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Araştırma Makalesi

A Study on Optimum Fattening Period of Black and White Cattle and Their Crosses With Kilis Cattle[1]

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Abstract

This research was conducted to find out fattening performances optimum fattening period of Black and White (BW) bullocks (11 heads) and their crosses with Kilis cattle (12 heads) are taken two different age groups at Çukurova condition. Each genotype was divided to 8 and 12 months of age groups. Bullocks were individually fed ad-libitum on a consisting of 20% hay and 80% concentrate mixture. The differences between the average daily weight gain of the groups were statistically significant ($P<0.01$) for age groups and significant ($P<0.05$) for the genotype groups. It can be suggested that the shortest optimum period can be obtained using Black and White genotype at 12 months of age for a 98 days fattening period at intensive fattening operations.

Key words: Black and White, Kilis crosses, optimum fattening period

Siyah Alaca ve Siyah Alaca ile Kilis Melezi Sığırlarda Optimum Besi Süresi Üzerine Bir Araştırma

Özet

Bu çalışma Çukurova bölgesi koşullarında 2 farklı yaşta besiye alınan Siyah Alaca (SA) (11 baş) ve Kilis melezi (12 baş) sığırların optimum besi süresi ortaya koymak amacıyla yürütülmüştür.

Her bir genotip 8 ve 12 aylık yaş gruplarına ayrılmıştır. Tosunlar %20 saman ve %80 besi yemi içeren karışımla serbest olarak yemlenmişlerdir. Deneme grupları günlük canlı ağırlık değerleri arası farklar yaş grupları ($P<0.01$) ve genotip grupları ($P<0.05$) için önemli olarak tespit edilmiştir. En kısa optimum besi süresinin Siyah Alaca ırkında 12 aylık yaş grubunda yoğun besi koşullarında 98 gün olarak elde edilmiştir.

Anahtar kelimeler: Siyah Alaca, Kilis melezi, optimum besi süresi

Introduction

Two major changes have occurred in Turkey cattle husbandry system during the last 30 years. The first change was the importation of new exotic breeds from other countries and the second was the shift toward crossbreed cattle. Although the genetic composition of cattle population has changed dramatically, related production level has not changed nearly that much. Fattening operation success is directly linked to economic efficiency in producing kilograms of weight during the fattening. A wide variety of programs is used in fattening operations for marketing (Preston and Willis, 1974). There is no suggested method for the optimum operations for every condition. Cattle fatteners have no control annually over selling price for their fattened cattle, but they can control production efficiency. Cattle fatteners prefer to start the fattening operations with animals of older age and higher weights, which is intended to shorten the fattening period and reduced cost. This trend is attributed to their long experiences. The most typical starting weight is about 200-250 kg (Müftüoğlu et al 1980; Akcan et al 1989). Cattle of market weight are roughly 480 to 550 kg and this stage typically takes between 110 and 250 days in developed country. In Turkey, cattle were slaughtered at an average 350- 400 kg, and there is no certain period for fattening operations. Ending of fattening operations before optimum period means that economic loss for fatteners and economy. Heavier slaughter weight is an opportunity to increase the kilograms of meat marketed and gross return per cattle. This optimum slaughter weight can be obtained just end of the optimum fattening period. For this reason, cattle fatteners should know the optimum fattening period for each age group cattle. In this research, an effort were given to find out fattening performances, optimum fattening period of 8 and 12 months of age of Black and White and their crosses with Kilis cattle that mostly preference of the fatteners at Çukurova conditions.

