

No	Parameter	Description of Parameter	Health Aspect/Measures	Threshold Values	How to Measure
1	Health Status of a Live Broiler Flock	Regular monitoring the health status of a broiler flock is essential to prevent disease outbreaks, optimize growth, and ensure profitability.	Physical Condition	No swelling, bright eyes, smooth feathers	Check feathers, eyes, joints
			Body Weight	Matches growth curve	Weekly weighing
			Mortality Rate	<1% per week	Daily recording
			Respiratory Health Equipment	< 25 ppm	Ammonia levels
			Laboratory Tests	No major infections	Blood/fecal samples
2	Brooding Temperature	Brooding temperature refers to the controlled environmental temperature provided to chicks to ensure their comfort and healthy development.	Day 1-3 days, 32-35 deg C	32 deg C	Digital or Mercury Thermometer – Placed at chick/bird level.
			Day 4-7 days, 30-32 deg C	30 deg C	Infrared (IR) Temperature Gun – Measures litter and bird surface temperature.
			Week 2 (8-14 Days), 28-30 deg C	28 deg C	Hygrometer – Measures temperature and humidity together.
			Week 3 (15-21 Days) 26-28 deg C	26 deg C	Thermocouple Sensors – For automatic monitoring in large farms.
			Week 4 (22-28 Days), 24-26 deg C	24 deg C	
			After Week 4 , 22-24 deg C	22 deg C	
3	Feeding Practices in Broiler Birds	Proper feeding is critical for broiler chick performance, maximizing growth, and improving feed efficiency. To ensure adequate feeding, use these key measurements and monitoring methods	Daily Feed Intake	Matches growth charts	Total feed consumed ÷ Total birds
			Feed Conversion Ratio (FCR)	1.5 - 1.8	Feed intake ÷ Weight gain
			Feeder Space per Bird	10-12 cm per bird	Feeder length ÷ Total birds
			Feed Waste Percentage	< 5%	(Feed wasted ÷ Feed offered) × 100
			Growth Rate Monitoring	Matches standard weight chart	Weekly weight check
			Water-to-Feed Ratio	1.6 - 2.0	Water intake ÷ Feed intake
			Protein & Energy Content	Matches broiler requirements	Feed sample analysis
4	Water Supply	Use clean, cool, and fresh water at all times. Accurate water quality measurement ensures better broiler health, faster growth, and reduced mortality	pH Level	6.0 - 6.8	Use a digital pH meter or pH test strips.
			Total Dissolved Solids (TDS)	< 1000 ppm	Use a TDS meter to check minerals, salts, and impurities
			Bacteria Count	< 100 CFU/ml	Collect water samples from multiple drinkers. Use bacterial test kits or send samples to a lab for testing E. coli, Salmonella, and Coliforms.
			Nitrate (NO <sub>3</sub> )	< 50 mg/L	Use nitrate test kits
			Ammonia (NH <sub>3</sub> )	< 1 mg/L	Use ammonia test strips
			Chlorine (if used)	2-5 ppm	Use a chlorine test kit
5	Ventilation	Proper ventilation in a broiler house is critical for bird health, feeding efficiency, and growth. Good ventilation controls temperature, removes ammonia and CO <sub>2</sub> , reduces humidity, and prevents respiratory diseases. Proper ventilation measurement ensures healthy	Air Exchange Rate	1-2 m³/kg of bird weight per hour	Use a CO <sub>2</sub> meter to track CO <sub>2</sub> build-up
			Ammonia (NH <sub>3</sub> ) Levels	<10 ppm (Ideal), <25 ppm (Acceptable)	Use an ammonia test kit or digital NH <sub>3</sub> meter.
			Carbon Dioxide (CO <sub>2</sub> ) Levels	<3,000 ppm	Use a CO <sub>2</sub> detector (digital sensor).
