
Editorial

We complete our follow-up of the 'Montreal 2000' World's Poultry Congress with the final selection of six review papers from the plenary scientific sessions.

Progress in the selection of production traits in the poultry industry has been dramatic over the past 75 years. But, as Dr David Burt from the Roslin Institute (Edinburgh) points out, genetic progress has its biological limits and these may be reached over the next 20 years. The poultry industry will need to adapt with more emphasis on the needs of the consumer in addition to those of breeders and producers.

Broiler breeders have additional problems, being caught in a welfare dilemma because the management practices that are necessary to ensure bird health and reproductive competence may also result in a reduction in other aspects of welfare. Dr Joy Mench from the University of California, Davis, reviews the welfare concerns associated with feed restriction in broiler breeders. Emphasis needs to be placed on developing alternatives and modifying current programmes in order to improve broiler breeder welfare.

The use of genetic selection to decrease the need for feed restriction offers a promising prospect for progress towards this objective. The remarkable improvement of biochemical and molecular tools has now made it possible to identify the molecular nature of major genes, and to understand better their mode of action. Dr Michèle Tixier-Boichard from INRA, France, reviews the present state of knowledge on the molecular identification of major genes in the chicken.

In her review of the process of egg formation, Professor Sally Solomon from Glasgow University, Scotland, states that while a freshly laid egg may be described as "entire" or "complete", it can never be described as "faultless". Every egg will display some variation from the norm, either with respect to the quality of the contents or in the construction of the chamber created by the shell. Each egg is an individual end product reflecting the physiological and structural status of the oviduct during one period of 24 hours.

Variation is also the theme of Dr Nick Dale's review of quality control procedures in feed manufacture. If requirements for key nutrients are not met, the birds' commercial performance will be negatively affected. Feed manufacturers establish quality control programmes as a means of reducing this risk.

Hen egg proteins have unique functional properties such as gelling, foaming and emulsifying. Dr Yoshinori Mine from the University of Guelph, Canada, reviews the recent advances in the molecular basis of the development of these functional properties as well as technical development of new approaches for their improvement.

Finally, in our Montreal selection, Dr Ragnar Tauson from Uppsala, Sweden presents a review of the results from research and commercial production of two alternative housing systems for layers – furnished cages and aviaries. These systems have gradually evolved through criticism of keeping laying birds in conventional cages, mainly in northwestern European countries, particularly with regard to the lack of possibilities for birds to perform natural behaviours and to space restriction.

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