

## التغيرات المرحلية فى صفات ذبيحة العجول الجاموسى

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استهدفت الدراسة معرفة التغيرات المختلفة فى صفات ذبيحة العجول الجاموسى عند ذبحها على فترات مختلفة بعد تغذيتها على عليقة مركبة ، وقد أوضحت الدراسة زيادة وزن العجول مع تقدم العمر حيث بلغ الوزن أقصاه عند عمر ٥٠ - ٥٨ أسبوع ، كما أوضحت الدراسة أن أعلى نسبة للذبيحة بالمقارنة بالوزن الحى قد ظهرت عند عمر ١٢ أسبوع بدأت بعدها هذه النسبة فى الأبحاث حتى عمر ٢٤ أسبوع ثم بدأت مرة أخرى فى الزيادة حتى عمر ٥٨ أسبوع وقد ذكرت الاقتراحات الخاصة بمواعيد ذبح العجول الجاموسى .



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DEVELOPMENTAL CHANGES IN MALE BUFFALO-CALVES  
( With 3 Tables )

By

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(Received at 3/2/1980)

SUMMARY

- Twenty three male buffalo calves were used in this investigation.
- Calves after weaning were fed on formulated rations until they were slaughtered at 6 different ages ( 12, 24, 38, 42, 50 and 58 weeks ).

The live body weight gradually increased as calves advanced in age. The highest weight increment (919.69kg) was attained between 50-58 weeks age.

- The carcass weight in relation to live body weight was found to be comparatively high at 12 weeks age then declined at 24 weeks age after which a marked increase was observed up to the end of experimental period (58 weeks).
- The weight increments in edible offals was markedly increased at 50 weeks age and onwards.
- Suggestions for slaughtering male buffalo calves age are given.

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## INTRODUCTION

Improvement in the productivity of buffaloes needs more investigations to cover the different aspects of production. Information about the rate of growth in male buffalo calves, carcass yield as well as the developmental changes in different organs at different ages are very limited or even lacking in most conditions. It is therefore planned to throw some lights in an invistigative study to fullfil such lacking information.

## MATERIAL AND METHODS

Twenty three male buffalo-calves belonging to a private farm in El Mansoura were used in this investigation.

Calves after weaning, were fed during green and dry seasons on rations formulated according to feeding standards recommended by the Egyptian Animal Production Institute (Cairo). Animals were then slaughtered at six different ages namely 12, 24, 38, 42, 50 and 58 weeks old.

Before slaughtering they were kept 12 hrs. off food. The individual live body weights, carcass, organs, and hides were weighted and recorded. Average daily weight gain per individual calf during the investigated periods was also calculated and recorded.

## RESULTS AND DISCUSSION

Results are given in tables 1, 2 & 3.

The results given in table (1) show that the live body weight increased gradually with advanced age. Nearly similar

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findings were reported by RAGAB et al. (1966) and TAHAA et al. (1976).

The average daily gain per individual ( Table 2 ) points out that the highest weight increment (919.69 Kgs) was reached at 50-58 weeks age. In beef, the daily gain average was 1.0 Kg. during the period of age from 9-12 months (PHILLIPS, 1953 and ITTNER et al., 1955). This may be expected as meat production in beef is relatively better than buffaloes.

The carcass weight in relation to live body weight was high at 12 weeks age, then gradually declined at 24 weeks age, after which it began to increase up the end of experimental period (58 weeks).

Moreover, the increase weight of the edible offals especially, the lungs, trachea, kidneys with their perinephric fat and testes were markedly increased at 50 weeks age and onwards (Table 3).

The increased growth rate as well as live body weight given in calves at 50 weeks old and onwards may be attributed to the beginning of puberty which is accompanied by androgens production that play an important role in the metabolism, stimulating the growth rate through promoting food efficiency and protein synthesis (BURGESS and LEMMING, 1960).

Realizing that meat production in Egypt is still under-way to meet the increasing consumers demand, and as farmers used to get rid off male buffalo by slaughtering at very young age even before the weaning time, and as slaughtering male buffalo at 1 - 1½ years old is more profitable, as the highest dressing value in male buffalo calves was attained at 1½ years old ( ZEIDAN et al. 1976 ); therefore it seems necessary to prohibit slaughtering male buffalo calves at such young age

to improve the quality of meat as well as to increase meat production.

