EFFECT OF FEEDING SPANISH PANICUM MOMBASA PLANT ON THE PRODUCTIVE PERFORMANCE OF WEANED BALADI GOAT'S KIDS.

R. Z. A Kelyni[2]; M. M. Abdella[1]; G. A. El- Sayaad[2]; G. F. Shahin[2]; M. E. Sayed-Ahmed[2] and Sherein H. Mohamed[1]

[1]Department of Animal Production, Faculty of Agriculture, Benha University.

[2]Department of Animal Nutrition, Animal Production Research Institute, Agriculture Research Center (APRI).

Corresponding author: (shereinabdelhadi@fagr.bu.edu.eg)

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SUMMARY

The current study was conducted to evaluate of Spanish Panicum Mombasa (SPM) in Cutting interval (CI) 30 day in weaning Baldi goat's kids performance feeding at 0, 25 and 50% SPM as a replacement of clover hay (CH). There was no significant difference between the treatments in all periods of the experiment in average monthly weight gain . There were no significant differences between animals in the average total weight gain, average daily weight gain and amount of total feed intake between control group (T1) 0% SPM and group fed 25% SPM (T2) for all periods, and the lower daily weight gain was observed in group fed 50%SPM (T3) . No significant diffrence between control group (T1) and (T2) on DM, CP, EE and DCP comparing with group (T3) was recorded lower digestion coefficients of DM, OM, CP, NFE, TDN and DCP. groups fed T3 had (P<0.05) higher total serum protein, albumin, A/G ratio , MDA and GPx concentration. While group fed T1(control group) recorded (P<0.05) higher AST, ALT, Triglyceride, urea and creatinine concentration compared with groups fed T2 and T3. No significant differences (P<0.05) in globulin concentrations of plasma among groups fed T1, T2 and T3. However,These values are found to be within the normal range of blood anlysis results. The best relative economic efficiency was significantly (P<0.05) recorded by (T2) being 127.47% when compared with the control group (100%).

Keywords: *Spanish Panicum Mombasa, weaned Baladi kids, growth performane, economic efficiency.*

INTRODUCTION

In Egypt Baladi goat's kids are characterized by low production performance, due to malnutrition, weak in soil programs and poor management, and among the most main reasons that due to low livestock productivity that is considered, as one of the main problems that farmers face to increase their livestock production is the shoratge of available forage. One of the important ways to increase the availability of forage in Egypt is to introduce and improved forage crop varieties and plant them in the appropriate areas, as there are many types of forage that have been newly introduced, including Panicum (Guinea grass).

Panicum (Guinea grass), It is a plant of the Poaceae family, where its scientific name is panicum maximum and the English name is Guinea grass Muir and Jank (2004) which is considered a perennial herb (Aganga and Tshwenyane (2004) , Pedreira *et al*., (2015)). However, it's cultivation succeeds in tropical and subtropical regions of the world, and it has a tremendous system of roots, which makes its resistance to high drought. In addition to that, it tolerates high temperatures (37-40°C); while the height of Panicum may reach three meters and is characterized by good palatability and a high yield of good quality leaves Muir *et al.,* (2001). Furthermore, its production period is up to ten years, which its productivity is higher than that of alfalfa, Panicum tolerates high salinity of water and soil (Hare *et al.,* 2014). Other ways to increase the availability of feed include the use of improved varieties, which are characterized by high production of forage and rapid growth, and their high ability to regrow them, as they have become the focus of researchers' attention to cultivate and improve them (Akash and Saoub 2002). the current

study aimed to identify the role of feeding Panicum Mombasa compared to the clover hay on the productive performance of weaned Baladi goat's kids.

MATERIALS AND METHODS

This study was conducted at Department of Animal Production, Faculty of Agricultural, Benha University, El- Karada Experimental Station, Animal Nutrition Research Department, Animal Production Research Institute, ARC. Blood, feed and feces samples analyses were conducted at food analysis center, Faculty of Veterinary Medicine, Benha Univeristy, Egypt.

