



Care and Management of Livestock in Winters

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Abstract

Livestock supports livelihood of millions of people and as the climate is changing; it is posing threat to the Livestock sector as well. Rise in temperature, change in precipitation patterns and increase in frequency of extreme weather events have several effects on livestock, including disruption in feed production, water scarcity and heat and cold stress. So, it is necessary to provide livestock with properly ventilated and warm housing, adequate bedding material and energy-rich feed to support the livestock productivity. Species-specific recommendations are important emphasizing the importance for controlling temperature, proper feeding and hydration during cold weather. Also, it is very important to prioritize the prevention and treatment of hypothermia, using combination of external warming methods and supportive therapies, such as administration of warm fluids and management of pneumonia. By implementing the above said strategies, farmers can maintain health and production of their animals from being negatively impacted by cold stress.

Keywords: Animal health, Climate change, Hypothermia, Livestock

Introduction

Livestock production helps millions of farmers around the world in maintaining their livelihoods, generate income and ensure food security. Along with its economic benefits, the livestock production is essential for rural development and it provides steady income flow, especially in times of crop failure. Gross Value Added (GVA) contribution by Livestock to agriculture and allied sector has increased at constant prices from 24.32% in 2014-15 to 30.13% in 2020-21.

Climate change, however, presents serious obstacles to livestock systems' production and sustainability. Extreme weather variations, particularly in northern India, cause significant drops in temperature. While humans are fortunate to stay warm and comfortable indoors with easy access to food and water, livestock face much greater challenges in coping with the cold. Strategies to improve the resilience and efficiency of livestock systems must be developed in light of the significant effects these changes

have on livestock and the related feed output (Cheng et al., 2022).

Impact of Winter on Animal Production and Health

Animal production is impacted during winter as a larger portion of their energy is used to maintain body temperature, which in turn affects their productivity, as it relies on the ability to maintain a stable body temperature. During this period, many animals may refuse to eat, develop fevers or contact pneumonia, negatively affecting their milk production, overall health and reproductive performance. Cold environments lead to increased energy loss, which must be compensated for by providing extra calorie-dense feed and special care. In addition to regular feed, animals should receive energy-rich grains equal to about 0.8% of their body weight to help counter the cold stress and maintain normal milk production and activity levels. Calves born in winter or early spring, as well as wet and cold calves, are especially vulnerable to cold stress or hypothermia. Precipitation can

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worsen the effects of cold weather on calf survival, making it essential to manage cold stress (hypothermia) in newborn calves. Winter conditions also cause chapped and cracked skin in animals, with the udder being particularly sensitive to these effects (Heins *et al.*, 2019).

Protective Measures to Prevent the Effect of Cold Stress

Housing

During Cold weather, it's important for Livestock farmers to make necessary arrangements to ensure the health and production of their livestock. Ensure proper ventilation to allow fresh air to circulate and avoid overcrowding in the shed. Clean the shed at least twice a day to remove ammonia, livestock waste and disease-causing pathogens and consider using mosquito repellent coils or electric repellents to keep pests at bay or burn neem leaves to help prevent diseases. Avoid bathing animals with cold water during winter and if necessary, wash them during the warmest part of the day and dry them immediately with a cloth to minimize heat loss. Provide bedding made from materials like paddy straw, dry grass, sawdust, wheat husk or rice husk to insulate and reduce heat loss and for dairy animals, ensure the udder is thoroughly dried after washing and use commercial balms and moisturizers to heal and moisturize the area if it becomes chapped or raw. Provide suitable bedding, 4-6 inches deep for larger animals and 2 inches deep for smaller animals, on concrete floors and in loose housing systems, hang curtains around the animal house to block cold winds at the animals' level. By following the necessary arrangements, livestock farmers can help ensure health and productivity of their animals (Redbo *et al.*, 1996).

