

## Effective Dry Cow Management Made Science

Transition cow management at Jer-Z-Boyz Ranch, Pixley, Calif., is part science, part art under the oversight of owner Gary de Graaf. Through the use of a carefully designed health protocol and acute observation, de Graaf has reduced the incidence of metabolic disorders to less than 5% at his ranch located in California's Central Valley.

De Graaf is at the practical forefront of an area that James K. Drackley of the University of Illinois called "the final frontier" in his ADSA Foundation Scholar Award lecture during the 1999 meetings of the American Dairy Science Association.

"An ancient Chinese curse states, in effect, "May you always live in interesting times," Dr. Drackley said. The incidence of health problems is disproportionately high during the period of time three weeks before and after calving, "which certainly contributes to making this an 'interesting' time for dairy producers. Most infectious diseases and metabolic disorders occur during this time. Milk fever, ketosis, retained fetal membranes, metritis, and displaced abomasum primarily impact cows during this period. Immunosuppression leads to increased susceptibility to mastitis.

"In this context," Dr. Drackley concluded, "the transition period between late pregnancy and early lactation certainly is the most interesting stage of the lactation cycle."

Adds researcher Jesse Goff of the Mineral Metabolism and Mastitis Research Laboratory at the National Animal Disease Center in Ames, Iowa, "The transition from the pregnant, nonlactating state to the nonpregnant, lactating state is too often a disastrous experience for the cow."

"I think we need to manage the transition cow to a healthier level," agrees Gary de Graaf. "We're asking the breed to milk more and to be more efficient. We want more, so we also have to give the cow the

ability to do more."

### Stewardship That Makes 'Scentse'

De Graaf has developed and proved a meticulous program for his 2,700-cow herd that's nearly 100% Jersey. It's practical, too, which makes it a useful model for other dairy business owners. That fact led to de Graaf's invitation to participate in the most recent Midwest Dairy Man-

agement Conference. "who developed the rectal temp program for the herd, they provide advice that's "on the leading edge of the industry," says de Graaf. Consultants have "to be well read, to go to conferences, to read the appropriate journals cover to cover. If they're not on the leading edge, they are taking up too much room."

The key to transition cow management, he asserts, is "to obtain an ideal body condition score before dry-off." That cannot happen overnight. Because late lactation is the best time to adjust body condition, de Graaf prepares for it. "We monitor body condition very closely at all stages of the production cycle," he told participants in the Midwest conference.

Cows finishing their second lactation or greater are dried off at a body condition score (BCS) of 3.75 to 4.0. Heifers are dried off five days earlier at 3.5 to 3.75 BCS. This is accomplished at Jer-Z-Boyz Ranch in one of two late lactation pens (medium or low production), and two far-off dry cow pens where animals are grouped on body condition.

"We would rather err on the thin side than on the heavy side," says de Graaf. "It's more beneficial when you calve a cow out that's ideal to slightly thin, rather than on the heavier conditioned side."

Cows in their first lactation are dry for an average of 61 days. Those in their second lactation average 59 days dry. Each Wednesday morning,

workers collect all late lactation cows except those identified with *Staph. aureus*, which are already isolated within the main herd. Rather than allow these cows to intermingle with their herdmates, a separate dry-off group is collected on Friday. The first group is fed a bland ration of oat hay and milked once a day for the next two days.

After the Friday milking, an intramammary infusion of QuarterMaster is administered to each cow. A dry treat

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She may not be happy about it now, but this cow at Jer-Z-Boyz Ranch will have a more successful transition period after her thorough examination at dry-off is completed.

agement Conference.

The entire endeavor begins from a philosophy de Graaf calls stewardship—husbandry—cow 'scentse.' It reveals his family's commitment to their faith, which carries through to the way in which they care for the resources they have been given, and doing so in a way that is economically sound ('sense' plus 'cents').

That approach is assisted by a management team that includes nutritionist Dr. Michel A. Etchebarne and veterinarian Dr. Ed Henry. Along with Dr. Lynn Upham,

ment with a shorter withholding time is used for cattle with problem feet or other health history. Later that morning, the hoof trimmer will inspect and trim the feet of all dry cows. After they are vaccinated against environmental mastitis, scours, and *Clostridial* disease, cows are placed in open dry lots with pole shade.

A cow's BCS, udder development, and incidence of edema determine her movement through the dry cow feeding program. Based on these criteria, animals are fed either a heavy condition ration, a light condition ration, or one of two far-off rations (high BCS or ideal BCS). At 20 to 24 days parturient, they are switched to a transition diet, at which time they should have a BCS of 3.75.

The one goal—above all others—is to minimize nutritional and environmental stress. “The first sign, if you’re doing a good job in the transition period, is a low incidence of milk fever,” de Graaf says. If milk fever does occur, he immediately refers to the E-Z feed management program to verify the accuracy of the transition cow TMR and to detect a possible mixing or delivery error.

