

RumiBio Commercial Dairy Trial, UK

Trial Number: 101

Summary

A commercial study on a UK dairy herd was carried out to evaluate the effect of RumiBio on animal performance data. A robotic milking system was used to collect individual animal data. Results found an increase in milk yield across the group, regardless of parity or diet type, with no differences in milk components.

Objective of the Trial	Evaluating the effect of supplementing the diets with 20g per head per day of RumiBio on a commercial UK dairy robotic farm
Trial Duration	47 Days
Number of Animals	153 (Control = 81, Treatment = 72)
Stage of Lactation	Mixed group
Breed	Holstein
Diet	Grass Silage, Maize Silage, Whole Crop Wheat and Dairy Concentrate
Summary of Results	Increased average milk production by 2.4 L, ($P < 0.05$) No significant difference in milk fat % or protein % Numerical increase in rumination time

Materials and Methods

The trial was undertaken at a commercial Lely robotic dairy unit in the UK. The trial consisted of 153 Holstein cows (Control = 81, Treatment = 72). Both primiparous and multiparous cows were included in the trial. Animals were housed in the same building. Upon commencement of the trial, statistical analysis revealed that there was no difference between control and treatment groups on days in milk, milk yield and lactation number (data shown in Table 1).

RumiBio was supplemented to the treatment group at 20g per head per day via the total mixed ration. Diets were based on grass silage, maize silage and whole crop wheat and a dairy concentrate. Throughout the commercial trial, the diet changed but this was a consistent change across both the control and the RumiBio treatments. In the final diet change, grass silage was the only source of forage. Data were collected by the robot and rumination collars including individual daily milk production, feed intake, fat and protein indication

and rumination time. The duration of the trial was seven weeks. Data were analysed using a multiple regression model on JMP version 17.0 by SAS.

Table 1. Production data prior to start of the trial. No significant difference was observed between the control

	Milk Yield (l)		Fat Percentage		Protein Percentage	
	Mean	StDev	Mean	StDev	Mean	StDev
Control	39.7	10.2	3.83	0.91	3.16	0.17
RumiBio	40.2	9.4	3.89	1.22	3.17	0.19

and the RumiBio treatment groups

Table 2. Grass silage analysis

Fermentation Characteristics	Analysis	Risk Level
Sugar (g/kg)	4	Low
Acetic Acid (g/kg)	16.1	Low
N Butyric Acid (g/kg)	0.8	Low
Tot. Ferm. Acids (FIM) (g/kg)	172.7	High
Lactic Acid (g/kg)	146.0	High

Results

Average milk yield across the whole herd was significantly increased by 2.4L in the RumiBio group vs negative control group (37.4L vs 39.8L, $P < 0.05$ respectively) as shown in Figure 1. There was no difference between fat or protein indication. Improvement in milk yield was seen across early, mid and late lactation animals (see Figure 2). There was a significant difference in milk yield between the control and the RumiBio treatment groups regardless of the diet changes that occurred during the trial (see Figure 3). There was a numerical

increase in rumination time for animals receiving RumiBio (see Table 3). Anecdotal remarks were made about the reduction in clinical signs of acidosis.

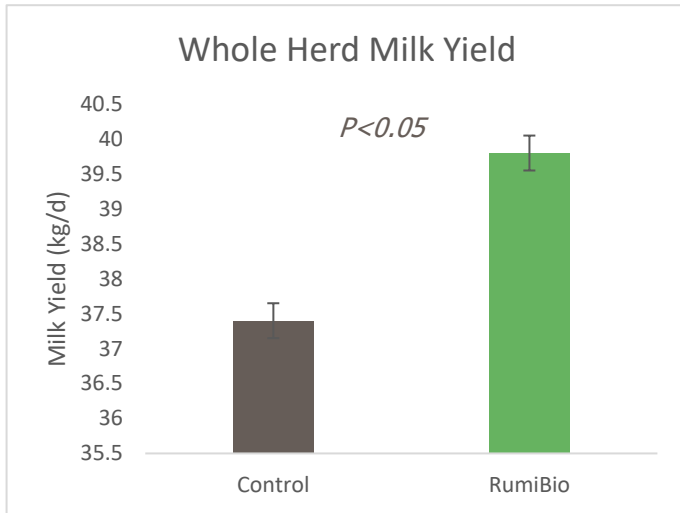


Figure 1. Whole group improvement in milk yield between control and RumiBio treatment animals