Chemical analysis:

Spanish Panicum Mombasa was air dried overnight at 60 ^{0}C. Samples were prepared and were milled. Dry matter (DM) was weighed after drying the samples at 105 °C for 3hrs, and ash by put weighted samples in weighted labeled-crucibles and placed in a muffle furnace at 600 °C for about 2 hours, then cooled down to room temperature and weighted till constant weight. Nitrogen (N) content was determined according to the modified kjeldahl method. Crude protein (CP) was calculated by multiplying nitrogen percentage by 6.25, Ether extract (EE) and crude fiber (CF) were determined according to A.O.A.C. (1995).

Growth trial:

Thirty weaned Baladi goat's kids, averaged 5.45 kg body weight three months old were allotted randomly in three experimental groups (10 kids /each) and housed in open pens. kids fed rations contained 0, 25 and 50% SPM as a replacement of clover hay (CH). Control group (T1) fed 60% CFM + 40% CH. (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM + (20% CH + 20% SPM). Feed ingredients percent of the concentrate feed mixture (CFM), chemical composition of the concentrate feed mixture, clover hay and Spanish Panicum Mombasa (on 100% DM basis) and the chemical composition of the experimental complete feed mixtures (on DM basis) were showed in Tables (1,2,3) respectively. The body weight was individually determined biweekly and feeding requirement of experimental kids were changed every 2 weeks according to body weight change as reported in N.R.C. (2007) of goat's requirements. Water was available all times for experimental animals. Feed intake was recorded, daily weight gain, and feed efficiency (feed / gain) were calculated.

Table (1): Feed ingredients percent of the concentrate feed mixture (CFM).

Ingredient	%
Yellow corn	32
Decorticated cotton seed meal 35% CP	38
Wheat bran	24
Molasse	3
Limestone	2
Sodium chloride	1
Total (%)	100

Table (2): Chemical composition of the concentrate feed mixture, clover hay and Spanish Panicum Mombasa (on 100% DM basis).

Item	Chemical composition as 100% DM						
	DM	OM	Ash	CP	EE	CF	NFE
Concentrate feed mixture (CFM)	93.2	92.6	7.4	18.53	4.81	6.73	62.53
Clover hay (CH)	91.15	89.19	10.81	17.5	2.52	25.21	43.96
Spanish Panicum Mombasa (SPM)	92.5	87.3	12.7	17.9	2.1	24.6	42.70

DM: Dry Matter; OM: Organic Matter; CP: Crude protein; EE: Ether extract; CF: Crude fibre; NFE: Nitrogen free extract. Control group (T1) fed 60% CFM + 40% CH. (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20% SPM).

Table (3): Chemical composition of the experimental complete feed mixtures (on DM basis) .

Item	Chemical composition (%)						
	DM	OM	CP	EE	CF	Ash	NFE
T1 (Control)	88.9	93.4	13.8	3.6	23.4	6.6	52.6
T2	89.3	92.7	14.2	3.7	22.6	7.3	52.2
T3	89.7	91.9	14.5	3.8	22.3	8.1	51.3

DM: Dry Matter; OM: Organic Matter; CP: Crude protein; EE: Ether extract; CF : Crude fibre ; NFE: Nitrogen free extract.Control group (T1) fed 60% CFM + 40% CH . (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20%) SPM.

Digestibility trials:

At the end of the growth experiments, digestibility trails were conducted with the same animal of the feeding trials. Three from each group were chosen randomly to determine the digestion coefficients and the feeding value as TDN and DCP of the experimental ration. Feed and rectum grabbed feces collection was practiced for 5 days. Feces samples were treated with 10 % sulfuric acid (H2SO4) and kept frozen at -18 °C for further chemical analysis. The chemical analysis of feeds and feces were carried out according to A.O.A.C. (1995). Growing kids were fed their daily feed allowances according to experimental design assignment of each group over the feeding trial. Acid Insoluble Ash (A.I.A) was used as a natural internal marker as described by Thonney *et al*., (1985). Animal were feed individually and the residual of feed, if found were weighed and recorded daily before offering their feed and water in the morning. Water was offered to animals' free choice along the day. Proper management and health care were available throughout the experimental period. Fecal grab samples were taken from the rectum twice daily at 8 a.m and 8 p.m during the collection period. The equations stated by Schnider and Flatt (1975):

DM digestibility (%) = 100 – [100* AIA % in feed/ AIA % in feces]

Digestion coefficient of nutrient = 100 – (100 × AIA % in feeds ×Nutrient in feces)/ (AIA % in feces × Nutrient % in feeds).

