

Introduction to Layer Poultry Production

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(Designed as quick-reference study notes)

1. What Is a “Layer”?

Term	Definition
Layer	A chicken whose primary purpose is egg production (as opposed to a broiler, which is raised for meat).
Layer Breed	Genetic lines selected for high egg output, feed efficiency, and desirable egg qualities (shell strength, size, color).
Layer Age	Productive phase typically begins at 18–20 weeks and can extend to 72 weeks (or longer with proper management).

2. Major Commercial Layer Types

Category	Typical Egg Output (per hen/year)	Typical Market
Standard (White) Layers	280–300	Large-scale egg cartons, supermarkets
Brown Egg Layers	260–280	Premium/organic markets, niche consumers
Specialty Layers (e.g., colored shell, high-omega)	250–270	Niche/health-conscious markets

Common commercial breeds: **Hy-Line Brown**, **Lohmann White**, **ISA Brown**, **Dekalb White**, **Hisex Brown**.

3. Production System Options

System	Housing	Space Allocation*	Advantages	Disadvantages
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Conventional Cage	Wire cages (battery)	0.06–0.10 m ² /hen (0.6–1.0 ft ²)	Low labor, high biosecurity, easy manure handling	Welfare concerns, limited movement
Enriched/AVC (Aviary) Cage	Cages with perches, nest boxes, scratch area	0.08–0.10 m ² /hen	Improves welfare, meets many regulations	Higher capital cost
Barn (Floor) System	Open-plan barns with litter	0.10–0.12 m ² /hen	Simple, low-tech, good heat distribution	Higher litter management, disease risk
Free-Range	Indoor house + outdoor run	0.12–0.15 m ² indoor + outdoor access	Consumer-friendly, natural behavior	Predation, weather exposure, biosecurity
Organic	Certified organic housing & outdoor area	Similar to free-range, plus organic feed	Premium price, strict standards	Strict feed & medication limits

*Space allocation includes area for perches, nest boxes, and litter where applicable.

4. Key Management Areas

4.1 Nutrition

Nutrient	Typical Requirement (per day)	Notes
Metabolizable Energy (ME)	2600–2800 kcal	Increases during peak lay
Crude Protein	16–18% (80–100 g)	Adjust for age, breed, and production level
Calcium	3.5–4.0% (22 g)	Critical for shell quality; provide layer grit & oyster shell
Vitamin D₃	2500–3000 IU	Enhances calcium absorption

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Nutrient	Typical Requirement (perday)	Notes
Methionine + Lysine	0.5?% + 0.9?%	Essential amino acids for egg protein synthesis
Feed Form	Pelleted or crumble (starter) ? mash (lay)	Pelleting reduces waste and improves feed intake

4.2 Lighting

Parameter Recommended Setting