

## Dietary manipulation of broiler breeder growth through the feeding of conjugated linoleic acid

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Intense selection of broilers for increased growth rates has led to dramatic increases in both mature weight and appetite. In order to produce broiler eggs some birds must be allowed to reach sexual maturity and therefore be allowed to grow to full size. In these birds intake must be controlled in order to avoid obesity and maintain reproductive competence. Any approach that can reduce obesity in these birds and thus reduce the degree of food restriction required to maintain optimum reproductive performance would be of great benefit to the industry in terms of welfare and productivity. To date a number of approaches have failed to alleviate the problem.

In this study, a novel approach through the feeding of conjugated linoleic acid (CLA) was assessed. Feeding of CLA during development has been shown to reduce adipocyte proliferation and fat cell numbers in a number of species. Our hypothesis was: Does the feeding of CLA during early life reduce adipocyte proliferation in female broilers and lower subsequent carcass weight at sexual maturity thus reducing the degree of feed restriction required to maintain reproductive function?

The study was carried out in 24 female Ross 308 parent stock day old chickens (supplied by PD Hook). Birds were reared under a modified version of the Ross parent stock management regime (Ross Manual) to maintain a growth rate in excess of the standard recommended regime.

Two groups of 12 birds, matched for weight, were individually caged and fed either standard control diet (incorporating 3.5% soya oil) or CLA diet (incorporating 3.5% CLA isomer mix: CLA60, BASF). These diets were fed from 0 to 42 days during which birds were weighed at weekly intervals and feed intake recorded so that gain to feed ratio could be calculated. At 42 days birds were identified by group and housed on a single floor pen and placed on a parent stock rearing regime. Birds were allowed 10 - 15% food intake over and above the standard controlled intake regime.

During CLA feeding (day 0 to 42) there was no difference in growth rate (Figure 1) or food conversion efficiency between the two groups. However, following day 42, while all birds were on a standard diet, the control birds grew more quickly than the birds that had previously been fed CLA (see figure).

In conclusion, these results indicate that feeding of CLA during early development can affect subsequent growth after the feeding of CLA has ceased.

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Figure 1. Effect of feeding CLA from day 0 to 42 on weekly weight gain to 100 days