Feed samples of concentrate mixture were taken at the beginning, middle and the end of each trial. At the end of collection period composite samples were prepared and dried in a forced air oven at 65 °C for 48 hours, then ground and kept for chemical analysis. Also freeze feces samples were thawed and dried in a forced air oven at 65° C until to reach a fixed weight and then pooled and composited for each animal. After that samples were ground and kept in a suitable jar for chemical analysis. The chemical analysis of feeds and feces were carried out according to A.O.A.C. (1995).

Blood sampling:

Blood samples were taken from jugular vein of four Baldi goat's kids of each group. Blood samples (10 ml) were taken 4 h after feeding of each one into a clean dry tube without anticoagulants. Blood samples were centrifuged at 3000 pm for 30 min to get blood serum. Serum was separated into 2-ml clean dried Eppendorf tubes and frozen at −20 °C for later analysis. Serum total protein was measured according to the method of Armstrong and Carr (1964) and albumin was estimated according to Doumas *et al.*, (1971). Globulin was calculated by subtracting the albumin from total protein. Albumin /globulin (A/G) ratio was calculated by dividing Albumin by total globulin, cholesterol was measured according to Rolschlau (1974). Serum aspartate aminotransferase (AST) and alanine aminotransferase (ALT) were determined according to Retiman and Frankel (1975). Creatinine determined method was applied according to the technique recommended by Julian (2000), Serum triglycerides concentrations were quantified spectrophotometrically according to Fossati and Prencipe (1982), Urea was determined by enzymatic colourimetric, urease salycilate method according to Patton and Crouch (1979) using the commercial kits from Sentinel CH. Antioxidant capacities estimation presented by determine Glutathione Peroxidase "GPx" and Malondialdehyde (MDA) according to Wang *et al*., (2011).

Economic efficiency:

Cost of clover hay = Amount of clover hay (g) × price of clover hay dry matter intake (Kg).

Cost of Spanish Panicum Mombasa = Amount of Spanish Panicum Mombasa (g) × price of Spanish Panicum Mombasa dry matter intake (Kg).

Cost of concentrate = Amount of concentrate (g) × price of concentrate Dry matter intake (Kg).

Average feed cost (h/d/LE) = Cost of Spanish Panicum Mombasa + Cost of clover hay + Cost of concentrate.

Average revenue of daily gain (LE) = price of 1 Kg live body weight × Average daily gain.
Net feed revenue (LE) = Average revenue of daily gain - Average feed cost.

$$\text{Economic feed efficiency \%} = \frac{\text{Net feed revenue}}{\text{Average feed cost}} \times 100$$

If relative economic efficiency to T1 (control group) =100%.

$$\text{Relative economic efficiency to T2} = \frac{\text{Economic feed efficiency to T2}}{\text{Economic feed efficiency to T1}} \times 100$$

$$\text{Relative economic efficiency to T3} = \frac{\text{Economic feed efficiency to T3}}{\text{Economic feed efficiency to T1}} \times 100$$

Statistical analysis:

Statistical analysis was done using SAS (2013) as procedure of general linear model. The used design was one-way analysis. For comparison among mean Duncan's multiple tests (Duncan, 1955) were utilized. The following model was used:
Yij (Individual observation)= μ (overall mean)+ Ti (effect of treatment)+ eij (random error).

RESULTS AND DISCUSSION

Growth performance:

***Average live body weight gain*:** Results in Table (4) showed the effect of using Panicum on average body weights during the experimental time, as there was no significant difference between the treatments in all periods of the experiment. Except, it was observed from the results that the treatment (T3) is arithmetically lower from the first month to the sixth months, and the results showed an arithmetic increase in average body weight in the treatment (T1 and T2) all over the expermintal period.

