COW COMFORT THROUGH THE TRANSITION PERIOD

J.F. Smith, J.P. Harner[1], and M.J. Brouk

Summary

Managing transition cows is a significant problem on dairy farms. The issues include nutritional considerations, stocking rates, metabolic disorders, heat stress, and access to feed and water. Often management of transition cows is limited to nutritional considerations. Facilities, grouping strategies, stocking rates, heat stress, and access to feed and water also have a dramatic impact on milk production, herd health, culling rates, and reproductive efficiency. Often nutritional benefits can be negated by not managing cow comfort issues. Producers can improve profitability by managing those variables.

(Key Words: Housing, Transition Cows, Comfort)

Introduction

Often too little emphasis is put on housing and management of transition cows. For optimal cow health and milk production, a well-designed special needs facility for transition cows is essential, because transition from pregnancy to lactation represents the period of greatest challenge to the cow's health and productivity. Most of the metabolic and infectious diseases the cow will experience occur during the first weeks of lactation.

Onset of milk yield during early lactation outpaces the cow's ability to increase intake of nutrients, placing her in negative balance for vital nutrients such as energy, protein, and calcium. Cows failing this metabolic challenge can develop milk fever, ketosis, and displaced abomasum. Hormonal changes associated with calving suppress the immune system and increase susceptibility to infectious diseases such as mastitis and Salmonellosis. Negative energy balance and environmental stresses can have an additive effect on immune cells and further suppress resistance to infection. To reduce disease and improve productivity, strategies must be designed to maximize feed intake and reduce stress. Stress can take many forms, but generally results in increased cortisol secretion, which tends to reduce immune cell function.

Grouping Strategies and Building Requirements

The size and number of cow groups in a dairy are critical planning factors. Factors affecting the number and types of groups are largely associated with parlor size, maximizing cow comfort, feeding strategies, reproduction, and increasing labor efficiency. Lactating cows fit one of seven classifications: 1) healthy lactating 2-year-olds; 2) healthy multiple-lactation cows; 3) fresh cows with non-sellable milk (0 to 2 days postpartum); 4)

[1]Department of Biological and Agricultural Engineering.

fresh cows with sellable milk (3 to 16 days postpartum); 5) fresh 2-year-olds with sellable milk (3 to 16 days postpartum); 6) sick cows with non-sellable milk; and 7) high risk cows with sellable milk. The cows in classifications 3 to 7 are typically housed in the special needs area, along with close-up cows and heifers.

Table 1 provides recommended groups, group sizes, and typical housing requirements for cows, 2-year-olds, and calves. Group sizes are increased to account for fluctuations in the number of calvings of cows and heifers. If pens are only sized for average numbers, there will be a considerable time when the special needs facilities are overstocked.

Selection of Cow Housing

In a freestall dairy, cows and heifers in the special needs facilities are housed in either free stalls or loose housing. Advantages and disadvantages exist for each housing system. Loose housing maximizes cow comfort, but requires additional space, bedding material, and labor to maintain a sanitary environment. This is particularly true when organic bedding is used. Free stalls reduce labor costs of maintaining the resting area. Some cows may be intimidated by free stalls and may choose not to use them. Options that can be used for different groups of cows are listed in Table 1.

Stocking Density

Due to the nature of calving cycles, overstocking of close-up cows and fresh cows often occurs. The dilemma faced is whether one can afford to build facilities to handle the maximum number of cows that will be in the close-up and fresh pen. These two groups of cows should never be overcrowded. Field experience indicates that they should be stocked at less than 100% of available feedline space.

Access to Feed and Water

Keeping cows eating and drinking through the transition period is critical. Sufficient feed and water must be provided in all housing areas. Often feed and water are not provided in calving pens with the logic that cows will only be in the maternity pen long enough to calve, so providing water and feed is not necessary. This short period of time often varies from 4 to 12 hours. Many producers are moving to a group calving situation to make it easier to provide feed and water for these cows.

Managing Heat Stress

The first groups of cows that should be cooled on the dairy include close-up dry cows, maternity cows, fresh cows, and sick cows. Emphasis is often put on cooling healthy, lactating cows. However, if a smooth transition is not made from the dry period to lactation, cows are put at a huge disadvantage, both from the standpoint of milk production and reproduction. Providing fans does little to reduce heat stress. Feedline soakers also should be provided.

Table 1. Housing Requirements for Dairy Cattle

Group	Average time in facility	% of lactating herd	Housing systems
Close-up cows	21 days	6%	Free stalls or loose housing
Close-up heifers	21 days	3%	Free stalls or loose housing
Maternity cows	Calving	1%	Loose housing
Fresh cows	2 days	1%	Free stalls or loose housing non-sellable milk
Fresh mature cows	14 days	3.5%	Free stalls
Fresh 2-year olds	14 days	1.5%	Free stalls
Mastitis and sick cows	N/A	2%	Free stalls or loose housing non-sellable milk
High risk sellable milk	N/A	2-6%	Free stalls or loose housing
Cull and dry cows	N/A	1.5%	Loose housing
Calf housing	24 hours		Hutches or small pens