The Ross Broiler – First for Performance, Quality and Welfare

Aviagen is committed to continuous investment in research and development and the long term focus of selection of the Ross broiler has been economic performance and robustness. Innovation, advances in selection techniques and data analysis mean that greater selection accuracy and improved rates of progress can be made in commercial traits such as broiler liveweight and egg production. In addition, progress in welfare-related traits such as, robustness, cardiovascular fitness and skeletal integrity, will also be achieved.

Application of these techniques has given the Ross broiler considerable benefits in the various traits of importance for broiler quality and welfare which add up to an ever increasing opportunity for Aviagen customers to make progress year on year.

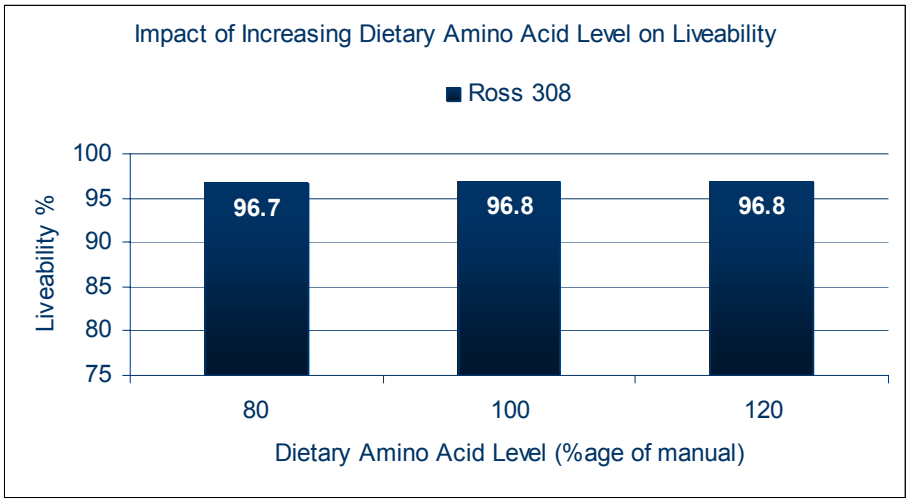
Recent UK field results (below), taken over several million Ross broilers, show excellent growth, feed conversion and liveability. (Average results to an average age of 42 days).

UK Broiler Field Performance First Quarter 2004		
Liveweight (kg)	**FCR**	**Liveability (%)**
2.31	1.823	96.7

It is important for Aviagen to understand the interactions between growing conditions, performance and welfare. To explore these questions further, Aviagen's technical development team have recently completed a series of trials, comparing the Ross 308 bird with an American-bred competitor available in Europe. Performance was measured on a range of rations, based on the differing recommendations for dietary amino acid levels for both breeds. In addition, performance across three lighting programmes, again covering the different advice offered for the different breeds was also compared. These programmes looked at the effects of giving 12 hours dark a day, compared with either 4 hours, in line with ACP codes of practice, or 1 hour and were designed to demonstrate the effect on growth, feed conversion and liveability.

Taking the ration recommended in the Ross 308 manual (100%) as the base line, we found that both the Ross 308 broiler and the competitor grew to similar final weights. The Ross bird showed a clear response to increases in protein level, birds fed the 120% ration being 380g heavier than those fed the 80% ration (the competitor breed recommendation).

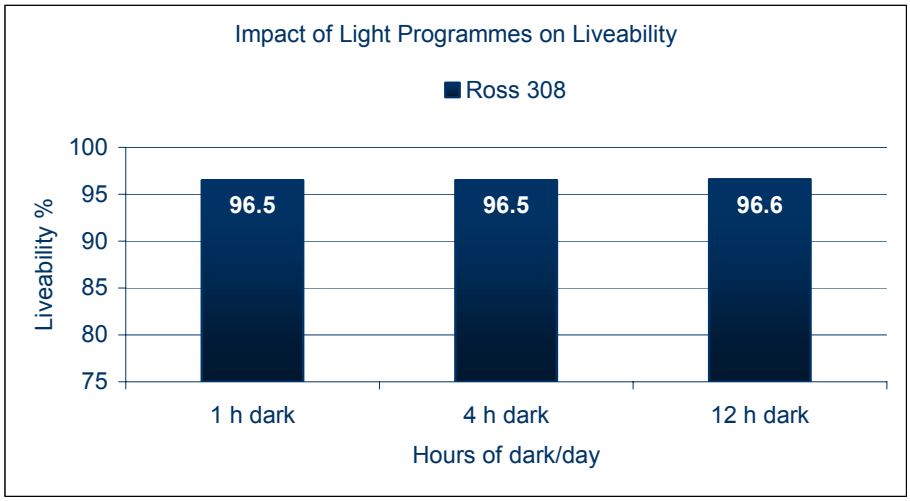
However, contrary to the common perception that faster growth leads to decreased quality and welfare, the Ross broiler demonstrated excellent liveability across all the protein levels, as shown below, with low levels of leg culls, ascites and necrotic enteritis on all three rations tested.



In contrast, the competitor breed showed decreased liveability on all of the rations, lowest at the higher protein levels, despite being less responsive in growth rate (+160g lowest to highest). Liveability rates were considerably lower than those seen in the Ross birds at the lowest protein level, and fell even further when the protein levels were increased. The differences between the breeds were largely explained by the very much lower levels of leg problems, ascites and necrotic enteritis in the Ross broiler.

Various short-day lighting programmes were developed experimentally in the 1990's and shown at that time to improve leg health and cardiovascular fitness. On an experimental basis dark periods of up to 12 hours in a day were shown to improve liveability, however most commercial producers had some very severe practical problems with implementation. Birds on 12 hour dark periods were more difficult to catch, and unless given more feeder and drinker space, better ventilation and dimmer lights, tended to have up to three times higher levels of downgrading due to scratching and cellulitis.

With the Ross broiler of 2004, the trials demonstrate that the length of the daily dark period has no impact on liveability; the birds lived just as well given one hour dark per day as they did given 12 hours dark each day. There was no apparent welfare benefit to the birds from providing a long daily dark period and levels of leg culls and ascites were very low in all 3 treatments. The competitor breed, however, showed a strong response to a long daily dark period and on a 12 hour dark period liveability dramatically improved over that on a 1 hour dark period, with the 4 hour dark period intermediate. Commercial experience of 12 hour dark periods however, continues to be problematic with higher levels of downgrades. Recommendations for all Ross products therefore continue to advise against the need for extreme broiler lighting programmes to manage broiler quality.



These trials have also shown the long term effect of different selection environments on broiler growth and welfare traits. The impact of the Aviagen selection programmes with their emphasis on good bird welfare, and traits which make the broiler healthy and robust, have been very effective. Following the Ross management recommendations will result in a Ross bird that grows well under a wide range of nutritional and environmental conditions, with excellent leg health, cardiovascular fitness and gut health.

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