have that luxury in commercial flocks. Any stress situation, this leads to unintentional feed restriction. It is very unusual for young broilers to be intentionally feed restricted, although this has been practiced in some situations that was a practice that is common (10 years ago) to combat the ascites problem. It is now generally accepted that compensatory growth does not occur with modern broiler strains (Bigot et al., 2003) and that any catch-up growth that does occur is usually hyperphagia, if this can physically happen with older broilers. The texture and size of particles are also important since the bird has to be able to efficiently manipulate particles in its beak. Over time, the size of textured particles can be increased to accommodate broiler growth. It is generally recognized that birds do not increase consumption as much as possible when given a choice in feeding situations (Rose et al., 1986), although this was not clearly defined when choice is not a factor. If the bird is offered a choice in terms of intact pellets versus finely ground, it is often observed that most of the feed is eaten after choice in terms of intact pellets versus finely-ground. Leo Jensen at the University of Georgia conducted the classic work showing that the main advantage to pelleting feed is an increase in growth rate, so greater net energy is yielded from the feed. Data from McKinney and Teeter (2004), who used graded intakes of intact pellets versus finely-ground from 100 to 0 kg, indicated that a range of 13% in growth rate was maximized at 38 kg/sq. m. As birds get older, the proportion of body mass given to feed is increasing, so the energy available for growth does not increase as the quantity of feed consumed increases. If birds eat a given quantity of feed becomes relatively constant, so growth rate can be calculated. For these calculations, it is assumed that body composition is unaffected (in reality, birds may be leaner) and that the growth that does occur is 50% fat; 50% muscle. Mortality was not included in calculations. As stocking density increased and feed restriction resulted, then the birds needed to achieve a specific weight gain were increased. For a 2 kg bird, for example, the range was from 35 days to a maximum of 44 days (Table). For smaller-weight birds with proportionally lower maintenance needs and minimally increased days to market, the profit per bird (live bird price minus feed cost) was increased by moderate feed restriction. However, for larger-weight birds, the profit per bird is reduced dramatically than a 4% effective feed restriction.

In calculating the return per flock per year (taking into account extended growth time), for small flocks (1.75-2.00 kg), the profit per flock was maximized with the highest density. For 2.05-3.00 kg birds, the profit was worse with 30% versus 17% feed restriction. In fact, with 30% effective feed restriction after 18 days, birds were still able to reach 3 kg of bodyweight.

Summary

In summary, it is almost inevitable that the birds will be “unintentionally” subjected to feed restriction after 28 days by at least a lack of availability of time and space to eat. Increased stocking density reduces the performance of the individual bird but usually to a lesser extent than feed restriction of the flock due to its larger size and economic benefits of time. Under conditions of high stocking density, feed intake can be supported to a certain high environmental temperature, settling pelleted quality at a lower than a long day as birds genetically allow and using more nutrient-dense diets at this if not at the expense of pelleted quality.