Table (4): The effect of using Spanish Panicum Mombasa on average live body weight gain.

Treatment	Body Weight (kg) at different Months						
	IBW	1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month
T1	5.46	7.09	8.27	9.22	11.52	13.17	14.75
T2	5.44	7.04	8.32	9.42	11.61	13.24	14.90
T3	5.43	6.52	7.84	9.07	10.52	11.61	13.31
±SE	0.38	0.34	0.40	0.47	0.54	0.56	0.52

Means followed with the same letter (a, b, c) are not significantly different at 5% level of significant. Control group (T1) fed 60% CFM + 40% CH . (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20% SPM)

The results of this study agreed with Mohammed *et al*., (2021) who observed that there was no significant differences between the treatments in the average live body weight during feeding the Panicum maximum Mombasa hay and Millet hay compared to the alfalfa hay and the mixing between them. Also, Eyoh and Ayuk (2019) did not notice a significant difference in average live body weight between the treatment which are fed Panicum maximum Mombasa and other treatments that are fed different kinds of forages. Aswanimiyuni et al., (2018) observed that feeding panicum and Napier grasses had no significant ($P<0.05$) effect on goat body weight. Eyoh *et al.*, (2019) reported that final body weight of goat fed was no significantly ($P<0.05$) affected by dietary panicum maximum. While, the results of this study did not agree with Ojo *et al*., (2019) who founded that when feeding Panicum to African rams with the addition of leguminous grains, as the treatments of adding legume supplements are significantly superior ($P\leq 0.05$) in body weight over the treatment of Panicum only.

***Total Weight Gain*:** The results of Table (5). Showed the effect of feeding SPM on the average total

weight gain during the experimental period. It was noticed that there were no significant differences between the treatment (T1) and (T2) over the treatment (T3). The results of the study agreed with the Tona *et al*., (2014) found that there was no significant difference between the treatment of goats fed on Panicum and the treatment fed on Panicum with an addition of 15% of the Moringa leaves on Total Weight Gain**.**

***Daily Weight Gain*:** It is evident from the results in Table 5. that there were no significant differences between animals in the average daily weight gain between control group (T1) and group fed 25% SPM (T2) for all periods, and the lower daily weight gain was observed in group fed 50% SPM (T3) . these obtained results matched with the results obtained by Loresco *et al*., (2019**)** who found that there was no significant differences between calves fed Panicum and calves fed different kind of grasses on daily weight gain, and Eyoh *et al.,* (2019) did not observe a significant difference between the treatments of three forms of Panicum (hay, green and silage) that were fed to sheep. Moreover, the results of this study did not agree with Jiwuba *et al.,* (2017) who showed in a study on African goats, there was a significant difference (P≤0. 05) between the treatments, where the treatments fed on Panicum by adding 10 and 15% of the Moringa leaves were significantly (P≤ 0.05) superior to the treatment fed on Panicum only. Adebisi *et al*., (2016) found that daily gain was (5.54, 28.57, 16.79,15.18 and 15.54) with dwarf goats fed on different levels of panicum (0,25,50,50,75,100). Aswanimiyuni *et al*., (2018) found that there were no significant differences(P<0.05) on daily gain was 0.130, and 0.121 kg/day on goat fed panicum maximum and second group fed Napier grasses.
Loresco *et al*., (2019) observed that there were no significant differences in the average daily gain (ADG) to three groups of growing heifers during 120 days feeding period. feeding Fresh Mulato, Mombasa and Napier grasses.

Table (5): The effect of using Spanish Panicum Mombasa in the diet on the total and daily weight gain, feedconsumption and feed conversion.

