

Biomin® *Trials*

Levabon® Rumen E

Efficacy of Levabon® Rumen E on the feed consumption, lactation performance and health status of lactating cows



Field trial/customer feedback
Ditzingen, Germany 2012

Aim of the trial

The beneficial effects of yeasts in the dairy industry have been known and applied for over a century. Yeasts are considered capable of improving the performance, health status and milk yield of dairy cows.

The target of the present study was to evaluate how the supplementation of a novel, autolysed yeast (Levabon® Rumen E) affects the health status, feed consumption and lactating performance of dairy cows.

Trial design

This trial was performed with a dairy herd (breed: Holstein Friesian, Brown Swiss, Simmental breed) of 65 animals, on-off design, lactation number 1-7. The trial duration was 90 days, after which the results were compared to the lactation performance in the months prior to adding the yeast preparation. Levabon® Rumen E was supplemented at 15 g/ head/ day.

The ration comprised corn silage, grass silage, grain-premix, soy-canola and concentrates. Feeding was ad libitum and medical treatment was given where needed.

The parameters investigated were milk yield, milk composition (fat %, protein %) and milk urea content. In addition, the energy corrected milk parameter was calculated (FECM), which allows for a more detailed comparison between the groups.

FECM formula: $(0,337+0,116 \times \% \text{fat}+0,06 \times \% \text{protein}) \times \text{kg milk}$

Results and Discussion

A) Performance:

Table 1 - Milk yield (kg), energy corrected milk, milk protein, milk urea (average lactation day)

| | | Number of cows | Lactation day average | Milk (kg) | Fat (%) | Protein (%) | Urea | FECM |
|-----|---------|----------------|-----------------------|-----------|---------|-------------|------|------|
| OFF | 02.2012 | 63 | 156 | 25,8 | 4,0 | 3,4 | 20,5 | 25,9 |
| OFF | 03.2012 | 64 | 147 | 24,6 | 4,1 | 3,2 | 17,1 | 24,7 |
| ON | 04.2012 | 62 | 171 | 26,7 | 3,7 | 3,5 | 18,1 | 26,3 |
| ON | 05.2012 | 64 | 173 | 26,4 | 3,9 | 3,4 | 18,5 | 26,3 |
| ON | 06.2012 | 63 | 176 | 26,5 | 3,98 | 3,41 | 19 | 26,6 |

Table 2 - Milk yield (kg), energy corrected milk, milk protein, milk urea (lactation day 1 -100, 101 - 200)

| | | | Number of cows | Milk (kg) | Fat (%) | Protein (%) | Urea | FECM |
|-----|---------|---------------------|----------------|-----------|---------|-------------|------|-------|
| OFF | 02.2012 | Lactation 1 -100 | 28 | 32 | 3,96 | 3,26 | 20,1 | 31,7 |
| OFF | 02.2012 | Lactation 101 - 200 | 9 | 25,2 | 3,85 | 3,61 | 21,7 | 25 |
| OFF | 03.2012 | Lactation 1 - 100 | 17 | 28,8 | 4,22 | 3,15 | 15,4 | 29,25 |
| OFF | 03.2012 | Lactation 101 - 200 | 23 | 27,2 | 3,99 | 3,21 | 18,5 | 26,99 |
| ON | 04.2012 | Lactation 1 - 100 | 13 | 34,5 | 3,57 | 3,23 | 17,2 | 32,6 |
| ON | 04.2012 | Lactation 101 - 200 | 28 | 28,6 | 3,79 | 3,52 | 19 | 28,25 |
| ON | 05.2012 | Lactation 1 - 100 | 12 | 33,8 | 4,05 | 3,16 | 17,4 | 33,67 |
| ON | 05.2012 | Lactation 101 - 200 | 29 | 27,4 | 3,86 | 3,45 | 19,2 | 27,2 |
| ON | 06.2012 | Lactation 1 - 100 | 8 | 31,4 | 4,03 | 3,05 | 17,5 | 31 |
| ON | 06.2012 | Lactation 101 - 200 | 20 | 28,2 | 3,83 | 3,43 | 19,8 | 27,9 |

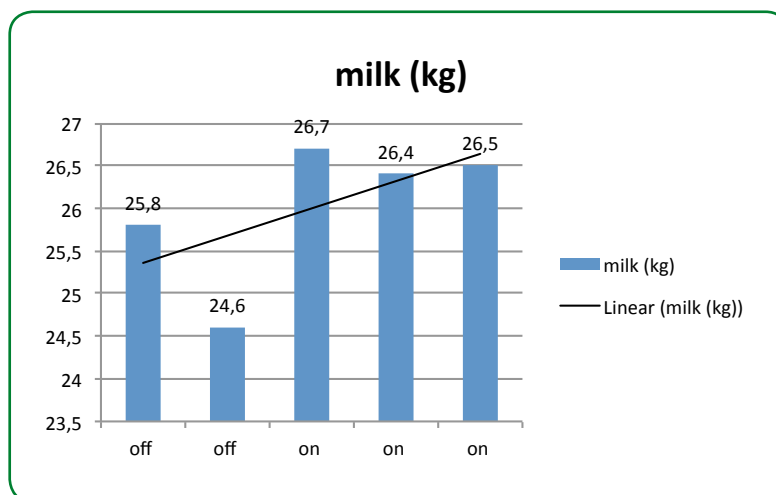


Figure 1. Milk yield development two months prior to adding Levabon® Rumen E ("off") and three months into the addition of Levabon® Rumen E ("on", average lactation day)

