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Popular Article

Advanced Approaches for Nutritional Management of Livestock During Natural Calamities or Disasters

Dr. Rajat Buragohain*

Department of Animal Nutrition, College of Veterinary Sciences & Animal Husbandry
Central Agricultural University (Imphal), Selesih, Aizawl, Mizoram – 796015

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Introduction

Natural calamities or disasters result significant damages to animal lives and livelihood of farming communities severely impacting the animal productivity and sustainability of livestock enterprises. Natural geological and meteorological events (floods, volcanic eruptions, earthquakes, tsunamis, wildfires and landslides etc.) sometimes cause havoc leading to disruption of ecosystems and environment.

Livelihood of more than half of the population of India depends on agriculture-based businesses. Livestock are integral component of agriculture-based businesses of farming communities. Livestock farming provides supplementary income to the farmers and livestock products (milk, egg and meat) are affordable protein sources. By-products of livestock farming and livestock-based enterprises are important essentials for day-to-day life, and this sector provides/generate significant employment opportunities for significant fraction of population. Whenever the livestock-based enterprises are affected by natural calamities/disasters, both livestock and livestock owners are equally affected.

Feeding management is one of the important aspects of livestock farming practices. Proper feeding management ensures better health and productivity of livestock species. Optimum nutritional management helps in exploiting the full genetic potentiality of the livestock species. As the nutritional requirements of livestock species depend on breed/animal types, physiological status, sex and environmental condition of rearing surrounding, farmers

* Email: dr Rajat57@gmail.com.



should follow appropriate feeding strategies to fulfil their nutritional requirements with balanced rations. Profitability from livestock enterprises is directly proportional to feeding expenditure. It is because of the involvement of nearly two-third of the total expenditure of livestock enterprises for feeding to the animals only. Thus, when there is scarcity of feeds and fodders for natural calamities or disasters, productivity and profitability of livestock enterprises are significantly reduced. Impacts of extreme environmental situation on physiology of animals are well documented. Severe thunderstorm and strong wind can significantly reduce growth rate, and egg production in layers. Similarly, extreme hot and cold condition significantly affects productivity of dairy animals. Therefore, adoption of suitable feeding strategies for livestock species is an important aspect to be taken care of during natural calamities and extreme weather conditions for sustainability of livestock enterprises.

Nutritional management of livestock during extreme drought condition

During extreme drought, nutritional management involves provision for adequate feed and water supplies, pre-conservation of available fodder resources in the form of hay or silage, and proper utilization of unconventional feed resources for the animals. Nutritional enrichment of low-quality fibrous crop residues, supplementation of deficient nutrients and providing total mixed ration in the form of complete feed blocks to the ruminants are extremely necessary. More attention should be given to the vulnerable animals and weak animals. Grazing should be managed carefully and nutrient deficiencies should be monitored regularly. If draught is a recurrent phenomenon every year, drought management strategies to handle feed shortage are needed. Early weaning of calves can significantly reduce the nutritional demands of lactating cows. Non-lactating or old animals may be culled off to reduce the feeding cost.

Energy is one of the most limiting nutrients during extreme drought condition. Adequate energy supplements (Molasses or starchy feeds), grains and protein concentrates (oilseed cakes or urea) can be incorporated to increase roughage intake. Feeding of total mixed ration in the form of complete feed block is desirable as this may eliminate the problem of introducing low quality roughages with adequate supplements. Supplementation of vitamins, particularly vitamin A and E are needed. Cultivation of drought-tolerant varieties of fodder crops, utilization of available tree foliages and cultivation of hydroponic fodders may be encouraged. Regular monitoring of body condition score of the herd is required to adjust the feeding level. There may be risk of poisoning by plant toxins like prussic acid poisoning for drought-stressed plants (e.g., sorghum) or nitrate poisoning. Suspected foliages should be tested and animals should be monitored for symptoms like weakness, staggering



gait, or blue discoloration of the mouth and if found, should be quarantined with immediate treatment measures.

Management of livestock during flood and after flood situation

During the flood, provision for emergency feeds and supply of clean drinking water should be ensured. After the flood, feeding of contaminated forages should be avoided. Animals should be kept in clean and disinfected shelters and their health condition and signs of any disease should be monitored and recorded.

During the flood, all animals should be shifted to higher ground or pre-designated safe shelters to prevent drowning. Animals should not be tied up during flood. They should be kept loose so that they can move to shelter quickly. Floodwaters may be contaminated, and therefore, clean drinking water from an elevated source should be ensured. Provision for emergency feeds, such as stored/conserved forages, should be ascertained. Feeding of moldy or contaminated feeds should always be avoided. Injured animals should be provided with immediate first aid. In extreme condition, animals may need to be evacuated, and in such cases identification tags should be put in each animal.

