the cows don't like or are afraid of will cause a problem, cows will baulk and the result can be that the staff feel that they need to apply pressure to keep cows moving.

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