Due to changes in potential production, housing systems, breeds, health status and animal welfare issues, matching feed composition to performance and egg quality of laying hens can be quite complicated. In this paper, matching energy levels, energy sources and amino acid, calcium and phosphorus levels to egg production and egg quality is discussed.

Energy levels can be adjusted to live weight, age and housing systems in order to optimise egg production and to change bird behaviour. Examples are given of existing models to calculate optimal energy, amino acid, calcium and phosphorus levels in laying hen feeds. Calculated optimal levels not always correspond with optimal levels found in experiments. Experimental data are lacking to justify changes in current models in order to improve the estimation of optimal nutrient levels, which might limit further developments to optimise laying performance, egg quality and feed costs. With increasing energy costs, it seems that aiming for heavier birds at the start of the laying period can help to optimise laying performance, egg quality and feed costs.