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Materials and Methods

The study was carried out on the Black and White (BW) cattle breed and their crossbreeds with Kilis cattle kept at the Agricultural Faculty for Research and Production Unit at University of Çukurova. All calves were raised to reach about 200 and 300 kg body weight at 8 and 12 months of age, respectively. Animals were allowed a 15-d initial adaptation period before the beginning of the experiment to minimise pre-experiment environmental differences. During the experiment, bullocks were individually fed ad-libitum on a consisting of 20% hay and 80% concentrate mixture. Daily feed intake and 4 weekly body weight were recorded during the experiment. The most useful economic management assessment tool in cattle fattening operations is cost of gain. In this research, when price of 1 kg live-weight paid by the Government abattoir equal to cost of feed intake for 1 kg live-weight, this point accepted end of the fattening operations and this duration evaluated as a optimum fattening period. To minimize the season effects, animals were included to experiment in the each season except July and August months. The vitamin complex (A, D, E) was injected intramuscularly once a month. Salt blocks were kept in manger continuously and fresh drinking water was freely available to the animals. Data were analyzed using Least-squares analyses and were compared by Duncan test using MINITAB statistical program.

Results and Discussion

As planned the initial body weight of 8 and 12 months of age were about 200 and 300 kg respectively for each genotype (Table 1).

The differences between the average daily weight gain (ADG) of the groups were statistically significant ($P<0.01$) for age groups and significant ($P<0.05$) for the genotype groups. Older BW genotype had higher daily weight gain (1250 g) than their young cross groups (991 g). The ADG values that are reported in this study were lower than the values that were reported by Gürocak (1978) however similar to results of the others (Alpan and Sezgin, 1976; Güneyli and Pektaş, 1984; Güneyli and Pektaş, 1985; Gürocak et al 1978).

The differences between the feed efficiency of the groups were statistically significant ($P<0.05$) for age groups but not significant for the genotype groups. Normally feed efficiency is higher at higher age groups as observed in BW groups in this experiment, although different tendency was observed in feed efficiency rate of crosses group. This can be attributed that firstly fattening procedure was mostly lasted during warmer months of year and secondly scour incidence. It has been reported that feed conversion efficiency value were 8.7- 10.8 for 12-13 months of age BW genotype (Alpan and Sezgin, 1976; Güneyli and Pektaş, 1984; Alpan and Sezgin, 1976; Güneyli and Pektaş, 1985; Özkütük and Göncü, 1997). It has been reported that feed conversion efficiency value were 5.8- 12.4 for 12-13 months of age of their crosses with Kilis cattle (Alpan and Sezgin, 1976; Güneyli and Pektaş, 1985; Özkütük an Göncü, 1997). The differences between optimum fattening period of the groups were statistically significant ($P<0.01$) for the age and genotype groups. Müftüoğlu et al. (1980) reported that optimum fattening period of the BWxKilis (F1) crosses were 135 days for 6-9 months of age groups; 120-135 days for 9-12 months of age groups and 105 days for 12-15 months of age groups. Our findings agree with researcher's result for 12 months of age groups but these were higher for 8 months of age groups. In conclusion, optimum fattening period will vary with many factors and possibly operations, but in the final analyses it must be considered in relation to market price of particular weights. It can be suggested that the shortest optimum period can be obtained using Black and White genotype at 12 months of age for a 98 days fattening period at intensive fattening operations.

Table 1. Fattening performances of the experimental groups

Parameters	Black and White		BWxKilis		Effects		
Age groups	8 (months)	12(months)	8 (months)	12(months)	Gen.	age	Gen.*age
Number of animals	6	5	6	6			
Initial body weight (kg)	189±9.0[a]	301±6.3[b]	203 ±6.6[a]	297±4.3[b]	NS	**	NS
Average daily gain (kg)	1.220±0.115[a]	1.250±0.283[a]	0.991±0.095[b]	1.050±0.120[c]	*	**	NS
Feed efficiency	8.1±0.60[a]	9.8±0.28[b]	9.6±0.53[b]	8.2±0.85[a]	NS	*	NS
Optimum fattening period	165±6.6[a]	98±4.4[b]	187±7.8[a]	112±5.1[b]	**	**	NS

a, b Means within the same row with different superscript are significantly different

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