

Overview of Poultry (Layer) Production

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Key points, terminology, and production flow for egg-laying birds.

1. Introduction to Layer Farming

Aspect	Details
Purpose	Produce table eggs (shell eggs) for human consumption and, in some markets, for hatching.
Main Species	<i>Gallus gallus domesticus</i> – commercial breeds selected for high egg output, feed efficiency, and shell quality.
Typical Production Cycle	18-20 weeks (onset of lay) - 72-78 weeks (peak laying period) - 1-2 years (cull).
Industry Scale	From backyard flocks (~50 birds) to intensive commercial operations (~100,000 birds).

2. Genetic Resources & Breed Selection

Category	Representative Breeds	Traits Emphasized
High-producing layers	White Leghorn, Hy-Line, Lohmann Brown	>300 eggs/yr, good feed conversion, thin shells (white eggs).
Dual-purpose	Rhode Island Red, Sussex	Moderate egg output + reasonable meat yield.
Specialty eggs	Araucana, Marans	Colored shells (blue, dark brown).
Considerations	- Adaptability to climate - Disease resistance - Market preferences (egg color, size)	

3. Housing Systems

System	Description	Advantages	Limitations

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Conventional Cages	Metal cages, 5-9 birds per cage, 0.07 m ² /bird.	High stocking density, low labor, easy manure collection.	Welfare concerns, limited movement.
Enriched / Furnished Cages	Cages with perches, nest boxes, litter area.	Improves welfare, meets many regulations.	Still restricted space.
Barn (aviary) Systems	Open-plan barns with litter, perches, nest boxes; birds roam.	Greater freedom, natural behaviors, lower capital cost.	Higher labor, manure handling needed.
Free-Range	Outdoor access (2 m ² /bird) during daylight; indoor shelter similar to barn.	Consumer appeal, behavioral enrichment.	Biosecurity challenges, variable egg quality.
Organic	Organic feed, no synthetic chemicals, outdoor access, lower stocking density.	Premium market, strict standards.	Higher production cost.

4. Nutrition & Feeding

Nutrient	Requirement (per kg feed)	Key Sources
Metabolizable Energy (ME)	2,800–2,900 kcal	Corn, soybean meal, animal fats.
Crude Protein	16–18% (early lay) ? 14–15% (mid-lay)	Soybean meal, fish meal, rapeseed meal.
Lysine	0.80–0.90%	Soy, synthetic lysine.
Methionine + Cystine	0.40–0.45%	DL-methionine, animal proteins.
Calcium	3.5–4.0% (laying phase)	Limestone, oyster shell.
Vitamin D	2,000–3,000 IU/kg	Sun-exposed feed, synthetic D