

Contemporary and Emerging Issues

TH16 Best practices for the conduct of animal studies to evaluate crops genetically modified for input and output traits. G. L. Cromwell*, G. F. Hartnell, A. J. Lewis, G. R. Dana, D. H. Baker, M. R. Bedford, K. C. Klasing, F. N. Owens, J. Wiseman, L. K. Kurtyka, and M. J. Levine, *International Life Sciences Institute and Federation of Animal Science Societies, Washington, DC and Savoy, IL.*

The International Life Sciences Institute (ILSI) in collaboration with the Federation of Animal Science Societies (FASS) appointed two task forces consisting of scientists with expertise in animal nutrition, animal health, feed chemistry, food science, statistics, and other relevant disciplines to develop two documents that would assist researchers in the evaluation of crops genetically modified (GM) for input and output traits. The rationale was to provide a platform for the scientific evaluation of crops containing input traits (e.g., herbicide tolerance, insect protection; composition of crops unchanged) and output traits (composition of crops intentionally changed) when fed to food-producing animals and to promote international harmonization of experimental methods. Both documents provide best practices on how to produce, handle, store, and process GM crops containing the genetically enhanced trait(s), sample and analyze the harvested and processed crop, and analyze and interpret the results. In addition, the input document describes experiments for assessing cereal grains, oilseeds, and forages for lactating and growing ruminants, swine, and poultry. The output document also provides information on the types of studies to consider in evaluating specific GM traits, such as modification of protein, amino acids, lipids, carbohydrates, minerals, vitamins, antioxidants, enzymes, and antinutrients in specific crops when fed to target animal species; and how to design and conduct livestock, poultry, and aquaculture studies including proper comparator selection, animal-product processing effects, and sensory evaluation of the end-product. The input and output documents were subjected to peer review by 38 domestic and international experts and were published by ILSI in 2003 and 2007, respectively.

Key Words: Genetically Modified Traits

TH17 Animal biotechnology: The movie. A. L. Van Eenennaam* and W. E. Pohlmeier, *University of California, Davis.*

The public experience with animal biotechnology often starts and ends with Dolly the sheep, the first mammal ever cloned from an adult cell. The hype that surrounded Dolly rapidly became entangled with the debate over human cloning, and the ensuing discussion failed to elaborate on, or even differentiate between, the broad range of technologies encompassed by the ill-defined term “animal biotechnology”. In the absence of information, animal biotechnologies tend to evoke a negative reaction. To address this knowledge deficit and the fact that few general audience educational resources about this topic have been developed by publicly-funded animal scientists, a 30-minute educational movie entitled **Animal Biotechnology** was produced. The movie begins with a brief historical description of the development of various animal biotechnologies and places the most controversial of these technologies, cloning and genetic engineering, within that framework. Both biomedical and agricultural applications of animal biotechnology are discussed, in addition to some of the science-based and ethical concerns that are engendered by certain applications. Excerpts from interviews with leading academic and industry scientists conducted at the UC Davis Transgenic Animal Conference in 2007 scientists in the field are interspersed throughout the movie. The script and visuals underwent anonymous scientific peer-review prior to release. The target audience for the movie includes college and high school students and interested members of the general public. To make the movie widely available to the general public, it will be posted on YouTube, the UC Davis Animal Biotechnology website, and DVD copies will be made available to educators and other interested parties at scientific and educational meetings. Funding for this project was provided by USDA NRI Grant 2005-01655.

Key Words: Biotechnology, Cloning, Education