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Agriculture is amongst the most climate sensitive economic sectors in developing countries. **Climate change** does not only affect vegetation, but it also **has a huge effect on livestock, especially when they seek for forage and water forcing them to move long distances**. Despite the wide fluctuations in environmental temperatures, animals have certain thermoregulatory responses that are designed to stabilise body temperature such as an *increased peripheral blood flow, sweating and panting* (Vermunt & Tranter, 2011).

However, these thermoregulatory activities may not be sufficient to maintain a normal body temperature during periods when ambient air temperature and humidity are particularly high, and lead to heat stress.

Heat stress is a crucial factor caused by extreme temperatures.

This have effects on animal behaviour and physiology. **Heat stress has a detrimental effect on [feed intake](#), mortality, reproduction, maintenance, and production**. Therefore, **cooling heat-stressed animals** is one of the most commonly applied approaches (West, 2003).

Here are a number of management factors that can help minimise heat stress in animals:

- **Feed intake**

Ensure that you have **high quality feed with low fibres** e.g. *Roughages*. This is because high fibre intake, during extreme outside temperatures, increases heat fermentation in the rumen that leads to heat load on the animal. However, grasses and lucerne would be ideal during the day as little chewing is required. **Supplementary feeding at night is also recommended** because **it compensates for the time the animal lost to forage during the day due to heat stress.**

• **Water and cooling**

During extreme heat conditions water intake in livestock can increase twice the amount of the normal intake. Therefore, it is important to have water troughs around the farm under shades. The troughs should be made of concrete because it helps keep the water cool and should be big enough to accommodate animals.

Hoses and sprinklers have been used to increase evaporation cooling by wetting the animal skin to reduce heat. However, animals should be trained before this is initiated or introduced because they might be afraid at the beginning leading to increased stress levels.

In events where finance is not limited or animals are kept in an enclosed area, **fans are also highly recommended to increase air flow.**

• **Shade seeking**

In a situation where there are no trees, one can alternatively build an **open sided shade structure such as shade cloth/net, palm**

branches, timber and corrugated iron. However, with the corrugated iron it is best for it to be painted white so it can best reflect high intensity of sun rays and thereafter heat temperature is reduced.

• **Animal handling and Movement**

During extreme heat conditions it is better to **keep animals in grazing areas that are close by to ensure less distances of moving back.** The **transportation of animals should be done on warmer days and avoid overcrowding animals as this increases heat stress.**

Heat stress is a great financial problem in agriculture.

Livestock adapts to heat-stressed weather conditions through different mechanisms. Understanding the behavioral responses of animals helps to ensure that they are well managed in order to reduce not only heat stress but also to avoid the reduction of animal production.

References

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Management techniques to reduce heat stress in livestock

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