FEEDING BLOOD MEAL TO SUDAN DESERT SHEEP Il. EEEEC T ON CHMICAL COMPOSITION AND PALATABILITY OF LAMBS MEAT.

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SUMMARY

In a previous experiment (Mansour et al l988) three diets designated A, B, and C containing 5, 10 and l5 % blood meal respectively were used for fattening three groups of l5 lambs. Further investigations were reported here to examine the effects of dietary blood mealon the chemical composition and pal- atability of the lambs meat . Samples from the rack cut and loin were taken for the study. The chemical composition of the rack meat of group A, B, and C were moisture 63.1, 68.0 and 72.9% ; fat 21.3 , 16.2 and 13.6 X, ;protein 14.7, 14.9 and l4.8%; ash 0.88, 0.94 and 0.93 34,, respectively. Test panel scores revealed no significant (P > 0.05) effect among dietary treat ments on colour, flavour, tenderness and juiciness. Roasts from the loin of the three groups organoleptically acceptable in a taste panel evaluation.

INTRODUCTION

In the early post -natal life, sheep and other animal species contain in their bodies a iarge amount of water, low levels of protein, ash and small quantities of fat. Under ample nutrition chemical composition of sheep changes during growth. As the animal approaches maturity, the proportion of water and protein in the body decline accompanied by an increase of fat. Meat palatability depends on appearance. tenderness and juiciness (Bra tzler 1978). In fact most if not all these parameters are best determined subjectively by using trained or consumer taste panel in the process of sensory evaluation. Attempts have been made (Mansour, et al 1988) to determine the efi'ect.offee- ding blood meal to Desert sheep on

performance and carcass characteristics. This study is a continuation to that attempt to determine the effect blood meal has on the palatability and chemical composition of Desert sheep Meat.

MATERIALS AND MTHODS

The fifteen male Sudan Desert Lambs described in the first part of this series (Mansour et al i988) were used here. Samples for chemical analysis were taken from the muscles of rack (l6 - 12th rib) of the left half of the carcass and then llabled and kept frozen inpolythene bags. The frozen meat was thawed and ground three times in an electric grinder. Chemical analysis for the proximate deter- mination of moisture, fat, protein and ash of the fresh meal was done according to A. O. A. C. (I955). On the other hand the meat samples of loin cuts of the dill‘- erent carcasses were used for sensory evaluation. The samples were wrapped in polythene bags and fzozrn to await sensory evaluation. Before each cooking period the required number of polythene - wrapped loin cuts were randomly removed and thawed overnight at 4C'.The cuts were then roasted, wrapped in aluminium foil in electric oven at 163C’ for 75 minutes (Marsh et al, 1966 and Griflin et al, 1985). The meat internal tempera- ture was measured by piercing a meat thermometer in the lean portion imme- diately after the sample was removedfrom the oven and it ranged between 72 -82C’ . The samples were cut into smaller pieces and served warm on coded plates to the panelists, each sample was given a random three - digit code number which was changed in each session. The samples were tested by six panel members (semi - trained). The panelists were offered three different samples of meat each of about X square inch in each session. The panelists were asked to assess colour, flavour, tenderiiess and juiciness of each sample by scoring an scales of eight - point hedonic scale where eight was extremely desirable, extremely inte- nse, extremely undesirable, extremely bland, extremely tough and extremely dry, respectively. Three actual sessions were performed after the panelists had some training sessions. Testing sessions were held mid - morning , the judges refraining from food and to bacco during the

preceding 60 - minutes, Tasters occupied comfor- table places, tap water at room temperature was available to remove lingering flavour of previous samples. _ Panelists were selected and trained as described by Cross et al (I978). The method developed for selecting, training and testing a meat descriptive panel was based on an informal interview of each candidate to determine his or her interest and availability. The scores of the six panelists were averaged for each character- ristic and this average represented the quality attribute of that particular parameter. Statistical analysis were carried out according to the procedures mentioned in the first part of this study (Mansour ct al i988).

RIEULTS

Chemical composition .' V Chemical composition data of experimental lambs (rack cut) are presented in Table I. There were significant difl'erences among dietary treatments in percentages of moisture and fat. The moisture increased linearly ($P < 0.0l$) while fat decreased linearly ($P < 0.01$) as the level of supplemental blood meal increased. No significant diflbrenoes among dietary treatments were observed for protein and ash percentages.

Table 1. Chemical composition of rack meat of experimental lambs.

Item	A	B	C	SE
Moisture, %(a)	63.10	68.04	72.98	2.27
Fat, %a	21.31	16.16	13.59	1.71
Protein, %	14.73	14.86	14.42	0.53
Ash.%	0.88	0.94	0.93	0.00

SE Standard error of the treatment means.

(a) Linear effect ($P < 0.01$).

Palatability characteristics :

The average scores of colour, flavour, tenderness and juiciness are shown in Table 2. No significant differences among dietary treatments were observed for colour, flavour, tenderness and juiciness. All products were scored above the slightly range for all parameters.

Table 2. Average scores of colour, flavour, tenderness and juiciness (a)

Group	Colour [b]	Flavour [c]	Tenderness [d]	Juiciness [e]
A	5.77	6.27	6.33	6.13
B	6.20	5.83	6.13	5.73
C	5.77	6.17	6.97	5.77

a None of the means were statistically significant ($P > 0.05$).

b (1 = extremely undesirable colour ; 8 = extremely desirable colour).

c (1 = extremely bland flavour ... ; 8 = extremely intense flavour).

d (1 = extremely tough ...; 8 = extremely tender).

e (1 = extremely dry ...; 8 = extremely juicy).

DISCUSSION

Chemical C ompositian : The three level s of blood meal had significant ($P < 0.01$) effects on moisture and fat percentages; but had no significant ($P > 0.05$) effects on protein and ash percentages (Table I). Generally the fat and moisture contents of meat are inversely related. Group A which were fed on the diet supplemented with 5°/,, blood meal had lower percentage of water and higher percentage of fat, whereas group C (I5 % blood meal) had higher

percentage of water and lower percentage of fat. Group B (10% blood meal lhad intermediate values for these parameters. The figures of the present study for meat chemical composition compare favo- urably with those reported by Gaili et al (I972) for young Sudanese Desert lambs. The protein, ash andewater percentages of the body decrease with advancing age and fattening (Reid et al l968; Gaili et al, 1972). Palatability cluzracrwislics No significant (P >0.05) differences among dietary treatments were observed in the present study for colour, flavour, tenderness and juiciness. The three levels cf blccd failed to show any significant effect of these parameters on cooked meat samples of the experimental lambs (lion cuts) This was in agreement with Nad- hat et al (I984) and Nicastro et al (i985), who reported that quality characteris- tics were affected by level and source of protein. Also Paul et al (1968) reported that the differences attributable to feedlot vers- sus pasture feeding were not very marked , nor did they present clear - cut sugges- tion ot" superiority for one feeding method over the other. They added that the difference were somewhat more definite between two grades than between two feeding regimens. In contrast, Kemp et al (l976) found that the dietary protein level significantly affect tenderness of the meat. To conclude, this study has shown thatblood meal at 10% level could succe- ssfully be used as a protein source in sheep rations. Moreover, it resulted Win performance, carcass characteristics and palatability traits that were equal to and sometimes even better than those reported in literature where traditional protein sources (cottonseed cake) were used.

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