Considerations for Inconsistent Effects of Inadequate Environments

John Deen a, Leena Anil a b & Sukumarannair Anil a

a Department of Veterinary Population Medicine, University of Minnesota, Saint Paul
b Department of Poultry Science, University of Georgia, Athens

Published online: 24 Mar 2009.

To cite this article: John Deen, Leena Anil & Sukumarannair Anil (2009) Considerations for Inconsistent Effects of Inadequate Environments, Journal of Applied Animal Welfare Science, 12:2, 147-148, DOI: 10.1080/10888700902720227

To link to this article: http://dx.doi.org/10.1080/10888700902720227

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the “Content”) contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at http://www.tandfonline.com/page/terms-and-conditions
Preliminary analysis shows a tendency for more butting \( (p < .10) \), significantly more other aggressive behaviors \( (p < .05) \), and a tendency for more defensive behaviors \( (p < .10) \) in the small pens in the 1st week.

However, space allowance had no significant effects on these variables in the 2nd week. Space allowance did not have an effect on the immune response to the paratuberculosis vaccine. Five of the goats aborted as a result of a toxoplasmosis outbreak during the trial. Twenty-eight animals were toxoplasmosis seropositive in the 5th week. The impact of social stress on the toxoplasmosis outbreak could not be determined yet. The study showed the complexity of using epidemiological approaches to answer nonhuman animal welfare questions in a small, controlled trial. Ongoing data analysis measuring glucocorticoid concentration and social status of individual goats will shed further light on the hypothesis.

### Considerations for Inconsistent Effects of Inadequate Environments

John Deen, Leena Anil, and Sukumarannair Anil

Department of Veterinary Population Medicine, University of Minnesota, Saint Paul

The usual basic assumptions of data analysis in most nonhuman animal science and medicine studies involve normality of measures, an equality of likelihood and scale of effects across animals, and the propriety of using classical parametric analyses. These assumptions are used as they fit the training in statistics that most students have received and they also require the least number of animals to perform a study.

Many negative factors are not random in their effect upon swine populations and in fact create skewed distributions that reflect an inordinate level of detriment upon subpopulations within studies. This results in skewed distributions that, if ignored, results in underestimations of animals who are severely affected by the intervention. Moreover, particularly if growth is the major measure, mortality is correlated with severely affected animals and yet is rarely analyzed.

Multifactorial and nonparametric techniques are much more appropriate for many of these analyses. These techniques have been developed in more detail.

Leena Anil is now with the Department of Poultry Science, University of Georgia, Athens.

Correspondence should be sent to John Deen, Department of Veterinary Population Medicine, University of Minnesota, 385 Animal Science/Veterinary Medicine, 1988 Fitch Avenue, Saint Paul, MN 55108. Email: deenx003@umn.edu
in epidemiologic circles. The main constraint for such techniques is that a priori definitions of response variables are often needed and the definition of unacceptable levels needs more discipline and discussion.

Drinker to Nursery Pigs Ratio: Effects on Drinking Behavior and Performance

Roy A. Edler,1 J. Tyler Holck,1 Paul R. DuBois,2 Larry J. Sadler,3 Jill R. Garvey,3 Tony J. Uhlenkamp,3 Clara J. Jackson,3 Ken J. Stalder,3 Anna K. Johnson,3 and Locke A. Karriker4

1Boehringer Ingelheim Vetmedica, Inc., Ames, Iowa
2Cargill Meat Solutions, Wichita, Kansas
3Department of Animal Science, Iowa State University, Ames
4Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames

The effect of cup waterer to pig ratio was evaluated to determine changes on nursery pig drinking behavior and performance in 7-week-old gilts. Pigs were housed 25 per pen and allotted 0.22 m²/pig in a nursery facility located in central Missouri. Pen was the experimental unit with 3 pens per treatment group. Ratios of 1:25 (Treatment 1), 1:12 (Treatment 2), and 1:8 (Treatment 3) were studied. Pigs were individually identified and their drinking behavior was videotaped on November 15–16, 2006, for subsequent behavioral quantification and statistical analysis.

A pig was defined as drinking when the head was over the drinker for at least 5 consecutive seconds. Treatment 3 pigs drank significantly more frequently (13.88 ± 0.84 in 6 hr) than those provided with 1 or 2 cup waterers per pen (10.32 ± 0.95 and 10.60 ± 0.84 respectively; \( p = .0209 \)). There was a trend (\( p = .06 \)) for pigs provided 2 or 3 cup waterers per pen to have increased average daily gain compared with those provided a single drinker. This study demonstrated that when pigs were offered more places to drink they visited the water bowl drinker more frequently during a 6-hr period, which tended to increase average daily gain in nursery-age pigs. Although further research is needed to confirm these findings, a nursery providing a ratio closer to published guidelines may lead to increased performance.

Correspondence should be sent to Roy A. Edler, Boehringer Ingelheim Vetmedica, Inc., 2501 Loop Drive, Suite 1000, Ames, IA 50010. Email: roy.edler@boehringer-ingelheim.com