

**FEEDING WEANED MALE BUFFALO CALVES  
ON DIFFERENT LEVELS OF STARCH VALUE  
UP TO THE AGE OF TWO YEARS.**

*By*

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Thirty two male buffalo calves six months old were equally divided into four groups (A), (B), (C) and (D). Animals of groups (B) and (D) received 50 and 25% more starch value (S.V.) than the group (C) control. Each calf in treatment A received the same ration of treatment (C) plus 80 mgs. aureomycin daily.

The data showed that antibiotics caused an increase in growth and better feed efficiency during the 2nd six months of age. Very slight increase occurred in the total gain of calves fed aureomycin compared to that of the control during the 3rd six months of age. Therefore, it can be advised not to add antibiotics for calves' rations after they are one year old.

The average liveweight at the age of two years was 503.700, 370.300 and 432.900 kgs. for groups (B), (C) and (D) respectively. The corresponding average total gain from 6-24 months of age was 337.000, 253.600 and 316.200 kgs. The average total gain for groups (B) and (D) exceeded that of group (C) by 52.60 and 24.68% respectively.

The average daily gain for calves in group B exceeded that of group (C) or (D) at any period.

The average feed efficiency during the period of the 2nd six months up to the age of two years was 1 : 4.480, 1 : 4.556 and 1 : 4.537 for groups B), (C) and (D) respectively. The corresponding cost of production of one kg. gain was 94, 109 and 99 mill.

The best feed efficiency and the least cost of production of one kg. gain were those of groups (B) followed by group (D) although these two groups received 50 and 25% more S.V. than the control and consumed the same ingredients.

Meat is important primarily for its high quality protein. Cattle are considered the major source of meat in Egypt. There is a deficiency of about 20--30 thousand tons in the output of meat. Many investigators have suggested to rear the calves up to 350--400 kgs. of weight as a mean of increasing the output of meat. However, some difficulties arose such as the big amount of milk and the thousands tons of feedstuffs needed for rearing these calves. Great deal of research was devoted to minimise the amount of milk necessary for suckling calves, to increase the nutritive value of feedstuffs and to increase the feed efficiency to decrease the cost of production of one kilogram gain.

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This work was performed to study the effect of feeding male buffalo calves on three different levels of S.V. on their growth from the of 6 up to 24 months. It was also intended to study the effect of adding antibiotics to calves' rations on their growth.

### Review of Literature

Manyard and Loosli (1956), reported that the total requirements for a given nutrient during growth must include the amount needed for the new tissues formed. Morrison (1957), mentioned that calves require a relatively large proportion of protein in their rations to provide the material needed for the rapid growth. There were significant correlations between weight gain and concentrate consumption  $r = 0.86$  (Whitaker *et al.* (1957). Abou-Hussein (1955), reported that the average daily requirements recommended during the 2nd and 3rd six months of growth were not exceeding 1.2 and 2.2 kgs. S.V. for a mixed herd of cows and buffaloes. Ghoneim (1967), pointed out that during the 4th six months of growth, the calf should be given a daily allowance of 2.8 kgs. S.V. which increased gradually up to 3.4 kgs. at the end of this period. This would approximately mean an average daily allowance of about 2.8 kgs. during the 4th six months of growth.

Concerning the antibiotic in ruminants, only aureomycin has been definitely established as being beneficial to young calves, resulting in increased growth, reduced incidence of scours, improved physical appearance and better feed efficiency up to 16 weeks of age as reported by Bartley *et al.* (1953). Fincher *et al.* (1956), reported that feeding antibiotics to mature cattle has not yet resulted in any observable beneficial effects either in weight gains, growth or milk production.

### Experimental and Methods

A series of experiments were undertaken in order to find out the suitable levels of feeding calves after weaning up to the age of 2 years and to study the effect of adding antibiotics to calves' rations on their growth. Thirty two male buffalo calves six months old were equally divided into four groups (A), (B), (C) and (D). Calves in groups (B), (C) and (D) received the same ingredients which were wheat straw, green clover and clover hay along with the food mixture, but differed in the amount of S.V. In treatments (B) and (D), the total amounts of S.V. were respectively  $1\frac{1}{2}$  and  $1\frac{1}{4}$  times as that used in treatment 'C' (control received the amount of S.V. as recommended by Abou-Hussein, (1955)). Each calf in treatment (A) received the same ration of treatment (C) plus 80 mgs. aureomycin daily.

