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Stress and Success: How Reducing Anxiety Improves Animal Health and Farm Productivity

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Abstract

Stress is a reflex reaction revealed by the inability of an animal to cope with its environment which may lead to many unfavourable consequences, ranging from discomfort to death. Animal anxiety is a significant challenge in livestock management, affecting health, growth, reproduction, and overall farm productivity. Stress factors such as poor handling, improper housing, environmental changes, temperament introduction to a new herd or flock, diseases and parasites and inadequate nutrition influence livestock behaviour and welfare. Prolonged stress leads to reduced immunity, lower reproductive rates, and poor-quality animal products. Implementing effective stress management strategies, including better housing, balanced nutrition, humane handling, and environmental enrichment, significantly enhances animal health and farm efficiency. This article explores the causes of anxiety in livestock, its impact on productivity, and the best methods to reduces the stress for the better animal health and farm productivity.

Keywords*:* Stress, Success, Anxiety, Animal health, Farm Production

Introduction

Stress in general is looked down as a symptom behaving from exposure of a livestock to a hostile atmosphere. To some, it's a non-specific response to all environmental forces, others feel there are specific stress symptoms caused by specific environmental forces. The term stress is occasionally used to describe the hostile climate (Gebregeziabhear, 2015). The incapability of animal farmers to identify environmental factors and care and handling practices that increase the stress in to the farm animals may affect in lower performance and reproductive capability of livestock leading to a lack of livestock and livestock products supply (Endris and feki, 2021). Anxiety in animal is caused by a so numerous factors similar as unexpected environmental changes like high and low temperature, moisture, etc., exposure to new livestock, loud noises, overcrowding, transportation stress, unexpected change in diet, give unsuitable nutrition and unsuitable handling (Abdela and Jilo, 2016). Chronic stress negatively affects growth, meat and milk yield, and reproduction, eventually reducing profitable earnings for farmers. Understanding of stressors that impact domestic ranch livestock productivity and management practices that can relieve stress within the climate will enhance livestock comfort and maintain a secure, productive and low- cost food supply (Gebregeziabhear, 2015). Thus, it's key to apply current, research- based approaches to manage anxiety effectively, leading to bettered livestock welfare and farm productivity. Thus, the main objective of this paper is the how manage the stress

in farm animals and improve their health and also increasing the farm productivity.

Causes of Anxiety in Livestock

1. **Poor Handling Practices**: Livestock that experience improper handling, loud noises, and improper use of equipment, stock person's attitude and behaviour tend to develop anxiety and stress in the animals (Endris and Feki, 2021).
2. **Overcrowding and Competition**: High stocking densities force animals into competition for food, water, and space, causing aggression and psychological stress (Broom and Fraser, 2015). Overcrowding also increases the spread of diseases and reduces overall growth rates.
3. **Inadequate Nutrition and Sudden Dietary Changes**: A poor diet or an abrupt change in feed composition can lead to digestive disorders, metabolic stress, and anxiety in livestock (Gebregeziabhear, 2015). Providing balanced and consistent nutrition ensures good health and reduces stress-related issues.
4. **Transportation and Relocation Stress**: The variety of factors includes loading and unloading, improper handling, unsafe driving, bad road conditions, too hot or too cold environment, inadequate ventilation, high stocking densities, unfamiliar group mixing, deck height, lack of water and food, noise, vehicle movement and journey length (Bhatt *et al,* 2021). Properly managed transport reduces these negative effects.
5. **Environmental Discomfort:** High temperatures, high direct and circular solar radiation and moisture, law temperatures, poor ventilation, extreme noise, and improper housing contribute to discomfort and stress in animal (Endris and Feki, 2021).

Effects of Anxiety on Animal Health and Productivity

1. **Reduced Growth Rates and Poor Feed Conversion**: During transportation, physiological alterations such as electrolyte imbalance increased respiration rate and heart rate, dehydration, energy deficit and related catabolism have been reported (Abdela and Jilo, 2016). Cold stress mostly seen in new born calves due to this absorption of colostrum are decrease also decreases the feed intake. This decreases the body growth of calves. Compared to native breeds, calves born to unadopted European breeds after a summer pregnancy in the tropics frequently have lower birth weights. Pigs that were positively handled grew at a rate of 455 g per day, while negatively handled pigs only grew at a rate of 404 g per day. Pigs that were inconsistent growth rate of 420g per day. In this situation, the growth rate was reduced due to the animal stress response (cortisol concentrations were elevated in inconsistent and negatively handled pigs) (Gebregeziabhear, 2015). Anxious animals consume less feed, leading to lower weight gain and inefficient feed utilization.
2. **Weakened Immune System and Increased Disease Susceptibility**: Chronic anxiety suppresses immune function, making livestock more vulnerable to infections such as respiratory diseases and parasitic infestations (Moberg, 2000). In a number of species, the stress of weaning is known to raise the risk of digestive disorders (Abdela and Jilo, 2016). Docking and castration were managed as severe stressors that lambs may encounter as a part of routine husbandry (Gebregeziabhear, 2015). When animals face stress, their body releases cortisol, which is a stress hormone. High level of cortisol reduces immune power and makes animal more open to disease (Moberg, 2000). Regular veterinary care and stress management help prevent illnesses.
3. **Lower Fertility and Reproductive Issues**: High-stress levels disrupt hormonal balance, leading to reduced conception rates, delayed puberty, and increased pregnancy losses. Heat stress will cause the delay puberty in the male and females (Gebregeziabhear, 2015). The rectal temperature of the animals increased from 38.5˚C to 40˚C in 72 hours after insemination service, pregnancy rates can decrease up to 50% (Abdela and Jilo, 2016).

