On-Farm Certification Programs

43 Auditing procedures. David Meisinger*[1], [1]*National Pork Producers Council*.

Any certification program must have audits in order to ensure that the product, process or system meets the requirements intended for the program and that they continue to follow these procedures. Audits are intended for control or compliance. This paper will deal with the different types of audits, how they are conducted and who usually conducts them. The procedures used in any audit have been standardized by the American Society of Quality and will be outlined in this paper. These procedures include preparation for the audit including the phases in the process and the steps in preparation. These steps include performance standards and the checklist to be used in the audits. The second phase is performance of the audit including how facts are gathered and how conclusions are reached. The next phase involves reporting of the results in a meeting and in a formal report. The last phase is closure with corrective action and formal closure. This brief presentation will provide attendees with a quick view of these accepted procedures used in auditing for certification purposes.

Key Words: Audits, Quality audits, certification

44 Certification programs on farm animal care issues. John McGlone*, *Texas Tech Univeristy*.

Farm animal care involves both animals at institutions who teach and conduct research (such as universities & companies) and on commerical farms. The public demands – to varying degrees – that farm animals be treated humanely both in publically-funded activities, most notably teaching and research, and in production systems that supply animal products. The main question is not if the public demands will be met, but how best to meet the consumer wants and wishes for humane teatment of farm animals. Animals used in biomedical research are now overseen by an ACUC and a number of checks and balances are in place to assure adequate animal care. These assurances extend to vendors who produce laboratory animals (lab animal "farms"). Furthermore, veterinarians can be board-certified in laboratory animal medicine. Parallel assruances and certifications are only partly in place for farm animals at public institutions and on commercial farms. FASS has recently taken the leadership in developing peer-reviewed animal care training materials. Commodity groups have developed quality assurance programs – most of which lack third-party verification – that often include a small animal care component. ARPAS has an opportunity now to participate in new areas of certification that might include new programs such as (a) institutional professional board certification in farm animal care, (b) farm animal worker certification, perhaps on at least two levels, and (c) on-farm worker certification.

Key Words: Animal Care, FASS, ARPAS

45 Certification of nutrition professionals. L. E. Chase*[1], [1]*Cornell University*.

The American Association of Feed Control Officials (AAFCO) has propsed licensing of nutrition professionals. In response to this proposal, the American Registry of Professional Animal Scientists (ARPAS) established a work group to examine this issue and develop a position statement. The work group agreed that the concept of licensing is appropriate. The rationale for licensing should be to provide assurance of professional competency of nutrition professionals. The work group indicated that the licensing process must include measures of knowledge, experience and expertise. It was proposed that an examination process be used as part of the licensing process. This would require development of a new exam. An initial or temporary license could be granted to individuals until the licensing program and exam were fully developed. The work group concluded that a college degree should not be a requirement for obtaining a license. Continuing education credits would also be required to maintain the license. The ARPAS group indicated a willingness to work with AAFCO and others to move this licensing process ahead.

Key Words: Certification, Licensing, Nutrition professionals

46 Verfication of good production practices which reduce the risk of exposure of pigs to Trichinella. D.G. Pyburn*[1], H.R. Gamble[2], L.A. Anderson[1], and L.E. Miller[1], [1]*USDA, APHIS, VS,* [2]*National Research Council*.

Control of Trichinella infection in pork has traditionally been accomplished by inspection of individual carcasses at slaughter or by post-slaughter processing to inactivate parasites. Declines in prevalence of this parasite in domestic swine during the last twenty to thirty years coupled with improvements in pork production systems offer the opportunity to document pork safety at the farm level. We report here on a certification pilot study using an on-farm audit to document good production practices for swine relative to the risk of exposure to trichinae. Based on the results, improvements in the program have been made and further studies will be undertaken prior to launching the voluntary Trichinae Certification Program in the United States.

Key Words: Pre-harvest Pork Safety, Trichinae, Food Safety

Conservation and Management of Animal Genetic Resources

47 Managing Genetic Diversity, Selection and Inbreeding in Livestock. P Bijma*, *Wageningen Institute of Animal Sciences (WIAS)*.

Genetic drift is caused by random sampling of alleles that contribute to the next generation, and results in loss of genetic diversity in populations. There are two sampling processes. First, sampling between families, i.e. some families become parents of the next generation, whereas others don't. Second, Mendelian sampling of alleles within individuals. Without selection, both processes contribute approximately equal to loss of diversity. With selection (e.g. livestock), between family sampling causes the majority of the loss of diversity. Thus maintenance of diversity requires restriction of between family selection. Drift per unit of time is quantified by the variance of gene frequency change that can be attributed to a single generation or cohort, ${\sigma_q}^2$. Drift causes homozygosity by descent (inbreeding), and drift variance and rate of inbreeding (ΔF) are equivalent measures of the loss of diversity, ${\sigma_q}^2$ = q(1-q)ΔF. In livestock, the challenge is to genetically improve populations while maintaining diversity, i.e. to maximize gain (ΔG) while restricting ΔF. The long-term genetic contribution theory reveals a relationship between ΔG and ΔF; $\Delta G = \Sigma ra$ and $\Delta F = {}^*\Sigma r^2$, where r is the long-term genetic contribution of an individual, a is its Mendelian sampling term and the sum is taken over all individuals per unit of time. It follows that the theoretical maximum gain with restricted inbreeding is achieved by a linear increase of r with a. This provides a general measure of genetic efficiency of selection programs. Selection tools that maximize gain while restricting inbreeding try to establish this linear relationship by determining the optimum contribution of selection candidates to the next generation, which implicitly restricts between family selection. With restricted ΔF, minimum coancestry and factorial mating increase ΔG. In addition, molecular markers enable reduction of Mendelian sampling drift, but benefits are small for livestock. Thus it is technically feasible to maximize ΔG while restricting ΔF. The commercial situation, however, may prohibit this. In particular in dairy cattle, global competition, availability of genetic material, and information on genetic quality (Interbull) causes breeding companies to focus on short-term improvement.

Key Words: Genetic Diversity, Inbreeding, Selection

48 Identification of germplasm for preservation from pedigreed populations. M. D. MacNeil*[1], W. R. Lamberson[2], and B. L. Golden[3], [1]*USDA-ARS, Fort Keogh LARRL, Miles City, MT,* [2]*University of Missouri, Columbia,* [3]*Colorado State University, Fort Collins*.

Cryogenic conservation programs seek to maximize genetic diversity in the conserved sample of germplasm. Breed associations record and maintain extensive pedigree databases for a wide variety of livestock