

Studies on Growth and Fattening of Cattle under Loose Housing System in a Sub-tropical Environment

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TWENTY OF EACH of entire and castrated males and female Karadi cattle and six of each of male and female Friesians were divided into 3 groups (males, females and castrated males) and were allotted to three loose housing barns.

The Karadi entire males showed a highly significant increase than the Karadi female cattle in live body weight, during the experimental period. The Friesian entire males insignificantly surpassed the females in the later period of the experiment. The average body weight of the Friesian was higher than that of the Karadi cattle. The Karadi entire males showed insignificant higher figures than the castrated ones.

The total weight gain was higher in the entire males than in the females in both breeds. The average of both sexes was higher in the Friesian than in the Karadi cattle. However, the relative total weight gain percentage of the average of both Karadi entire males and females surpassed that of the Friesian cattle. The castrated Karadi males showed lower values in each of the absolute total weight gain and percentage of the total weight gain than that in the entire males.

The average daily weight gain in the Karadi entire males, females and their average was 0.622 kg, 0.468 and 0.545 kg, respectively, while this value for castrated Karadi male was 0.609 kg. The respective values for the Friesian cattle were 0.821, 0.717 and 0.769 kg.

The growth measure values of the Karadi females amounted to 133% of that of the Karadi entire males, and 153% of the Friesian females. The value for the castrated Karadi male was 102% of that of the Karadi entire males. The growth measure value for the average of the Friesian cattle was 75% of the average of the Karadi breed.

The differences in body measurements between the Karadi entire males and females were significantly high at the end of the experiment. However, they were not significant in the Friesian cattle, except in the body length, which was significant. The total increase percent was higher in the entire males than in females in both breeds. The castrated males showed lower values in all body dimensions than the Karadi entire males.

The dressing percentage was higher in the castrated males than in the entire Karadi males. The percentage of the fore quarters to the live weight was higher in the entire than in the castrated Karadi males. The percentages of the rear quarters, internal organs and feet were almost the same in both groups.

The indigenous breed of cattle prevailing in the north-eastern mountainous region of Iraq is known as Kurdi (Karadi) cattle. Their population is about half a million (Ministry of Planning, Iraq, 1974) and are used mainly for meat production. These animals have short strong feet and small body size. The live body weight for mature animals ranges between 300-350 kg (Ministry of Agriculture and Agrarian Reform, Iraq, 1976). The dominant colour is black.

The studies on Karadi cattle are scanty. The present work was conducted to throw some light on the ability of Karadi cattle for meat production. The study included the growth rate, growth measure and carcass characteristics of the Karadi entire and castrated males. The Karadi females and Friesian entire males and females were used for comparison, in the first item of the study.

Material and Methods

The study was conducted in the farm of the Department of Animal Breeding, College of Agriculture, University of Sulaimaniyah, Northern Iraq, in the year 1976, for 5 months. Sixty Karadi animals and 12 Friesians aged 12-15 months were used in this experiment. The Karadi animals composed of 20 of each of entire males, castrated males and females, while the Friesians were six males and six females. (The animals were divided into three groups (males, females and castrated males) and were allotted to three loose housing barn.

All animals were sprayed for the eradication of ectoparasites, drenched for internal parasites and vaccinated against enzootic diseases prevalent in Iraq, *i.e.* Black quarter, haemorrhagic septicemia and anthrax.

The animals were fed on concentrated (3 kg per head per day). The concentrate diet was given to them gradually for two weeks before the beginning of the experiment. Alfalfa hay or green fodder when available and chopped wheat straw were fed *ad lib.* The animals had access to fresh water. The concentrate diet consisted of :

Uncorticated cotton seed meal	30%
Wheat bran	15%
Yellow corn	20%
Wheat	20%
Barely	15%
	Total 100%
0.5% sodium chloride	
1.0% calcium carbonate	

The nutritive value of the concentrate mixture was 70.45 as TDN and 15.22 as digestible protein.