Treatment	Experimental ration			
	Total weight gain (kg)	Daily weight gain (g)	Amount of feed intake(hay + concentrate) (g)	Food conversion efficiency
T_1	9.29[a]	51.61[a]	372.7[a]	7.35[b]
T_2	9.46[a]	52.55[a]	376.11[a]	7.48[b]
T_3	7.94[b]	43.77[b]	360[b]	8.51[a]
±SE	0.53	2.06	2.11	0.06

Means followed with the same letter (a, b, c) are not significantly different at 5% level of significant. Control group (T1) fed 60% CFM + 40% CH . (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20% SPM)

***Total feed intake*:** It is evident from the results of Table (5). that there were no significant differences between the treatments in the amount of total feed intake between control group (T1) and group fed 25% SPM (T2) for all periods, and the lower feed intake was observed in group fed 50%SPM (T3) . the results are agreed with Loresco *et al*., (2019) , Jiwuba *et al.,* (2017)**.** These results differed with Ojo *et al.,* (2019) finding that when fed rams on Panicum and Panicum with the addition of legume supplements, as they found a significant difference between the treatments in the amount of feed intake. Adegun and Aye (2013**)** observed a significant increase in the amount of feed intake between the treatment of rams that fed on Panicum only and treatments that were fed Panicum with addition of different proportions of cotton seeds and Moringa leaves. Adebisi *et al.,* (2016**)** noticed that high DM intake of goats feeding on 0, 25, 50,75 and 100% pm were recorded by goats fed diet contain 100% pm. Aswanimiyuni *et al*. (2018**)** reported that dry matter intake in goat was 0.97 and 0.80 kg/day, for goat fed Panicum maximum and Napier grass, respectively.
Eyoh *et al.,* (2019) recorded that there were significant differences between feeding groups on dry matter intake in goat fed on Wilted Panicum maximum, fresh Panicum maximum, Ensiled Panicum maximum and dry Panicum maximum hay was 742.96, 759.80,564.28 and 484.47g/day, respectively.

***Feed conversion efficiency*:** It is evident from the results of Table (5) that there was no significant difference between the treatments in the feed conversion efficiency between control group T1 and group T2 , where the treatment T2 achieved a mathematical improvement compared to other treatments. The

increase in the proportion of SPM in diets of the growing goat's kids led to a decrease in the daily weight gain and feed conversion rates. It may be due to the SPM plant contain anti-nutritional factors, and it was referred to it in our previous research on feeding dairy goats with different levels of SPM plant Kelyni *et al.,* (2021). The obtained results agreed with Eyoh and Ayuk (2019) and with Eyoh *et al*., (2019) that observed that there was no significant differences in the feed conversion efficiency when feeding goats on Panicum compared to other treatments. Adebisi *et al.,* (2016) recorded that feed conversion in goats fed on 0., 25, 50, 75 and 100% panicum maximum was 3.81, 2.58, 4.29, 5.25 and 5.67 gain/ feed, respectively. Aswanimiyuni *et al.,* (2018) The authors found a significant ($P<0.05$) differences between groups on conversion ratio was 7.46 and 6.61 for goat diet fed pm and Npaier grass. Eyoh *et al*., (2019) recorded that there were no significant ($P<0.05$) differences between goats groups feeding on feed conversion ratio which was 34.11,36.37,41.58 and 33.5 for goat fed on Wilted panicum maximum, fresh panicum maximum, Ensiled pm and dry, respectively.

Digestibility coefficients and feeding values:

As shown in Table (6). Data indicated that the digestion coefficients of OM, CF, NFE, TDN were higher ($P<0.05$) with animals fed the control diet (T1), there was no significant difrence between control (T1) fed 60% CFM + 40% CH and (T2) fed 60% CFM + (30% CH + 10% SPM) on DM, CP, EE and DCP , The improvement in digestibility in group (T2) may be attributed to the positive effect of SPM to be like the control diet, and The slight improvement in the nutritive value close to control diet (T1) in favor of group fed T2 may be attributed to better digestibility results of most nutrients recorded by this group.in comparison with animals (T3) fed 60% CFM +(20% CH + 20% SPM) were recorded lower digestion coefficients of DM, OM, CP, NFE, TDN and DCP. These results with agreed with Aregheore (2001**)** who observed that goats feeding gunia grass were recorded better significantly ($P<0.05$) digestibility of OM, CP,EE and NFE than batiki grass. Adebisi *et al*., (2016) found that the best digestibility were found it when used panicum maximum mixture on the goats diet.

