

## Promoting poultry welfare through the introduction of 3R's to research, teaching and testing

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Poultry that are kept for experimental or testing purposes are usually in conditions that do not meet all of their needs so their welfare is severely impaired. No one really knows how many birds suffer and die in government, university, and private corporation laboratories worldwide, however it is known that birds are among the 95 percent of warm-blooded sentient animals who are now being used in all kinds of invasive research (Davis, 2003). The huge numbers of chickens, turkeys, ducks, quails, and pigeons being used in agricultural research throughout the world, in addition to the increasing experimental use of adult chickens and chicken embryos to replace mammalian species in basic and biomedical research, are especially considered. Moreover, birds have been used extensively for teaching and demonstration of biological principles, although there is a wide range of materials that may be substituted for them in teaching, such as audiovisual aids and computer-based programs. On the other hand, public concerns about how animals are used in experiments, learning skills and safety testing are now driving the need to seek alternatives. Reducing the numbers of birds required for research, teaching and testing is the first desirable goal possible to achieve by using appropriate statistics. Second, the use of less sentient animals, particularly invertebrates is considered to be an acceptable means of replacing birds as research subjects. If the numbers of experimental birds are reduced, this would result in a decrease in the amount of poor welfare. Similarly, it would be good if live poultry in experimental, teaching and testing work could be replaced by cell culture or some other system and non-animal techniques may be substituted for techniques using live birds. Third, where procedures are used in experimentation and testing that involves some poor welfare, any refinement of the methodology that improves the welfare of the birds is desirable. Each person involved in such work should consider these three R's (Russel and Burch, 1959), Reduction, Replacement and Refinement, when planning and designing studies. In this study, the principles of Replacement, Reduction and Refinement have been evaluated in relation to experimentation in poultry research, in safety and efficacy testing and in poultry education and training. The consequence now and purpose for the future is that poultry welfare can be improved in these sectors.

**Keywords:** poultry welfare, 3R's, research, teaching, testing