The weight and body measurements were taken after the morning feed at the beginning of the experiment and then at monthly intervals till the fifth month. Body measurements included: Heart girth, abdominal girth, body length, height and width at the withers and at the rump. The heart girth and abdominal girth were measured by drawing the tape around the body close to the skin. The body length represented by a longitudinal distance between the point of shoulder to the hip joint was measured by using the tape. The height and width of the body were measured by using suitable calliper with a moving arm. Two measurements were taken each time and the mean of the two readings was recorded.

Five heavy animals of each of the entire and castrated Karadi males were slaughtered. The carcass length was measured from/the anterior edge of the pubic bone to the point of junction between the last cervical and the first thoracic vertebra, after halving the carcass. The whole carcass weight, the weight of hide, head, feet and internal viscera, *i.e.*, heart, lungs, liver, kidneys, testicles, the whole digestive tract and the internal extra fat were determined separately for each animal. The weight of the major cuts in every carcass was taken after 24 hr chilling. These cuts included : round and rump, loin, ribs, plate, shuck, brisket, flanks and shank.

Ambient temperature and relative humidity were recorded every day during the experimental period. The average monthly temperature and relative humidity were shown in Table 1.

TABLE 1. Average monthly temperature and relative humidity during the whole experimental period.

Month	Range of temperature ^o			Relative humidity %
	Minimum	Maximum	Average	
January	1.3	9.5	5.4	75
February	1.9	7.9	3.0	62
March	4.7	12.3	8.5	60
April	10.0	18.9	14.5	65
May	14.4	25.1	19.8	50
June	21.8	33.9	27.9	31

The monthly and total weight gain and the growth measure were estimated. The relative weight gain was calculated after Brody (1949).

Statistical analysis was carried out after Steel and Torrie (1960).

Results and Discussion

Body weight

Table 2 showed the average live body weights in the studied groups, throughout the experimental period.

The live body weight increased in all the groups of animals, during the experimental period. The Karadi entire males showed higher live body weight than the Karadi females, during the experimental period. This difference was highly significant at the beginning and at the end of the experiment (Table 3). The Friesian entire males showed lower live weight than in the females, at the beginning of the experiment, while the males exceeded the females in the later periods of the experiment. These differences were not significant (Table 3).

The average body weight of the Friesian animals was higher than that of the Karadi ones in all the periods of the experiment. The castrated males exceeded the entire males in the Karadi cattle, at the beginning of the experiment. However, this difference was not significant (Table 3). In the successive periods of the experiment the entire males significantly surpassed the castrated males in the live body weight, in the same breed.

Weight gain

The weight gain in kilograms and the relative weight gain percentage in the studied groups during the experimental period were shown in Table 4. The total weight gain in kilograms, the percentage of the total weight gain to the initial body weight and the relative weight gain percentage were shown in Table 5.

The weight gain in kilograms and the relative weight gain percentage showed similar trends in all the studied groups, during the experimental periods. The values of the absolute weight gain and the relative weight gain percentage were, in general, high in the first periods of the experiment, then decreased gradually till the end of the experiment.

The absolute total gain in body weight was higher in the entire males than in the females in both breeds. The average of both males and females was higher in the Friesian animals than in the Karadi ones. The relative total weight gain percentage and the percentage of the total weight gain to the initial body weights of the entire males and females in both breeds showed similar trends to those recorded in the absolute weight gain in the respective groups of animals. However, the total weight gain to the initial weight percent and the relative total weight gain percentage were higher in the average of both entire males and females in the Karadi than in the Friesian animals. These results may be due to the high average of the initial body weight of the Friesian. The castrated males showed lower values in the absolute total weight

TABLE 2. Body weight (kg) of the different groups of animals during the experimental period.

Breed	Group	Months					
		0	1	2	3	4	5
Karadi	Entire males	92.5±2.7	114.5±2.9	145.4±4.7	164.7±5.1	183.0±5.4	185.8±6.3
	Females	78.0±3.8	104.6±4.3	116.0±5.1	139.1±5.7	144.9±5.5	148.2±4.5
	Average	85.2±2.6	109.3±2.7	131.6±4.1	151.9±4.3	164.5±5.0	167.4±3.7
Friesian	Castrated males	93.6±1.7	114.4±1.9	142.4±3.2	161.3±3.6	180.0±2.4	185.0±2.7
	Entire males	126.3±7.1	156.7±8.8	175.8±7.8	202.0±7.9	228.0±10.5	249.5±10.6
	Females	131.7±8.1	156.7±11.6	176.2±11.2	197.2±13.9	220.7±14.8	239.3±15.6
	Average	129.0±5.1	156.7±6.7	176.0±6.3	199.6±7.5	224.3±8.5	244.4±8.8

TABLE 3. Test of significance (value) of the differences in the body weight and body dimensions between the groups of animals, at the beginning and the end of the experiment.

