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SUMMER STRESS MANAGEMENT IN BROILERS

Introduction

Summer stress can significantly impact broiler production, affecting growth performance, feed efficiency, immunity and mortality. Managing heat stress effectively is crucial for maintaining productivity and bird welfare in broilers production.

Heat Stress in Broilers

Heat stress occurs when birds cannot dissipate body heat efficiently, especially in hot, humid weather conditions.

Signs of heat stress include:

- Panting
- Wings held away from the body
- Decreased feed intake
- Increased water intake
- Poor weight gain
- Higher mortality

Advanced strategies for management of summer stress in broilers:

In high-performance broiler production systems, **advanced summer stress management** goes beyond basic cooling and feeding adjustments. It involves integrating technology, precise nutrition, and genetic considerations to mitigate the effects of heat stress, ensuring optimal growth, health and profitability.

1. Precision Environmental Control Systems

Use smart technology to maintain a stable microclimate in poultry houses.

Automated Climate Control Systems

- Integrate **sensors** for temperature, humidity and ammonia levels.
- Connect to **central control panels** that adjust fans, pads and curtains automatically.
- Real-time data logging for management decisions.

Zoning and Directed Airflow

- Use **zoned ventilation** with adjustable inlets and outlets.
- Install **airspeed meters** to optimize wind chill effect without creating draft stress.

2. Advanced Nutritional Interventions

Heat-Stress-Targeted Feed Additives

- **Encapsulated butyrates and organic acids:** Improve gut integrity.
- **Betaine:** Acts as an osmolyte and methyl donor—enhances cellular hydration and heat tolerance.
- **Yeast derivatives (MOS, β -glucans):** Support immune function under stress.
- **Adaptogens (e.g., ashwagandha, turmeric extract and amla powder):** Help birds adapt to heat via endocrine modulation.

Thermostable Enzymes

- Enzymes that function well at high body temperatures improve nutrient digestibility during heat stress.

3. Genetic Selection and Breeding

- Choose heat-tolerant broiler strains (e.g., **slow-growing or naked neck breeds** in tropical regions).
- Incorporate **genetic markers** for heat resistance (if doing your own breeding program).

4. Water System Optimization

Water Line Design

- Use **low-pressure nipple drinkers** to reduce spillage and humidity.
- Install **temperature-regulating recirculating systems** for consistent cool water.

Nutraceutical Water Additives

- Regular dosing with:
 - **Electrolytes + antioxidants**
 - **Sorbitol or glycerol** to support osmoregulation
 - **Prebiotic and acidifiers** to stabilize gut flora

5. Monitoring and Early Warning Systems

Remote Sensing + Internet of Things (IoT)

- Install IoT-based systems to monitor house climate, bird activity and energy usage.
- Send alerts to mobile devices when thresholds are exceeded.

Wearable Sensors (Experimental/Advanced)

- Track **core temperature, respiration rate, and movement** in high-investment operations.

6. Stress-Related Immunomodulation

Heat Stress Vaccination Protocols

- Adjust vaccination timing and method (e.g., avoid vaccinating during peak heat hours).
- Use **immunostimulants** (e.g., herbal or synthetic) to maintain vaccine responsiveness.

7. Sustainable House Modifications

Passive Cooling Designs

- Use **solar-reflective paints, green roofing, or earth berming** for insulation.
- Install **wind catchers or thermal chimneys** for natural ventilation in off-grid areas.

Energy-Efficient Cooling

- Solar-powered fans and water pumps
- Heat-recovery ventilation systems.