

Hygiene is crucial when using TMR feeding

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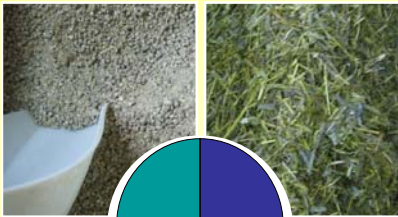
Introduction

Total mixed ration (TMR) is an ideal substrate for microbial growth. Spoiling process causes heating in the feed that is normally detected especially during warm weather. The role of hygienic quality of raw materials and propionic acid based preservatives on the aerobic stability of a grass silage based TMR was examined.



Methods

TMR from all fresh raw materials



370 g kg⁻¹ on DM basis:
pelleted concentrate, barley, oats, molassed sugar beet pulp, rapeseed meal and minerals in proportions of 30:30:11:26:3.

630 g kg⁻¹ on DM basis:
Good quality grass silage (regrowth of timothy – meadow fescue – red clover, prewilted using formic acid based silage additive), DM: 315 g kg⁻¹ pH 4.15

With or without a stabilizing preservative (solid or liquid)

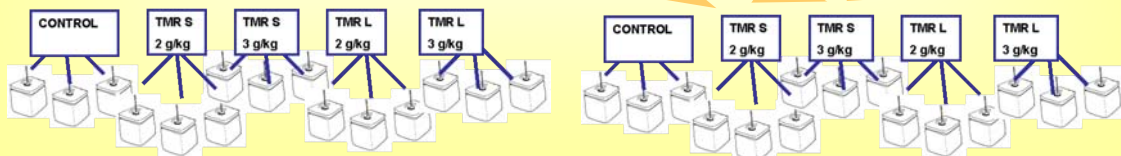


TMR with 10 % inclusion of one week old TMR (the same recipe)



TMR S = sodium-calcium-propionate

TMR L = propionic acid, ammoniumpropionate and ammoniumformiate



Measurements of heating process and aerobic stability

Results

The aerobic stability of TMR was reduced from 66 hours to 9 hours by contamination with a 10 % inclusion of spoiled TMR ($P < 0.001$). All the preservative treatments improved aerobic stability slightly (3.2 hours, $P < 0.001$).

Conclusions

The multi stage chain from field to rumen has many risky steps in regard to feed hygienic quality. Removal of all leftovers from the machinery and the feed bunk is one crucial step in quality control of TMR feeding.



Temperature changes of the TMR feeds during aerobic exposure

