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# Fresh-cow handling practices and methods for identification of health disorders on 45 dairy farms in California

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## ABSTRACT

The aim of the present study was to describe fresh-cow handling practices and techniques used during fresh cow evaluations to identify postpartum health disorders on 45 dairy farms in California ranging from 450 to 9,500 cows. Fresh cow practices were surveyed regarding (a) grouping and housing, (b) scheduling and work organization, (c) screening for health disorders, and (d) physical examination methods. Information was collected based on cow-side observations and responses from fresh cow evaluators. Cows were housed in the fresh cow pen for 3 to 14 (20%), 15 to 30 (49%), or >31 (31%) d in milk. Fresh cow evaluations were performed daily (78%), 6 times a week (11%), 2 to 5 times a week (9%), or were not routinely performed (2%). There was significant correlation between the duration of fresh cow evaluations and the number of cows housed in the fresh pen. Across all farms, the duration of evaluations ranged from 5 to 240 min, with an average of 16 s spent per cow. During fresh cow checks, evaluators always looked for abnormal vaginal discharge, retained fetal membranes, and down cows. Dairies evaluated appetite based on rumen fill (11%), reduction of feed in the feed bunk (20%), rumination sensors (2%), or a combination of these (29%). Milk yield was evaluated based on udder fill at fresh cow checks (40%), milk flow during milking (11%), milk yield records collected by milk meters (2%), or a combination of udder fill and milk meters (5%). Depressed attitude was evaluated on 64% of the dairies. Health-monitoring exams for early detection of metritis were implemented on 42% of the dairies based on rectal examination (13%), rectal temperature (22%), or both (7%). Dairies implementing health-monitoring exams took longer to perform fresh cow evaluations. Physical examination methods such as rectal examination, auscultation, rectal temperature evaluation, and cow-side ketosis tests were used on 76, 67, 38, and 9% of dairies, respectively. Across dairies, we found large variation in signs of health disorders screened and how those signs were evaluated. Fresh cows were primarily evaluated based on nonspecific and subjective observations during screening. Future research efforts should focus on developing and validating scoring systems to more objectively identify health disorders in postpartum cows.
**Key words:** postpartum cow, health disorder screening, survey

## INTRODUCTION

Dairy cows endure the most physically challenging period in their life cycle when transitioning from the pregnant and nonlactating state to the nonpregnant and lactating state (Goff and Horst, 1997). Most infectious diseases and metabolic disorders, such as milk fever, ketosis, retained fetal membranes (**RFM**), metritis, and displaced abomasum (**DA**), occur during this time, with important economic and animal well-being implications (Kelton et al., 1998; Overton and Fetrow, 2008; Chapinal et al., 2011). Cows undergoing a poor transition may be removed earlier from the herd because of culling or death. Based on DHIA records from 2,574 Pennsylvania herds, approximately 25% of the culled cows were reported to leave the herd during the first 60 DIM, representing 6.8% of the cows in the herd (Dechow and Goodling, 2008). Early identification and treatment of sick fresh cows might prevent disease progression and ensure animal welfare.

After calving, most dairies house fresh cows in pens where they are screened daily by visual inspection or by scheduled fresh cow health-monitoring exams for early detection of metritis (Guterbock, 2004). On large dairy operations, owners, managers, and veterinarians rely on dairy employees to identify sick cows, with variable formal training and supervision. On dairies operating

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under a valid veterinary-client-patient relationship, the veterinarian should provide written protocols for diagnosis and treatment of commonly occurring, easily recognizable conditions of fresh cows (AABP Guidelines, 2013); however, this seems to be not fully implemented. For example, only 23% of bovine practitioners in Ohio consistently provided treatment protocols for antibiotic use to their dairy clientele (Cattaneo et al., 2009). Even when herd health protocols are provided, complete implementation is not guaranteed. A survey of 52 calf operations reported a large communication disconnect regarding calf health goals between upper management and dairy employees (Sischo et al., 2014). Although, 60% of the interviewees, including dairy employees, managers, owners, and veterinarians, reported knowledge of the existence of calf health written protocols, the within-farm agreement to this response ranged from 50 to 100%.

Some mail survey studies focusing on reproductive performance and antibiotic use on dairies provided information about fresh cow-management practices on US dairies regarding facilities, pen movements, and antibiotic therapy (Zwald et al., 2004; Caraviello et al., 2006; Raymond et al., 2006). However, none of the surveys collected information on what signs of health disorders fresh cow evaluators were looking for or if monitoring programs were used. To the best of our knowledge, Heuwieser et al. (2010) is the only study solely focusing on fresh cow-management practices, including housing, fresh cow examinations, and treatment decisions. The study was conducted in Germany through a mail survey. Most dairy managers reported that they used subjective criteria to identify sick cows such as general appearance (97.0%) and appetite (69.7%). Less than half used more objective measurements such as temperature (33.6%), ketone bodies (2.8%), or BCS (36.4%). However, unlike California herds (average herd size: 1,217 cows; CDFA, 2014), most of the 429 respondents represented herds with fewer than 200 lactating cows. It is likely that in these small herds, individuals responding to the fresh cow-management survey were actually the ones conducting fresh cow evaluations. If the same research approach were to be implemented on large dairies, the results might not reflect the actual practices, as fresh cow evaluations are usually done by workers.

Therefore, to understand how postpartum health disorders are identified and defined on larger dairies, researchers must observe dairy workers while they are performing fresh cow evaluations. The overall objective of the current study was to describe how sick postpartum cows were identified in large dairy herds in California by observing fresh cow evaluators perform their work.

## MATERIALS AND METHODS

The University of California, Davis Institutional Review Board exemption was acquired before researchers performed the field visits to the study herds. Participant dairies (n = 45) were visited from February to August 2015. California county extension advisors, dairy veterinarians, and dairy consultants assisted with dairy recruitment. Enrolled dairies were chosen for their willingness to collaborate with university research. All dairies enrolled in the study were located in the San Joaquin Valley of California.

Prior to the field visit, dairy owners and farm personnel were informed about the nature of the study and the expected length of time to complete the survey. Once dairy participation was confirmed, researchers (2 bilingual veterinarians, A. Espadamala and P. Pallarés) scheduled a single visit during the fresh cow check. Fresh cow evaluators were given the option to communicate with researchers in either English (n = 8) or Spanish (n = 37).

### *Survey Tool*

A survey questionnaire was designed to describe screening techniques for health disorders and examination methods during fresh cow evaluations. Survey questions were grouped into 5 themes: (1) general herd information, (2) grouping and housing, (3) scheduling and work organization, (4) screening for sick fresh cows, and (5) physical examination methods of sick fresh cows. Once the first survey draft was completed, all authors reviewed the survey for content, structure, and design. The survey was initially beta-tested 2 times on 5 dairies. Visits to those 5 dairies served to expand the scope of the survey tool and to train both observers on data collection.

Questions regarding general herd information (herd size and average daily milk yield per cow) were obtained from dairy owners or managers. Description of fresh cow facilities and stocking density was based on a combination of observations and facility measurements performed during the field visit. Cows housed in the fresh cow pen were counted at the end of the evaluation while restrained in headlocks. Some dairies housed fresh cows in the hospital pen for a short period to discard milk with antimicrobial residues. Cows housed in those pens were not included in the final count of fresh cows. The number of stalls and headlocks were counted, and the dimensions of the dry lot were obtained with a distance measuring wheel.

Information on work organization during fresh cow evaluations was based on observations by researchers,