Twenty four calves which were previously experimented on during the 2nd six months were continued in the same four treatments (A), (B), (C) and (D) having 6 calves in each during the 3rd six months of age. Fifteen calves experimented on during the 2nd and 3rd six months in treatments (B),

(C) and (D) were continued in the same treatments during the 4th six months of age. Calves in treatment (A) were not used during this period as it was shown that antibiotics had negligible effect on the growth of calves at the age of one and half year.

The feeding value of the ration offered to each calf in treatment (C) during the different periods is shown in the following table :

Age in months	Feeding value of the ration	
	S. V. (kg.)	Dig. protein (kg.)
6 - 12	226.040	51.434
12 - 18	408.706	94.556
18 - 24	620.930	122.972

During the second six months of age the ration of S.V. in roughages to concentrates were 1:1, 1:2.1 and 1:1.6. The amounts of roughages to concentrates were 497 : 215 kgs. (2.3:1), 497 : 423 kgs. (1.2:1) and 497 : 313 kgs. 1.6 : 1), and the nutritive ratios were 1 : 4, 1:4 and 1 : 4.2 in treatments A or (C), (B) and (D) respectively.

During the third six months of age, the ratios of S.V. in roughages to concentrates were 1 : 1.2, 1 : 2.3 and 1 : 1.7. The amounts of roughages to concentrates were 1104 : 406 kgs. (3:1), 1104 : 780 (1.4 :1) and 1104 : 580 kgs (2:1), and the nutritive ratios were 1:4.3, 1:4 and 1:4.2 in treatments (A) or (C), (B) and (D) respectively.

During the fourth six months of age the ratios of S.V. in roughages to concentrates were 1:1.5, 1:2.7 and 1:2.1. The amounts of roughages to concentrates were 1001 : 571 kgs. (1.8 : 1), 1001 : 1045 kgs (1:1) and 1001 : 813 kgs. (1.2 :1) and the nutritive ratios were 1:4.2, 1:4 and 1:4 in treatments (B), (C) and (D) respectively.

It is to be noted that during the second six months upward, the daily amount of roughages was the same in all treatments.

The weights of animals and the measurements of body size were used as measures of growth according to the recommendation of Brody (1945). The different measurements performed were : height at withers, height at hips points, width of hips (hips points), from highest point of withers to a line between hips and heart girth. The study of weight has been carried out for 2 weekly intervals and the dimensions were measured at 4 weekly intervals.

## Results and Discussion

## 1.—Growth of calves during the 2nd six months of age :

The average liveweight at the end of the 2nd six months was 216.800, 240.400, 209.400 and 231.900 kgs. in treatments (A), (B), (C) and (D) respectively as shown in Table 1 and Fig. I. The corresponding average

TABLE I.—AVERAGE LIVELWEIGHT GAIN, FEED EFFICIENCY AND MEASUREMENTS OF BODY DIMENSIONS OF BUFFALO MALE CALVES FED ON DIFFERENT LEVELS OF S.V. DURING THE SECOND SIX MONTH OF AGE<sup>1</sup>

Treatments	No of anim.	Starch value consumed		Weight		Average gain		Feed efficiency 1 :
		During the whole period	Per day	Initial	Final	During the whole period	Per day	
A	8	226.040	1.242	116.700	216.800	100.100	0.550	2.259
B	8	339.060	1.867	116.700	240.400	123.700	0.680	2.741
C	8	226.040	1.242	116.600	209.400	92.800	0.510	2.486
D	8	232.550	1.546	116.700	231.900	115.200	0.633	2.453

Treatments	No. of animals	Measurements of body dimension									
		1		2		3		4		5	
		Cm.	r*	Cm.	r*	Cm.	r*	Cm.	r*	Cm.	r*
A	8	15.90	0.70+	15.00	0.50+	8.95	0.62+	10.50	0.17+	24.00	0.69+
B	8	16.90	0.57+	16.20	0.38+	9.60	0.43+	9.80	0.12—	29.80	0.57+
C	8	14.10	0.70+	13.60	0.74+	7.90	0.83+	9.10	0.48+	23.10	0.65+
D	8	16.60	0.69+	16.80	0.74+	8.80	0.72	8.80	0.63—	27.50	0.39+

\* Growth period 182 days.

+ Correlation coefficient between the gain and dimensions.

\*\* Significant.