Table (6): Digestion coefficients and nutritive values of the experimental rations on (DM basis).

Item	Experimental ration			
	T1	T2	T3	±SE
Apparent digestibility, %				
Dry matter	87.48[a]	83.36[a]	74.35[b]	1.20
Organic matter	88.99[a]	84.74[b]	78.90[c]	1.17
Crude protein	87.43[a]	84.24[a]	76.30[b]	0.96
Ether extract	95.67[a]	94.08[a]	89.85[b]	0.93
Crude fiber	78.16[a]	66.70[b]	51.52[c]	2.51
N-free extract	92.58[a]	89.64[a]	85.80[b]	0.85
Nutritive value, %				
TDN	89.71[a]	86.33[b]	80.98[c]	0.91
DCP	16.20[a]	15.61[a]	14.13[b]	0.17

a and b: Means on the same raw with different super script are significantly ($P<0.05$). Control group (T1) fed 60% CFM + 40% CH . (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20% SPM).

Blood constituents:

Statistical Analyses as given in Table (7). showed that groups fed T3 had ($P<0.05$) higher total serum protein, albumin, A/G ratio , MDA and GPX concentration. While group fed T1(control group) recorded ($P<0.05$) higher AST, ALT, Triglyceride, urea and creatinine concentration compared with groups fed T2 and T3. No significant differences ($P<0.05$) in globulin concentrations of plasma among groups fed T1, T2 and T3. However,These values are found to be within the normal range of anlysis results. These results are found in agreement with the result obtained by Yusuf *et al.,* (2012).

Table (7): Blood constituents of the experimental groups.

Item	Experimental ration			
	T1	T2	T3	±SE
Total Protein	**6.10**^{c}	6.58^{b}	7.22^{a}	0.09
Albumin	4.05^{c}	4.55^{b}	5.11^{a}	0.11
Globulin	2.12	2.02	2.12	0.05
A/G ratio	2.03^{b}	2.28^{ab}	2.38^{a}	0.09
AST	85.53^{a}	76.18^{b}	71.16^{c}	1.42
ALT	35.75^{a}	26.61^{b}	25.45^{b}	1.94
Cholesterol	77.67^{a}	72.03^{b}	72.03^{b}	1.17
Triglyceride	68.41^{a}	63.97^{b}	57.72^{c}	1.45
Urea	16.97^{a}	14.17^{b}	11.85^{c}	0.29
Creatine	0.83^{a}	0.70^{b}	0.52^{c}	0.01
Glutathione Peroxidase (GPx)	9.06^{c}	10.31^{b}	13.77^{a}	0.10
Malondialdehyde (MDA)	2.61^{a}	2.05^{b}	2.61^{a}	0.06

Means followed with the same letter (a, b, c) are not significantly different at 5% level of significant. Control group (T1) fed 60% CFM + 40% CH . (T2) fed 60% CFM + (30% CH + 10% SPM), (T3) fed 60% CFM +(20% CH + 20% SPM)

Economic efficiency:

Results in Table (8). of the economic study showed that control ration was the highest daily feed cost (1.60 LE) while, the lowest daily feed cost (1.52 LE) was observed for goats fed ration contained high level of SPM (T3). The best relative economic efficiency was significantly (P<0.05) recorded by (T2) being 127.47% when compared with the control group (100%). The best economic efficiency as a result of supplementation of SPM could be related to the recorded improvement in growth performance of weaning Baldi goat's kids in this current study. Adebisi et al., (2016) supported that the best economic efficiency recorded for goats fed 0.25, 50, 75, 100% panicum maximum replaced by G.arberea, respectively.

Table (8): Effect of experimental rations on economic efficiency.

