

accumulation of sawdust in manure tanks and lagoons.

In herds where coliform mastitis has been a problem we noticed a marked reduction in the number of clinical cases. In one 220 cow herd they experienced 42 clinical cases of mastitis in the first 10 months after this bedding system was installed. The corresponding 10 months the previous year they experienced 96 clinical cases. The herdsman did not request us to do a chi square test to determine if that was a "significant" difference! Though all cases were not cultured, no occurrence of peracute toxic coliform type of mastitis was observed among the 42 cases treated after the stalls were upholstered.

Cultures of the surface of the bedding surface which has been in use for 8 months revealed coliform counts of less than 1000 per square inch. It is generally accepted that coliform mastitis is likely when counts in sawdust reach 1,000,000 per gram. There appears to be no problem with a buildup of bacterial populations on the surface of the bedding.

The only disadvantages to this system noted so far are the tendency for humps to form inbetween loop stalls if the sawdust is not applied thinner in that area. These humps are used as a push off point by the cows when rising, and the material rapidly develops holes in that area. Also the lime seems to weaken the lighter weight material somewhat. Effective lifetime of the lightweight material is 6-8 months if lime is used while installations in drycow areas where no lime is used have lasted 1 year. A recent modification to try

and overcome that problem has been the installation of 2 layers of the material. The theory is that as the top layer shows wear it can be replaced without disturbing the lower layer.

We have installations of the heavier 48" material in place for over 1 year with no signs of excessive wear or breakdown, so I am unsure exactly how long it will last.

Well, this all sounds pretty good, but there are always 2 questions on everyone's mind. How much does it really cost, and where do you get it? The 129" material costs approximately \$2.00 per stall. The heavier 48" material costs about \$3.85 per stall. Currently the material is being distributed by C & N Sales, 77 Willis Rd. Montesano, Wa. 98563. (206) 249-4646. The author does not have any financial affiliation with the above named firm.

In summary, it is apparent that the concept of upholstered freestalls is a workable solution to the coliform mastitis dilemma. Perhaps in the future even more durable material will be found which will give added longevity to the installations.

References

1. Bramley, John "The Control of Coliform Mastitis" Proceedings of the National Mastitis Council Annual Meeting 1985 pp 4-17.
2. Carroll, E.J. & Jasper, D.E. "Coliform Populations in Bedding Materials and Coliform Mastitis Incidence" Proceedings of the National Mastitis Council Annual Meeting 1980 pp 129-139.

Butorphanol Tartarate Analgesia in a Bovine Animal

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It is often said that good things come out of bad situations and this was certainly the case in a sticky situation I was in last winter. It was a Saturday afternoon. I had already performed 3 DA surgeries that day when I went to my next call. The farm was 25 miles from my clinic and guess what the cow had? Another right abomasal torsion. I didn't even bother checking my surgical case for lidocaine since I knew I didn't have any more. So I decided to improvise, which all you practitioners have had to do from time to time. I decided to try butorphanol which I used to provide analgesia in various equine surgeries. So I gave this cow IV butorphanol and proceeded to do my surgery. I found that not only did butorphanol work, it was superior to local anesthesia. Butorphanol provided excellent restraint and analgesia. The cow stood extremely still and did not mind my manipulating of the abdominal organs. She even began eating soon after the abomasum was detorsed. Also skin and abdominal wall closure was easy to perform as the cow did not resist.

Since this time I have routinely used butorphanol to provide analgesia in various surgical procedures ranging from any abdominal procedure to teat surgery. I've found the use of butorphanol to have several advantages to bovine surgery. First it lessens the need for precise local anesthesia. In fact on several cows such as this one, I have performed major standing abdominal surgery without any local anesthesia. Secondly, butorphanol seems to have a calming effect on the cow. She is much more likely to stand still during manipulation of the abdominal organs. This allows us to perform surgical procedures without a lot of worry of the animal moving about during surgery. Third, I have found in several right abomasal torsions that because the drug dose lessens pain they begin eating during the surgical procedure or soon after and I think this helps to speed recovery. Fourth, it is my clinical impression that butorphanol relieves the immediate discomfort of abdominal surgery and cows will not often be humped up as

they are often after abdominal surgery. It seems the duration of analgesia with butorphanol is quite long and cows do not seem to mind skin closure at the end of the surgical procedure. And last, when performing teat surgery, the cow receives excellent peripheral analgesia and she seems to stand well and does not attempt to strike you with near the frequency as a cow does when she's under sedation with Rompun. Cows are also much less likely to fall down during surgery since the sedation part of the medication is not as severe as with Rompun.