Breed	Differences	Period (months)	Body weight	Heart girth	Abdominal girth	Body length	Body shoulder	Height hip	Body shoulder	Width hip
Karadi	Males&Females	0	3.113 @	0.826	0.223	0.602	0.514	1.575	0.000	1.114
	Males	5	5.457 @	2.704*	4.638 @	2.165*	4.637 @	3.829	2.545	2.498*
	Males&Castrated males	5	0.346	1.306	2.789*	1.477	0.437	0.459	0.000	0.000
Friesian	Males	0	0.139	0.246	0.722	0.453	1.802	1.479	1.043	0.345
	Males&Females	5	0.509	0.736	0.709	0.233	3.673 @	1.512	1.670	1.713
			0.552	2.127	0.000	3.347*	0.805	2.108	2.059	0.376

@ P < 0.1

10 * P < .05

gain, percentage of the relative total weight gain and percentage of the total weight gain to the initial weight than in the entire Karadi males. These results agreed with the findings of Klosterman *et al.* (1954).

The average daily weight gain was 0.622 kg in the Karadi entire males and 0.468 kg in the Karadi females and their average value was 0.548 kg. The estimated value for the daily weight gain for the Karadi entire males was higher than that recorded by El-Dessuky *et al.* (1975), Juma *et al.* (1972) and Kharoofa (1975) in Karadi and other Iraqi native breeds, and Elliott (1963) in the Africander and Lahoz *et al.* (1971) in polled Senu and Zebu. The Friesian males and females gave 0.821 kg and 0.717 kg average daily weight gain, respectively. Their average daily weight gain was 0.769 kg. The estimated value for the male Friesian was higher than that recorded by Dalton (1970) in New Zealand. The castrated Karadi males gave 0.609 kg per day during the experimental period, which was lower than that estimated in the Karadi

TABLE 4. Weight gain in the different groups of animals, during the experimental period.

Breed	Group	Months				
		1	2	3	4	5
Karadi	Entire males Kg	22.0	30.9	19.3	18.3	2.8
	%	21.3	23.8	12.4	10.5	1.5
	Females Kg	26.6	12.4	22.1	5.8	3.3
	%	27.8	11.2	17.3	4.1	2.3
	Average Kg	24.1	22.3	20.3	12.6	2.9
	%	24.8	18.5	14.3	8.0	1.7
	Castrated males Kg	20.8	28.0	18.9	18.7	5.0
	%	20.0	21.8	12.4	11.0	2.7
Friesian	Entire males Kg	30.4	19.1	26.2	26.0	21.5
	%	21.5	11.5	13.9	12.1	9.0
	Females Kg	25.0	19.5	21.0	23.5	18.6
	%	17.3	11.7	11.2	11.2	8.1
	Average Kg	27.7	19.3	23.6	24.7	20.1
	%	19.4	11.6	12.6	11.7	8.6

entire males and higher than that recorded by Askar and Ragab (1957) in Egyptian steers. In general, the estimated average daily gain values showed similar trend to that in the total weight gain, in all the studied groups.

Growth measure

The growth measure (Kilograms TDN needed for producing one kilogram of weight gain) for the studied groups of animals was shown in Tables 5 and 6.

TABLE 5. Total weight gain, relative weight gain percentage, percentages of the total gain to the initial body weights and the growth measure in the different groups of animals during the experimental period.

	Karadi		Average	Castrated males	Friesian		Average
	Entire males	Females			Entire males	Females	
Total weight gain In kilograms	93.3	70.2	82.2	91.4	123.2	107.6	115.4
Relative to the initial weight (%)	100.9	90.0	96.5	97.6	97.5	81.7	89.5
Relative to the total weight gain (%)	67.0	62.1	65.1	66.8	65.6	58.0	61.8
Growth measure kg TDN to 1 kg weight gain.	3.39	4.51	3.85	3.46	2.57	2.94	2.74

TABLE 6. Growth measure (kilograms of TDN to 1 kg of weight gain) in the different groups of animals during the experimental period.

