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“Filling gaps and removing traps  
for sustainable resource management”

## Sustainable Feed Management through Fodder Preservation and Feed Rationing in Kenyan Dairy Farms

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### Abstract

The year-round availability of quality forage is a major challenge of dairy farmers in Kenya leading to low milk yields, low milk solids content and high production costs. Use of conserved forages and proper ration formulation has a great potential to bridge the gap in dairy nutrition and reduce seasonal variations in milk yield. The SNV Kenya Market-led Dairy Program (KMDP), funded by the Embassy of the Kingdom of The Netherlands, introduced some interventions on fodder conservation and ration formulation on dairy farms in Kenya. This study aimed to determine the effects of these interventions on dairy farm performance. Twelve farms each using one of four interventions (use of maize train/baled silage, production of silage with support from Service Provider Enterprises (SPEs), ration formulation aided by Rumen8 software, and feed balancing without software support) were compared with 12 control farms without interventions, making a total of 60 purposively sampled farms. The data was analysed using Rumen8 software and a linear regression model was used to assess the relationship between independent variables (fodder interventions) and dependent variables (dairy performance). The results show that farms using maize train/baled silage had a better performance with an average daily milk yield of 20 kg/cow than those using silage from SPEs (15 kg/cow) and control farms (8 kg/cow). Ration formulation aided by Rumen8 software resulted in highest daily milk yield (27 kg/cow) while feed balancing without software led to an average milk yield of 20 kg/cow. The average income was KES 1000 (10 USD) per cow (maize train) compared to 7.50 USD/cow (SPEs) and 5.50 USD/cow (control), while average feed costs per farm were 205, 181, and 245 USD per ton for maize train, SPEs and control farms, respectively. Milk-related income on Rumen8 software farms was 17.20 USD/cow while farms not using feed rationing software achieved 11.45 USD/cow. Feed costs were 260 and 226.5 USD/ton for Rumen8 software farms and farms without feed rationing software, respectively. In conclusion, use of maize train/baled silage and Rumen8 software aided ration formulation provide ideal and sustainable fodder management and feed rationing measures for dairy farms by reducing seasonal milk yield fluctuation, enhancing year-round fodder availability and increasing farm income.

**Keywords:** Dairy performance, feed interventions, maize train silage, Rumen8 software