Electric prods, restraint, and other handling stressors will lower female reproductive functions (Gebregeziabhear, 2015). Stress stimulates the hypothalamus, pituitary gland and gonads directly to affect Gonadotropin-Releasing Hormone (GnRH) secretion into the hypophyseal portal blood (Endris and Feki, 2021). Creating a low-stress environment enhances breeding success.

4. **Poor Milk and Meat Quality**: Stress hormones negatively impact muscle quality, causing tougher meat, lower fat deposition, and reduced milk production (Broom and Fraser, 2015). Pale Soft Exudative (PSE) in pigs is caused by severe, short- term stress just prior to bloodbath, for instance during off- loading, handling, holding in pens and stunning. During the period of control, transport, and pre-slaughter the muscle glycogen has been used up and as a result, after slaughter, there's little lactic acid production occur, which results in Dark Firm and Dry (DFD) meat. This type of condition mostly occurs in the cattle or sheep (Gebregeziabhear, 2015). Managing stress leads to higher-quality animal products.
5. **Increased Aggression and Injuries**: Anxious livestock exhibit more aggressive behaviours, leading to fights, injuries, and damage to farm infrastructure (Grandin, 2001). A negative control behaviour, similar as slaps, hits, fast movements, roaring and noise will induce an increase in fear in the livestock, resulting in avoidance, stress, and handling difficulties. Harmful handling as well as restraint during management procedures may cause the animal to injure or stress itself or a worker (Gebregeziabhear, 2015). Proper handling and space allocation reduce aggression-related losses.

Methods to Reduce Anxiety in Livestock

1. **Gentle and Consistent Handling**: Understanding the livestock behaviour and using proper handling techniques, creating a calm environment by reducing sudden movements, loud noises, and unfamiliar objects (Downs, 2024). By the without any aggression and calmly handing the animal make animals familiar with us and decrease the stress in animals.
2. **Optimized Housing Conditions**: Providing adequate space, providing comfortable resting areas with appropriate ventilation, and non-slip flooring to prevent accidents, is essential for minimizing stress in livestock (Downs, 2024). Proper lighting and reduced noise levels also decrease the stress in animals.
3. **Nutritional Management**: Provide high quality feeds like total mixed rations, increase the frequency of feedings; feed during cooler times of the day, keep feed fresh as much as possible, provide high-quality forage and adequate Fiber, use bypass proteins can reduce the stress and enhance the milk yield. Give the clean water and mineral supplements also make the good health of animals and reduce the anxiety (Endris and Feki, 2021).
4. **Minimized Transportation Stress**: Ensuring proper loading and unloading techniques, Space allowances for road and rail transport of livestock as per BIS 2007, reducing travel duration, maintain the proper hygiene and perform the vehicle and equipment sanitation before the transportation, Check the health status of the animals prior to transportation, give the water and feed at regular interval (Bhatt *et al,* 2021). Providing water and feed and rest stops during the transportation helps maintain low stress and best health of animals.
5. **Environmental Enrichment and Socialization**: Allowing livestock to interact naturally, providing play objects, and reducing isolation lower stress levels. Social animals, such as cattle and sheep, benefit from stable group structures.

Conclusion

Stress is a crucial limiting factor to effective animal yield and negatively impacts the health and productivity of animal during all lifecycle stages. The stress reaction includes several changes that may have adversary impacts on the health and performance of livestock. These impacts include changes in the immunity of animals and increased

disease, reduced feed intake and rumination, inhibition of oxytocin release, decrease fertility and impact on meat and by- product quality. For that reason, by giving the best shelter and bedding material and care to the animal, proper handling techniques, giving the nutritive diets, proper management during the transportation, and good treatment etc. reduces the stress in livestock. By reducing stress, we can raise the animal health and also accelerating the farm productivity.

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