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Table 1: Individual Average Weights in Kilogrammes of Slaughtered Calves At Different Ages.

Item	Age Number of animals	12 Weeks 5	24 Weeks 3	38 Weeks 3	42 Weeks 4	50 Weeks 4	58 Weeks 4
Live body weight		98.25	126.50	174.00	203.00	240.00	291.50
Carcass	"	52.50	61.80	93.00	110.00	132.50	162.50
Head	"	6.25	7.50	8.16	8.41	10.66	14.10
Hide	"	7.50	9.20	11.25	14.50	18.37	23.8
Legs	"	4.25	5.00	5.52	5.98	7.45	8.9
Stomach & Intestine		17.33	29.5	33.33	42.5	44.15	49.25
Liver	weight	1.32	1.60	2.31	2.38	2.97	4.25
Spleen	"	0.223	0.243	0.270	0.280	0.425	0.610
Heart	"	0.536	0.606	0.790	0.880	1.086	1.380
Lungs & trachea		1.266	1.434	1.850	2.240	4.460	5.200
Kidneys with its fat		0.623	0.670	0.790	2.050	2.540	3.250
Testis	weight	0.014	0.019	0.041	0.042	0.077	0.126
Penis	"	0.073	0.076	0.110	0.130	0.171	0.285

Table (2)

Average daily weight gain per individual calf during prescribed periods.

Age period/Weeks	Daily gain in Grammes
12 - 24	336.3
24 - 38	566.4
38 - 50	785.7
50 - 58	919.6



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Table 3. Relative Weights of Different Organs in Relation to Live Body Weight at Different Ages in Male Buffaloes.

Item	Age	12 Weeks	24 Weeks	38 Weeks	42-42 Weeks	50 Weeks	58 Weeks
Live body weight		100.0	100.0	100.0	100.0	100.0	100.0
Carcass	"	53.43	48.85	53.44	54.13	55.16	55.74
Head	"	6.36	5.92	4.68	4.14	4.44	4.83
Hid	"	7.63	7.27	6.46	7.14	7.65	8.16
Legs	"	4.32	3.95	3.17	2.94	3.08	3.05
Digestive system full		17.63	23.32	19.15	20.91	16.72	16.55
Liver	weight	1.34	1.31	1.32	1.17	1.23	1.45
Spleen	"	0.226	0.192	0.155	0.137	0.179	0.209
Heart	"	0.545	0.476	0.454	0.433	0.452	0.473
Lungs and trachea		1.288	1.140	1.063	1.103	1.858	1.783
Kidneys and its fat		0.634	0.529	0.454	1.008	1.058	1.114
Testis	weight	0.014	0.015	0.023	0.024	0.032	0.043
Penis	"	0.074	0.060	0.063	0.064	0.071	0.097

DEVELOPMENTAL CHANGES IN MATERNAL WEIGHT

TABLE 1

Table 1. Maternal weight gain and retention in relation to the birth weight of offspring

Group	Age	Weight	Height	Weight	Height	Weight	Height
	yr	kg	cm	kg	cm	kg	cm
Normal	15	50.0	150.0	50.0	150.0	50.0	150.0
Low	15	45.0	145.0	45.0	145.0	45.0	145.0
High	15	55.0	155.0	55.0	155.0	55.0	155.0
Normal	20	55.0	160.0	55.0	160.0	55.0	160.0
Low	20	50.0	155.0	50.0	155.0	50.0	155.0
High	20	60.0	165.0	60.0	165.0	60.0	165.0
Normal	25	60.0	165.0	60.0	165.0	60.0	165.0
Low	25	55.0	160.0	55.0	160.0	55.0	160.0
High	25	65.0	170.0	65.0	170.0	65.0	170.0
Normal	30	65.0	170.0	65.0	170.0	65.0	170.0
Low	30	60.0	165.0	60.0	165.0	60.0	165.0
High	30	70.0	175.0	70.0	175.0	70.0	175.0