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Stocking Density and Cow Comfort

Have you ever walked into a full room late, and tried to quickly find your spot to sit? Now add to that, the only available seat is in the middle of a full row, so you'll need to squeeze yourself past quite a few people to get there. And the cherry on top, is the seat is beside the person who you were hoping to avoid at this function! Maybe we should stand along the side wall... Fortunately for us, organizers often make sure that they have more than enough spots for the number of people attending.

But imagine dealing with this social stress daily?

For cows in free stalls, this can be an everyday occurrence. When we fill their home to more than 100% stocking density, it begins to have deterrent effects, and impacts their daily comfort, as well as behaviour. Stocking density refers to the number of cows divided by the number of functional stalls in the barn. And this can have a huge impact on the efficiency of our herd.

Now to understand this better, we need to understand how a cow budgets her days.

ACTIVITY	TIME BUDGETED (HOURS/DAY)
LYING DOWN	12 – 14 hours
EATING	3-5 hours (in ~30 min bouts) First lactations eat for longer amounts of time
DRINKING	0.5 hours
RUMINATING	7-10 hours
SOCIALIZING	2-3 hours

From this time budget, we can acknowledge that for the cow, lying down is an important task. Happy, healthy cows make milk, thus if we impair her ability to rest and relax comfortably, we impair her ability to make milk to her fullest capabilities. Research done on this has shown that when a cow's ability to lie down is reduced to less than 10 hours a day, stress hormones increase as a result, which impairs milk production. And levels of growth hormone, which is associated with making milk, actually decrease. Research has also proven that in these situations, cows will prioritize resting which may mean taking time away from eating or socializing to find a spot to lay down and to stay there longer.

With that being said, it is not hard to see how overstocking can also impair the animal's health, if she is forced to prioritize her daily activities. In overstocked facilities, we often see higher levels of lameness from cows standing for longer periods of time. Rates of mastitis or SCC also increase, as well as risk of transition diseases.

To summarize, increasing stocking density to more than 1 cow per stall can have the following impacts on your herd:

- Decreased milk fat or yield
- Increased rates of mastitis or SCC
- Increased social stress
- Increased lameness
- Increased transition diseases
- Decreased feed efficiency
- Increased risk of culling

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Another important detail to note, stall design and comfort play a role in this as well. If stalls are too small, this can result in cows placing their legs, feet, or head into a neighbouring stall. Now a single cow is occupying more than one stall, which reduces the number of available stalls in your barn for the cows. When building or renovating stalls, you want to make it so that your largest animals can lay comfortably. Often this means basing our stall sizes on your 3rd + lactation group. When comfortable and able to lay properly in the stall, not only does this improve cow comfort and welfare, but it also reduces the risk of injury to the animals and allows them to focus on making milk!

Lastly, barn design can impact our ability to stock the facilities. While here I referenced max stocking density to the number of stalls available, other housing designs can be the limiting factor, such as feed bunk space, water bowls, or ventilation capacity. It is important to know in your facilities what is the limiting factor and to work with it.

So why do we see overstocking occurring? Often in times of incentive days, or when trying to fill quota prior to building a larger facility. Yet, packing more animals in to the space does not equal more milk out the door. For more milk, we need to focus our efforts on quality feed stuff, proper rearing, and cow comfort amongst other things. With these in line you may surprise yourself with just how much a cow can do!

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