Nutritional challenges of alternative production systems

M.G. MacLeod¹, J.S. Bentley²

¹The Roslin Institute and Royal (Dick) School of Veterinary Studies, University of Edinburgh, Midlothian, EH25 9RG, UK

²Consultant, Woodbank, Cheshire, UK

MMacLeo8@exseed.ed.ac.uk

Many of the nutritional challenges posed by alternative systems can be addressed by application of existing scientific knowledge. However, regulations applied to alternative systems may limit the nutritionist’s freedom of action, particularly with regard to the ingredients which can be used to formulate diets. Practical comments on meeting the nutrition-related stipulations of the various regulations are included in the present chapter. It is possible to formulate diets without animal protein, potential GMO (e.g. soyabean and maize products) and synthetic amino acids but it is difficult to attain nutritional optima. On the positive side, in free-range systems, the bird’s nutritional inputs may be enhanced by access to forage plants and animals. Also, there is clearly greater scope for the bird to be provided with food in ways that give greater opportunities for a repertoire of feeding behaviour, such as feedstuff choice. Some alternative systems may increase the bird’s energy requirements because of increased expenditure of energy on physical activity and on thermoregulation in a cooler environment. Since there is so much scope for variation in environmental factors in alternative systems, nutritional decisions may have to be made on an iterative basis, meaning that cooperation between the producer and the nutritionist may be the key to success. This is particularly true where there are strict regulatory limitations on rate of growth or final body weight. There is a tendency for alternative systems to have a greater ecological impact than conventional systems, largely because of the lower efficiency of nutrient utilisation. This chapter comments on nutritional methods of helping to reduce environmental impact.