Effect of Dried Sugar Cane Tops on Feedlot Performance, External Body Measurements and Non Carcass Components of Sudanese Desert Goat Kids (A)

أثر رؤوس قصب السكر المجففة على آداء و قياسات الجسم الخارجية و مكونات غير الذبيحة لجديان الماعز الصحراوى

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Abstract:

This study was conducted to assess the feedlot performance, external body measurements and non carcass components of Sudanese desert male kids fed diets containing different sugar cane tops levels. Twenty seven young desert goat kids less than one year old were purchased from Jabal Awlia local animal market. Then transported to the small ruminant pens at the Faculty of Agricultural Technology and Fish Sciences Elneelain University in Jabal Awlia. These animals were subjected to adaptation period for two weeks, after this period animals were weighed, and divided randomly into 3 groups (A, B, and C, 9 heads/ group) of the same number and weight and each group was separately penned. The goat kids groups were fed these diets for 56 days. three isocaloric and isonitrogenous diets, containing graded levels of sugar cane tops (0%, 10%, and 20%) were formulated. Green fodder (Medicago sativa) was also given at rate of one kg/week/head to avoid.

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vitamin (A) deficiency. Feedlot performance parameters as feed intake, feed conversion ratio, live weight gain, live body measurement and non carcass components were studied.

The results indicated that feedlot performance parameters tested and non-carcass components except empty Intestine and Tail were not significantly affected by the levels of sugar cane tops in the diet.

Key word: Feedlot Performance, External Body Measurements, Non carcass Components, Sudanese Desert Kids and Sugar cane tops.

المستخلص:

أجريت هذه الدراسة لتقييم صفات أداء و قياسات الجسم الخارجية و المكونات غير الذبيحة لدى ذكورجديان الماعز الصحراوي التي تتغذى على علائق تحتوي علي مستويات مختلفة من رؤوس قصب السكر.

تم شراء (٢٧) راس من صغار الماعز الصحراوي الذين تقل اعمارهم أقل عن عام من سوق جبل أولياء المحلى للماشيه و تم نقلها الي حظائر المجترات الصغيرة في كلية التقانة الزراعية و علوم الأسماك بجامعة النيلين– بجبل الأولياء. بعد قضاء فترة الأقلمة الكافية قسمت الجديان عشوائياً إلي ثلاث مجموعات (٩ رأس لكل مجموعة) بمتوسط وزن ابتدائي متساوي وعُلفت المجموعات الثلاث لمدة (٥٦ يوم). المجموعة الأولي رؤوس القصب بها صفر والثانية ١٠% والثالثة ٢٠% . كما تم إعطاء العلف الأخضر بمعدل كجم/ أسبوع / رأس لتجنب نقص فيتامين أ.
كانت المتغيرات المدروسة لآداء الجديان هي العلف المتناول، معدل التحويل الغذائي، الوزن الحي، و قياسات الجسم، و في نهاية التجربة تم اختيار ثلاثة جديان عشوائيا من كل مجموعة و ذبحها لدراسة خصائص مكونات غير الذبيحة.
أظهرت الدراسة أن إضافة مستويات مختلفة من رؤوس القصب في علائق التسمين ليس له اثر معنوي ($P< 0.05$) على آداء الجديان و قياسات الجسم الخارجية و مكونات غير الذبيحة عدا وزن الأمعاء فارغة و وزن الذيل.
الكلمات المفتاحية: رؤوس قصب السكر – آداء و قياسات الجسم الخارجية- جديان الماعز الصحراوى.

INTRODUCTION: The total population of goats in the world is about 738.2 million heads, while the population of goat in Africa is approximately 218.6 million heads (FAO, 2003). Sudan is considered to be one of the richest African and Arab countries with regard to cattle population estimated as 103,278,000 which included 28,618,000 cattle 39,296,000 sheep, 30,649,000 goats and 4.715,000 camels.(MAFR 2011).

The goat is an important animal for both meat and milk in Africa, Asia and the far east. It is now emerging as an alternative and attractive source of meat in other parts of the world (Devendra, 1981). Goats have been a common source of meat in many tropical and developing countries, and they are more important meat producing animals compared to sheep (Mahgoub and Lodge, 1998). Goat meat with its superior water holding capacity, dark red colour and low fat content could be a good raw material for meat products and it is a healthy food commodity (Babiker *et al.*, 1999).

Sudan desert goat represents about 27.1% of the total goat

population in the country, ranking second to the Nubian goats (Hassan, 1977).

The sugarcane leaves must be taken in consideration, since it is a part of the sugarcane tops. This part have a high crude fiber content (40-42%of dry matter), and the leaves are also rich in soluble carbohydrates. Therefore they are a potential feed resource for ruminant in the dry season (Pate, 1981).

Sugar cane tops is a major by-product of the sugar industry which is often left in the field unutilized after harvest. The sugar cane top consists of three distinct parts: the green leaves (blades), the leaf sheath bundle and a variable amount of immature cane. The yield of tops varies considerably with variety, age at harvest, growing conditions and management practices. It accounts for 16-18% of the total biomass production, or about 28% of the weight of the stalk (Nguyen ThiMui*et al.*, 1996a).

The objectives of this study are :

1. Utilization of available agricultural by-products (sugar cane tops) in animal feed to increase the productivity of these animals and reduce the feed cost.
2. Study the effect of sugar cane tops on feedlot performance, external body measurements and non carcass components of Sudanese desert kids.

MATERIALS AND METHODS:

Study area: This study was conducted at University Of Alneelain College of Agricultural Technology and fish sciences, Department of Animal Production in Jabal Awila at Khartoum State , about 40 km south of Khartoum.. Which is located in the semi arid- zone between latitudes 15°-40° N and longitudes 32*E.

