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Testing cow rations with new data-mining software based on the NOA database

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Today, dairy cow rationing is usually calculated by linear programming via the NOA herd management database or similar software. This method takes into consideration feed prices and the physiological aspects of foods as specified by nutritionists.

Linear programming is most adept at determining the cheapest ratio in the absence of other parameters. Nowadays, the typically large databases used by most dairy farms provide myriad rules describing connections between different feeds and ratios for cows and dairy production in terms of milk (kg), fat and protein percentages. To each rule, a level of significance is defined. Based on that principle, we can assess to what extent specific physiological parameters and farm production are affected. The purpose of this study is to evaluate historical data obtained from dairy farms and, accordingly, devise ratios that provide the best results. It is hoped that this will lead to higher efficiency and greater financial profits for dairy farmers. The first stage involved establishing an easy method of extracting precise data on nutrition, milk levels and DHI data from the NOA system. The second part consisted of testing historical data from 15 large dairy farms to inspect for quality and to determine whether it would be sufficient for analytic purposes. From those 15 farms, only three were considered to be composed of reliable data for further analysis. Based on the data analysis of the farms selected, we identified different effects of foods on production performance and how changes within foods in terms of physiological range affected production performance and profit per cow. We conclude that using this method, in dairy farms with enough historical data can improve the professional and economic performance of the dairy farm.

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