\* Insignificant

1. Height at withers.

2. Height at hips points.

3. Width of hips (hips points).

4. Highest points of withers to a line between hips.

5. Heart girth.

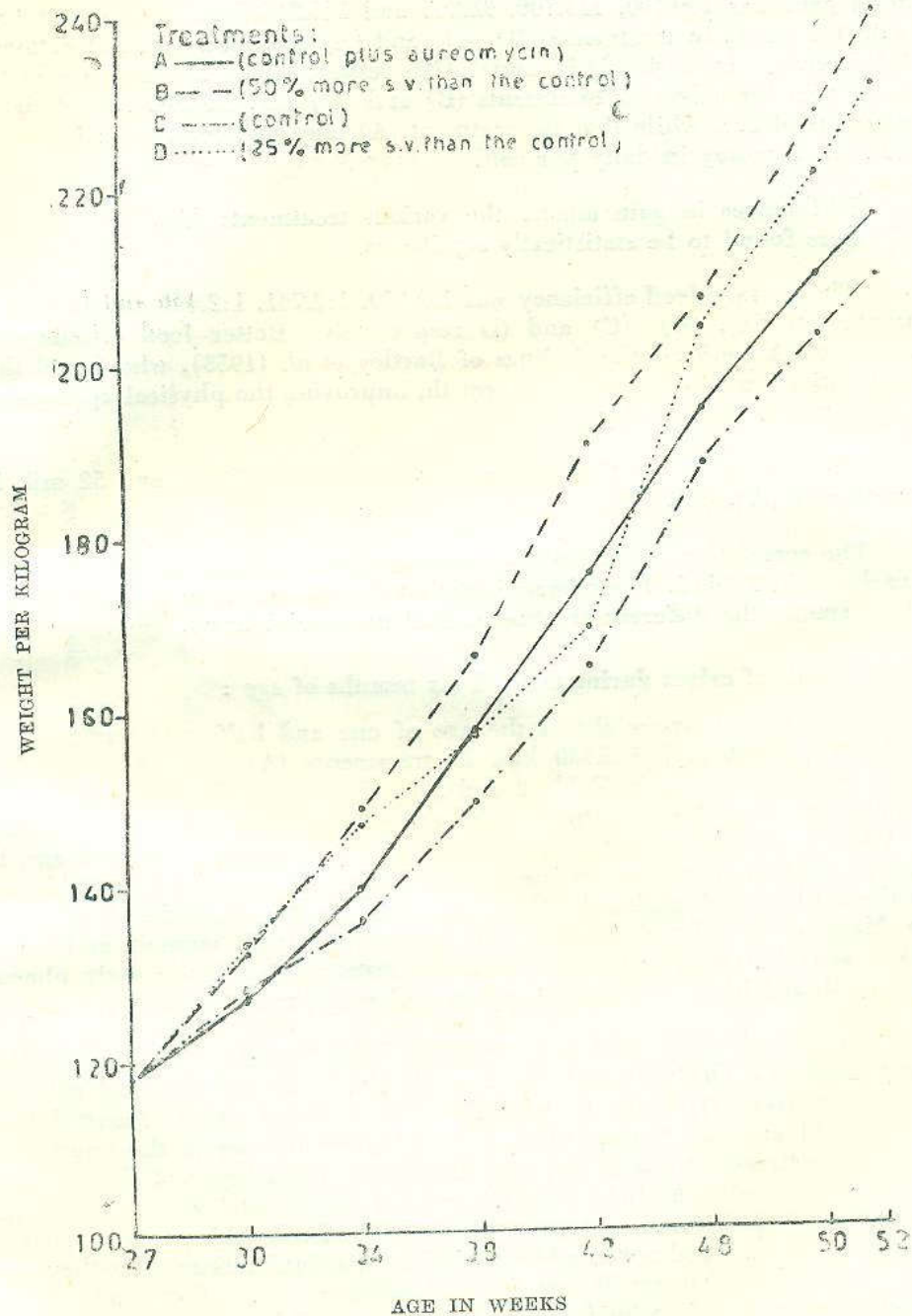


FIG. I.—Average weight of buffalo male calves fed on different levels of s. v. during the second six months of age.

total gain was 100.100, 123.700, 92.800 and 115.200 kgs. The average total gain for calves in treatments (B), (D) and (A) exceeded that in treatments 'C' (control) by 33.41, 24.14 and 7.87% respectively. The increase in the total gain for calves in treatments (B) and (D) may be due to the higher amounts of S.V. while that in treatment (A) may be due to the addition of 80 mgs. aureomycin daily per calf.

Differences in gain among the various treatments (A), (B), (C) and (D) were found to be statistically significant.

The average feed efficiency was 1:2.259, 1:2.741, 1:2.436 and 1:2.453 in treatments (A), (B), (C) and (D) respectively. Better feed efficiency in treatment A confirms the findings of Bartley *et al.* (1953), who found that antibiotics caused an increase in growth, improving the physical appearance and better feed efficiency.

