UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

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Preventing Heat Stress in Dairy Animals

In the Central Valley of California, dairy animals need to be protected from the hot weather. The economical losses produced by animals under heat stress are very well documented. Heat stress has been observed to cause reductions in milk production of anywhere from 10 to 25%. Negative performance effects on health, reproduction, and body weight gain can also be expected.

Natural shade is the lowest cost alternative and the more effective protection for animals exposed to hot weather. Unfortunately, due to feces and urine accumulation, and particularly in large herds, trees have a short life span. But, strategic planting can be used to create a natural shade environment on the west side of dry lot pens and pastures, protecting the trees from animal wastes accumulation. This strategy has to be combined with other available options, like permanent shades, portable shades and/or both.

Portable shades are recommended to minimize mud holes in dry lot pens or to provide shade in paddocks for cows under rotational grazing systems. Portable, low cost shades can be built from 2.5" pipe and 80% shade cloth. Dimensions of 8'x 16' are practical for portable shade size, but might be impractical for a large number of animals. Frames should have a skid-type bottom member to allow moving from one place to other. In large farms a combination of natural, portable, and/or permanent shades should be studied.

When planning portable or permanent shade constructions, the following characteristics might be considered: a) 12 ft. high and 16 ft. wide, b) 80% shade cloth, c) allow minimum 40 sq.ft/large breed cow and 30 sq.ft./small cow and large heifer, d) north-south orientation for shading effects, e) gable roofs should have at least a 4:12 slope and a continuous open ridge to promote natural ventilation, f) a waste management system must be planned as an integral part of any shade structure, and g) distance to feed bunks and water troughs needs to be weighed, considering that cows will not venture far away from shade during the intensive heat of the day.

A cost benefit analysis of shading to protect animals and improve milk production will include materials, labor cost and at least an average 17.5% increase milk production over a period of three months/year. Permanent or mobile structures should last five years

minimum. The type of construction, whether it is large or small, permanent or portable will certainly depend on the needs of the specific dairy operation. Consultation with different private companies in the Central Valley indicates that the cost of permanent and mobile structures could be similar. All metal shading ranges in cost from $4 to $8 per sq.ft. In term of costs, the metal roofs and the 80% density propylene cloth are similar.

Effect of Calving Difficulty on Cow Health and Production

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A recent study on 3 well managed Holstein dairies in Colorado focused on the detrimental effects of calving problems on the health of the cow and her production.[1] During the year long study; over 6,500 calvings (2350 first calf and 4178 second or greater calf) were observed. Calving difficulty or dystocia were scored using scores of 1 for no assistance, 2 for mild traction and 3 for severe traction or surgery.

Overall, 62.7% of all cows calving required no assistance. Just over half of the first calf heifers required some form of assistance compared to only 29% of the older cows. Cows with dystocia scores of 3 were more likely to have uterine disease (2.3X), respiratory disease (1.5X), be sold during the lactation (1.6X) or die within 2 weeks of calving compared to cows with scores of 1. Cows with scores of 2 or 3 were no more at risk of having mastitis than cows with scores 1, but their milk production up to 30 days was less. However, by 90 days their cumulative milk production was no different between the various dystocia scores.

Results of this study suggest that more calving difficulties can be expected in first calf heifers compared to older cows. To prevent the negative effects of calving problems in these heifers, they should get increased attention during calving. While not included in the study conclusions, it may be possible to reduce some of the detrimental effects of dystocia by providing greater attention to calving heifers and cows to reduce the amount of time and energy they spend when calving difficulties occur. Close observations may detect calving problem earlier and permit corrective actions sooner to relieve the problem. The study also indirectly suggests that it is important to identify cows that have experienced calving problems so that the diseases of increased risk (metritis and pneumonia) can be detected early or treated metaphylactically prior to severe signs of disease. This could be predicted to reduce the number of cows being sent to market or dying during early lactation.

[1]Lombard JE, Tomlinson S, Garry FB and Garber LP. Effects of Dystocia on Dam Health and Productivity. Proceeding of the 36th Annual Convention of the American Association of Bovine Practitioners. Pg 171. Columbus OH, September 18-20, 2003.