Breed	Groups	Months				
		1	2	3	4	5
Karadi	Entire males	2.88	2.69	2.76	3.46	22.64
	Females	2.38	5.11	2.86	10.93	19.21
	Average	2.63	2.84	3.12	5.03	21.86
	Castrated males	3.04	2.26	3.35	3.39	12.68
	Entire males	2.08	3.31	2.42	2.43	2.94
	Females	2.53	3.25	3.01	2.69	3.40
	Average	2.28	3.30	2.68	2.56	3.15

The growth measure values showed negative trend to that of the weight gain and total weight gain during the experimental period. The figures of the growth measure of the females amounted to 133% of that of the entire males in the Karadi cattle and to 153% of that of the females in the Friesian cattle, during the experimental period. The values of the castrated males amounted to 102% of that of the entire males in the Karadi cattle. The estimated values of the growth measure for the average of the Friesian cattle amounted to 75% of that of the average of the Karadi cattle.

Body measurements

Tables 7, 8, 9, 10, 11, 12 and 13 showed the heart girth, abdominal girth, body length, body height at shoulders, body height at hip, body width at shoulders and body width at hip, respectively, in the studied groups during the experimental period.

The differences between the entire males and females in the body measurements of each of Karadi and Friesian cattle were not significant, at the beginning of the experiment except in the body height at shoulder in the Friesian cattle, which was highly significant at the same period (Table 3). At the end of the experiment, the differences were significantly higher between entire males and females in the Karadi cattle. While these differences were not significant in the Friesian cattle, except in the body length which was significant (Table 3). The differences in body dimensions between the entire males and castrated males in the Karadi cattle were not significant at the beginning and the end of the experiment, except in the abdominal girth at the beginning of the experiment which was significant (Table 3). All dimensions studied increased in the different groups of animals during the experimental period. The total increase percent (relative to the initial value) was higher in the entire males than in the females in each of Karadi and Friesian cattle, in all body measurements. These results showed similar trend to that recorded in the percentage of the total weight gain to the initial weight. The values estimated for the average of both males and females in the body measurements were higher in the Friesian than in the Karadi cattle, except in the abdominal girth and body length and body width at hip, which showed contrary results. The high percentages of the relative increase in body width hip, body length and the abdominal girth in the Karadi may be the reason for the superiority of Karadi over the Friesian cattle in the high percentage of the relative weight gain to the initial weight (Table 5), since the increase in the body length and the rear quarters represent the major increase in the animal skeleton and weight of animal, respectively. These results may be attributed to the greater response of the Karadi cattle under the loose barn system in Northern Iraq. The castrated males showed lower total increase percentage than in the entire Karadi males, in all the body measurements. This trend was similar to that found in the percentage of the total weight gain to the initial weight, in the same groups of animals.

Slaughter test

Tables 14 and 15 showed the percentage of some carcass characteristics to the live weight in the Karadi entire and castrated males.

TABLE 7. Heart girth (cm) in the different groups of animals during the experimental period.

Breed	Groups	Months					Total increase %	
		0	1	2	3	4		5
Karadi	Entire males	115±1.1	121±1.2	125±1.4	128±1.4	137±2.5	142±3.1	23.5
	Females	117±2.1	117±2.0	121±6.8	126±2.3	129±1.7	132±1.9	12.8
	Average	115±1.2	120±4.5	123±1.1	127±1.1	133±3.7	137±1.8	13.7
Friesian	Entire males	117±1.1	122±1.1	128±1.0	133±1.3	137±1.0	139±2.4	18.8
	Castrated males	123±3.5	133±4.1	150±4.9	156±3.9	165±4.9	173±2.5	40.7
	Females	126±2.6	134±2.8	139±3.6	145±2.7	152±3.3	165±2.7	31.0
	Average	125±2.0	133±2.3	144±3.6	150±3.5	158±3.4	169±2.0	35.2

TABLE 8. Abdominal girth cm in the different groups of animals, during the experimental period.