Feeding and Watering

At the onset of the winter session, it is very difficult for the farmer especially small-scale farmers to provide high quality nutrients to avoid hypothermia and for the maintenance of the milk production of the animals. During the winter, Temperature of feed and water is very important. Feed should not be frozen and water should not be chilled. Necessary steps should be taken to avoid these like add hot or lukewarm water in water as per requirement. Additional grains like maize, wheat, oats or easily available whole grains should be provided to meet the higher energy demands during winter, but be aware that high-moisture feed rations may become chilled in the feeding area, reducing intake and requiring more energy for digestion. To help dairy animals maintain body temperature, include a mixture of oil cakes and jaggery in their diet, following the recommended order of Mustard cake, Cottonseed cake, Groundnut cake and Soybean flakes. Always include 2% mineral mixture and 1% salt in concentrate feed during winter, ensuring it is purchased from reputable suppliers, to provide essential nutrients and support overall health and well-being (FAO, 2012).

Some Special Protective Measures for Different Species

Calves

- Blankets are very helpful for calves under three weeks old that are not yet eating grain. However, the blankets should

not be too hot, as this could cause skin burns or excessive sweating during the day.

- To keep calves healthy and reduce the risk of pneumonia, diarrhea and mortality, increase barn temperature using electric bulbs or heaters during winter.
- Young animals should be given protective coverings like gunny bags, sacks or blankets to help retain body heat and keep them warm.
- Wet floors increase the risk of disease in young animals, making proper flooring crucial for their health.
- Hypothermia is a significant risk for newborn calves, so housing, feeding and hydration must be carefully managed to prevent it.
- Calves should be provided with extra feed, such as starter, milk replacer or additional milk, to meet their increased energy needs during cold weather.

Sheep and Goat

- Ensure at least 1 m² of floor space per sheep or goat.
- The floor should be non-slippery and insulated with hay, husk or straw to prevent fractures in goats caused by slippery surfaces.
- Build a night shelter for goats to protect them from cold winds.
- Start feeding sheep and goats with lukewarm water, as cold water can cause digestive issues.
- Introduce new feed gradually to avoid problems like acidosis or bloat in goats.
- Ensure that sheep and goats have at least four hours of sunlight daily to help maintain body warmth. Make sure they have access to sunlight on sunny days, especially during the winter months when natural light is scarce
- Provide bedding about 2 to 4 inches thick to reduce heat loss through conduction, as goats prefer soft, warm haystack beds.
- Avoid shearing wool or hair during winter; shearing or clipping should be done before or after the season.

Horses and Donkeys

- Provide nutritious feed rich in carbohydrate and minerals for the maintenance of the health of the horse.
- Provide good quality feed for the generation of heat inside of the body of horse.
- Avoid the feeding of chilled feed and water.
- To avoid hypothermia, use blankets and blower inside the stable especially for the foal.
- Monitoring of daily feed and water intake. As usual a healthy adult horse consumes 20-40 liters of water daily.
- Hooves require proper care during winter as they continue to grow and become brittle. So, they required trimming.

Pigs

- Create warm environment (temperature above 20 °C) inside the pen of the pigs to avoid heat losses from their body.

- Proper bedding should be provided made of straw to prevent heat losses from body of the pig.
- Size of the pen should be proper for the exercise of the pig.
- Temperature of both pen and pig should be regularly monitored during winter season to avoid hypothermia.
- If any pig found hypothermic, treated immediately to avoid hypothermic shock.
- Provide proper nutrition for the maintenance of the help and to compensate the energy losses during winter.

Treatment of Hypothermia

The animal should be warmed through both external and internal methods, including proper rubbing and hot water fomentation. Massage the animal to help restore warmth. Administer shock therapy with warm fluids, calcium-based fluids and liver tonics as supportive treatments for 3-5 days. Therapy including broad spectrum antibiotics and supportive therapy including fluid therapy, multivitamins, will help in the treatment of pneumonia if it developed during the course of the hypothermia. We will take the nebulization's for the delivery of the drug for pneumonia.

Conclusion

Hypothermia, and other issues in winter related to the health seriously affect the animal's productivity. To control these problems, different managerial practices mainly focused on proper ventilated housing, nutrition, proper bedding,

nutritious feed can help in maintaining the health of the animals during the winter periods. A diverse approach to livestock management can help build robust systems that can survive the effects of climate change and ensure the continued existence of global agriculture and the livelihoods that depend on it.

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