

Effect of calving facility on parturition problems in dairy cows

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It's not just the type of facility, but overcrowding and lack of sanitation that create problems

A number of problems may occur at or near parturition: dystocia (calving difficulty), calf mortality, retained placenta, milk fever, and mastitis. Since parturition represents the beginning of a cow's lactation, effects of these problems on subsequent milk production and fertility must be considered in addition to the obvious effects of increased costs for labor and treatment, as well as loss of animals.

Some, but not all, San Joaquin Valley dairies provide protected calving facilities. Information on the value of different types of environmental protection for cows at parturition, especially during the rainy season, has been limited. This study was conducted to collect data on the effects of calving facilities that might be useful to dairy operators in making management decisions.

Visual observations of late-gestation cows were made in 12 commercial dairies in Kings and Tulare counties, in the San Joaquin Valley, from November to January. Types of calving facilities were as follows: group 1, maternity stalls (40 to

50 square feet per cow, good sanitation); group 2, covered pens (20 to 40 square feet per cow, poor sanitation); group 3, pastures (100 to 200 square feet per cow, good sanitation); group 4, corrals with access to shelter (60 to 80 square feet per cow, wet and muddy, slightly drier under shelter); and group 5, corrals with no shelter (60 to 80 square feet per cow, wet and muddy). All the dairies were on Dairy Herd Improvement Association records processing and had similar feeds and feeding programs.

Each dairy type was studied for several days. For additional observations, record sheets were given to dairy producers to record any births that occurred. Each sheet requested the following information on each calving: (1) cow number and lactations, (2) calving site, (3) calving ease, (4) sex of calf, and (5) complications, such as retained placenta, milk fever, and mastitis. These record sheets were collected every week and any complications noted were investigated.

More calving difficulty occurred in groups 2 and 5 (table 1), probably be-

cause of crowding in the covered pens and wet, muddy conditions in the unprotected pens. Dystocia was greatest in first-calf heifers, as expected, and was generally lower in second and later lactations. Previous research has shown that the incidence of dystocia and calf mortality decreases with calvings. Some studies have suggested a possible relationship between parturition difficulty and the occurrence of metabolic problems encountered in older cows.

Calving difficulty has been shown to impair subsequent reproductive performance by increasing days open, services per conception, and days to first breeding. Earlier research has indicated that calving difficulty can decrease 30-day milk production but may not affect the 90-day milk production and the 305-day mature-equivalent milk production. Dystocia generally decreases subsequent fertility.

Calf mortality after birth was highest in group 2 (table 2), probably as a result of overcrowding, which can adversely affect sanitation and cause a buildup of

TABLE 1. Incidence of calving difficulty as affected by calving facilities and lactation

| Calving facilities* | Dystocia at lactation†: | | |
|---------------------|-------------------------|----------|----------|
| | 1 | 2 | 3+ |
| 1 | .24 (25) | .04 (24) | .12 (85) |
| 2 | .44 (18) | .29 (7) | .29 (35) |
| 3 | .17 (12) | .18 (11) | .13 (16) |
| 4 | .11 (9) | .00 (9) | .12 (17) |
| 5 | .39 (62) | .07 (29) | .20 (41) |

* See text for description of facilities.

† Numbers in parenthesis are numbers of observed calvings.

TABLE 2. Incidence of neonatal calf mortality as affected by calving facilities and lactation

| Calving facilities | Mortality at lactation*: | | | |
|--------------------|--------------------------|----------|----------|-----------|
| | 1 | 2 | 3+ | Total |
| 1 | .12 (25) | .00 (24) | .08 (85) | .07 (134) |
| 2 | .17 (18) | .14 (7) | .23 (35) | .20 (60) |
| 3 | .08 (12) | .09 (11) | .13 (16) | .10 (39) |
| 4 | .11 (9) | .11 (9) | .00 (17) | .06 (35) |
| 5 | .00 (62) | .03 (29) | .12 (41) | .05 (132) |

* Numbers in parenthesis are numbers of observed calvings.

pathogenic organisms. The greatest mortality occurred in calves of the older cows and may have been related to the higher incidence of retained placenta and milk fever in those cows.

