

Investigation and test on moisture removal effect in modified container hay barn ⁽¹⁾

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Abstract

Intake of small herbivores is low, and hay is prone to long-term storage deterioration. In this study, a modification with container for small scale hay storage was carried out, and its micro-meteorological changes and dehumidification effect were also investigated. After the ventilation tower was installed in the container, the surveyed ventilation rate was 378 m³/h, calculated as 5.6 times the air changes per hour in the modified container. The relative humidity (RH) of the modified container dropped from 90 to 75% on the fifth day after injection of 100L water, while the control set (without water injection) remained stable at about 85%, indicating that the modified container could effectively remove the internal moisture. According to the continuous micro-meteorological records, the RH changes of the upper layer of the modified and original containers were similar, which could be reduced to 30-35% during the day, and the RH of the modified set were lower than that of the original set. The RH of the lower layer in original container was higher than that in the modified container and also higher than that of outdoors in the evening. The hay bales of Pangolagrass and Bermuda grass were placed in the modified container, original container and the concrete barn to conduct a 35-day survey on their weight reduction. Although the test in modified container was disturbed by the entry of rainwater entrained by strong winds, the moisture loss of hay bales in modified container was higher than those in others. The results were similar in both Bermuda grass and Pangolagrass hay bales.

Key words: Hay storage, Modified container, Moisture content..

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