After flood feeding management of animals is more crucial as there are chances of poisoning for consumption of flood-damaged forages, spoiled, rotten or infested with molds. Hay or forage that had been soaked by floodwater, should be avoided. After flood, all shelters should be thoroughly cleaned and disinfected including the feeding areas along with the equipment to prevent the spread of disease. Animals should be closely monitored for signs of any disease such as diarrhea, pneumonia, or skin infections and should be treated accordingly. When properly re-established and renovated, animals should be shifted to their original places with adequate provision of nutritionally balanced feed to compensate the losses of body condition during the flood.

Nutritional measures to be taken during extreme hot and cold conditions

During the extreme hot situation, provision for body cooling facility and proper feeds with 24x7 supply of clean drinking water is must for aiding hydration and reducing metabolic heat production. Water is the most essential fluid for staying cool and hydrated. Drinking water should be sufficient and the supply of drinking water may be increased during the time of high physical activities. Animal body loses essential electrolytes (such as sodium, potassium, and magnesium) through sweat, and they should be replenished by providing oral rehydration solutions, electrolyte-enhanced drinks. High water containing vegetables and fruits (watermelon, cucumbers, strawberries, cantaloupe, and leafy greens etc.) should be



provided as they can help in reducing dehydration. Easily digestible rations with less protein and more energy should be provided. Dehydrating liquids should be avoided parentally.

In extreme cold situation, the body's needs for energy increases for increased metabolic rate to generate heat and maintain core temperature, which requires more calories and some specific nutrients. High-energy feeds rich with healthy fats, proteins, and complex carbohydrates, should be incorporated as energy source over an extended period. Healthy fats with oil seeds and oils can be supplied to meet the increased energy requirement. Whole grains, root vegetables (like sweet potatoes), and legumes may provide steady energy needed during this period. Dehydration is a risk during cold weather because the thirst sensation can be reduced by as much as 40%. The livestock should be provided with clean drinking water 24x7.

To boost the immune system, extra supplementation of green forages, Vitamin D and C, and trace mineral salts can help during the both extreme hot and cold situations.

Planning for nutritional strategies during natural calamities

Nutritional strategies may be planned well in advance for successfully facing the natural calamities. It involves phased approaches for addressing the specific needs immediately after occurrence of any natural disaster.

There should be considerable stocks of feed materials which can be immediately supplied at the time of needs without much difficulty like the complete feed block, urea molasses mineral block, mineral mixture etc. Fodders may be conserved in the form of straw or hay and may be baled or compressed as cubes to reduce storage space requirement and for immediate disposal at the time of needs.

When the situation improves, animals may be provided with more balanced diets addressing the specific nutritional demands and possible deficiencies. Advanced packaging materials and methods should be employed to reduce the chances of spoilage or infestation with microorganisms. Moisture content of the stored grains/dried fodders should be reduced to less than 15% for storage for longer duration.

Considering the region-specific nutritional issues, advanced feeding plans for the livestock may be formulated at the time of scarcity of feeds or natural calamities. Adequate investment for cultivation of essential grains and fodders will help in eliminating the dependence on external feed supplies.

There are also needs for implementing nutritional surveillance to know the region-specific nutritional deficiencies. Local farming communities should be made aware about scientific feeding practices and adequately educated about suitable feeding strategies during



natural calamities/disasters with the utilization of available natural feed resources. Effective disaster nutrition for livestock also depends on collaboration between governmental agencies, NGOs, and community organizations to ensure efficient procurement and distribution of feed materials.

Conclusion

The natural calamities or disasters are unpredictable and can occur at any time at any place. Preparedness is the key to tackle any challenges with minimal impacts on livestock production and productivity. A holistic approach with active involvement of subject experts, government machineries and organization concerned can reduce the damages and help the farmers to sustain their farming practices.

References

- Anonymous (2025). Caring of livestock during and after flooding. Accessed on <https://www.ndsu.edu/agriculture/ag-hub/caring-livestock-during-and-after-flooding#:~:text=SAFE%20SHELTER%20AND%20EVACUATION,away%20by%20fast%2Dflowing%20water> dated 28th October, 2025.
- Bakshi, M., Wadhwa, M. and Makkar, H. (2018). Feeding Strategies During Natural Calamities. *Indian Journal of Animal Nutrition*. 35. 10.5958/2231-6744.2018.00001.4.
- Brown, D. (2024). Management of sheep and goat through drought. Accessed on <https://extension.missouri.edu/publications/g2618#:~:text=In%20drought%20conditions%2C%20energy%20is,weight%20for%20optimal%20rumen%20function> on 29th October, 2025.
- Choudhury P. and Rahman, S. (2021). Management of livestock during and after the flood. Accessed on <https://www.pashudhanpraharee.com/management-of-livestock-during-and-after-the-flood/> dated 30th of October, 2025.
- Kurade, N., Sajjanar, B., Nirmale, A., Pawar, S. and Sampath, K. (2017). Nutritional Management: Key to Sustain Livestock in Drought-Prone Areas. 10.1007/978-981-10-5744-1_20.