The cost of production for one kg. gain was 58.57, 53 and 52 mil. in treatments (A), (B), (C) and (D) respectively.

The correlation coefficients between the total gain and body dimensions are shown in Table I. It can be noticed that the differences in the body dimensions among the different treatments had no special trend.

## 2.—Growth of calves during the 3rd six months of age :

The average liveweight at the age of one and half year was 284.700, 355.600, 273.900 and 325.330 kgs. in treatments (A), (B), (C) and (D) respectively as shown in Table 2 and Fig. II. It can be noticed that the average liveweight in treatment (A) exceeded that in treatment (C) by 4.01%. Comparing these results with those of the 2nd six months of age, it can be noticed that the increase in the liveweight caused by the addition of the antibiotics diminished. These results are in harmony with those found by Maynard and Loosly (1956), who reported that in animals and birds alike, growth responses to antibiotics are greatest during the early phases of growth and become less or disappear as they approach maturity.

The average total gain was 67.900, 115.200, 64.500 and 93.430 kgs. in treatments (A), (B), (C) and (D) respectively. The average total gain in treatments (B), (D) and (A) exceeded that in treatment 'C' (control) by 78.60, 44.81 and 5.27% respectively. The higher increase of the total gain in both treatments (B) and (D) may be due to the increase of the amount of S.V. consumed. A slight increase occurred in the total gain of calves in treatment (A) compared to that in treatment (C) during this period. Therefore, it can be advised not to add antibiotics for calves' rations after they are one year old. These results are in good agreement with that reported by Fincher *et al.* (1956) who found that feeding antibiotics to mature cattle had no observable beneficial effects either on weight gain, growth or milk production.

