Transition Cow Management Checklist

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Today's high producing western dairies have been successful at improving labor and production efficiency through the use of large pen sizes, improved mechanization of the feed production and delivery process, adoption of current technology (such as rBST and individual animal electronic ID) and a hard working labor force. Unfortunately, along with the increase in efficiency comes a decreased amount of contact time between cattle and the people that are managing them.

Currently, most herds have cattle that are performing well after the first 100 days in lactation, but are faced with the same transition management issues that confront dairies of all sizes. The transition period, which extends from approximately three weeks prior to calving until approximately 3 weeks post-calving, is a high-risk time in a cow's life. Based on data collected by the authors, cows on these large dairies experience a high risk for early lactation herd removal (typically, approximately 10-11% of all calvings leave the herd within the first 60 days in milk through culling, death or to a much smaller degree, by sale to other herds for dairy purposes). This risk for removal is similar to the risk reported by Stewart and Godden from a large Minnesota record review.

The transition period is a critical time in cows' lactations with long lasting carry-over effects that extend far beyond a high risk of culling. There is a well-documented depression in the immune function during this six-week period. In addition, dry matter intake may drop by 25% or more and the presence of various environmental, social, or feed related stressors may further compound the compromised DMI and immunity. Early lactation milk production, risk for antibiotic treatment, return to positive energy balance, and reproductive efficiency are all related to the success of the transition period.

Veterinarians, nutritionists and outside consultants are often asked to investigate, correct, or otherwise deal with the resulting problems caused by transition failures. For example, herds that struggle with poor reproductive efficiency may implement massive changes in the breeding program including the firing of commercial or on-farm inseminators. Nutritionists may be called regarding poor fresh cow milk production or poor peak performance. Often, these production and reproduction problems are the result of mismanagement that occurred at least 3-6 weeks previously such as an overcrowded close-up dry cow pen, inadequate heat stress abatement, or a ration that somehow was not delivered as per the nutritionist's recommendations due to a change in the mixer wagon or the hiring of a new employee. Unfortunately, at times, these key herd advisors may resort to finger pointing and playing the "blame game". However, each member of the herd management team has specific roles. Complete buy-in and cooperation from all members of the management team, as well as a concerted management effort targeted at prevention of periparturient problems is necessary to ensure the financial success of these large dairy enterprises.

The following checklist was designed to offer some guidelines to help both veterinarians and consultants improve the management of transition cows with an eye on improved early lactation performance, decreased risk of premature culling, and improved

reproductive success. It is not meant to be an exhaustive list of all possible transition issues, but merely to serve as an aid in the investigation of problems and in improving the day-to-day management. At the end of the paper is a list of references/suggested reading for those that would like additional information.

Grouping & Pen Movement

- Goal: Reduce social, environmental and metabolic stressors by minimizing change.
- Keep it simple. Avoid unnecessary pen changes. Each pen change may result in a drop in DMI and elevated cortisol levels due to social hierarchy issues.
- Decrease the impact of pen changes by moving animals once weekly and move in groups of 10 or more animals if possible.
- The majority of cows should spend 21-28 days in the close-up pen.
    - Normal variation is ±9 days. Need average 23 days to have 95% greater than 14 days in close-up pen.
    - If possible, target slightly longer days in the close-up pen for those cows carrying twins or ones that are dry during the summer heat stress as they may experience shorter gestation periods
- Separate heifers & multi-lactation animals if at all possible.
    - Heifers do not need anionic salt diets
    - Heifers have been shown to have longer resting times and higher DMI when separated from mature cows.
    - Heifers need higher levels of protein during the close-up period (>15%)
- Maintain the stocking density at less than 100%(85% is the goal and is based on feed bunk space)
    - Set realistic lockup expectations (typically will not see 100% use of 5 in 10 stanchions with dry, mature cows)
- Maintain a clean, dry environment
    - Mud and heat stress increases metabolic needs but decreases DMI
    - Wet, mucky conditions increase the risk of mastitis
    - Cows calving in wet conditions may experience higher risks for metritis
- If maternity pens are used,
    - Strive to move only at impending parturition (cows should spend less than 12 hours in a calving pen due to possible feed, water, or social stressors associated with the use of maternity pens)
    - Maternity pens should be bedded with clean, dry material and changed frequently
- Cows should be housed in a colostrum pen for approximately 48 hours (depending upon withdrawal requirements of the dry tubes) immediately following calving. The hospital pen is not the best place to house fresh cows.
- Minimize distance walked in these tired and sore fresh cows by placing the pre- and post-fresh pens close to the parlor if possible.
- Design move lanes and coordinate cattle movement to minimize lock out time away from feed
    - Maintain stocking density < 100%, with a goal of 85 to 90% for fresh cows

