Letters to the Editor

Comments on changes in the veal industry

It is great to see that there is hope for progress toward animal welfare in the veal industry in this country.[1] In Europe, group housing for calves is standard—they are not confined in crates or tied to little huts unable to have any contact with the neighboring calves, as are most of the calves in the United States. It is a big step in the right direction for the board of the American Veal Association to acknowledge the fact that calves, like all young animals and children, have a natural need to play, romp around, and socialize with others. Hopefully, group housing will be in accordance with regulations that will give the calves enough room to do this. We as veterinarians should encourage and assist the American Veal Association in any way possible to reach their stated goal for the majority of calves as fast as possible, hopefully long before 2017.

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1. Veal association recommends group housing. *J Am Vet Med Assoc* 2007; 231:843.

Questions updated euthanasia guidelines

I notice that the AVMA Guidelines on Euthanasia mentioned in a *JAVMA* News article[1] and published online and dated June 2007 does not include a list of authors, which is probably to the authors' professional advantage because their report inexplicably overlooks considerable work published between 2000 and 2007 regarding the use of carbon dioxide as a euthanasia agent.[2-6] These studies raise strong doubt that carbon dioxide is as humane as has been widely assumed and question its suitability as a routine euthanasia agent for laboratory rodents.

In my opinion, reissuing the AVMA Euthanasia report periodically without a thorough review of the scientific literature generated since its last publication is unacceptable, especially given that the guidelines are often cited within the scientific community as the final, authoritative word on animal euthanasia. Contrast this omission with the AVMA's meticulous attention to detail as it helpfully points out, in bold red letters no less, that the guidelines are not intended for use in human executions. The European Food Safety Authority's Animal Health and Welfare Panel report[7] dealing with the topic of small animal euthanasia seems to be a far more up-to-date and comprehensive document.

Also, how is it that the AVMA Guidelines on Euthanasia, previously published as the 2000 Report of the AVMA Panel of Euthanasia, again issues a limp-wristed pass to the killing of small birds by compressing their bodies until they suffocate? This despite an absence of any scientific evidence that such practice is humane and considerable trans-species and common sense evidence that it is not. Certifying a method of "euthanasia" simply because it is widely practiced, in this case by field ornithologists on collecting expeditions, hardly seems a very scientific or ethical approach to me.

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1. AVMA releases updated euthanasia guidelines. *J Am Vet Med Assoc* 2007;231:827.

2. Ambrose N, Wadham J, Morton D. Refinement of euthanasia. In: Balls M, van Zeller AM, Halder ME, et al, eds. *Progress in the reduction, refinement and replacement of animal experimentation*. Amsterdam: Elsevier, 2000;1159–1169.
3. Leach MC, Bowell VA, Allan TF, et al. Aversion to gaseous euthanasia agents in rats and mice. *Comp Med* 2002;52:249–257.
4. Kirkden RD, Niel L, Weary DM. Aversion to carbon dioxide. *Lab Anim* 2005;39:453–455.
5. Conlee KM, Stephes ML, Rowan AN, et al. Carbon dioxide for euthanasia: concerns regarding distress, with special reference to mice and rats. *Lab Anim* 2005;39:137–161.
6. Niel L, Weary DM. Behavioral response of rats to gradual fill carbon dioxide and argon induced hypoxia. *Appl Anim Behav Sci* 2006;100:295–308.
7. European Food Safety Authority Animal Health and Welfare Panel. Aspects of biology and welfare of animals used for experimental and other scientific purposes. *Eur Food Saf Auth J* 2005;292:1–136.

Dr. Golab responds:

We appreciate the opportunity to respond to Dr. Bates' letter. Unfortunately, it appears that Dr. Bates may have misunderstood information provided in the *JAVMA* News story regarding the June 2007 update to the AVMA Guidelines on Euthanasia.

In July 2006, the AVMA Executive Board approved a recommendation that the AVMA convene a panel of scientists at least once every 10 years to review all literature that scientifically evaluates methods and potential methods of euthanasia

Instructions for Writing a Letter to the Editor

Readers are invited to submit letters to the editor. Letters may not exceed 500 words and 6 references. Not all letters are published; all letters accepted for publication are subject to editing. Those pertaining to anything published in the *JAVMA* should be received within one month of the date of publication. Submission via e-mail (*JournalLetters@avma.org*) or fax (847-925-9329) is encouraged; authors should give their full contact information including address, daytime telephone number, fax number, and e-mail address.

Letters containing defamatory, libelous, or malicious statements will not be published, nor will letters representing attacks on or attempts to demean veterinary societies or their committees or agencies. Viewpoints expressed in published letters are those of the letter writers and do not necessarily represent the opinions or policies of the AVMA.

for the purpose of producing the AVMA Guidelines on Euthanasia. During interim years, requests for inclusion of new or altered euthanasia procedures or agents in the AVMA Guidelines on Euthanasia are directed to the AVMA Animal Welfare Committee for consideration; related recommendations are then sent by that group to the Executive Board for approval.

