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Effectiveness of Mixing Wet Distillers Grains and Hay with a Mixer Wagon or a Front End Loader for Long-Term Storage

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Effectiveness of Mixing Wet Distillers Grains and Hay with a Mixer Wagon or a Front End Loader for Long-Term Storage

Abstract

Storage of wet distillers grains is a major challenge for small beef producers. Many storage methods often require specialized equipment. This study evaluated the differences in variation when wet distillers grains and ground hay were mixed using a mixer wagon or end loader.

Keywords

Animal Science

Disciplines

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Effectiveness of Mixing Wet Distillers Grains and Hay with a Mixer Wagon or a Front End Loader for Long-Term Storage

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Introduction

Storage of wet distillers grains is a major challenge for small beef producers. Many storage methods often require specialized equipment. This study evaluated the differences in variation when wet distillers grains and ground hay were mixed using a mixer wagon or end loader.

Materials and Methods

Two separate storage studies were conducted in 2007 and 2008 that used a combination of 80 percent wet distillers grains and 20 percent tub ground fescue hay on an as-fed basis. These studies were conducted at the ISU Beef Nutrition Farm and the ISU McNay Research Farm. In the Beef Nutrition Farm study, the combination was mixed in a feeder wagon, delivered to a concrete bunker silo, packed with a tractor and covered with plastic before being fed to growing beef calves in a backgrounding study. The study at the McNay Research Farm used a temporary bunker silo made of big round hay bales covered in plastic. In this study, the ground hay and wet

distillers grains were mixed by layering approximately one third of the hay required for a semi load of distillers grains at the bottom of the bunker. After unloading the truck, additional hay was added to the feed, using the front end loader and the tractor wheels to mix the combination of hay and wet distillers grains.

Approximately one hour of mixing and packing for each semi load was required. This method was evaluated as an option for small producers who do not have access to feed mixing equipment. Feed samples from each storage structure were collected approximately every two weeks during the feed out. Standard forage analyses were conducted and a coefficient of variation calculated to evaluate the effectiveness of feed mixing.

Results and Discussion

Results of feed analysis are shown in Table 1. Mixing with the feeder wagon reduced the variation by approximately half in dry matter and crude protein. Variation in fiber was low with both mixing methods. The variation that existed with the feed mixed by the loader would be considered acceptable for many production and feeding situations.

Table 1. Variation of wet distillers grains and grass hay mixtures in bunker silos, mixed with a loader tractor or feed mixer.

	Mixed with loader (McNay study) ¹		Mixed with mixer wagon (Beef Nutrition study) ²	
	Mean	C.V	Mean	C.V
Dry matter	42.7	7.1	41.0	4.4
Protein, % of dry matter	23.4	10.2	23.6	3.3
Neutral detergent fiber, % of dry matter	41.2	3.6	39.1	6.5

¹Seven samples

²Six samples