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2019_ABoost_CA_COFCO_PA_Perf2_
20190917_MAG

Evaluation of Actifor® Boost on calves' performance and health after weaning

COFCO (China)

Year: 2019

Aim of the trial

Actifor® Boost has been formulated to improve performances of ruminants, by increasing the energy and protein efficiency in the rumen. The essential oils, saponins and spices of Actifor® Boost also have a positive impact on health due to their antioxidant and anti-inflammatory properties.

The purpose of this trial was to assess the effects of the additive Actifor® Boost on growth performance and health status of dairy calves after weaning.

Keywords: dairy calves, growth performances, Actifor® Boost, health, diarrhea, pneumonia, ADG.

Material and methods

This trial was run from June 16th to July 20th in a commercial dairy farm in China and involved a group of 33 Holstein calves with an average age of 75 days. The calves were separated randomly in three groups of 11 animals each. The following diets were successively offered, according to Figure 1:

- Group 1: Control diet + Actifor® Boost (1 kg/ton on compound feed)
- Group 2: Control diet + additive B
- Group 3: Control diet

Figure 1. Trial design

	...	trial						
#day	**...**	**1**	**2**	**3**	**...**	**33**	**34**	**35**
Group 1	33	11	11	11	11	11	11	11
Group 2		11	11	11	11	11	11	11
Group 3		11	11	11	11	11	11	11
Parameters recorded								
Individual body weight		33						33
Individual body height		33						33
Individual health status		33	33	33	33	33	33	33
Average group feed intake		33	33	33	33	33	33	33

The following measurements were done, according to Figure 1:

- Individual body weight → at d1 and d35 in the experiment.
- Individual body height → at d1 and d35 in the experiment.
- Individual health status → daily during the experiment
- Feed intake → average of the group, daily during the experiment.

All the calves were fed *ad libitum* roughage and compound feed, formulated by COFCO, which formula was not given to us due to privacy policies. The only difference from the control group diet were the different feed additives.

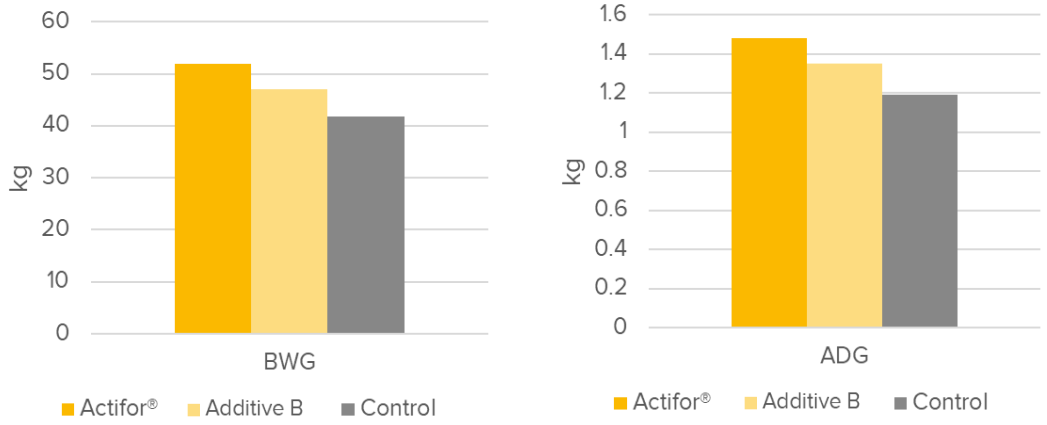
Results

Results are presented as means ± standard deviation. The statistical analyses were performed based on One-way ANOVA with the software package SPSS. Differences among least squares means with a probability of $P < 0.05$ are accepted as statistically significant, and mean differences with P-values ranging from 0.06 to 0.10 as trends.

Table 1. Growth performance of the calves during 35d feeding period.

	Group 1	Group 2	Group 3	p-values
# of calves	11	11	11	
Age at start (days)	74.91±5.11	73.18±4.07	78.64±4.76	*P<0.05*
BW d1 of trial (kg)	110.91±11.75	117.45±13.19	126.91±11.08	*P<0.05*
BW d35 of trial(kg)	162.73±13.24	164.55±24.45	168.73±14.24	NS
BWG d1-d35 (kg)	51.82±8.99	47.09±21.01	41.82±18.68	NS
ADG d1-d35 (g/day)	1480±257	1345±600	1194±533	NS
BH d1 of trial (cm)	91.36±2.20	91.27±3.69	94.00±1.55	*P<0.05*
BH d35 of trial(cm)	100.73±3.26	102.45±3.48	102.36±3.26	NS
BHG d1-d35 (cm)	9.36±2.46	11.18±4.62	8.36±3.17	NS
ADHG d1-d35 (cm/day)	0.27±0.07	0.32±0.13	0.24±0.91	NS

Graphic 1 and 2. Body weight gain and average daily gain during the trial period.



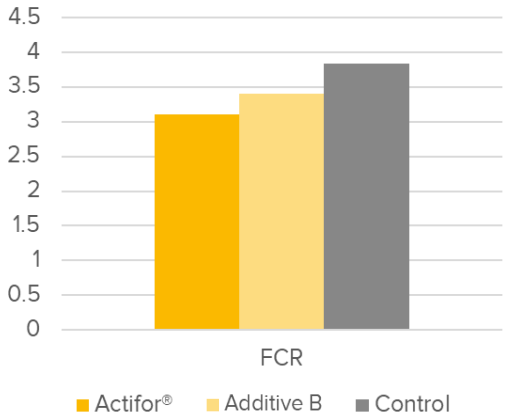
During the trial, feed intake was also measured, although not every day due to climate issues, since somedays it rained a lot and the trough had water mixed with the compound feed. For these results, there was no statistical analysis.

Table 2. Average compound feed intake and feed conversion rate during the trial.

	Group 1	Group 2	Group 3
Average feed intake (kg/animal/day)*	4.59	4.51	4.58
Feed Conversion Rate	3.10	3.40	3.84

** no roughage considered*

Graphic 3. Feed conversion rate in this trial.



One of the goals of the trial was to see the effect of Actifor® Boost on the health status of the calves. Daily, the animals were checked for diarrhea and pneumonia

Table 3. Health status results (number of animals affected)

	Group 1	Group 2	Group 3
Diarrhea	0	0	0
Pneumonia	0	0	1

Conclusion

In the conditions of this trial, the use of Actifor® Boost improved the performance of the calves having a higher average daily gain (1480 g/day) when comparing to the other groups (1345 g/day for additive B and 1194 g/day for Control). Regarding the feed conversion rate, it was lower with Actifor® Boost (3.10) than with the other groups (3.40 for Additive B and 3.84 for Control). This is because Actifor® Boost was developed to improve feed efficiency (mainly protein efficiency), by modulating rumen microbiota, so, as expected, Actifor® Boost improves the performance of post-weaning young ruminants.