HOARD'S DAIRYMAN

Worth the investment

Spending a little more to design transition cow housing the right way can lead to financial and herd health successes.

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YOU have found just the right spot on your farm to build and have drawn the perfect plan for housing your transition cows. One important question remains: "Will this work?"

We recommend sizing close-up and fresh pens for 140 percent of the average number of calvings. Sizing transition cow housing in this way ensures adequate feed and resting space during the most vulnerable time period in a cow's lactation cycle. Overstocking of pens will occur less than 10 percent of the time. There will be times, however, when pens sized on this basis appear to be substantially understocked, or as some would say, "grossly overbuilt."

Every lactation counts

Our estimations say this practice makes economic sense. Well-designed and managed transition cow housing can offer a return on investment more quickly than improvements in heat abatement or freestalls for the milking herd. Certainly, improvements in heat abatement and freestall design are often necessary and recommended; however, consider that each stall and headlock in a prefresh pen has an impact on somewhere between seven and 15 lactation starts each year.

Conventional "wisdom" in cow housing says the most expensive thing on a dairy is an empty freestall. Given the multiplier effect each transition housing freestall has on so many cows, the opposite is true: the most expensive thing on a dairy is a prefresh stall that is always full! It is critical that transition facilities are excellent and available to all cows, and the cost must be judged in terms of a cost per cow rather than a cost per stall.

A tool called the Transition Cow Index (TCI) has been developed to evaluate the effectiveness of transition cow management at the herd level. Historical DHIA data of each individual cow are used to project her milk yield at her first test date; a date that frequently overlaps with fresh cow disease periods. Deviations from her expected milk yield are calculated and used at the herd level to evaluate the overall effectiveness of transition cow management programs. TCI is reported either on a 305-day basis or on a daily basis (denoted as "TCI-D").

TCI has allowed us to evaluate associations between housing systems and fresh cow health. In 2005, we surveyed the transition management practices of 50 Wisconsin freestall herds with an average herd size of 600 cows. Another field study was conducted on 22 open lot dairies in the southwest U.S. in the summer of 2009.

From these surveys, a few management practices emerged as associated with improved herd TCI scores, and these serve as the basis for our transition cow housing recommendations. These were discussed in the previous two articles of this series and include more bunk space, improved social stability, comfortable bedding and sufficient space to rise and lie down without hindrance.

Impacts are measurable

Two easily measured economic impacts of improved TCI result from less culling and higher milk production. From examination of production records of 194,402 cows in 4,025 herds, every 1,000-pound improvement in TCI (equivalent to 7.2 pounds TCI-D) results in 2.4 percent more cows surviving to their next lactation. More dramatically, for every 1-pound improvement in TCI, milk production goes up by 1.3 pounds per cow per day over their entire lactation. For every 1-pound increase in TCI-D, milk production climbs 176 pounds actual milk over each cow's lactation.

Let's put dollars on these improvements with a very achievable TCI elevation of 1,000 pounds (7.20 pounds TCI-D). Less culling gives the opportunity to sell or avoid purchasing a replacement. Given each replacement costs $1,800 and the value of a cull cow might be $900, the positive impact is $900 per transaction. Multiplying by the associated reduction in turnover rate of 2.5 percent yields a benefit of $23 per cow per year.

For 1,000 pounds TCI (7.2 pounds TCI-D), we would expect another 1,300 pounds milk yield per cow. Using a conservative milk price of 18 cents per pound and income over feed cost of 50 percent of gross milk price, the improved milk yield results in approximately $117 more income over feed cost.

In total, this 1,000-pound TCI or 7.2 pounds TCI-D improvement results in a benefit of $140 income over feed cost per cow per year, not including any estimates of potentially improved reproductive performance or reduced disease treatment costs.

Money well spent

To further test the economic logic of building transition cow facilities to our recommendations, let's consider a partial budget for a "traditionally-sized" transition cow barn versus the recommended "transition cow-friendly" barn for a 1,000-cow herd.

Assume for this herd there are 1,050 calvings per year, or 20 calvings per week. Given three-week pre- and postfresh periods and one freestall per cow, the traditional sizing method requires 60 stalls in each pen.

Since we don't get to decide when the prefresh cows leave the pen, the transition cow-friendly barn will be "overbuilt" at 140 percent of average weekly calving rate, or 84 prefresh stalls. Similarly, but a little more conservatively since we could move some healthy cows out of the postfresh pen early if needed, this pen will also be "overbuilt" at 130 percent of average weekly calving rate, or 78 postfresh stalls. This results in 42 additional stalls per 1,000 cows versus the traditional sizing method.

Following the Dairyland Initiative recommendations, the freestalls will be larger and more numerous, resulting in a larger footprint for the barn. If the cost per stall in a traditionally-sized and designed barn is approximately $2,500, the transition cow-friendly barn may cost around $300 more per stall, or an additional $68,400 per 1,000 cows.

If we amortize this additional expense of $68,400 over five years at 5 percent interest with monthly payments, the extra expense for the transition cow-friendly building will be $15,490 per year for five years. Dividing this over 1,000 cows equals an additional cost of $15.50 per cow per year.

Herds improving stall comfort, feed space availability and social stability for transition cows can often see an improvement of 1,000-pound TCI (7.2 pounds TCI-D) or more. Subtracting the additional cost of $15.50 per cow per year from the previously calculated $117 additional income over feed cost per cow per year at this TCI level yields an estimated $101 extra income per cow per year — all due to transition cow-friendly housing choices.

To calculate what amount of change in TCI will pay off a new transition cow barn, a partial budget spreadsheet tool is available to help determine if the new transition cow barn is a feasible investment. Find it in the Tools section of the Dairyland Initiative website at http://thedairylandinitiative.vetmed.wisc.edu.

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