

Research Summaries

Session I - General Dairy Topics

Moderators: Ann Godkin
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Surgical and Anesthetic Procedures Performed in Bovine Practice and Proficiency Expected of New Veterinary Graduates

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Introduction

Bovine practice is perceived to be changing, with the emphasis shifting from diagnosis and treatment of disease in individual animals toward enhanced production and disease prevention in herds. Therefore, faculty members at veterinary colleges must periodically ascertain the most relevant procedures and skills for veterinarians entering bovine practice, and adjust curricula accordingly. Of particular concern is ensuring that new graduates are proficient in surgical and anesthetic procedures deemed most important by practitioners, given declining case loads at most teaching hospitals and attempts to find alternatives to live animal surgical laboratories. To assist with curriculum adjustment at the University of Illinois, a mail survey was conducted to determine procedures performed most frequently in bovine practice, and skills expected of new veterinary graduates.

Materials and Methods

A national database was used to identify veterinarians in bovine, large animal, or mixed ($\geq 50\%$ large animal) practice. All those in Illinois ($n=303$) and 25% of those in other US states ($n=2,394$) were surveyed. The questionnaire listed 148 procedures pertaining to surgery ($n=43$), anesthesia and restraint ($n=10$), medicine ($n=42$), production medicine ($n=42$) and reproduc-

tion ($n=11$). Practitioners were asked to rank the frequency with which they performed each procedure (0=never to 4= more than once/week) and the proficiency they expected of new graduates (0=none to 4=excellent).

Results and Conclusions

Response rate was 1,461/2,697 (54%) and 1,030/1,461 respondents were eligible for questionnaire analysis. Frequency scores (mean \pm SD) for the 148 procedures ranged from 3.4 \pm 0.9 to 0.1 \pm 0.3, and proficiency scores from 3.7 \pm 0.5 to 1.0 \pm 0.9. Of the 53 surgical and anesthetic procedures, the 11 (20%) highest frequency rankings were for castration (3.0 \pm 1.1), epidural anesthesia (2.8 \pm 1.1), dehorning (2.7 \pm 1.2), IV or IM sedation (2.6 \pm 1.2), tattooing (2.6 \pm 1.3), evaluation and repair of foot defects (2.5 \pm 1.2), wound management (2.4 \pm 1.1), placement of ear implants (2.4 \pm 1.4), flank anesthesia (2.3 \pm 1.2), vaginal prolapse repair (2.2 \pm 1.0), and uterine prolapse repair (2.2 \pm 0.9). The same 11 procedures received the highest proficiency rankings (range, 3.4 \pm 0.7 to 3.0 \pm 0.8). High overall rankings indicate that these procedures are common and important in bovine practice and should be taught in veterinary school.

Dairy practitioners ranked abomasopexy/omentopexy and teat surgery in the top 20% of surgical and anesthetic procedures, whereas cow-calf practitioners did not. However, cow-calf practitioners ranked cesarean section highly. Because 90% of practitioners sur-

veyed practiced on cow-calf operations and 77% practiced on dairy farms, graduating veterinarians should be trained in all of the aforementioned procedures.

The 11 (20%) lowest-frequency rankings among surgical and anesthetic procedures were for cryosurgery (0.6 ± 1.0), ovariectomy (0.6 ± 1.1), repair of penile or preputial defects (0.5 ± 0.7), intestinal resection and anastomosis (0.5 ± 0.6), tracheotomy or tracheostomy (0.4 ± 0.6), tracheal intubation (0.4 ± 0.8), liver

biopsy (0.4 ± 0.7), fracture repair by means other than casting (0.4 ± 0.7), repair of urovagina (0.4 ± 0.6), inhalation anesthesia (0.3 ± 0.8), and pelvic symphysiotomy (0.2 ± 0.5). Ten of these procedures also received the lowest-proficiency rankings (range, 1.8 ± 1.0 to 1.1 ± 1.0). Procedures with low overall scores should be de-emphasized in veterinary (bovine) curricula, with emphasis placed on surgical and anesthetic procedures that are performed frequently.

Observations of Dairy Cattle Behavior Using Time-lapse Photography in a California Free-Stall Barn

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Introduction

Resting is a fundamental physical need of dairy cattle, and any improvement in stall comfort and resting time may result in improved milk production and decreased incidence of lameness. However, assessing housing facilities for cow comfort potential has proven difficult. To assess free stall utilization and other behaviors, dairy consultants count cows lying, eating or standing. Results are often confusing because of such possible confounding variables as time of feed delivery, milking times, or ambient temperature. This study documented dairy cow behavioral patterns using time-lapse photography at a free stall dairy in the central San Joaquin Valley of California to determine the optimum time for visual assessment of free stall usage during hot summer conditions.

Materials and Methods

Four video cameras were evenly spaced in the free stall barn housing the high-producing cows on one dairy farm. Lactating cows on this farm had no access to pasture or exercise lots. Cameras were linked to a centrally located monitor and video recorder. The monitor displayed a different camera's view every 20 seconds in a sequential, repeating cycle. Every 3 seconds, an image was recorded on film. The videos, recorded over a 7-day period in July 1999, were reviewed and hourly images captured on screen (Snappy® Video Snapshot, Play Incorporated) to improve accuracy of the counts.

Cows were counted as lying, standing or eating in each of the four sections of the pen. "Proportion lying" was defined as total number lying in a free stall, divided by the total number not eating or drinking. Temperature probes (Optic StowAway® Temp, Onset Computer Corporation) were strategically placed throughout the feedbunk, free stalls, both ends of the pen, and at an outside location to record temperatures every 10 minutes. Other variables such as feeding times, milking times, times of heat detection, and times of feed push-up were also recorded. Correlations between proportion lying and ambient temperature, feeding time, and milking time were examined.

Results and Conclusions

Cattle showed a statistically significant ($P < 0.05$) pattern of temporal periodicity in their lying behavior when analyzed using an adaptation of the Friedman two-way analysis of ranks test. Highest average proportion of cows lying was seen at 6 am (77%) and minimum proportion lying occurred at 1 pm (23%).

There was little difference in recorded temperatures between feed bunks and free stalls, but larger differences in temperature extremes existed between the two ends of the pen (28-44°F difference). Average outside temperature varied from 58°F to 91°F, while temperatures recorded within the pen varied from 58°F to 86°F.

Cattle behavior displayed distinct spatial patterns in response to time of day, temperature, and sun exposure of feed bunks and free stalls. One section of the