

Stress Management of Broilers

The term "stress" is commonly used to describe the **detrimental effects** of a variety of situations on the health and performance of poultry. In the poultry industry, public awareness and legislation of **animal welfare** clearly indicate that stress must be carefully considered in managing large, intensive, and mechanized complexes of meat-type chickens. Birds have limited body resources for growth, reproduction, response to environmental changes, and **defense mechanisms**. **Stress can be defined as the set of responses to external demands which call upon the flocks to adapt to a new or abnormal situation.** This adaptation process causes the release of hormones and requires the **redistribution of body reserves including energy and protein at the cost of decreased growth, reproduction and health.** After extended **or** repeated periods of stress, birds become fatigued and weak; they often surrender to starvation and infectious diseases. Contemporary broiler breeders possess the genes for faster growth rate, better feed conversion, and increased meat yield in their broiler progeny. Genetic progress creates management and nutritional challenges that confront producers because broilers and broiler breeder flocks are less tolerant to man agreement and disease problems than they were years ago. For instance, the effects of nutrition on the incidence of various health and leg problems are now magnified. **Therefore, increased education and training of broiler breeder managers will have a major beneficial impact on flock welfare and profitability.**

Interactions between management and poultry behavior must be recognized to reach their maximum genetic potential. **Some examples of management-behavior interactions include violence, feeding, broodiness, feather pecking, cannibalism, and nest site selection.** Comfort behaviors which are significant indicators of homeostasis with the housing environment **include stretching, wing flapping, dust bathing, preening, ground scratching, foraging, and walking.** The most successful producers identify behavioral problems and adapt their management practices accordingly.

Clinical histories and flock records from several broiler breeder operations clearly suggest that **flocks managed under the least degree of stress** are more likely to be free of clinical problems, have good uniformity and livability, respond better to vaccination, and have optimum reproductive performance.

Overcrowding leads to a less uniform flock. Raising flocks under stressful conditions often results in high rates of culling and mortality, poor uniformity, diseases, and suboptimal reproductive performance. Adverse management practices often result from financial pressures to increase productivity. The poultry industry has been quick to adapt to genetic progress and to incorporate improved husbandry practices that allow producers to realize a greater return from their investment.

It must be acknowledged that even in state-of-the-art facilities, there are common sources of stress which can be grouped under the following categories:

1. Climatic stress

- Extreme heat
- Extreme cold
- High humidity
- Wind

2. Environmental stress

- Too bright light
- Wet litter
- Less feeder/ drinker space
- Poor ventilation
- Dust of house
- Ammonia gas

3. Nutritional stress

- Shortages of nutrients
- Feed intake problems
- Toxic feed
- Polluted water

4. Physiological stress

- Poor digestion
- Metabolic problem
- Hormonal responses.
- Immunity
- Molt

5. Physical stress

- Catching of birds
- Debeaking
- Immobilization
- Vaccination /injections
- Injury
- Transport

6. Social stress

- overcrowding
- noise
- cannibalism

7. Psychological stress

- Fear
- Cruel care

8. Disease stress

- infectious agents

Stressed birds do not gain weight well and have reduced feed efficiency. Stress causes decreased antibody responses to vaccination and increased susceptibility to different diseases. In most cases stress affects the performance of chickens by reducing body weight gain and egg production, in addition to increasing mortality and susceptibility to disease. The influence of this type of stress during the brooding period can have devastating effect on the immunity and future performance of the birds.

Conclusions

A successful stress management program depends on:

1. Education and training of service personnel and producers
2. Prompt identification of abnormal management situations and flock behaviors
3. Taking corrective action to ensure adequate feed and water intake, air and litter quality
4. Taking preventive action in anticipation of seasonal changes, scheduled bird handlings
5. Making management and nutritional adjustments as required by the performance
6. Monitoring health status of the flock by evaluating immune response after vaccination, house temperature, transport of chicks, health status of the flock, routine flock inspection, and necropsy examinations