

# Effect incremental levels of ZADO<sup>®</sup> on cow milk production and rumen parameters.

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## 1. objective

Evaluate the incremental levels of ZADO<sup>®</sup> on cow milk production and rumen parameters

## 2. Introduction

Supplementing ruminant diets with fiber degrading enzymes can improve feed utilization and animal performance by enhance microbial colonization of feed by increasing numbers of ruminal fibrolytic microbes to increase rate of degradation of fiber in the rumen, rumen microbial protein synthesis and forestomach digestibility.

## 3. Material and methods

Forty eight dairy cows were randomly allocated to one of the following treatments: T0 = control diet, T1= 40 g of zado/cow/day and T2= 60 gm of zado /cow/day.

Control diets were based on alfalfa plus 5 kg DM of a concentrate (CP :17.8%) offered half at each milking. ZADO (it contains 2.32 U/g Xylanase, 61.5 U/g  $\alpha$ -Amylase, 7.05 U/g cellulase and 29.2 U/g protease) was mixed with the concentrate just before each milking session.

## 4. Results

Table 1 . Nutrient intake and total tract digestibility for cows fed diets containing enzyme treatments applied to different components of a TMR.

Item	CTRL	ZADO		SE
		40gm	60gm	
Intake, kg/d				
DM	16.55	17.5	17.8	0.6
OM	14.56	15.58	16.1	0.8
NDF	6.3	6.8	6.9	0.3
Digestibility, %				
DM	61.1 <sup>b</sup>	73.2 <sup>a</sup>	75.1 <sup>a</sup>	1.4
OM	67.2 <sup>b</sup>	74.7 <sup>a</sup>	76.2 <sup>a</sup>	2
NDF	43.4 <sup>b</sup>	56.1 <sup>a</sup>	58.2 <sup>a</sup>	3.1
ADF	41.4 <sup>b</sup>	54.8 <sup>a</sup>	56.2 <sup>a</sup>	3.1

## 5. Conclusions

Adding ZADO ( exogenous enzyme)

- Improving feed intake and increase nutrient digestion
- Improve rumen fermentation
- Increase animal production

Inclusion incremental levels of ZADO in animal diets caused incremental improve in feed intake, nutrients digestibility and milk production.

Table 4. relative production performance

Item	control	ZADO	
		40gm	60gm
animal number	16	16	16
initial body wt., kg	574±42	565±51	560±40
milk production at the beginning of the experiment ,L	24.2±2.9	24.6±3.3	25±2.3
milk production as result of treatment.	0	1.5	2.3

Table 3. Milk production and composition for cows fed diets containing enzyme treatments applied to different components of a TMR.

Item	CTRL	with ZADO		SE
		40gm	60gm	
Milk production, kg/d				
Actual	24.2 <sup>c</sup>	26.1 <sup>b</sup>	27.3 <sup>a</sup>	0.4
Milk composition; %				
Fat	3.89	3.95	3.82	0.1
Protein	3.5	3.6	3.53	0.1
Lactose	4.5	4.54	4.51	0.05

Table 2 . Ruminal fermentation for cows fed diets containing enzyme treatments applied to different components of a TMR.

Item	CTRL	ZADO		SE
		40gm	60gm	
VFA, mM	115.1	124.1		5.1
VFA, mol/100 mol				
Acetate	60 <sup>c</sup>	62 <sup>b</sup>	65 <sup>a</sup>	1.5
Propionate	17.9 <sup>b</sup>	19.8 <sup>a</sup>	20.2 <sup>a</sup>	0.9
Butyrate	10.5 <sup>b</sup>	11.2 <sup>a</sup>	11.6 <sup>a</sup>	0.4
NH <sub>3</sub> N, mg/L	55 <sup>b</sup>	67 <sup>a</sup>	68 <sup>a</sup>	11