

Proper Roofing

- ◆ Sufficient roof height should be provided.
- ◆ Roofs should be kept free of dust and rust.
- ◆ A shiny surface can reflect twice as much solar radiation as a rusty or dark metal roof.
- ◆ Roof reflectivity can be increased by cleaning and painting the surface white/silver.



Adequate Water Supply

- ◆ Birds should have free access to clean and cool water.
- ◆ A adequate supply of water should be assured in poultry shed.

Nutritional Management

- ◆ Feeding birds at cooler times of the day, i.e., early morning or in the evening helps in reducing heat stress in birds during hot afternoon hours.
- ◆ Addition of fat and reduction of excess protein in feed are recommended to reduce the adverse effects of heat stress.



- ◆ Supplementing essential amino acids to a diet.
- ◆ Vitamins and mineral supplementation e.g., administering 1g vitamin C/litre of drinking water during heat periods has beneficial effects, vitamin E supplementation is beneficial to egg production.
- ◆ Providing ammonium chloride, potassium chloride and/or sodium bicarbonate will help in restoring electrolyte balance and improve performance.
- ◆ Supplementation of probiotic Lactobacillus strains will aid in restoring the gut microbial balance caused due to heat stress.

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Heat Stress Management in Poultry



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Poultry Farming in India

- ♦ Poultry farming is traditionally an important activity in Indian agriculture.
- ♦ India is one of the world's largest producer of eggs and broiler meat.
- ♦ Poultry meat is cheapest source of proteins contributing about 45% of total meat production.
- ♦ Poultry farming has potential to provide food and livelihood securities to major chunk of India's population including marginal and landless farmers.

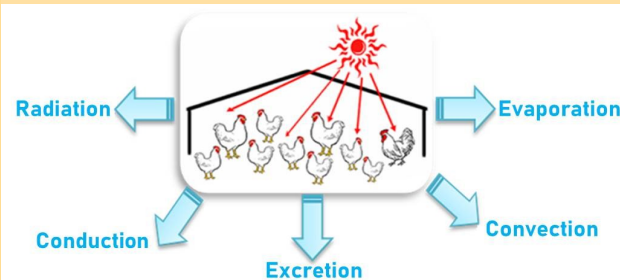
Heat Stress in Poultry

- ♦ Optimum temperature (thermoneutral zone) in poultry is 19-22°C for laying hens and 18-22°C for growing broilers; any deviation results in heat stress in birds of all ages and breeds.
- ♦ If heat production is greater than 'maximum heat loss' in intensity (acute heat stress) or over long periods (chronic heat stress), it can be fatal.
- ♦ Combination of environmental factor that cause heat stress namely, sunlight, thermal irradiation, air temperature, humidity; characteristics of the bird, bird's activity and housing conditions.
- ♦ Heat stress signs are, gasping, panting, spreading wings, lethargic droopy behaviour, extremely pale combs and wattles, closed eyes, lying down, drop in egg production, reduced egg size, egg weight and poor shell quality, increased thirst, decreased appetite, loss of body weight and increased cannibalism.



↓
Heat stress

Heat Loss Mechanism in Poultry



Impact of Heat Stress in Poultry?

- ♦ Reduced feed intake and dietary digestibility.
- ♦ Higher feed conversion ratio resulting in poor growth and lowered body weight.
- ♦ Deterioration of meat quality.
- ♦ Damage to egg production and quality e.g., reduced eggshell thickness and increased egg breakage.
- ♦ Impaired fertility due to abnormal hormones status in females and decreased semen volume, sperm concentration, number of live sperm cells and motility in males.
- ♦ Immunosuppression and lower levels of total circulating antibodies in birds.
- ♦ Increased mortality.

Managing Heat Stress in Poultry

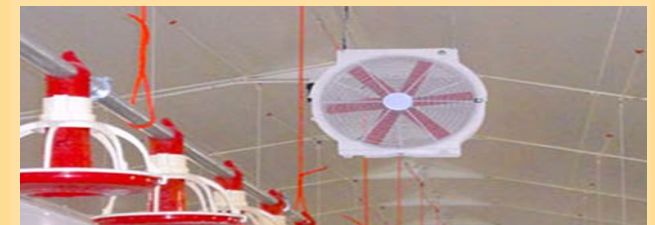
Poultry Shed Direction

- ♦ Poultry shed should be constructed such that long axis is in east-west direction to prevent the direct sunshine over the birds.



Adequate Ventilation

- ♦ Air movement facilitates removal of ammonia, carbon dioxide and moisture from poultry shed and allows entry of fresh air in the shed.
- ♦ Circulation fans are recommended for proper ventilation.



Surrounding Vegetation

- ♦ Grass cover should be provided in the surrounding. It will reduce sunlight reflection and heat build up inside the poultry shed.
- ♦ Vegetation around poultry shed should be kept trimmed to avoid blocking air movement and reduce rodent problems.