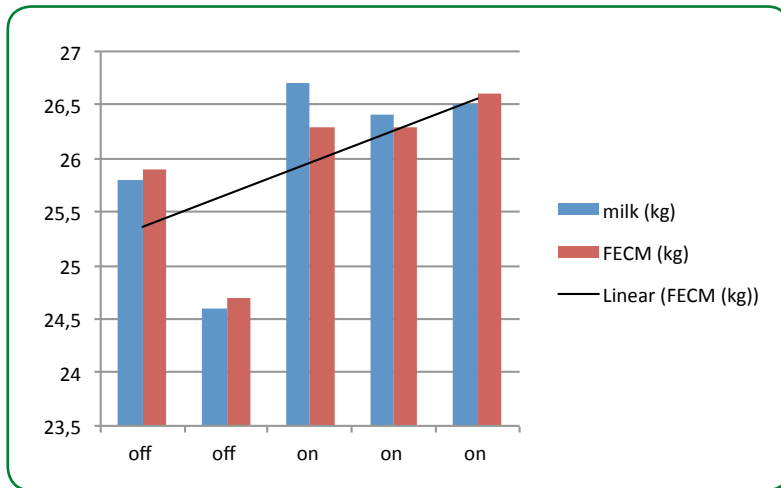


Figure 2. Energy corrected milk (average lactation day)

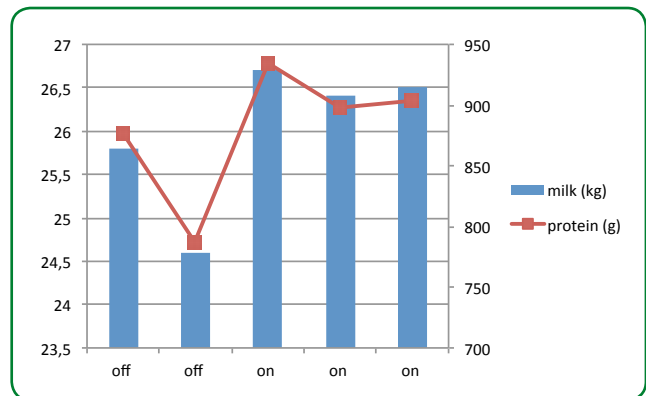
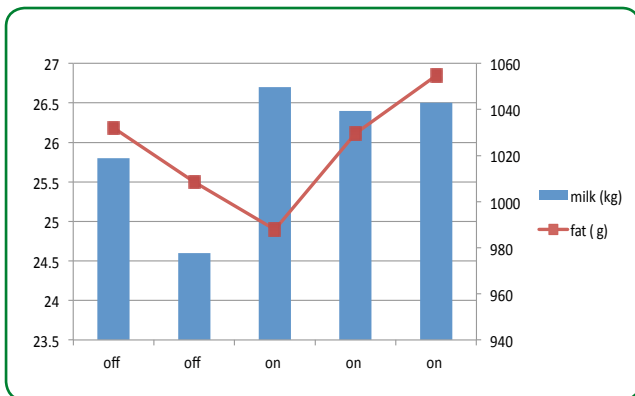


Figure 3. Milk fat and milk protein content two months prior to adding Levabon® Rumen E and three months into the addition of Levabon® Rumen E (average lactation day)

Milk quantity increased on average by 1.6 liters/cow/day. Moreover, the protein content showed an increase over the months when autolysed yeast was added to the diet; urea content also showed a slight increase. The decrease in the milk quantity from February to March can be explained by the wide temperature variation from -20 °C to 25 °C within two weeks.

Increased protein and urea content in the milk are indicators of a more efficient ration digestibility and therefore, more energy availability and a better health status.

The milk fat content was observed to decrease slightly at the beginning of the yeast supplementation, due to the intensified ensiling process of corn silages in the silo, strong temperature changes during the trial period (-20 °C to +25 °C) and an increase in milk quantity which has a diluting effect. However, the autolysed yeast acted to improve the milk fat content once again over the trial period.

B.) Economic

Economic Analysis

| |
|---|
| Milk price: 0,32 €/kg |
| 63 dairy cows |
| Milk yield (before): 24,7 kg |
| Dry matter intake (before): 19 kg (feed efficiency: 1,3) |
| Milk yield (with Levabon®): 26,3 kg |
| Dry matter intake (with Levabon®): 19,60 kg (feed efficiency: 1,34) |
| Feed cost (DM basis): 0,24 €/kg |
| Levabon® Rumen E dosage: 15 g/head/day |
| Levabon® Rumen E price: 5,10 €/kg |
| Levabon® Rumen E cost: 0,0765 €/head |

Profit = revenue – expenses:

Profit = 0,512 – 0,22 = 0,292 €/head/day

63 head/herd = 18,396 €/day

1 month = 18,396 x 30 = 551,88 €

1 year = 18,396 x 365 = 6.714,54 €

(plus health & reproduction improvement)

R.O.I. = profit / additives investment:

Profit: 0,292 €/cow

Levabon® Rumen E cost: 0,0765 €/cow

ROI: 0,292 / 0,0765 = 3,82:1

Conclusion

The autolysed yeast product Levabon® Rumen E increased milk yield by 1.6 liters/cow/day, while also improving the milk protein and urea content. Thus Levabon® Rumen E demonstrated a beneficial effect on health and performance of dairy cows.

> IMPRESSUM

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