Breed	Group	Months					Total increase %	
		0	1	2	3	4		5
Karadi	Entire males	131±8.5	137±7.3	149±1.6	150±2.1	164±3.0	171±3.0	30.5
	Females	129±2.7	139±2.2	142±2.3	144±1.9	150±3.4	154±1.9	19.4
	Average	131±6.4	138±2.6	143±2.0	147±1.3	157±2.3	162±2.3	23.7
	Castrated males	136±1.4	145±3.0	152±0.9	157±1.3	159±2.3	162±4.2	19.1
	Entire males	160±2.4	166±3.1	171±2.1	177±1.8	188±1.7	193±1.3	20.6
Friesian	Females	157±3.6	166±4.3	173±6.5	177±5.6	183±3.6	193±1.2	22.9
	Average	158±1.8	166±2.4	172±3.6	177±3.0	185±2.2	193±0.8	22.1

TABLE 9. Body length (cm) in the different groups of animals, during the experimental period.

Breed	Group	Months						Total increase %
		0	1	2	3	4	5	
Karadi	Entire males	82±6.5	89±4.7	96±1.3	101±1.5	104±1.7	108±1.9	31.7
	Females	86±1.3	92±1.2	96±1.4	97±1.3	99±1.4	103±1.2	19.8
	Average	84±3.1	90±0.9	96±1.0	99±1.1	102±1.2	106±1.2	29.3
Friesian	Castrated males	92±1.9	96±0.9	98±2.9	99±0.7	103±1.1	107±1.8	16.3
	Entire males	100±4.1	107±4.6	109±1.1	116±3.3	124±3.5	131±0.9	31.0
	Females	101±1.3	109±3.3	111±3.0	114±1.3	118±3.4	125±1.3	23.8
	Average	100±4.2	108±2.3	110±1.9	115±1.6	120±2.5	128±1.4	28.0

TABLE 10. Body height at the shoulders (cm) in the different groups of animals, during the experimental period.

Breed	Group	Months					Total Inc- crease %
		0	1	2	3	4	
Karadi	Entire males	82±1.6	86±0.9	92±0.8	95±0.9	99±1.5	102±1.4
	Females	79±5.6	86±3.0	91±1.8	92±0.7	93±1.0	94±1.0
	Average	82±2.9	86±0.7	91±1.0	94±1.7	95±1.1	98±1.1
Eristian	Castrated males	83±1.6	92±0.8	95±1.6	96±1.6	96±0.9	99±1.5
	Entire males	89±4.2	99±1.9	102±2.3	105±1.9	108±1.3	112±0.9
	Females	94±2.5	99±2.4	106±5.2	108±5.7	109±0.9	113±0.9
Average	91±2.4	99±1.4	104±3.1	106±3.7	108±0.7	112±0.6	25.8 20.2 23.1

TABLE 11. Body height at the hip (cm) in the different groups of animals, during the experimental period.

Breed	Groups	Months					Total Inc- crease
		0	1	2	3	4	
Karadi	Entire males	86±1.6	91±0.8	96±0.7	98±1.3	105±1.7	109±1.8
	Females	89±1.1	93±1.0	96±1.9	97±2.3	97±1.3	101±0.9
	Average	86±2.6	92±0.7	96±0.9	98±1.3	101±1.3	105±1.2
Prisian	Castrated males	87±1.5	92±0.7	100±1.3	100±1.3	103±0.8	106±1.3
	Entire males	92±4.2	105±1.5	105±2.6	109±1.7	115±1.3	119±0.5
	Females	99±2.2	105±2.5	108±1.9	108±2.4	113±4.0	117±0.8
Average	96±3.8	105±1.3	107±1.3	108±1.4	114±2.1	118±0.6	29.3 18.2 22.9

TABLE 12. Body width at shoulder (centimetres) in the different groups of animals, during the experimental period.

