

Title:

A new more welfare friendly and feed efficient way to grow intensive broilers.

Summary:

Introduction

A growing, more affluent world population demands more meat from ever scarcer, more expensive resources. Broilers are the best candidates to achieve this, but ad-lib feeding does not exploit their digestive system fully. Forbes (2003) showed feeding broilers wet feed improved feed efficiency whilst Stacey (et al) 2004 showed daily feedback information was essential to optimise growth. See Filmer (2011) for references. This experiment compared mealtime feeding and feedback information to ad-lib feeding, and no feedback information.

Material and methods Nine pairs of broiler houses were used containing minimum 25,000 birds fed standard commercial feeds using the “paired comparison” technique. Each house within a pair was the same regarding structure, equipment, management, breed, sex, parent stock, stocking density and date of housing. The two treatments were allocated at random within each pair.

Results Birds on the new system had 1.01 percentage units less mortality ($p=0.0053$), 55g more liveweight ($p=0.0010$), better FCR of 0.053 ($p=0.00028$) and 20.5 units better European Performance Efficiency Factor ($p=0.00006$). Lower 95% confidence limits were respectively 0.50%, 30g, 0.033, and 14.3.

Average extra margin over feed costs was 3.79 pence per bird housed and £1,083 per house ($p=0.002$). Lower 95% confidence limits were respectively 2.59p/bird housed and £798/house.

Birds on the new system were visually cleaner and more active but no statistics are available.

Conclusions Results show that the new system significantly improved bird performance and profitability. Confidence limits show a 97.5% probability that the new system improved mortality by a minimum of 0.50% and FCR by a minimum of 0.033 and produced an extra margin over feed cost by a minimum of £798 per house. With 6-7 crops of broilers per year, this represents a satisfactory return on capital. Less feed intake also lowers scarce water and energy use and the carbon footprint of the meat produced.

Subsequent work A SPARK Award enabled joint work with Brisol University comparing intermittent dark periods with a single dark period at night. Now nine field trials, each with minimum 4 replicates, have taken place on integrator’s units worldwide, including Thailand, South Africa, Brazil and Turkey, totalling 2.2 million birds. Average benefits were 1.01 percentage units less mortality ($p=0.0121$), 40 g more liveweight ($p=0.00022$), better FCR of 0.062 ($p=0.00001$), 17.6 units better EPEF ($p=0.00020$), 4.32 pence/bird housed more margin ($p= 0.00002$) and £1,463/house ($p=0.00002$). The lower 95% confidence limits were respectively 0.28%, 10g, 0.046, 11.0, 3.14p/bird housed and £1,053/house.