Experimental animals: Thirty Sudanese desert goat kids were purchased from the animal market of Jabal Awlia, then transported to the small ruminant pens at the Faculty of Agricultural Technology and Fish Sciences AlNeelain University in Jabal Awlia. Animals were selected according to their age(less than one year) . kids were ear

tagged and subjected to an adaptation period of two weeks.

Adaptation period: During this period experimental kids were fed a mixture of experimental diets**.** Experimental kids were vaccinated against septicemia and pests Des Petit Ruminant (P.P.R) and sprayed with an acricide solution against ectoparasites and deworming with thiobenzol as drench solution was performed. The thiobenzol treatment was repeated after 15 days.

Experimental procedure: At the end of the adaptation period the animals were individually weighed and then randomly divided into 3 groups (A, B, and C) of the similar number and weight and each group was separately penned. Each pen was provided with watering and feeding facilities.

Feeds and feeding

Sugar cane tops source: Sugar cane tops was brought from Algunaid Sugar Factory. After sun drying a sample was taken and subjected to a proximate analysis according to (A.O.A.C 1975. Table1). According to this analysis three iso-caloric diets and iso- nitrogenous diets were formulated (Table2).These diets contained graded levels of sugar cane tops (0, 10%, and 20%). The ingredient proportions of experimental diets are given in table(2).

During the feeding period animals were fed the assigned diets *ad-libitum*. The diets were offered in one morning meal at 8a.m. throughout the study period. Green fodder (*Medicago sativa*) was also given at a rate of one kg/animal/week to avoid vitamin A deficiency. The experiment lasted for 60 days.

Data recorded: Feedlot performance data as Feed intake, Live weight gain , Live body measurement and non carcass components data were recorded .

Data analysis: Experimental data were analyzed by analysis of variance techniques applicable to completely random design (C.R.D).

Results and Discussion:

Performance and Feedlot: The Average Initial and final body weights, weight gain, feed intake and feed conversion rate of the experimental animals were presented in (table 3). There were no significant (P>0.05) difference among tested groups. Although final body weight and total live weight gain and daily weight gain increased with the increase of sugar cane tops levels in the diet up to 20% .The results obtained here were in the same trend with those obtained by Nguyen Thi Mui, et al (1996) Who fed desert goat kids with different levels of sugar cane tops in the wet and dry seasons.

Effect of sugar cane tops on feed intake: The average total daily feed intake is not significantly (P>0.05) affected by experimental diets.

Live animal performance data indicated that feed intake increased as the level of Sugar cane tops in the diet increased from 0% Sugar cane tops up to 20% (group C) and then decreased to a minimum level at the 0% Sugar cane tops in the diet (group A). The drop in feed intake in group (A) that received (0% Sugar cane tops) in the diet might be due to low palatability. effect of feeding different levels of Sugar cane tops in the diets (0%, 10% and 20% Sugar cane tops) to desert goat kids. Results showed that kids fed 20% Sugar cane tops followed by 10%, respectively gave the best result in parameter studied feed intake. the results disagree with Nguyen ThiMui,et al (1996).

Effect of sugar cane tops on weight gain: Total weight gain and daily weight gain of the goat kids (table 3) were not significantly (P>0.05) affected by Experimental diets**,** reduced by increased the sugar cane tops group A (0%), group B (10%) and group C (20%)**.** the results obtained here were in the same trend with those obtained by Nguyen Thi Mui,et al (1996) Who fed desert goat kids with different levels of sugar cane tops in the wet and dry seasons.

Effect of sugar cane tops on feed conversion ratio: feed conversion ratio of the goat kids (table 4) were not significantly (P>0.05) affected by Experimental diets. Effect of feeding different levels of sugar cane

tops in the diets (0%, 10% and 20% Sugar cane tops) to desert goat kids. Results showed that kids fed 10% Sugar cane tops followed by the best result in studied feed conversion ratio. the results disagree with Nguyen ThiMui, et al (1996) Who fed desert goat kids with different levels of sugar cane tops in the wet and dry seasons.

Effect of feeding sugar cane tops on external body measurements of desert goat kids: External body measurements of experimental goat kids

were presented in (Table 4). There were no significant differences among the body measurements between the animal groups. This might be due to the effect of Sugar cane tops in the diets on the development body tissues Also, the results obtained here were in the same trend with those obtained by Worku A, et al (2015) in the sheep of different levels of dried Sugar cane tops(0, 120, 240, 360 g/head/day).

Effect of feeding sugar cane tops on Non-carcass components of desert goat kids: Non-carcass components as Lung and Trachea, liver, kidneys and fat, rumen full and empty, intestines full, Four feet, skin, head, Fat and heart (Table ٥) show no significant differences between animal groups with the increase of Sugar cane tops levels .the results obtained here were in line with those obtained by Worku A, et al (2015).

Empty Intestine and tail increased significantly ($P < 0.01$) with the increase of sugar cane tops in the diet, results for these parameters disagree with those obtained by previous workers.

CONCLUSIONS

It can be concluded that introduction of dry sugar cane tops up to 20% in the diet of male goat kids produced the best feedlot results. Supplementation of dried sugar can top has positive impact on the body weight gain of desert goat kids with better economic feasibility.

Recommendations

1. More investigations must be carried out to determine the potentiality of sugar cane tops in the diets for meat and milk production.

2. More investigations must be conducted to study the nutritional value of sugar cane tops in the animal feed, suitable levels in the diet and economical cost.

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