

EXECUTIVE SUMMARY

THE EFFICIENT USE OF DIETARY PROTEIN IN THE FEEDING OF BROILER BREEDER HENS

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Because broiler breeder hens become obese if allowed *ad libitum* access to food during the growing and/or laying period, the general tendency among managers of these birds is to restrict food intake severely during the growing period, less severely when the birds first begin to lay and then increasingly severely as rate of lay declines. Most of this practise is sensible, as the birds remain relatively small and lean and egg production is improved compared with those birds fed larger amounts of food, and without a reduction in the daily intake of dietary energy the hens would become obese and performance would suffer even further. What appears not to be sensible is that the daily allocation of dietary protein is reduced as rate of lay declines: this would tend to escalate the decline in performance of many of the high producing birds in the flock, and correlated with this decline in rate of lay is a concomitant increase in egg size.

The utilization of dietary protein by broiler breeders can be improved. A considerable amount of protein is presently fed to broiler breeder hens - substantially more than is theoretically necessary at the start of the laying period, but less than should be fed towards the end of the period. Thus, although the amount of protein fed to broiler breeders might not be reduced, it will be provided at the appropriate time in the life cycle, thereby improving the efficiency of utilization of dietary protein.

The project is aimed at investigating whether it is possible to sustain rate of lay in broiler breeder hens during the latter part of the laying period by maintaining the intake of dietary protein while reducing energy intake.

The first experiment conducted this year was designed to ascertain whether broiler breeders are capable of making use of body lipid reserves as an energy source, thereby demonstrating that the supply of dietary energy to obese birds may be reduced for a period in order to reduce the overabundance of lipid whilst ensuring that egg output is not adversely affected. Whereas an intake of 1200 kJ ME/bird d for a seven week period caused a decline in rate of laying, an intake of 1450 kJ ME/d proved a sufficient amount of energy to sustain performance. This energy supply is substantially less than the 2000 kJ or more that is currently fed to broiler breeders, and demonstrated conclusively that these hens are capable of making use of body lipid reserves as an energy source.

The second experiment, just started, aims to address the question of the efficiency of utilization of amino acids as the hen ages. A range of feeds differing in lysine content is at present being fed to 480 individually caged broiler breeder hens, 120 of each of 25, 35, 45 and 55w of age. By measuring the intake of lysine and the output in eggs it is possible to determine the efficiency of utilization of lysine by these hens. If it is demonstrated that the efficiency with which the hens utilize lysine declines with age, then the practise of reducing the protein supplied to broiler breeder hens as they age will be shown to be incorrect. The results will also indicate whether it is necessary to provide as much dietary protein at the beginning of the laying period as is customarily done at present. It is likely that the feeding of protein to broiler breeder hens can be more efficiently planned, with less protein being fed in the early period and more in the latter period than is currently the case. The results of this experiment will clarify the issue.