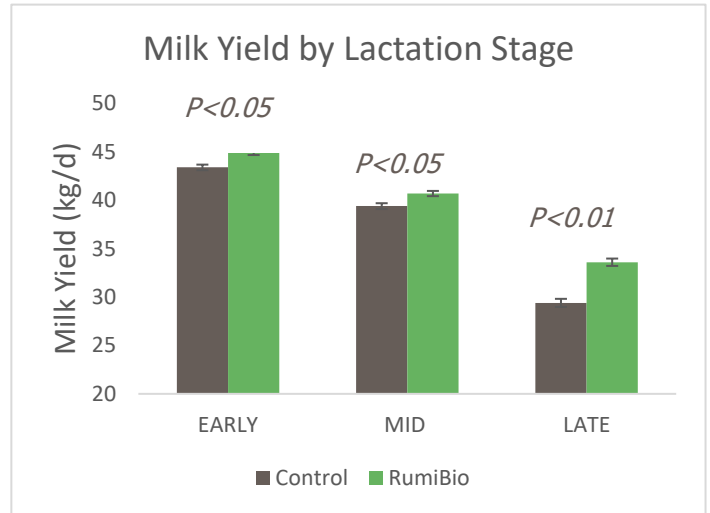


Figure 2. Milk yield across early (0-100 DIM), mid (101-200 DIM) and late (200+ DIM) lactation for control and RumiBio treatment groups

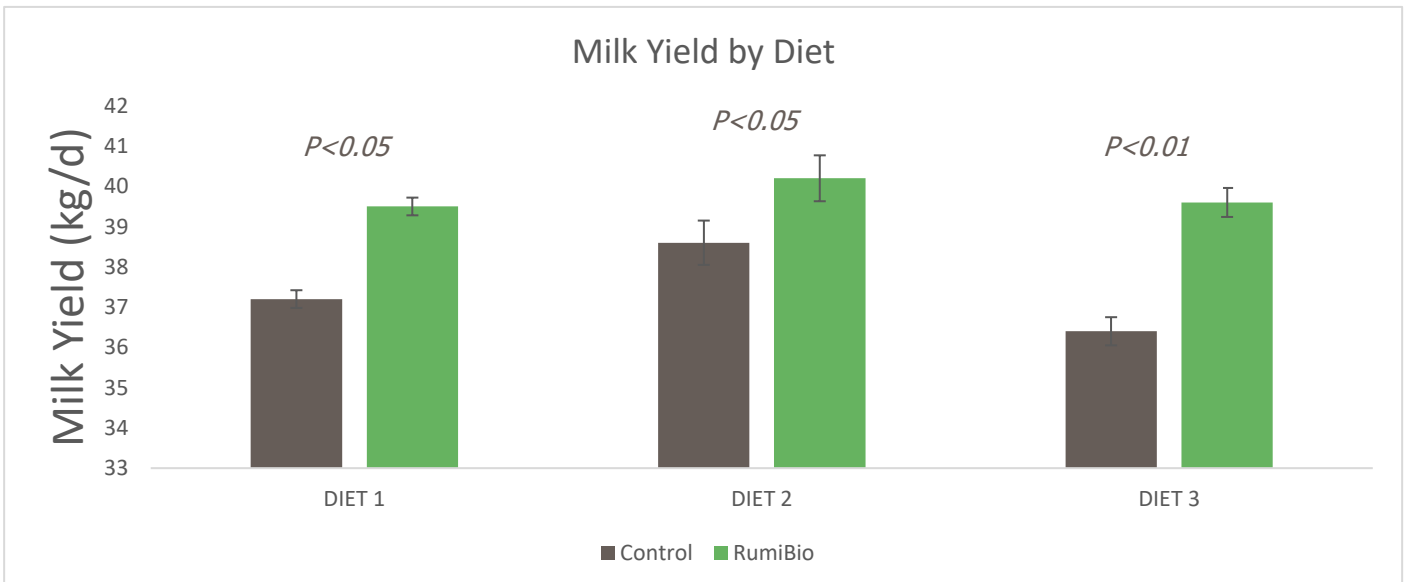


Figure 3. Milk yield across the three diets for control and RumiBio treatment groups

Table 3. rumination time for control and RumiBio treatment groups across diets one, two and three

	CONTROL LSM (min/d)	StError	RUMIBIO LSM (min/d)	StError
Diet 1 (grass, maize and wcw silage)	582.9	1.50	584.3	1.52
Diet 2 (grass, maize and wcw silage)	586.8	3.80	591.1	3.95
Diet 3 (grass silage only)	574.8	2.40	587.7	2.48

Conclusion

Feeding RumiBio on top of the ration has the potential to improve milk yield across the lactation period. Greater improvement in milk yield was seen in diet one, which contained only the grass silage that, when analysed, was high in lactic acid. Clinical signs of acidosis were anecdotally reduced. These findings could suggest that RumiBio works best in a diet with a moderate acidosis challenge.