## Postpartum Management

At calving, he aims for a BCS of 3.8 in his first-calf heifers, and a score of 3.85 for the older cows. At the first signs of labor, cows are moved to one of two straw-bedded group pens in a high traffic area of the ranch. This set-up ensures both constant surveillance of the cows and proper identification of each newborn calf in the case of multiple calvings or the occasional twins.

For the first four days after freshening, cows are segregated from their herdmates into the “Fresh 1” group. These animals are milked in the hospital barn; their colostrum from the first two milkings is collected and individually tested. It is then frozen and inventoried in the colostrum bank. The bank is increased with colostrum collected from cows with high scores until the colostrum's quality decreases.

On day 5, the cows return to the main herd and are designated as a “Fresh 2” group. All members of the “Fresh 1” and “Fresh 2” groups are rectal temped daily to check for postpartum complications.

The “Fresh 2” animals rotate into the “Fresh 3” group at 12 to 40 days post-calving. On day 21, each cow is examined rectally; by day 40, over half the group has recorded a fresh heat. Ideally, all fresh cows have first heats at 15 to 30 days in

milk. “Early heats let us know if our transition program is working,” de Graaf remarks. “The cow doesn’t lie. You can’t fool a postpartum cow”

Fresh cows are vaccinated against environmental mastitis within seven days of calving. At 21 to 28 days after freshening, each receives one vaccination that includes protection against IBR, BVD, and BRSV.

As part of the monthly review, de Graaf monitors effectiveness of the transition cow program by tracking calving interval, days open, days to first breeding, days to first heat, heat detection rate, services per conception, and conception rate.

Jer-Z-Boyz has a 40-day voluntary waiting period for insemination for the first lactation heifers, and a 45-day waiting period for cows on their second lactation or greater. On average, cows have been 58 days in milk at first service. Total days open average 97, with a current calving interval for the herd of 12.9 months.

This attention to detail not only increases production in the current lactation, it is added insurance for survival of the calves that form the herd's future foundation. “We’re laying the foundation to our herd and our breeding program to produce the type of Jersey that we need.”

In the spring of 1998, the de Graafs recognized their long-time goal of becoming a closed herd. By raising their own replacements, they are reducing the risk from costly diseases such as BVD-PI and Johnes.

Currently, de Graaf is working with the University of California, Davis Veterinary Medicine Teaching and Research Center in Tulare, Calif., to develop a Dairy BTM program. According to post-graduate researcher Jorge Luna, the program is based loosely upon principles of Hazard Analysis and Critical Control Points (HACCP) and Breakthrough Management (BTM) that were first implemented in processing plants. That approach is now being extended to improve food safety at the source—the dairy that produces milk and meat for the consumer.

## Making the Switch to Jerseys

Raised on a Holstein dairy, Gary de Graaf purchased the family herd of 1,400 milking Holsteins from his brother in 1992.

“We were looking for a more competitive niche in the dairy industry,” remembers de Graaf, “and to become a more viable family dairy into the future. With the

trends in milk consumption—more and more milk going into cheese production every year, component pricing, and Hilmar Cheese becoming a prominent player on the West Coast—it looked like other doors were opening to us.”

De Graaf and his family—wife Donna plus their children Dustin, Daniel and Cary Ann—planned at first to fill the dairy to capacity by carrying out several expansions of 200 to 300 Jerseys. However, Gary said, “after running the numbers with projected Jersey to Holstein ratios, it didn’t make as much economic sense doing a gradual transition as it did doing a wholesale change.”

With this prospect in mind, the family began purchasing Jersey heifers as quickly as possible. The milking Holsteins were sold at private treaty, with the heifers dispersed at auction at a sales yard.

Before making the switch to Jerseys, the de Graafs made two approaches to their milk marketing cooperative about the implementation of multiple component pricing and protein premiums. The co-op, a business which the family had supported for three generations as Holstein breeders, refused. However, just as the situation was beginning to look bleak, Hilmar Cheese Company announced its first major expansion. Although it was a difficult decision to leave their co-op, de Graaf noted that the economics warranted a change, and on May 1, 1995, Jer-Z-Boyz Ranch sent its first shipment of milk 150 miles north to Hilmar.

Comparing the Jerseys to Holsteins, de Graaf notes, “Our biggest surprise was the disposition of the breed, just the inherent will to milk and the aggressive nature of the animal at the feed bunk.”

The decision to switch to Jerseys was not made lightly. It had to meet their test of the stewardship, husbandry and cow ‘scentse,’ that mix of devotion to cow care in an economically sound way.

It has. As he said at the Midwest Dairy Management Conference, “The change in breed definitely has influenced our management of transition cows. The Jersey breed has made us better transition cow managers! Jerseys are more efficient reproductively, have better calving ease, and are easier to manage during early lactation. Jerseys have a better disposition, are more heat tolerant and definitely more feed efficient. The cows have made us look smarter and they deserve the credit.”