The Dairy Practitioners' Opportunity to Improve the Cow's Environment

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Performance is the new standard that dairy farms and dairy practitioners are being judged by. Everyday, a dairy practitioner has opportunities to view subpar performance of both the dairy livestock and the total system (housing, ventilation, feeding, cattle handling, etc.). Taking these opportunities and giving leadership to the dairy farm is rewarding to both the veterinarian and the dairyman.

There are four major reasons for improving the environment. First, we can improve the animal's health, both clinically and subclinically. Healthy animals are needed to perform optimally but they are not necessarily profitable animals unless managed profitably. Second, we can improve and measure the improvement of the animal's performance, i.e., pounds of milk per cow per day, rate of gain, reproductive efficiency and labor efficiency. Third, we can improve the operator's health and safety. The last reason is that we can improve the building's health and longevity.

As veterinarians, usually our first visit to the dairy farm will be to treat sick animals. When we treat animals with diseases caused by poor environment, it is frustrating and unprofitable to treat only the effect and not the cause of the disease. By relating the disease to the environment, we now have the opportunity to educate the dairyman and discuss ways to improve the conditions. There are many times when I use the dairyman's health and or the building's health to make major changes in the cow's environment. The dairyman sometimes has a tough time seeing that if we make major changes in his buildings that he will get a payback from improved performance of his animals. It is sometimes easier to demonstrate that if we don't make changes in his building, they will not last too much longer. This is very true for any building that is poorly ventilated. In a cold building with inadequate ventilation, look for condensation or water marks on the ceiling and dripping or staining from the purlins. These are tell tale signs that not only is the animal's environment not good, but that the building is also not as healthy as it should be.

Cow performance increases as the environment becomes more cow friendly. Many times, the environment may be healthy enough to keep the cow healthy, but not friendly enough to increase performance. The single most important performance measurement may be dry matter intake (DMI). As dry matter intake increases, performance increases. Areas of attention in the environment to increase cow friendliness, thereby increasing DMI and cow performance are; air quality, stall space, bunk type, bunk space, bunk surface, number and placement of waterers, and floors.

Improving air quality in cold, naturally ventilated barns can be as simple as opening the ridge (2"/10 ft of width), opening the eaves (1"/10 ft of width) and removing the sidewalls for the summer. In warm, mechanically ventilated barns, air quality can be improved by insuring four air exchanges per hour in the winter and increasing to forty air exchanges in the summer. The addition of basket or torpedo fans does not increase the air quality but increases the cow's comfort. The major mistake in warm barn ventilation is not the number of fans present but the lack of adequate and proper air intakes.

Inadequate stall size reduces cow comfort and DMI. Making stalls clean, dry, well bedded, and of adequate size will increase cow comfort and milk production. Stall sizes vary depending on breed and size of animal. Check the Midwest Plan Service book for correct sizes.

Bunks and mangers need to be lowered to the natural grazing height. This increases saliva production and takes advantage of natural buffering of the rumen. Cows fed at a fence line bunk spend 26% more time eating than those cows fed at a smaller elevated bunk which they could travel around easily.[1] Manger surfaces should be smooth, slippery, and cleaned daily to encourage increased feed intake. I recommend a minimum of two foot of bunk space per cow to insure maximum DMI.

Waterers need to be clean and free of debris. There needs to be one waterer per 20 cows and at least two waterers per group of cows. This insures that no one cow will control the other cow's water intakes. Waterers should not be deeper than six to eight inches, to insure freshness and cleanliness.[2]

Flooring needs to be firm and sure. Cows should not be afraid to walk around. This insures travel to the bunk for food and water and increases the likelihood of heat detection.

Where does the Veterinarian look for the correct information on these areas of interest? Good sources of information are; 1—"Dairy Housing and Equipment Handbook," Midwest Plan Service, Iowa State University, Ames, Iowa 50011; 2—"Dairy Housing II," Proceedings of the Second National Dairy Housing Conference, ASAE,

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2950 Niles Road, St. Joseph, Michigan 49085; 3—"Livestock Environment II," Proceedings of the Second International Livestock Environment Symposium, SAE, St. Joseph, Michigan 49085; and 4—Your Extension Dairy, Ag Engineer.

References

1. Albright, J.L. 1983. Putting together the facility, the worker and the cow. Proceedings of the Second National Dairy Housing Conference, ASAE, St. Joseph, Michigan. 2. Bickert, W.G. 1989. Providing cow friendly environments. Managing the milking herd for more profit. Cooperative Extension, M.S.U., East Lansing, Michigan.

Abstracts

A comparison of serum vitamin B_{12} and serum methylmalonic acid as diagnostic measures of cobalt status in cattle

J. E. Paterson, A. MacPherson

Veterinary Record (1990) **126,** 329-332

In two trials an assessment was made of serum methylmalonic acid as a diagnostic criterion of cobalt status in housed cattle. Despite the small number of animals used the method showed some promise, and normal concentrations are tentatively suggested as being 2 mole/litre, subclinically cobalt deficient 2 to 4 mole/litre and cobalt-deficient 4 mole/litre. However, for assessing how cobalt status is likely to influence the rate of liveweight gain of cattle, measurements of both serum methylmalonic acid and vitamin B_{12} concentrations would appear to be better.

The efficacy of triclabendazole and other anthelmintics against *Fasciola hepatica* in controlled studies in cattle.

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Veterinary Record (1990) **126,** 213-216

In eight controlled tests 274 cattle were used to assess the efficacies of triclabendazole, albendazole clorsulon, nitroxynil, oxyclozanide and rafoxanide against *Fasciola hepatica.* Against one-,two- and four-week-old early immature fluke the mean efficacies of triclabendazole given orally at 12 mg/kg were 88·1, 95·3 and 90·7 per cent, respectively. Clorsulon, nitroxynil and rafoxanide administered at recommended dose rates showed negligible activity against these stages of the parasite. Aganist six-and eight-week-old infections the mean efficacies of triclabendazole at 12 mg/kg were 87·5 per cent and 95·7 per cent, respectively. Against *F hepatica* aged six weeks, albendazole and oxyclozanide showed no activity and clorsulon, nitroxynil and rafoxanide had only slight to moderate activity. The efficacies of triclabendazole, clorsulon, nitroxynil and rafoxanide against 10-or 12-week-old parasites were 100, 99·0, 99·1 and 90·1 per cent, respectively. Albendazole and oxyclozanide showed poor efficacy against 12-week-old infections.

Bovine spongiform encephalopathy: Diagnostic significance of vacuolar changes in selected nuclei of the medulla oblongata

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The adequacy of a histopathological diagnosis of bovine spongiform encephalopathy (BSE) based exclusively on observations of neuroparenchymal vacuolation in three specific neuroanatomic nuclei was tested by using a standard coronal section of medulla oblongata cut at the obex. The agreement between the observations and the definitive histopathologial diagnosis was assessed in each of 684 bovine brains - 563 confirmed cases of BSE, 20 with changes which did not diagnose BSE conclusively and 101 in which the lesions of BSE were not detected. When the assessment was confined to the solitary tract nucleus and the spinal tract nucleus of the trigeminal nerve a positive result was obtained in 99·6 per cent of confirmed cases of BSE and only 1 per cent of brains in which lesions of BSE were not detected gave a false positive result. Thus an initial examination of the single section, together with an examination of representative areas of the rest of the brain when no unequivocal lesion was found, provided a satisfactory method for the routine diagnosis of BSE.