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How to control egg weight in laying hens

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Egg weight can be influenced through pullet development, nutrient intake, dietary fat, and phase feeding. But pushing for larger eggs without protecting shell formation can increase cracks, downgrades, and lost revenue.

Egg weight should be managed, not maximized. Larger eggs may command a premium in some markets, but that advantage disappears when shell strength declines and more eggs are cracked, downgraded, or lost. Conversely, allowing eggs to remain too small during early lay can reduce revenue for the remainder of the cycle. Genetics establish the likely range, but pullet development, sexual maturity, feed intake, amino acids, dietary fat, linoleic acid, and environmental conditions determine where within that range a flock performs. The objective is therefore to establish the right egg-weight curve early and prevent excessive weight later.

Define the commercial target

There is no universally desirable egg weight. The correct target depends on market grading, price differences among sizes, packing requirements, flock age, and the value of saleable eggs. Producing 65-g eggs is not an achievement if the market pays best for 60–63 g and cracks increase above that range. Establish a target curve by flock age, not merely one final average. Egg weight should then be measured against income per hen housed, including downgraded and cracked eggs, rather than against egg size alone.

Egg weight begins during rearing

Nutrition during lay cannot fully correct an undersized or oversized pullet. Heavier, well-framed pullets generally produce larger eggs, while early light stimulation at a low body weight encourages earlier maturity and smaller initial eggs. Later stimulation at the correct, heavier body weight tends to delay maturity and increase egg size. Rearing diets should therefore change when body-weight targets are achieved, not automatically at a predetermined age. However, delaying maturity solely to obtain larger eggs may sacrifice early egg numbers, so the complete production objective must remain in view.

Formulate against daily intake

Hens consume nutrients, not dietary percentages. At 110 g feed intake, a diet containing 0.70% digestible methionine plus cysteine supplies 770 mg per hen daily. If intake drops to 100 g, the same formula supplies only 700 mg. Energy and amino-acid concentrations must therefore be adjusted against measured feed intake. Egg weight should be recorded at least every two weeks through approximately 35 weeks and weakly thereafter. Corrective action should begin when average egg weight approaches within about 2 g of the target, because adjusting established egg size is difficult.

Amino acids as the nutritional lever

Increasing digestible amino-acid intake, particularly methionine plus cysteine within a balanced amino-acid profile, generally increases egg mass and often egg weight. But adding methionine alone is an imprecise strategy when lysine, threonine, isoleucine, valine, or energy is limiting. To increase undersized eggs, raise the complete digestible amino-acid supply gradually. To restrain excessive egg weight, reduce total amino-acid intake in small phase-feeding steps after peak rather than sharply cutting one amino acid. An aggressive reduction can lower egg production before it meaningfully reduces egg weight.

Use fat and linoleic acid deliberately

Dietary fat can increase egg weight beyond its contribution to energy density, while linoleic acid is a particularly useful lever. Breeder guides recommend approximately 1.5 g linoleic acid per hen daily when larger eggs are required and about 0.9 g/day when egg weight must be restrained. At 110 g feed intake, these intakes correspond to approximately 1.4% and 0.8% dietary linoleic acid, respectively. Oil source therefore matters. These values should be treated as starting points because strain, age, basal ingredients, total fat, and actual feed intake alter the response.

Apply the brake before shells deteriorate

Egg weight normally increases with flock age, while shell-forming efficiency gradually declines. Because shell deposition does not increase proportionally with egg size, an unnecessarily large late-cycle egg is inherently more difficult to protect. Nutritional pressure for larger eggs should therefore ease after the required market weight has been secured. Meanwhile, calcium supply should rise with age—from approximately 4.0 g per hen daily in early lay toward 4.5–4.7 g in older flocks—supported by appropriate coarse calcium particles, vitamin D status, phosphorus balance, and evening calcium availability.

In brief, the profitable egg is not the largest egg a hen can produce. It is the egg that reaches the best-paid market grade while retaining sufficient shell strength to survive collection, grading, packing, transport, and sale. Establish the target during rearing, monitor egg weight from the beginning of production, formulate according to daily nutrient intake, and use amino acids, fat, and linoleic acid as controlled levers. Once the target has been reached, phase feeding should prevent further unnecessary enlargement while calcium nutrition protects the shell. Genetics and market requirements modify the exact program, but leaving egg weight unmanaged is not a neutral decision.

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