As far as dosage and administration are concerned, I use butorphanol under the trade name *Torbugesic* as follows: Torbugesic intravenously about 15 minutes prior to surgery with a dosage of approximately 20-30 milligrams. That's 2-3 ccs for an adult Holstein cow. On a lot of cows, you can get by with a lot less than that, but it seems if you're going to be sure you have a good level of analgesia, I think it's better if you go with a higher dose. If the cow is fractious to begin with you might also want to administer about 10 milligrams of Rompun to slightly sedate her. Just a note, I feel it is best to give the product in the jugular vein as opposed to the caudal or tail vein as we so commonly give Rompun. This is because butorphanol provides great analgesia but provides minimal sedation. Take for example with Rompun, you know almost immediately whether you have administered the full dose intravenously based on how much the cow is sedated. With butorphanol be sure you have given the full dose intravenously; give it in the jugular. At a dosage of 30 milligrams you will have a long enough duration of analgesia to last through a 1-2 hour surgery and perhaps also provide some postoperative analgesia. I feel this has an advantage over local anesthesia since after a long procedure some of the local effect may be wearing off and the cow may resist again an abdominal wall closure. At least mine do. I've used butorphanol about a hundred times over the past year either alone or in combination with Rompun or local anesthesia without any adverse reaction. Furthermore butorphanol does not seem to depress cardiovascular and respiratory function enough, does not seem to be very dangerous to an animal in shock. Also it does not seem to produce the bloat

that you sometimes experience with Rompun.

In summary, I have found butorphanol to provide effective analgesia for abdominal exploratories, cecal torsions, DAs, cesarean sections, teat lacerations, patellar surgery, putting casts on calves, and surgical implant of embryos.

As a final note, I am sure many of you practitioners in the course of your travels after working on the occasional horse as I do, butorphanol does work excellently in this species as well!

Question: What is the withdrawal period?

Answer: As far as the withdrawal period, you've got them on antibiotics for a few days so hopefully after a week it's gone.

Question: Have you used lidocaine at that dose?

Answer: On many cases I have not used lidocaine at that dose but I think it's important to give yourself 15 minutes or so for it to really work. And if you've got a crazy cow, it's good to give her a little Rompun, trying to achieve sort of the effect that Rompun and morphine does in a horse and it seems like with Rompun and Torbugesic you can mimic that effect in the cow.

Question: Does it have any effect on GI motility or rumination?

Answer: I'm not totally familiar with that but I know that cows do not seem to bloat very much so I imagine it would not have a negative effect on GI motility, but I'm not sure.

Question: Any problems with pregnant cows?

Answer: I don't believe I've used it very much on pregnant cows other than ones of perhaps 30-60 day pregnancies and I haven't had any problems in those cows at all. I have not had any complaints of abortion after its use.

Question: Have you used it in calves?

Answer: Yes, I have used it in calves for umbilical hernia surgery and it does seem to be helpful although a lot of times you might want to give them some Rompun too to help sedate them or turn them upside down or possibly use Rompun, and ketamine is another alternative.

Question: Any problem in bulls?

Answer: I don't believe I have used it on bulls.

Mineral Oil in Wide-Mouthed Gallon Jugs

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I certainly appreciate being able to be a part of the practice tips session again tonight. There probably aren't more than 1 or 2 of you who attended the Bovine Meeting in 1982 in Nashville who remember that I gave a presentation in the Practice Tips Session there entitled "Tidbits from Tennessee." This one tonight could probably be entitled "Tidbits from Tennessee—Part II," because it's not gonna be

any better than the one was in Nashville.

These folks before me have had some interesting topics, and I've sure enjoyed these sessions in the past. I hope that I might have a couple of things to say that might help you out in practice.

Our home's in Sweetwater, Tennessee, which is kind of like little Wisconsin. It's in a part of the country that a lot of