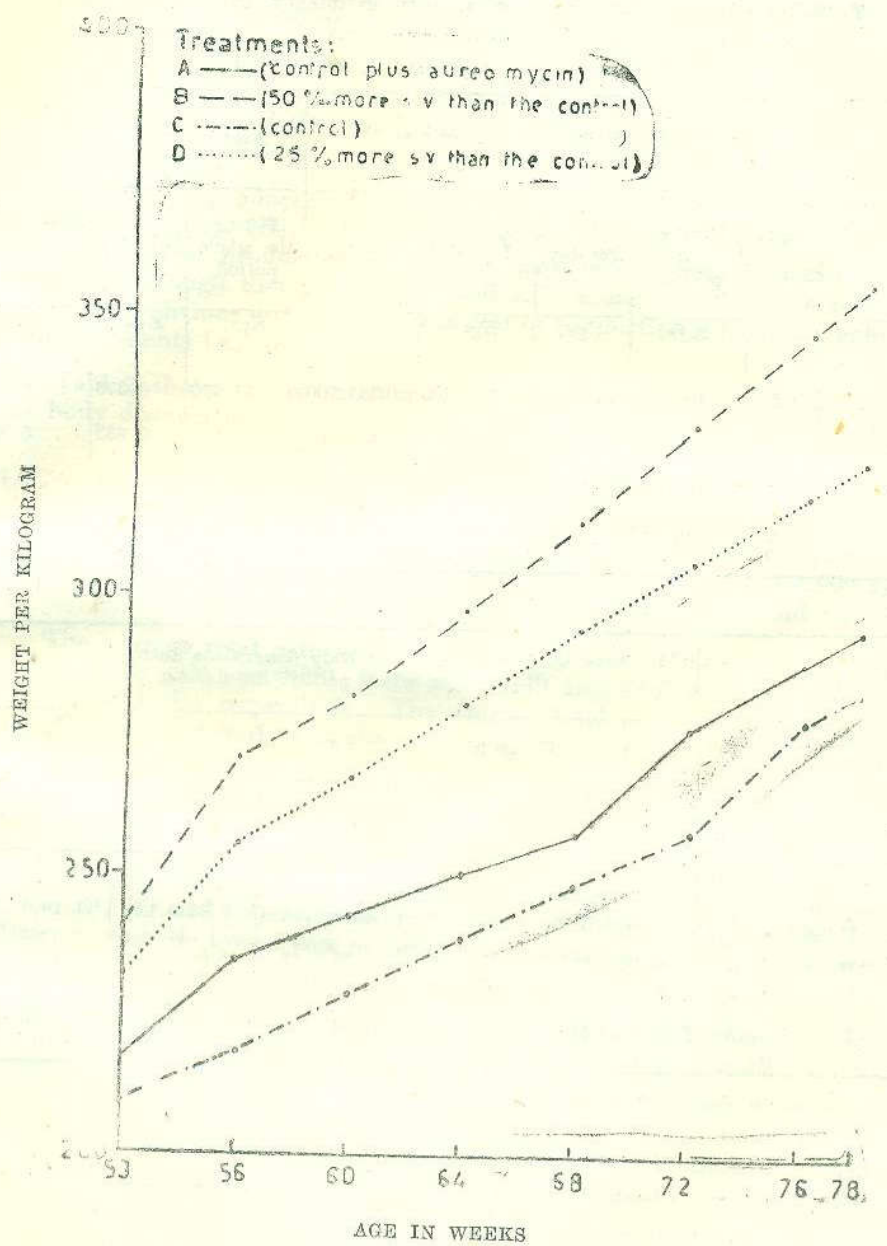


FIG. II.—Average weight of buffalo male calves fed on different levels of s.v. during the third six months of age.

TABLE 2.—AVERAGE LIVEWEIGHT GAIN, FEED EFFICIENCY AND MEASUREMENTS OF BODY DIMENSIONS OF BUFFALO MALE CALVES FED ON DIFFERENT LEVELS OF S.V. DURING THE THIRD SIX MONTH OF AGE\*

Treatments	No. of anim.	Starch value consumed		Weight		Average gain		Feed efficiency 1 :
		During the whole period	Per day	Initial	Final	During the whole period	Per day	
		Kys.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	
A	6	408.706	2.246	216.800	284.700	67.900	0.373	6.020
B	6	613.059	3.369	240.400	355.600	115.200	0.633	5.321
C	6	408.706	2.246	209.400	273.900	64.500	0.354	6.337
D	6	510.883	2.807	231.900	325.330	93.430	0.513	5.469

Treatments	No. of anim.	Measurements of body dimensions during the whole period (182 days)									
		1		2		3		4		5	
		Cm.	r*	Cm.	r	Cm.	r	Cm.	r	Cm.	r
A	6	9.66	0.84+	9.33	0.90+	4.00	0.44+	9.67	0.14	11.16	0.37+
B	6	8.83	0.63—	8.16	0.20—	5.33	0.42—	8.00	0.59—	13.17	0.45—
C	6	9.16	0.07+	9.33	0.06—	5.58	0.16+	10.16	0.11+	16.70	0.46—
D	6	10.56	0.51—	10.33	0.46—	4.50	0.80+	9.66	0.40—	15.73	0.67+

\* Growth period 182 days.

\*\* Significant.

\* Insignificant.

+ Correlation coefficient between the total gain and body dimensions.

1. Height at withers.

2. Height at hips points.

3. Width of hips (hips points).

4. Highest points of withers to a line between hips.

5. Heart girth.



Differences in gain among the various treatments (A), (B), (C) and (D) were found to be significant.

The feed efficiency was 1 : 6.020, 1 : 5.3321, 1 : 6.337 and 1 : 5.469 in treatments (A), (B), (C) and (D) respectively. The average feed efficiency in treatments (B) and (D) was higher than that in treatment (C) by 16.00 and 13.69% respectively.

The cost of production for one kg. gain was 131, 101, 133 and 111 mil. in treatments (A), (B), (C) and (D) respectively. It can be noticed that the least cost of production for one kg. gain was in both treatments (B) and (D), although they received 50 and 25% more S.V. than the control. There is no obvious differences in the cost of production for one kg. gain in both treatments (A) and (C).

Tabl 2 shows the correlation coefficients between the total gain and the body dimensions.

### 3. *Growth of calves during the 4th six months of age*

During this animals experimented on were only those in treatments (B), and (D). The average liveweight was 503.700, 370.300 and 432.900 kgs. in treatments (B), (C) and (D) respectively as shown in Table 3 and Fig. III.

The average total gain was 148.000, 92.200 and 110.400 kgs. and the average daily gain was 0.881, 0.459 and 0.549 and 0.657 kgs. in treatments (B), (C) and (D) respectively. The average total gain in treatments (B) and (D) exceeded that in treatment (C) by 60.33 and 19.72% respectively.

Differences among the treatments (B), (C) and (D) were found to be statically significant.

The average feed efficiency was 1 : 5.280, 1 : 5.651 and 1 : 5.898 and the cost of production for one kg. gain was 105, 117 and 119 mil. in treatments (B), (C) and (D) respectively. It can be noticed that the best feed efficiency and the lowest cost of production of one gain were in traelment (B).

It is shown in Table 3 that the correlation coefficient between the total gain and the body dimensions were statistically insignificant in all the treatments.

