Effects of an automatic feeding system on Swiss dairy farms

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Agricultural businesses in Switzerland are growing steadily. As a result, the workload is also increasing. At the same time, the performance of dairy cows is increasing, which makes feeding the animals according to their needs a major challenge. The aim of this study was to analyze the effects of an automatic feeding system on Swiss dairy farms. A total of 5,919 daily milk yields of 2,943 Holstein, 1,014 Red Factor, 1,415 Red Holstein, 154 Swiss Fleckvieh and 65 crossbred animals on four farms were examined using a Lely feeding robot. For the analyses, one year before and after the installation of the feeding robot were compared. A mixed linear model was used for the investigations. The model included the fixed effects feeding (with and without robot), lactation, the interaction feeding x lactation, month, a function of day of lactation, as well as farm and animal as random effects and residual effect. The analyses of the milk yield data revealed that the energy-corrected milk yield of first lactation cows with the automatic feeding system was significantly higher by 1.0 kg at 28.2 kg ($p = 0.04$). In the second lactation, the energy-corrected milk yield was significantly higher by 1.4 kg at 32.0 kg ($p = 0.0016$). In all subsequent lactations, the performance with robot was worse than the performance without robot. When feeding with robot, the fat content of the milk was also significantly increased in the first lactation by 0.11 % to 4.40 % ($p = 0.05$). In the second lactation, the effect was no longer significant, the increase in fat content with automatic feeding was 0.09 % ($p = 0.08$). The probability of the occurrence of acetone in the milk was significantly lower in the group with an automatic feeding system (44.8%) than in the group without a feeding robot (53.1%) ($p = 0.008$). The results of the present study indicate that automatic feeding can have positive effects on the milk performance and fat content of young cows.