SUMMARY OF THESIS

INVESTIGATION OF CORRELATIONS BETWEEN AUTOMATED MILKING SYSTEMS AND PRODUCTION EFFICIENCY

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The use of automatic milking systems, also known as milking robots, is increasingly popular as a technology that can reduce labor, increase milk production and maximize profit. This study ,was carried out on a private dairy farm located in West Hungary, aimed to examine the relationship between automatic milking systems (AMS) and production efficiency in lactating cows with herd sizes ranging from 267 to 322 Holstein-Friesian cows in the middle of lactation specifically 165 ± 10 days in Milk. The results of this study indicates that on average, an AMS unit milked 49 ± 3 cows daily with each cow being milked 2.7 ± 0.1 times per day and producing a daily milk yield of 32.5 ± 1.3 kg per cow. The data was statistically analyzed using Pearson correlations at a probability level of 0.95 to 0.99 and single and multiple linear regression analysis. The study found that daily milk yield was positively correlated with milking frequency ($r = 0.61$, $p < 0.01$) and negatively correlated with unsuccessful milking frequency ($r = -0.34$, $p < 0.01$) but had no correlation with refusal milking frequency ($p > 0.05$). Additionally. A positive correlation was observed between the amount of concentrate offered in AMS per cow per day and both milk yield ($r = 0.52$, $p < 0.01$) and milking frequency ($r = 0.27$, $p < 0.01$). No correlations were observed for refusal and unsuccessful frequency with the amount of concentrate offered in AMS ($p > 0.05$). Finally, the fat content was negatively correlated with daily milk yield ($p < 0.05$) and the amount of concentrate while there was no correlation observed for protein content with daily milk yield or the amount of concentrate in the AMS ($p > 0.05$). Detailed knowledge of these factors such as milking frequency and concentrate intake associated with increasing milk yield using AMS will help guide future recommendations to producers for maximizing milk yield and decrease the cost in Hungarian Dairy Farm and industries.

Keywords: Milk Yield, Milking Frequency, Automatic Milking System (AMS), Amount of concentrate.