### 4. *Growth of calves during the period of the 2nd six months up to the age of two years*

The average liveweight at the age of two years in treatment (B) was 16.4 and 36.8% higher than that in treatment (D) and (C) respectively. The average liveweight in treatment (C) at the end of the 4th six monils of age (370.300 kgs.) was nearly similar to the average liveweight of calves in treatment (B) at the end of the 3rd six months of age (355.600 kgs.).

TABLE 3.—AVERAGE LEVEWEIGHT GAIN, FEED EFFICIENCY AND BODY DIMENSION OF BUFFALO MALE CALVES FED ON DIFFERENT LEVELS OF S.V. DURING THE FOURTH SIX MONTHS OF AGE\*

Treatments	No. of anim.	Starch value consumed		Weight		Average gain		Feed efficiency
		During the whole period	Per/day	Initial	Final	During the whole period	Per/day	
		Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	
B	5	781.395	4.652	355.700	503.700	148.000	0.881	5.280
C	5	520.930	3.101	278.100	370.300	92.200	0.549	5.651
D	5	651.163	3.878	322.500	432.900	110.400	0.657	5.898

Treatments	No. of animals	Measurements of body dimensions during the fourth six months of age									
		1		2		3		4		5	
		Cm.	r+	Cm.	r	Cm.	r	Cm.	r	Cm.	r
B	5	11.20	0.67+	9.80	0.46+	7.20	0.38—	13.80	0.19+	22.60	0.05—
C	5	8.80	0.63—	9.20	0.47—	5.00	0.76—	8.40	0.26—	20.20	0.72—
D	5	6.60	0.56—	6.40	0.08—	5.80	0.39+	10.80	0.66+	21.40	0.36+

\* Growth period 168 days.

+ Correlation coefficients between the gain and body dimension

\*\* Significant.

\* Insignificant.

