

Investigations on the use of Proteferm[®] as a pellet quality enhancer in pelleted dairy feeds.

Benke, K. C. and C. Stark. Kansas State University. 1993.

Key Finding:

- Proteferm was an effective pellet binder compared with lignin.

Objective

This study was done to evaluate a fermentation co-product, Proteferm[®], as a binder in a typical dairy concentrate. Comparisons were made with similar products with known binding attributes.

Procedure

Diet – A typical all natural protein dairy diet was used for the study. The diet contained 16% protein and was based on corn, soybean meal and wheat middlings. NRC nutrient guidelines were followed for formulation.

Mixing – All dry ingredients were blended for two minutes followed by liquid additions and a three minute wet mix time. The liquid test ingredients were pumped into the mixer through an application manifold as per our standard procedure. Batch size was 700 lbs. The test liquid comprised 5% (as fed) of the total weights of the feed and was applied to the mixer over a 25 second time frame.

Treatments

The liquid test ingredients were as follows:

A: Cane molasses.

B: Cane molasses (60%) – Lignin sulfonate (40%)

C: Cane molasses (60%) – Proteferm[®] (40%)

D: Proteferm[®]

Pelleting

All pelleting was done on a CPM Master HD model pellet mill equipped with a 3/16 X 1 ½ standard die. Conditioning temperature was held constant at 65 – 70°C when possible. Feeder setting was adjusted at the beginning of each run to result in a constant motor load when possible. Data and sample collection did not begin until the process was stable.

Once stability at the selected conditions was reached, the pellet flow was diverted from the vertical cooler to the horizontal cooler and data collection began.

Results

Effect of binder type on pellet durability index.				
Rep, No.	Treatments.			
	Molasses	Mol/Lignin	Mol/Proteferm	Proteferm
	-----PDI ^a , %-----			
1	86.9	89.6	87.8	89.3
2	86.3	90.0	88.4	89.7
3	87.0	90.3	89.1	89.0
Avg. PDI	86.73	89.97	88.43	89.33
SEM	0.38	0.35	0.65	0.35

^aPDI = Pellet durability index.