Breed	Group	Months					Total increase %	
		0	1	2	3	4		5
Karadi	Entire males	22±0.7	23±0.4	26±0.6	27±0.5	29±0.5	33±0.9	50.0
	Females	22±0.6	24±0.6	25±0.6	26±0.6	27±0.7	30±0.7	36.4
	Average	22±0.3	24±0.3	25±0.5	26±0.4	28±0.6	31±0.6	40.9
Friesian	Castrated males	22±0.3	26±0.3	27±0.5	27±0.4	29±0.5	31±2.9	40.9
	Entire males	25±1.0	29±3.6	33±0.7	38±0.5	42±0.6	46±0.6	84.0
	Females	27±0.6	32±0.8	36±0.6	37±1.8	41±1.4	43±1.2	59.3
	Average	26±0.7	31±0.5	35±0.8	37±0.5	41±1.7	44±0.8	69.2

TABLE 13. Body width at hip (cm) in the different groups of animals, during the experimental period.

Breed	Group	Months					Total increase %	
		0	1	2	3	4		5
Karadi	Entire males	26±0.4	27±0.6	30±0.8	32±0.8	33±1.1	37±1.0	46.2
	Females	27±0.8	28±0.5	28±0.5	30±0.6	30±0.8	34±0.6	25.9
	Average	26±0.4	28±0.8	29±0.5	31±0.5	32±0.7	36±0.6	38.5
Friesian	Castrated males	26±0.4	29±0.3	29±0.4	31±0.4	32±0.5	35±4.7	34.6
	Entire males	31±1.5	36±0.9	36±1.6	39±1.7	41±0.3	44±0.6	41.9
	Females	34±1.0	37±0.7	37±0.5	37±0.9	39±1.5	43±2.1	26.5
	Average	33±0.9	36±0.6	37±1.0	38±1.1	39±0.9	43±1.3	30.3

TABLE 14. Percentages of some characteristics to the live weight in the different groups of Karadi cattle.

Group	live weight kg	Dressing %	Carcass length (cm)	Fore quarter %	Rear quarter %	Heart %	Liver %	Lungs %	Kidneys %	Testicles %	Digestive tract %	Internal ex. fat %	Head %	Hide %	Feet %
Entire males	204.5	58.3	106.5	30.5	22.1	0.4	1.6	1.0	0.3	0.2	6.6	3.6	5.9	7.3	1.7
Castrated males	202.5	58.7	110.5	27.7	22.0	0.4	1.5	1.1	0.3	—	6.8	7.1	5.2	6.6	1.7

TABLE 15. Percentages of some carcass cuts to the live weight, in the different groups of Karadi cattle.

Group	Live weight kg	Round & rump %	Loin %	Ribs %	Preferred cuts %	Shank & shoulder %	Chuck %	Brisket %	Plate %	Flank %
Entire males	204.5	12.2	6.0	5.0	23.2	10.0	7.4	4.2	3.7	2.2
Castrated males	202.5	10.9	6.7	5.1	22.7	9.0	7.3	3.9	3.5	1.8

The dressing percentage was higher in the castrated males than in the entire ones due to the higher fat deposition, length of carcass and lower percentages of head and hide in the former than in the latter. This trend of the dressing percentage was in contrary to that of the live body weight in the same group of animal. This was in agreement with the findings of Hameed (1973) and contradicted that of Juma *et al.* (1972) in the Iraqi native cattle.

The percentage of the fore quarter to the live weight was higher in the entire males than in the castrated males. The rear quarters, heart, liver, lungs, kidneys, feet and digestive tract percentages were almost the same in both groups of animals. The round and rump, plates chuck, brisket, flank and shoulder showed higher percentages in the entire than in the castrated males. The loin and ribs percentages were higher in the castrated than in the entire Karadi males.

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دراسة عن النمو والتسمين في الماشية الكردية تحت نظام المساكن المفتوح في البيئة شبة الحارة

برفلي كمال الحكيم ، ماهر صيام ، و ابراهيم الجندي
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تمت الدراسة على الذان وسبعون حيوان تتكون من عشرين عجل كردى تام
(غير مخصى) وعشرين عجل كردى مخصى وعشرين عجلة كردية وستة
عجول فريزيان وستة عجلات فريزيان .