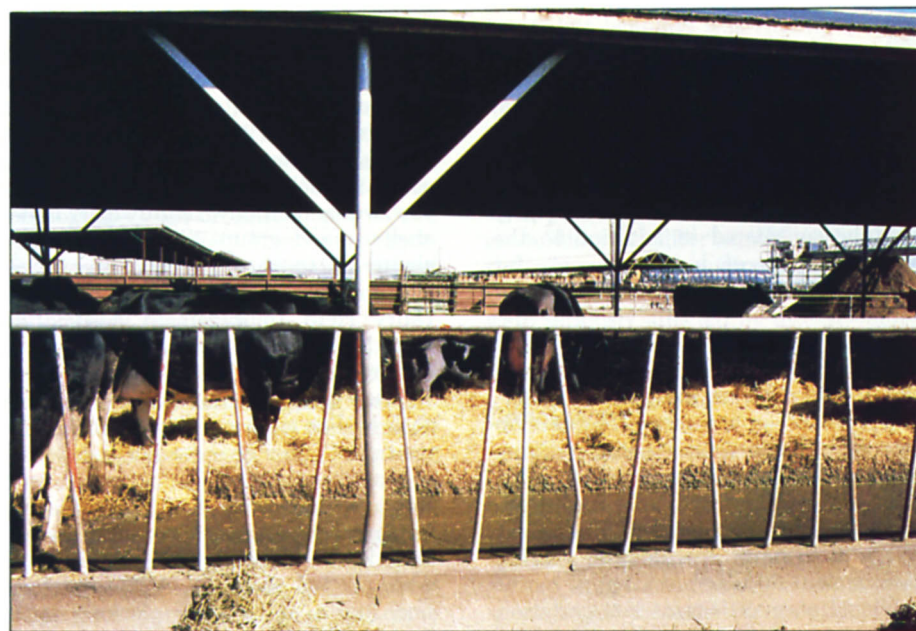
Research has shown that cases of retained placenta increased in cows with milk fever. In this study, no significant relationship between milk fever and retained placenta could be demonstrated, but both disorders tended to occur more often in the older cows. A review of the literature suggests the value of treating parturition-related problems as a complex rather than independently, as far as their effect on the production system is concerned. Information on the genetic components of these relationships is scarce.

Retained placenta and milk fever tended to occur together in the cows in the covered pens (group 2). This finding may have been related to the observed overcrowding as an additional stress factor. Group 4 cows having calves in roofed corrals had a greater incidence of retained placenta than others but had a low incidence of milk fever. Some earlier studies have shown a relationship between dystocia and retained placenta in cows that were free from milk fever. Cows with a retained placenta are much more likely to have experienced some difficulty in parturition than are cows going through a normal calving.

There was also an increased tendency for milk fever to occur in the third and older lactation cows. Research indicates a positive relationship between milk fever and calving difficulty. This relationship was not evident in the first and second lactation cows but tended to occur in the older animals. Cows with milk fever have low blood calcium, which interferes with muscle functioning; it seems reasonable that cows having prepartum milk fever would also tend to have dystocia, since the functioning of the smooth muscles of the uterus and the skeletal muscles would not be normal.

Mastitis occurred almost exclusively in group 5 — cows calving in unprotected corrals — possibly because of the wet, muddy conditions. Organisms encountered in a contaminated environment during calving have been reported to cause mastitis. Mastitis tended to occur more often in first-calf heifers than in second or later lactation cows.

It can be concluded that calving facilities can affect the occurrence of parturition problems. Probably it is not the type of facility as such, but rather the amount of space and the sanitary conditions that exert the most influence. A cow usually chooses a dry, clean spot in which to calve if given the opportunity. Regard-



less of the maternity facilities, at least 60 to 80 square feet per cow should be available to reduce overcrowding. Because of the relationships between dystocia, calf liveability, and the occurrence of other problems, it is to the producer's advantage to make sure the cows go through parturition with a minimum of problems.

Calving facilities influence the occurrence of particular parturition problems, but the problems may stem not from the type of facility as much as from the amount of space and sanitary conditions provided. Calving difficulty was lowest in individual stalls (top), but calf mortality was highest in covered pens (bottom), which were often found to be overcrowded.

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