1. Height at withers.

2. Height at hips.

3. Width of hips (hips points).

4. Highest point of withers to a line between hips.

5 Heart girth.

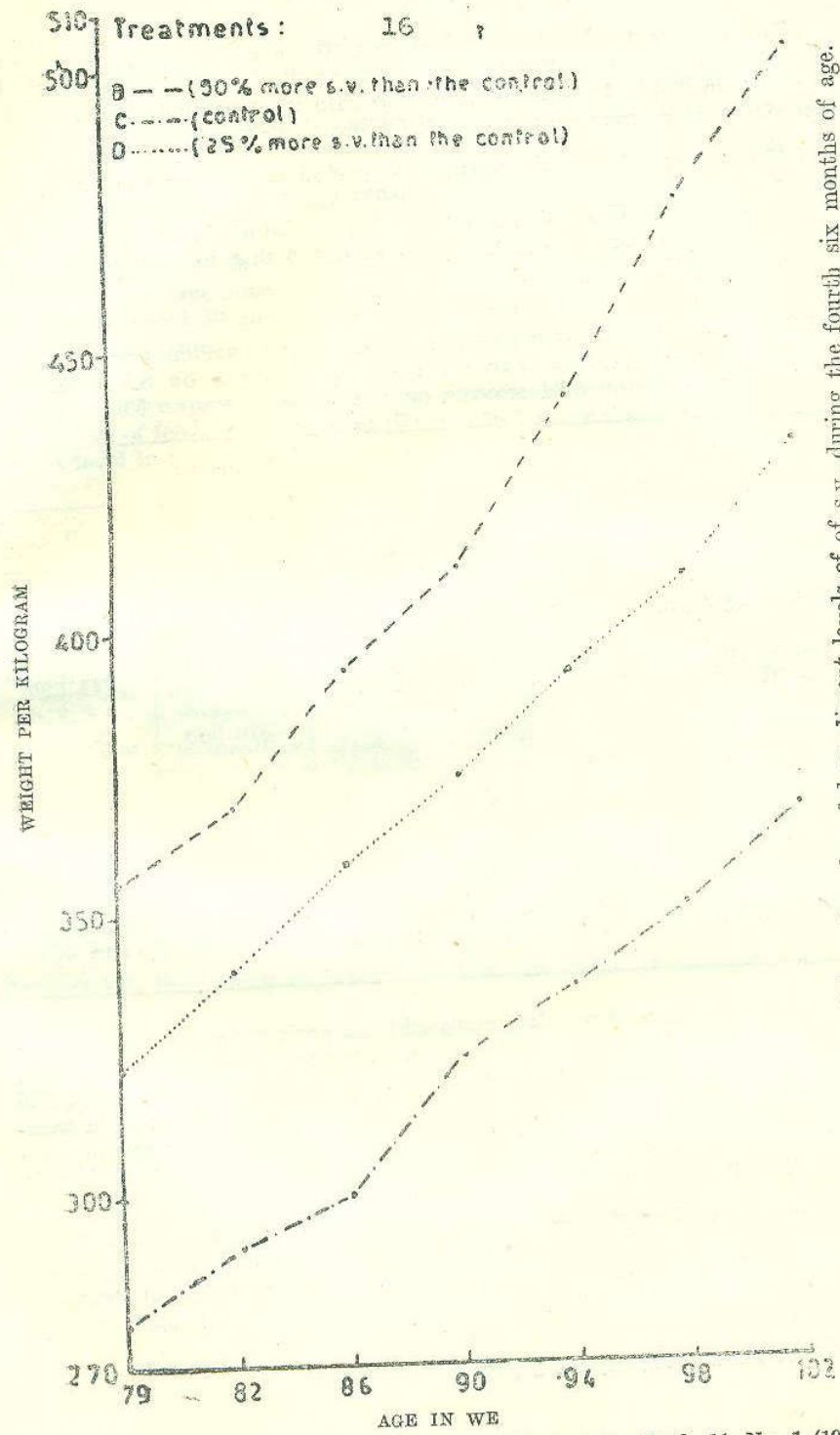


FIG. III.—Average weight buffalo male calves fed on different levels of s.v. during the fourth six months of age.

The average total gain of calves from the age of 6—24 months was 387.000, 253.600 and 316.200 kgs. in treatment (B), (C) and (D) respectively as shown in Table 4. The average total gain in treatment (B) and (D) exceeded that in treatment (C) by 52.60 and 24.68% respectively.

The average daily gain during the period from 6 months up to the age of two years was 0.699, 0.471 and 0.577 kgs. in treatments (B), (C) and (D) respectively. From Tables 1, 2 and 3 it can be noticed that the average daily gain for calves in treatment (B) exceeded that in treatment (C) or (D) at any period.

TABLE 4.—AVERAGE LIVEWEIGHT, GAIN AND FEED EFFICIENCY OF MALE BUFFALO CALVES FED ON DIFFERENT LEVELS OF S.V. DURING THE PERIOD 6-24 MONTHS OF AGE (GROWTH PERIOD 532 DAYS)

Item	Treatments		
	B	C	D
<i>Starch value consumed :</i>			
During the whole period .kg.	1733.514	1155.676	1444.596
Per day . . . . . kg.	3.259	2.173	2.716
Liveweight . . . . . kg.	503.700	370.300	432.900
<i>Average gain :</i>			
During the whole period .kg.	387.000	253.600	316.200
Per day . . . . . kg.	0.699	0.471	0.577
Cost of production of one kg. gain ... mil. . . . .	94	109	99
Feed efficiency . . . . .	1 : 4.480	1 : 4.556	1 : 4.537

The S.V. consumed per day increased from period to period in all treatments. It was 1.867, 3.369 and 4.652 kgs. in treatment (B) during the 2nd, 3rd and 4th six months of age respectively. It was successively 1.242, 2.246 and 3.101 kgs. in treatment (C) and was 1.546, 2.807 and 3.87 kgs. in treatment (D). The average S.V. consumed per day during the period of the 2nd six months up to the age of two years was 3.259, 2.173 and 2.716 kgs. in treatments (B), (C) and (D) respectively.

The average feed efficiency during the period of the 2nd six months up to the age of two years was 1 : 4.480, 1 : 4.556 and 1 : 4.537 in treatments (B), (C) and (D) respectively. It can be noticed that the best feed efficiency was that in treatment (B) and the lowest one was that in treatment (C).

The cost of production of one kg. gain increased gradually from period to period in all groups. It was 57, 101 and 105 mil. in treatment B during the 2nd, 3rd and 4th six months of age respectively. It was successively 533, 133 and 117 mil. in treatment (C) and was 52, 111 and 119 mil. in treatment (D). The average cost of production of one kg. during the period of the 2nd six months up to the age of two years was 94, 109 and 99 mil. in treatments (B), (C) and (D) respectively.

It can be noticed that the average cost of production of one kg. gain was the least in treatment (B) followed by treatment (D) Although these treatments received 50 and 25% more S.V. than the control and consumed the same ingredients.

From the previous results it may be recommended to follow the economical system of feeding in treatment (B) (fed 50% more S.V. than the recommended level in treatment 'C').