Item	Experimental ration			
	T1	T2	T3	±SE
daily gain g/h/day	51.61^{a}	52.55^{a}	43.77^{b}	3.01
Total DMI	372.7^{b}	376.1^{a}	360.0^{c}	0.01
Daily feed cost (LE)	1.60^{a}	1.55^{a}	1.52^{b}	0.02
Av. Revenue of daily gain (LE)	2.83^{a}	2.89^{a}	2.41^{a}	0.16
Net feed revenue (LE)	1.23^{a}	1.33^{a}	0.88^{b}	0.17
Economic feed efficiency %	77.88^{b}	87.80^{a}	85.34^{c}	0.11
Relative Economic efficiency %	100^{b}	127.47^{a}	78.91^{c}	0.19

Market price at the time of experimentation for 1 ton CFM were 4500 LE/ ton Egyptian berseem hay were 3500 LE / ton Spanish Panicum Mombasa were 2000 LE/ton, price of 1kg live goat's meat was 55

CONCLUSION

The achieved promising results of this current study for growth performances and economical efficiency of growing weaning Baldi goat's kids may encourage us to recommend using Spanish Panicum Mombasa at 10% level as replacement of clover hay an effective in growing weaning Baldi goat's kids rations.

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تقييم نبات البونيكام مومباسا الأسباني على أداء صغار الماعز البلدى.

رفعت زعرب عياد قليني[2] ، محمد محمد عبد اللا [1] ، جمال علي الدين الصياد[1] ، جمال فاروق شاهين [2]، محمد السيد سيد احمد [2]، شيرين حمدي محمد[1].

[1] قسم الإنتاج الحيواني ، كلية الزراعة ، جامعة بنها ، مصر
[2]قسم تغذيه الحيوان، معهد بحوث الإنتاج الحيواني، مركز البحوث الزراعية

أجريت الدراسة الحالية لتقييم نبات البنيكام مومباسا الاسبانى عند فترة قطع 30 يومًا لتقيم أداء صغار الماعز البلدي عند مستوي 0 و 25 و 50٪ نبات البنيكام مومباسا الاسبانى كبديل لدريس البرسيم. لم تظهر الدراسه فروقا معنويه بين المعاملات في جميع فترات التجربة في متوسط زيادة الوزن الشهرية. لم تكن هناك فروق ذات دلالة إحصائية بين الحيوانات في متوسط الوزن المكتسب الكلي ومتوسط زيادة الوزن اليومية وكمية المأكول بين مجموعة الكنترول المجموعة الثانية التي تم تغذيتها بنسبة(25٪ نبات البنيكام مومباسا الاسبانى) لجميع الفترات ، والأقل زيادة يوميه لوحظت في وزن المجموعة التي تم تغذيتها بنسبة (50٪ نبات البنيكام مومباسا الاسبانى). ولوحظ انخفاض في الوزن المكتسب اليومي و ذلك في المجموعة التي تم تغذيتها بنسبة (50٪ نبات البنيكام مومباسا الاسبانى). لم يتم تسجيل أختلافا معنويا بين مجموعه الكنترول (T1) و (T2) الذي تم تغذيته على DM و CP و EE و DCP مقارنة مع الحيوانات (T3) ، حيث تم تسجيل معاملات هضم أقل لكل من معاملات هضم DM و OM و CP و NFE و TDN و DCP . بينما أظهرت المجموعة T3 أعلى بروتين كلي والألبومين ونسبة A / G وتركيز MDA و GPx. بينما سجلت المجموعة التي تم تغذيتها على T1 (مجموعة الكنترول) (P <0.05) تركيز أعلى من AST و ALT و Triglyceride واليوريا والكرياتينين مقارنة بالمجموعات التي تم تغذيتها على T2 و T3. هذا و لم تظهر فروقا ذات دلالة إحصائية (P >0.05) في تركيزات الجلوبيولين في البلازما بين المجموعات التي تم تغذيتها على T1 و T2 و T3. ومع ذلك فإن كل قيم مقاييس الدم الفسيولوجيه ضمن النطاق الطبيعي لنتائج التحليل. و كانت أفضل كفاءة اقتصادية نسبية معنويا (P >0.05) سجلت بواسطة (T2) بنسبة 127.47٪ بالمقارنة مع مجموعة الكنترول (100٪).

الكلمات المفتاحية: بنيكام مومباسا الاسبانى ، صغار الماعز ، أداء النمو ، الكفاءة الاقتصادية.