

EAAP 2014, Copenhagen

Effect of the administration of sustained release non-protein nitrogen source combined with dietary escape microbial protein on live and dead performance of beef heifers during the finishing period

Vandoni S. L.¹, Keane N.¹, Maher S.¹, Agovino M.¹, Andrieu S.¹

¹Alltech Bioscience Centre, Summerhill Road, Co Meath, Ireland

Dr. Stefano Vandoni, PhD
Ruminant Technical Co-ordinator
Alltech inc.

**BEEF ADVANTAGE
PROGRAMME**

Introduction

- Excess protein
 - Financial cost
 - Health cost (inc. lameness)

At same time....

- crude protein (CP) is often fed in beef with low attention to quality
- Hence, trial investigated potential for:
 - ↓ overall ration CP
 - Improving dietary protein profile

Protocol

- Continental heifers (n=180)
- Allocated to one of two dietary treatments:
 - Control (C; n=90, basal diet)
 - Treated (T; n=90, diet reformulated with Rumagen[®]; Alltech inc.)
- Trial duration – 57 days
- Measurements:
 - LW at 0, 35, 57 days
 - ADG
 - Cold carcass weight
- Data were analyzed by ANOVA and adjusted for initial live weight and days on farm

Diets

Ingredient	Comntrol diet	Treated diet	Ingredient Cost
Corn meal med	9.00	9.16	0.220
Brewers grain	7.00	7.13	0.040
Wheat straw	2.00	2.14	0.065
Rapeseed meal	1.50	0.71	0.320
Molasses	1.30	1.63	0.180
Soybean hulls	1.30	1.32	0.160
Rumagen		0.17	2.150
Total AF	22.10	22.26	
Total DM	14.78	14.78	
Price €	3.31	3.54	
Chemical Analysis			
Dry Matter	66.92	66.41	
UFV	1.07	1.08	
CP	12.10	11.76	
Sol CP	24.93	31.07	
Sol CP/RDP	0.38	0.47	
RDP	66.10	66.30	
RUP	54.97	51.27	
PDIN	8.70	8.42	
PDIE	11.43	11.84	
PDIA	4.96	4.70	
Sugars	6.58	7.25	
Starch	44.14	45.02	
NDF	29.56	29.18	

Effect of Rumagen on liveweight (kg) and average daily gain (ADG; kg/d) in beef.

	Control	Treated	s.e.m.	P value
Initial liveweight (kg), d0	562.6	550.9	4.93	0.7872
Live weight (kg), d35*	614.1	611.7	5.30	0.5155
Live weight (kg), d57	636.9	641.5	5.44	0.2424
ADG 0-35 (kg/d) [±]	1.65	1.59	0.051	0.6585
ADG 35-57 (kg/d)	0.96 ^a	1.34 ^b	0.079	0.0016
Overall ADG (kg/d)	1.42 ^a	1.51 ^b	0.034	0.0334

* Initial live weight used as covariate for live weight, d37

[±]Kruskal-Wallis AOV used to analyse ADG as data non-parametric

^{a,b} means with different superscripts differ significantly

Effect of Rumagen on Carcass cold weight

Aksetitel
358
366
364
362
360
358
356
354
352

■ Treated
■ Control

Cold weight

366.23

358.03

Cold weight has been covarated for Initial weight
P < 0.01

BEEF ADVANTAGE
PROGRAMME

Economic impact

	Control	Treated	Difference
ADG, Kg	1.42	1.51	+0.09
Kg of LWG in 57 days, KG	80.94	86.07	+5.13
Carcass weight, KG	358.03	366.23	+8.20
Diet cost, €	3.31	3.54	+0.23
Diet cost in 57 days, €	188.67	201.78	+13.11
Return on DW, €	1432.12	1464.92	+32.08
Net return head/cycle	1243.45	1263.14	+18.97

Results

- Increased live and dead performance even if not significant
- Increased Net return: 18.97 €/head
- The data support that slow release NPN and a high quality protein source as dietary escape microbial protein could be efficiently used in replacement of part of the vegetable protein source, aiming to improve performance in finishing beef cattle.