قسمت هذه الحيوانات على ثلاثة مجموعات (ذكور ، ذكور مخصية واثان)
وزعت على ثلاثة حظائر تتبع نظام المساكن المفتوحة في الحقل الحيواني لفسح
تربية الحيوان في (بكره جو) التابع لكلية الزراعة بجامعة السليمانية ،
شمال العراق ، لغرض دراسة النمو والتسمين في الماشية الكردية ومقارنتها
بالفريزيان تحت النظام المذكور من نظم الرعاية .

كانت اعمار جميع حيوانات التجربة متقاربة (١٣ - ١٥ شهرا) ، ووضعت
تحت نفس النظام في التغذية والادارة .

أخذت الأوزان والمقاييس الجسمية شهريا ، وفي نهاية التجربة التي
استمرت خلال الأشهر الخمسة الأولى من عام ١٩٧٦ . ذبحت أثقل خمسة
عجول كردية غير مخصية وخمسة عجول كردية مخصية واستعملت ذبائحها
كنماذج للقياسات المختلفة .

نتائج الدراسة :

١ - أظهرت العجول الكردية زيادة معنوية عالية في الوزن خلال مدة
التجربة على العجلات الكردية كما ان أوزان عجول الفريزيان غاقت أوزان
العجلات الفريزيان في المراحل المتقدمة من التجربة .

٢ - ان متوسط وزن العجول الفريزيان كان أكثر من متوسط وزن العجول
الكردية أن العجول الكردية غير المخصية أظهرت زيادة غير معنوية احصائيا
في الوزن على العجول الكردية المخصية .

٣ - أن الزيادة الكلية في الوزن كانت أعلى في الذكور مما هي في الإناث
في كلا من الماشية الكردية والفريزيان ، كما انها كانت لمتوسط الجنسين
أكثر في الفريزيان مما هو في الكردى .

ولكن النسبة المئوية لمجموع الزيادة في الوزن الى الوزن الحى لكل من
العجول والعجلات الكردية يفوق تلك النسبة للعجول والعجلات الفريزيان .

وقد أظهرت العجول الكردية المخصية قيمة منخفضة عما في العجول غير
المخصية في كل من الزيادة الكلية المطلقة في الوزن وفي النسبة المئوية
للزيادة الكلية للوزن .

٤ - لقد كانت معدلات الزيادة اليومية في الوزن للعجول والعجلات الكردية
ومعد لها كما على (٦٢٢ر . كجم ، ٤٦٨ر . كجم ، ٥٤٥ر . كجم) على التوالي
في حين ان هذا المعدل للعجول الكردية المخصية كان (٦٠٩ر . كجم) . أما
القيم المقابلة لماشية الفريزيان فكانت ٨٢١ر . كجم في العجول ، ٧١٧ر . كجم
في العجلات و ٧٦٩ر . كجم في متوسط الجنسين .

٥ - ان مقياس النمو فى العجلات الكردية وصل الى (١٢٢٪) بالنسبة للمعجول الكردية والى (١٥٣٪) بالنسبة الى عجلات الفريزيان فى حين ان مقياس النمو فى المعجول الكردية المخصبة كان (١٠٢٪) بالنسبة للمعجول الكردية الناعمة . كما ان مقياس النمو لماشية الفريزيان كان (٧٥٪) مما فى الماشية الكردية .

٦ - الفروق فى المقاييس الجسمية بين المعجول ولعجلات الكردية كان عاليا ومعنويا من الناحية الاحصائية فى نهاية التجربة . الا ان الفروق لم تكن معنوية فى ماشية الفريزيان الا فى طول الجسم حيث كان معنويا . ان النسبة المئوية للزيادة الكلية فى المقاييس الجسمية كانت أعلى فى ذكور الحيوانات لكلا النوعين عما هى فى الاناث وأظهرت المعجول الكردية المخصبة قيمة أعلى لكافة المقاييس الجسمية عما فى المعجول المخصبة عما هى فى المعجول .
٧ - كانت نسبة التصافى أعلى فى المعجول المخصبة عما هى فى المعجول الكردية غير المخصبة ، الا ان النسبة المئوية للارباع الامامية بالنسبة للوزن الحى كان أعلى فى المعجول غير المخصبة عما هو فى المعجول المخصبة . وكانت نسبة الارباع الخلفية والاحشاء الداخلية والأقدام متساوية فى كلا المجموعتين