Epidémiol. santé anim., 1997, 31-32

INFLUENCE OF FEEDING MANAGEMENT ON MILK PRODUCTION AND ECONOMIC RESULTS IN DAIRY FARMING

Rougoor C.W.[1,2], Walschots C.P.R.T.[2], Huirne R.B.M.[2], Mandersloot F.[1], Hanekamp, W.J.A.[1], Dijkhuizen A.A.[2]

The effect of management of the farmer on the economically optimal milk yield is investigated by a field study on 38 dairy farms. The farms are grouped by 305-days milk yield and gross margin per 100 kg of milk. To evaluate the efficiency of feeding of these farms, a simulation model was used to calculate targets for the feed costs. Differences between normative and real feed costs are calculated and compared between the groups. Linear regression is used to explain these differences. The differences were, among other things, the result of differences in price and amount of concentrates and number of young stock. Beside these direct effects, indicator variables of feeding management, like feeding and grazing system, also influenced the difference between real and normative feed costs. However, because these variables are all mutually correlated, the single effect of these variables could not be determined.

A higher milk yield per cow can result in less feed costs per kilogram of milk produced, due to less feed necessary for maintenance. Besides this, a higher milk yield per cow (and a fixed milk production per hectare) results in a lower pressure on the environment. Farm management studies show, however, that farms with similar milk production levels can have quite different farm results, partly due to differences in the management capacities of the farmer.

A field study is carried out during 1 year on 38 dairy farms to investigate the effect of the management of the farmer on the optimal milk yield per cow. The 38 farms are divided into four groups. These four groups only differ in the 305 days milk yield per cow and the gross margin per 100 kg of milk. Other characteristics of the farms (size, intensity, etc.) are matched between groups. As a result of that, differences between groups are for the most part dependent upon differences in management.

Questionnaires are developed to quantify managerial capacity of the farmer. Besides these questionnaires, technical and economic data are gathered as well. This way, management can be compared for the four groups of farms and hypotheses can be made up how specific management aspects influence farm results. The efficiency of feeding is evaluated for every farm. Linear regression showed the feeding costs per 100 kg of milk being positively related to cows/ha, amount of concentrates for cows and young stock and the price of concentrates. A simulation model is used to calculate normative feed costs for all the farms (Van Alem and Van Scheppingen, 1996). The program sets targets for feed costs, depending on farm specific parameters like farm intensity, feeding strategy, etc. Differences between real feed costs and normative feed costs are calculated. Table I shows these differences for the 4 research groups.

Table I
Average values per research group. Significant differences between groups are indicated by different characters

Variable	Group 1	Group 2	Group 3	Group 4
gross margin per 100 kg of milk	82.70	81.17	71.65	71.66
305-days milk yield	8802	7590	8853	7840
feed costs/100 kg milk	11.87^{a}	13.02^{b}	15.96^{c}	15.08^{bc}
feed costs - normative feed costs / 100 kg	$+0.45^{a}$	-0.16^{a}	$+4.10^{b}$	$+2.61^{c}$

Groups 3 and 4, with low gross margin, show a significantly bigger gap between the feed costs and the normative feed costs. Linear regression showed that the difference between feed costs and normative feed costs can partly be explained by differences in price and amount of concentrates, breeding value and amount of young stock. Besides these direct effects, indicator variables of a specific feeding management were also found to influence feed costs minus normative feed costs. The feeding system of a farm, the use of a computerized system for concentrate feeding, farm size and grazing system are highly correlated with each other. These variables together influenced the feed costs minus normative feed costs. However, due to their mutual correlation, the single effect of these variables could not be determined.

BIBLIOGRAPHY

Alem, G.A.A. van, Scheppingen, A.T.J. van, 1996. Development and use of a simulation model for tactical and strategic management on dairy farms. In: Proceedings of the third International Symposium Livestock Farming systems, EAAP Publication no. 79. Editor J.B. Dent, M. J. McGregor and A.R. Sibbald. Wageningen pers.

[1] Research Station for Cattle, Sheep and Horse Husbandry, Runderweg 6, 8219 PK Lelystad, The Netherlands
[2] Department of Farm Management, Wageningen Agricultural University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands