

Overview of Dairy Farming

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Key concepts, typical operations, and modern considerations

1. Definition & Scope

Aspect	Description
Dairy farming	Agricultural enterprise that raises cattle (or other milk-producing mammals) primarily for milk production.
Primary products	Fresh milk, cream, butter, cheese, yogurt, whey, and other value-added dairy foods.
Scale	Ranges from small family farms (~50 cows) to large commercial operations (>5,000 cows).
Geographic focus	Concentrated in temperate regions (USA, EU, New Zealand, Australia) but expanding in emerging markets.

2. Types of Dairy Cattle

Breed	Characteristics	Typical Use
Holstein?	Highest milk yield (~30 L/day), black and white pattern.	Commercial milk production.
Friesian		
Jersey	High butterfat (~4.5%); smaller size.	Specialty milk, cheese, butter.
Brown Swiss	Good protein content, hardy.	Dual-purpose (milk + meat).
Guernsey	Rich, golden-colored milk.	Niche markets, premium products.
Crossbreds	Combine traits (e.g., yield × fertility).	Tailored to farm goals.

3. Farm Organization & Layout

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1. Housing

- **Free-stall barns** – individual stalls with bedding; allows cows to lie down comfortably.
- **Tie-stall barns** – older system; each cow is tethered.
- **Pasture-based systems** – cows graze outdoors; common in New Zealand & parts of Europe.

2. Milking Parlor

- **Parallel/Rotary parlors** – high-throughput, automated.
- **Tie-stall milking stalls** – lower capacity, used on small farms.
- **Robotic milking (AMS)** – cows enter voluntarily; sensors record milk yield, conductivity, temperature.

3. Feed Storage & Management

- Silos (for silage), hay barns, feed mixers, concentrate bins.
- Precision feeding systems (feed bunk monitors, RFID tags).

4. Manure Management

- **Lagoon, solid-liquid separation, composting, anaerobic digesters** (biogas production).

5. Support Facilities

- Calving pens, veterinary clinic, office, water supply, waste treatment.

4. Production Cycle

Stage	Main Activities	Typical Duration
Breeding	Artificial insemination (AI) or natural service; pregnancy detection.	21-day estrous cycle; 280-day gestation.
Gestation	Nutrition adjustment, health monitoring.	9 months.
Calving	Clean calving area, colostrum feeding (first 24h).	Day 0.

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Stage	Main Activities	Typical Duration
Lactation	Daily milking (2-3 times), balanced rations, health checks.	30-50 day lactation curve; peak yield ~30-45 days post-calving.
Dry Period	Cows rested (no milking) to regenerate udder tissue.	45-60 days before next calving.
Replacement	Heifer rearing (birth - first calving).	~24 months to first calving.

5. Nutrition & Feeding Strategies