#### REFERENCES

- ABOU-HUSSEIN, E.R.M., 1955.—Economic feeding of cows and buffaloes during the first one and half year of age. *M.Sc. Thesis, Cairo Univ. Fac. of Agric.*
- BARTLEY, E.E., FOUNTAINE, F.C., ATKENSON, F.W. and FRYER, H.C., 1953.—Antibiotics in dairy cattle nutrition. I-The effect of auremycin product (aurofac) on the growth and well being of young dairy calves. *J. Dairy Sci.*, **36** : 103.
- BRODY, S., 1954.—"Bioenergetic and growth with special reference to the efficiency complex in domestic animals". Printed in U.S.A. by Waverly press, Baltimore, M.D.
- FINCHER, M.C., GIBBONS, W.J., KARL MAYER, B.S. and PARK, S.E., 1956.—"Diseases of cattle". A text and reference work, American Veterinary Publications, Inc. New York.
- GHONEIM, A., 1967.—"Animal Nutrition-Nutritional requirements and economical rations", 1st Edit., Anglo-Egyptian Lib., Cairo (In Arabic).
- MAYNARD, L.A. and LOOSLI, J.K., 1956.—"Animal Nutrition". 4th Edit. Mc Graw-Hill Book Co. Inc., New York and London.
- MORRISON, F.B., 1957.—"Feeds and feeding". 2nd Edit. The Morrison Publishing Co., Itaca, New York.
- WHITAKER, R.T., MILLER, W.J., CORMON, J.L. and DALTON, H.L., 1957.—The influence of level and source of crude fibre in calf starters on weight and feed consumption. *J. Dairy Sci.*, **40** : 387.

## نمو ذكور العجول الجاموسى الفتاة على مستويات مختلفة من معادل النشا واضيف الأروميسين الى بعض علائقها من عمر ستة شهور الى عمر سنتين

ابراهيم محمد الجندى - السيد رفعت ابو حسين - محمد على رأفت -  
محمد محمود عبد الرحمن\*

### الملخص

قسمت العجول وعددها ٣٢ الى أربع مجاميع أ ، ب ، ج ، د -  
واتخذت المجموعة ج للمقارنة - حصلت المجاميع على نفس المواد الغذائية  
ولكن اختلفت في مستويات كمية معادل النشا وكذلك المضادات الحيوية .  
فقد حصلت المجموعتان ب ، د على ٥٠ ، ٢٥ ٪ من معادل النشا زيادة عن  
المجموعة ج كما حصلت المجموعة أ على نفس معادل النشا للمجموعة ج  
بالاضافة الى ٨٠ ملليجرام من الأروميسين لكل عجل يوميا .

أظهرت النتائج أن اضافة الأروميسين قد سبب زيادة في النمو وقلة  
في عدد كيلو جرامات النشا اللازمة لانتاج كيلو جرام نمو في فترة الستة  
شهور الثانية ولكن اثر الاضافة قد تلاشى تقريبا في فترة الستة شهور  
الثالثة مما يمكننا من القول بأنه لا داعى لاضافة المضادات الحيوية الى  
علائق العجل بعد عمر ستة .

كانت نتائج الفترة من الستة شهور الثانية حتى عمر سنتين كالآتى :  
كان الوزن الحى للعجل عند عمر سنتين للمجاميع ب ، ج ، د هو  
٥٠٣٧٠٠ ، ٣٧٠٣٠٠ ، ٤٢٢٩٠٠ كجم على التوالي ومتوسط النمو  
الكلى للمجاميع ب ، د يزيد عنه في المجموعة ج ( مجموعة المقارنة ) بمقدار  
٥٢٦٠ ، ٢٤٦٨ ٪ على التوالي ومتوسط النمو اليومى هو ٦٩٩ ، ٤٧١ ،  
٥٧٧ جم . وكان هذا المتوسط اليومى لحيوانات المجموعة ب يفوق النمو  
اليومى لحيوانات المجموعتين ج ، د في كل الفترات كان متوسط عدد  
كيلو جرامات معادل النشا اللازمة لانتاج كيلو جرام نمو هو ٤٨٠ ،  
٤٥٥٦ ، ٥٣٧ - وكان هذا المتوسط يزداد من فترة لآخري في جميع  
المجاميع .

كان تكاليف انتاج كيلو جرام نمو حى يزداد توريجيا من فترة لآخري  
في جميع المجاميع وكان هذا المتوسط ٩٤ ، ١٠٩ ، ٩٩ ملجم للمجاميع ب ،  
ج ، د على التوالي ومن نتائج هذه الدراسة يمكن النصح باتباع الطليقة  
الاقتصادية وهى التغذية على المستوى الذى يزيد ٥٠ ٪ من معادل النشا  
المجموعة ب ) عن المستوى المقرر ( المجموعة ج ) .

x قسم الانتاج الحيوانى « فرع تغذية الحيوان » بكلية الزراعة - جامعة القاهرة -  
بالجيزة