The first interim revision, approved in 2006, is the addition of a physical method (maceration) for euthanasia of chicks, poults, and pipped eggs. The document released in June 2007 reflects only that interim addition, rather than a comprehensive review or revision of the entire euthanasia document. In addition to information about maceration, a new paragraph was included in the preface of the June 2007 edition that explains the process for comprehensive updating of the report and differentiates this from interim revisions. As indicated in that explanatory paragraph, substantive interim revisions to the guidelines are highlighted by underlining the associated text. Because the authors of the 2000 Report cannot and should not be held responsible for interim revisions, their names were removed from the revised document; similarly, because the content of the report was changed, the name of the report was also changed.

We share Dr. Bates' concerns regarding the authoritative nature of the AVMA Guidelines on Euthanasia and the need for a regular, comprehensive, and meticulous review. With that in mind, the Animal Welfare Committee is currently considering various approaches for reconvening the panel and is expected to make its recommendations to the Executive Board in the near future.

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Additional information on melamine in pet food

The massive recall of pet foods that began in March 2007 has been attributed to adulteration of wheat gluten with melamine, a nitrogen-rich (66.6%) compound associated with kidney failure. The role of melamine is still under debate. Based on studies in rats and mice and on one 1945 study[1] in dogs, melamine and its by-products are thought to be only slightly toxic. Tissue samples from kidneys and urinary tracts of affected cats contained crystals of melamine and cyanuric acid, but these contaminants were unexpected and not identified until six weeks after the recall.[2]

In the course of researching a book about pet food, we have come across studies suggesting that melamine adulteration has been a common practice and that melamine alone is toxic to sheep and cattle at doses similar to those that caused signs of renal disease in cats and dogs. In the early 1980s, Italian investigators surveyed the fraudulent use of melamine to boost the apparent protein content of animal feed. Adulteration was so common that the scientists developed a test for "melammina" and reported its presence in 56% of fish meal samples.[3]

The 1945 study investigated the legitimate use of melamine as a diuretic in dogs. At a dose of approximately 120 mg of melamine/kg (55 mg/lb) of body weight, the dogs developed urinary crystals but no other adverse signs.[1] In the 1960s, South African investigators thought melamine might be a good source of nonprotein nitrogen for ruminants. But at doses of approximately 250 mg/kg (114 mg/lb), sheep refused food and lost weight; if fed low-quality hay, some died.[4] Another investigator conducted a dose-response study. Doses of 25 to 100 g killed sheep, and necropsies revealed tubular damage and kidneys packed with melamine crystals so prominent that "Aggregates…were seen hanging from the prepuce." When given lower doses, sheep refused food, especially when water was restricted. Results of the studies suggested that melamine doses of approximately 250 mg/kg could kill some, but not all, sheep in a few weeks.[5] In the 1970s, doses as low as 100 mg/kg (46 mg/lb) induced four of six steers to refuse feed.[6]

The studies cited seem relevant to the recent recalls of melamine. The FDA's May 25, 2007, safety/risk assessment concluded that a 63 mg of melamine/kg (29 mg/lb) dose is safe. How much was in pet food? In the April 24, 2007, congressional hearing on the recall, the FDA estimated the amount of melamine in wheat gluten as 0.2% to 9%, and the amount of wheat gluten in pet food as 5% to 10%. Thus, the worst-case estimate is 900 mg of melamine in 100 g of food (dry weight). On a per kilogram of body weight basis, the amounts of melamine in adulterated pet foods could easily have exceeded doses known to kill sheep or harm cattle.

If those earlier studies were overlooked, it may be because most appeared in foreign journals not readily accessible through Internet searches. We found them the old-fashioned way, by going to the library and following the trail back to the original studies.

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1. Lipschitz WL, Stokey E. The mode of action of three new diuretics: melamine, adenine and formoguanamine. *J Pharmacol Exp Ther* 1945;83:235–249.
2. Brown CA, Jeong K-S, Poppenga RH, et al. Outbreaks of renal failure associated with melamine and cyanuric acid in dogs and cats in 2004 and 2007. *J Vet Diagn Invest* 2007;19:525–531.
3. Cattaneo P, Cantoni C. Presenza di melammina in farina di pesce. T*ecnica Molitoria* 1982;Jun:17–18.
4. Mackenzie HI. Melamine for sheep. *J S Afr Vet Med Assoc* 1966;37:153–157.
5. Clark R. Melamine crystalluria in sheep. *J S Afr Vet Med Assoc* 1966;37:349–351.
6. Newton GL, Utley PR. Melamine as a dietary nitrogen source for ruminants. *J Anim Sci* 1978;47:1338–1344.