			Air Speed (Natural Ventilation)	0.2 - 0.3 m/s (Chicks), 0.6 - 1.2 m/s (Growers/Finishers)	Use an anemometer (wind speed meter) to check air movement at bird level
			Humidity Levels	50-65%	Use a digital hygrometer or thermo-hygrometer

		broilers, fast growth, and reduced disease risk	Temperature	32-35°C (Chicks), 22-24°C (Growers)	Use a digital thermometer at different spots
6	Litter Management	Litter quality is critical in broiler farming because it affects bird health, ammonia control, footpad condition, and overall performance. Poor litter quality can lead to wet litter problems, ammonia build up, and increased disease risks. Measuring litter quality ensures better broiler health, reduces disease risks, and improves overall performance	Litter Moisture Content	20-30%	$\{\text{Litter Moisture (\%)}\} = \{\text{Wet Weight (W1)}\} - \{\text{Dry Weight (W2)}\} \div \{\text{Wet Weight (W1)}\} \times 100$
			Litter Thickness	5-10 cm (2-4 inches)	Use a ruler or measuring stick to check depth at multiple locations
			Ammonia (NH <sub>3</sub> ) Levels	<10 ppm (Ideal), <25 ppm (Acceptable)	Use an ammonia test kit or digital NH <sub>3</sub> meter
			Litter Temperature	28-32°C (82-90°F) for chicks	Use a digital thermometer to measure temperature at different locations.
			Litter pH	6.0 - 7.0	Use pH test strips or a digital pH meter
			Litter Dryness Test	Should crumble in hand (not clump)	Pick up a handful of litter and squeeze it.
7	Lighting	Maintaining proper light intensity and duration enhances growth performance, feed intake, and bird welfare while reducing stress and mortality	Brooding (0-7 Days), 30-40 Lux	30 Lux	Turn on the lux meter and set it to lux mode.
			Grower Stage (8 - 21 days), 5-10 Lux	5 Lux	Hold the meter at bird level (30-50 cm above the floor).
			Finisher Stage (22 to 42 days), 2-5 Lux	2 Lux	Take reading at multiple locations (centre, near walls, near feeders/drinkers).
			Before lifting for marketing, 0.5 - 1 Lux	0.5 Lux	Record light intensity in lux and compare with the optimal range.
8	Stock Density	Stocking density is a key factor in broiler production, affecting growth, health, feed efficiency, and mortality. Proper measurement helps prevent overcrowding, heat stress, and disease outbreaks	Correct Dosage (mg/kg)	Matches prescription	Drug amount ÷ Bird weight
			Medication Coverage	No drop in intake	Compare water/feed intake before & during treatment
			Recovery Rate (%)	>85%	$(\text{Recovered} \div \text{Sick}) \times 100$
			Mortality Rate (%)	<3% after treatment	$(\text{Dead} \div \text{Total Birds}) \times 100$
			Withdrawal Period Compliance	Meets drug withdrawal period	Days until slaughter - Last medication day
			Water Medication Dilution	<5%	Drug concentration (mg/ml)
			Medication Records	Completion 100%	Track dosage, days, and withdrawal periods
9	Vaccination	Proper vaccination is critical for protecting broilers from diseases such as Newcastle, Infectious Bursal Disease, and Infectious Bronchitis. To ensure effective vaccination, follow these key measurement and monitoring steps	Doses Used vs. Birds Vaccinated	100% coverage	Check total doses given
			Post-Vaccination Reaction Score	0-1 (Mild)	Score from 0-3
			Antibody Titer Test (ELISA/HI)	≥ Target Levels	Blood test for immune response
			Vaccine Coverage Sampling	≥ 95% coverage	Random bird checks
			Cold Chain Monitoring	Consistent (2-8°C)	Check storage temperature
10	Waste Management	Proper waste management is critical for maintaining bird health, reducing disease risk, and ensuring environmental sustainability. Here's how to measure and monitor waste management efficiency in a broiler house	Manure Output per Bird	0.1-0.2 kg per bird/day	Birds × Avg. Manure (kg)
			Litter Moisture (%)	20-30%	$(\text{Wet weight} - \text{Dry weight}) \div \text{Wet weight} \times 100$
			Ammonia Levels (ppm)	<10 ppm (ideal), <25 ppm (acceptable)	Digital meter readings
			Waste Removal Frequency	Weekly turning, full removal per cycle	Track disposal per week
			Odour Measurement	≤ 1 (No strong odour)	Subjective scale (0-3)
			Fly Population	<50	Digital Count fly traps per week
			Recycling Rate (%)	>70%	$(\text{Recycled Waste} \div \text{Total Waste}) \times 100$
			Water Spillage Rate (%)	<5%	$(\text{Spilled Water} \div \text{Total Used}) \times 100$