Nutrition & Feed Delivery

- Goal: Minimize drop in DMI prepartum and maximize dry matter intake postpartum
- Close-up cows:
  - Energy requirement last week of gestation: ~ 20 Mcals NE_L / day
  - Protein requirement last week of gestation: ~ 3.75 lbs crude protein/ day.
  - Monitor feed intake
    - Weigh daily feed delivered and leftover (goal of 5-8% refusals in close-ups cows)
    - Dry matter intake of >28 lbs for multi-lactation animals in close-up pen (2% BW)
    - Dry matter intake of >24 lbs for heifers in close-up pen (2% BW)
    - If using DCAD diets for close-up cows:
      - Select forages, grains and grain by-products with low K to minimize amount of anionic salts needed
      - Monitor urine pH's once weekly while on DCAD – goal is to have all cows at 6.0 to 7.0 after 48 hours on diet
  - Feed 1500-1800 IU/d Vitamin E
- Fresh cows:
  - Monitor feed intake
    - Weigh daily feed delivered and leftover (goal of 5-8% refusals in fresh cows and 3% refusals in lactating cows)
    - Dry matter intake of >38 lbs (3% BW) for fresh cow pen (2-21 DIM)
  - Feed 1500-1800 IU/d Vitamin E
  - Fat cows (≥ 4.0 BCS) are at increased risk of ketosis and should receive 8–10 oz propylene glycol drench/cow/day at calving and again in 24 hours
  - After the prescribed withdrawal time, move cows from colostrums pen to a fresh cow pen for ~ 14-28 days. Duration of time in fresh pen dependent on:
    - Feeding strategy:
      - If cows start on low energy diet first, more emphasis on quick move
      - Goal should be to have cows prepared adequately at calving to go from CU ration directly to high cow ration
    - Milking strategy:
      - If incorporating 4x/ 6x fresh cow milking, leave in fresh pen for 21-28 days
    - Pen pressure: slugs of freshenings may force earlier moving out of fresh pen
- General principles:
  - Ensure uniform feed intake by all animals
    - Monitor particle size using a particle separator – ensure that at least 8-12% of particles remain on the top screen and that there is no more than a 20% difference between fresh and refusals when evaluated by the particle separator
    - Moisture content of ration 45-50%-reduces sorting & increases palatability

        - Monitor manure for fiber length, grain particles & gas bubbles. Pre-batch mix/chop hays to control length at 2-3 inches-<width of cow's muzzle
        - Use high quality, highly palatable hays free of mold & mycotoxins.
        - Use high quality, highly palatable silages free of clostridials or butyric acid. Do not feed silage from top & sides of silo to transition animals. Limit CS to no more than ~ 50% of forage needs
        - Alfalfa haylage & corn silage chopped <.5" theoretical length may not be good sources of effective fiber
        - Prefer not to feed added fat in close-up & fresh rations through first 14 DIM. Added fats generally reduce intake.
    - Avoid overcrowding – all animals should be able to get to the bunk at any given time – optimal stocking density of ~ 85 % (85 cows for 100 stanchions)

Facilities & Cow Comfort

- Goal: Maximize cow comfort, minimize additional metabolic needs and risk of periparturient disease.
- Clean, dry & comfortable beds or corrals. (space requirements – ~ 600 sq ft/ cow of loafing area and 50-70 sq ft shade area/cow in open corrals or in freestall housing, a minimum of 1 properly bedded and maintained freestall/cow)
- Soaker lines on lockups during heat stress cycled once every 15 min. from 70-79°, once every 10 min. from 80-88° & once every 5 min. above 88°F with 0.33 gal.of water/cow/cycle.
- Minimize stress by minimizing movements, maintaining low pen densities, separating heifers and cows, and by providing adequate water, bedding, nutrition, etc.
- Acclimate heifers to lockups/ stanchions prior to entering the close-up pen.

General Items

- All cows lose weight post-calving – normal weight loss during first 30-60 DIM should be $\leq$ 0.75 BCS or ~90 lbs (1 BCS ~ 120 lbs fat)
- First Service Conception rates may be reduced by 50% when BCS swings >1.0 score during the first 60 DIM
- Anestrus (30-40%) increases in animals whose BCS falls below 2.75
- Use some form of a 10-day fresh cow monitoring and treatment program custom designed with your veterinarian to fit each farm's needs.
- Record fresh cow events such as DA's, RP's, mastitis, metritis, lame, died, sold & freshenings.
- When animals fail to peak—check total dry matter intake and ration protein levels – fresh cows need to rapidly increase feed intake and need adequate levels of quality protein to achieve high peaks
- When animals fail to persist—check body condition changes, dry matter intake and total ration energy levels – persistency is usually related to total energy intake
- Minimize lockup times in stanchions – ideally, cows will be locked for no more than 30-45 minutes/ day for monitoring, breeding, vaccinations, pH's, etc
- Cows should increase in milk flow by ~ 10%/ day for first 14 days

- Heifers should increase in milk flow by ~ 8%/ day for first 14 days
- Following calving, goal of < 6% sold and < 2% dead during first 60 DIM (risk expressed as total sold or died/ total calved)
- Heat stress conditions narrow the margin for error:
    - Total feed intake decreases, but maintenance requirements for energy are increased
    - Cow spend more time standing (higher risk for lameness)
    - Shorter gestation lengths
    - Higher risk for RP's and much higher risk for more severe metritis
- Fat cow problems should be addressed by strategic management of ketosis risk (propylene glycol drenching), reducing weight swings in transition period, and improving breeding management to reduce long days open; not by a "reducing diet" in late lactation or far-off dry period

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