

Asia Dairy Network Website News Number 7

from John Moran, your ADN Coordinator

Welcome to the seventh edition (Jan 2015) of the ADN News. This newsletter discusses the very important topic of cow comfort, what it is, how it is quantified, what impact it can have on cow performance and what management practices should we use to optimise it.

The importance of cow comfort to a milking cow

What is cow comfort?

There are many definitions of cow comfort:

- Comfort zone, when the range in temperatures does not influence the cows' physiological responses. For milking cows this occurs between 6 and 18 degrees C.
- It can also be defined in terms of cows' physical environment, when they can do, what they want to and when they want to do so; for example have 12 to 14 hr/day rest undisturbed by other stock
- It also includes their satisfied appetites for water and feed
- In short, cow comfort is an emotional state, in that it reflects how she feels
- The cow's overall wellbeing covers her psychological as well as her physiological needs
- In other words, it occurs when the cow is at peace with her perception of the world
- Cow comfort makes a ration work. Cows should only be standing to be milked, eat and drink. The rest of the time, they should be able to lie down. There is no need for them to just be standing around

The benefits of good cow comfort

The simplest assessment of cow comfort is then her potential appetite, in that generally speaking up to a point, if she is offered more she will eat it. Because the marginal efficiency of utilising additional feed nutrients to synthesise animal products all too often decreases with increasing intake, cow comfort cannot really be defined in terms of production response to any extra feed

However farmers can expect 1.0 to 1.5 kg/cow/day extra milk whenever cow comfort is improved that results in one more hour of resting time

Factors influencing cow comfort

These can be split up into physical, psychological and nutritional as follows:

Physical

- Natural ventilation plus access to clean air
- Cow cooling; fans, sprinklers
- Free stalls v tie stalls
- Can rest in clean dry area
- Soft bedding
- Have access to outdoor night time yards (cooling & oestrus detection)
- Have clean alleyways
- Can walk on comfortable non slippery surfaces
- Can stand undisturbed

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- Cows need to rest for up to 12 to 14 hr/day

Psychological

- Can use stalls to escape dominant cows
- Have sufficient space to exhibit signs of oestrus
- Have good staff handling which will reduce flight zones, or the “personal” space around her where she will attempt to move away from people
- Have sufficient space so she can walk to feed and water from their resting places without fear

Nutritional

- She is provided with sufficient drinking water allocations
- She is provided with adequate quality forages
- She is provided with a nutritionally balanced, formulated milking ration

Building for the cow

It is essential that when designing housing systems, farmers keep the following key principles in mind:

- To achieve cow productivity, farmers must address the twin issues of cow comfort and health, where health is the freedom from infections, injuries and metabolic problems.
- To achieve cow well-being, farmers must address the twin issues of housing and management, where management covers all the normal farm practices associated with dairy farming
- Addressing cow comfort and housing, means that the farm’s physical facilities must be optimised before putting cows in sheds.

Cows grazing in a paddock have access to forage virtually all the time and to concentrates at least twice per day, at milking. So it should also be when cows are maintained in sheds. They should be encouraged to make at least 12 trips each day from their place of rest to the feed and water troughs. This will only occur if cows “feel good”, have healthy legs and feet and the route is safe and comfortable.

There are six key housing aspects of cow comfort, health and well-being, namely:

1. Water with access to clean, palatable water at least 21 hr/d
2. Light with at least 6 hr/d of darkness
3. Air, that is fresh and clean air
4. Rest, with a dry and comfortable place to lie down for at least 12 hr/d
5. Space so cows can walk to feed and water troughs from their free stalls without fear
6. Feed, in that cows can eat a palatable and well formulated feed, on offer for at least 21 hr/d

The stalls must also provide adequate room on a comfortable base for cows to lie down, stand up and rest, without obstruction, injury or fear. Dairy cows prefer to lie down when ruminating. If animals are found to stand with their back legs outside the stall or are lying outside the stalls, this is a sign of uncomfortable stalls.

Provision of water

Water bowls should provide at least 20 litres per minute for cows and water troughs should supply 30 to 40 litres per minute. One water trough is needed for 20 cows or it should be calculated at least with 10-15cm per cow. Two easily accessible water sources per group are needed to avoid stress situations for submissive

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cows. Many dairy producers, especially those in warm climates, exceed this recommendation and feel that their cows respond positively. The water troughs need to be easily accessible. It is also important to have 2.5 to 3 m of space around the troughs to reduce pushing and shoving. Many farmers install extra troughs near the exit of the milking parlour.

Daily time budget for milking cows

A daily time budget for a typical milking cow in a free stall shed in the US is:

- Eating: 5.5 hr/day with 9 to 14 meals/day
- Resting: 12 to 14 hr/day, including 6 hr rumination
- Standing or walking in alleys: 2 to 3 hr/day, which includes grooming, rumination and other activities
- Drinking: 0.5 hr/day
- Total time needed; 21 to 22 hr/day

This indicates that cows have little time to spare so time away from the pen should be minimised' and this includes visiting the milking parlour generally twice daily.

Why emphasise cow comfort?

The primary areas influencing cow comfort are stall suitability, floor surface and general space allowances which allow stock to exhibit their most natural behaviour possible. Studies have identified that foot trauma and subsequent mobility problems increase with:

- Uncomfortable, unsuitable or poorly-bedded stalls
- Prolonged standing on concrete surfaces, particularly if they are wet, new, worn or damaged
- Poorly maintained, and uneven walking track surfaces with stones underfoot
- Impatient or inconsiderate herding, particularly with the use of sticks or dogs
- Incompetent foot trimming
- Bottlenecks and sharp turns from the feeding and housing area to the milking parlour
- Poorly-designed handling facilities, yards and cattle crushes
- Narrow passageways which allow the bullying of the more submissive cows by dominant herd members

Observing your cows in the shed can determine if the following behaviours occur:

- Are some stalls always avoided and empty?
- Are cows mostly standing half in/half out of the stalls?
- Do cows make abortive attempts to lie?
- Do cows lie in alleyways or backwards in stalls?
- Do cows sit back on their haunches like a dog?
- During quieter periods in the shed, are there more than 30% of the cows not lying?

If any of the above behaviours are seen, then a problem exists.

Assessing cow comfort

- The air should not smell stale or have strong ammonia odour

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- Cows should be checked for open-mouthed breathing, coughing and nasal discharges
- Check for cobwebs throughout the shed. Cobwebs should not be present if airflow is continuous
- Check for condensation and moisture damage, such as rusty nails and stalls, and also dry rot in walls and roof trusses
- Monitor barn temperature. In a naturally ventilated barn with adequate ventilation, the temperature inside the shed should be within 13 to 15 degrees C of the outside temperature in the winter. In summer, a well-ventilated barn is often cooler inside than out.
- Run your fingers through the cows' hair coat; they should come out moisture free.
- Examine your cows for dirty udders, tails, switches and hindquarters as these are signs that the stalls are dirty or that the stalls are not being used or used properly
- Mastitis, sore feet, rubbed necks, and rubbed or swollen hocks also indicate cow comfort problems.
- Are cows walking very slowly, or timidly, with rear feet spread wide? This could be a sign of poor traction or laminitis.
- Are some cows slipping and falling? This could also be a sign of poor traction.
- If more than 20% of the cows defecate in the milking parlour, this could indicate discomfort or uneasiness in the cow shed.