

Description of close-up cow recipes in California dairies

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Introduction

Dietary characteristics of close-up (CU) are critical for a good transition period. The recipe fed should be as close as possible to the formulation provided by the nutritionist. The fed ration often differs from the formulated ration as a result of feeder errors during CU recipe preparation, uncertainties in dry matter (DM) content, and nutrient composition of the ingredients. The objective of this study is to improve feed efficiency and decrease variation while preparing the CU recipe on dairy farms.

Materials and Methods

Feeding management records (FeedWatch 7.0) from 12 consecutive months were extracted from 26 California dairies ranging in size from 1,100 to 6,900 cows. A total of 25 dairies had records of CU recipe. The information extracted from the feeding management software included the following variables: date, recipe, recipe number, start feeding time, end feeding time, target weight, actual weight, and pen number. Data set included information from a total of 51,195 CU recipes. Descriptive statistics were conducted with the PROC MEANS and PROC UNIVARIATE procedure of SAS 9.4 (SAS Institute Inc., Cary, NC).

Results

Close-up recipe was prepared daily either 1 (n=24) or 2 (n=1) times. The median number of ingredients included in the CU recipe ranged from 3 to 5 (n=18) and 6 to 9 (n=7). The most commonly used ingredients in CU recipes were corn silage (n=24), alfalfa (n=23), rolled corn (n=19), premix (n=17), liquids (n=10), mineral-vitamins (n=7), oat hay

(n=7), and anionic salts (n=6). The tolerance level (TL) assigned to the various ingredients ranged from 0 to 300 lb (0 kg to 135 kg) and represented a deviation from the median formulated target for the various ingredients across dairies of 0% (11.2%), >0 to 2% (14.9%), >2 to 5% (25.5%), >5 to 10% (18.0%), and >10% (30.4%). The TL allowed a deviation from target weight of >10% on 20 ingredient types from 20 dairies (alfalfa hay (n=11), rolled corn (n=8), mineral-vitamins (n=4), corn silage (n=3), canola (n=3) and others (n=2)). The deviation from target weight was >10% on 31 ingredient types from 20 dairies (alfalfa hay (n=11), rolled corn (n=8), mineral-vitamins (n=4), corn silage (n=3), canola (n=3) and others (n=2)). The median close-up recipe weight represented 17.5 to 45.3% of the median high cow-recipe weight, with the exception of 1 dairy that was 92%. However, there was a high variation within dairy on the close-up recipe weight, with an IQR (Q3- Q1) of 3.2% to 34.9%. Daily feedings were delayed by at least 2 h, ranging from 0.05 to 2% (n=9), 2 to 5% (n=5), 5 to 13% (n=6), and 13 to 28% (n=3).

Significance

There is a wide variation on preparing CU recipe among California dairies. Opportunities to improve feeding management on farm are considered as loading precision and accuracy of the ingredients and consistency in the times processing, mixing, and delivering the ration in the close up pen day-by-day. **This action may improve production efficiency by preventing health problems and lost cow performance after parturition; also feeding processes constitute the major cost on the dairy farm. Better feeding management practices implementation may considerably reduce feed-costs and improved profitability of the dairy farm.**