

JOURNAL
OF
ANIMAL PRODUCTION

OF THE
UNITED ARAB REPUBLIC

J. ANIM. PROD. U. A. R.

VOLUME I

NUMBER 1

1961

Edited by the Egyptian Society of Animal Production
Published by the Science Council
In Collaboration with the National Research Centre

NOTES TO CONTRIBUTORS

1. Papers submitted should tackle livestock and poultry production problems in an original way.

2. Review papers of subjects of general interest may be published at intervals and will be prepared on invitation by the Editorial Board.

3. All papers will be subject to critical review by the Editorial Board, or others appointed by the Editor. Papers needing revision will be returned to authors and should be revised and returned promptly. Papers not suitable for publication will be returned to authors with a statement of reasons for not accepting them.

4. Authors are requested to submit their papers, finished in all details in type-script, double line spacing and with ample margins. Two copies beside the original are needed. The length of articles will be limited to 35 printed pages. Typing should be on quarter papers. Tables should be as few and as simple as is feasible for presentation of essential data.

5. Illustrations, should be referred to as figures when ever possible. They should be drawn on smooth white Bristol Board in India Ink with marginal lettering inserted in pencil. Legends for figures and plates should be type-written separately from the illustrations for the reason that the type is set by the printer and the illustrations are made by the engravers. The order and approximate position of the illustration in the text should be marked.

6. References, all references in the text should site the name of the author, followed by the year of publication. The papers so refered to being collected in a list of «References» at the end of the article. In this list the arrangement of the articles should be alphabetically, by author and cronologically under each author. The authors name should be followed by the year of publication, the title in full, the name and volume of the publication, and the first and last pages of each paper if published in a periodical, and the number of publication, place of publication

CONTENTS

	Pages
Wool Characteristics of Texel Sheep. By M. T. RAGAB AND K. E. GHONEIM	1-21
Wool Characteristics of the Barki Sheep. By M. T. RAGAB AND K. E. GHONEIM	23-35
Factors Affecting Gain in Fattening Egyptian Steers on Clover. By G. A. R. KAMAR, A. L. BADRELDIN AND H. Z. ABDEL HAY	37-51
Suckling in Ossimi and Rahmani Lambs. By M. A. SHARAFELDIN AND A. MOSTAGEER	53-58
Factors Influencing Wool Follicle Characteristics in Fat-Tailed Sheep. By A. L. BADRELDIN, G. R. A. KAMAR, M. M. SHAFEI AND I. F. M. MARAI	61-73

MATERIALS AND METHODS

SUCKLING IN OSSIMI AND RAHMANI LAMBS

BY

M. A. SHARAFELDIN AND A. MOSTAGEER

ANIMAL PRODUCTION DEPT., FACULTY OF AGRICULTURE, CAIRO UNIVERSITY

SUMMARY

This study dealt with the suckling ability of 33 Ossimi and 27 Rahmani ewes and its relation to growth and weaning weight of lambs. Milk consumption determination was made at daily intervals during the first four weeks from lambing and at weekly intervals thereafter.

Although the Ossimi and Rahmani breeds differed significantly in their milk production, still they both reached their maximum at the first four weeks, and then declined.

The body weights of the Rahmani lambs surpassed those of the Ossimi ones from birth till the age of 12 months.

The milk consumed from birth till 4 weeks of age is generally correlated with body weight at 4 weeks, 8 weeks and 12 weeks, of age.

It could be concluded that the first four weeks suckling period is the most reliable criterion in both breeds studied for the weights at the age of 12 weeks.

In polytocous animals, the reproductive efficiency of a female depends not only on her ability to produce multiple births, but also on the efficiency of raising the offspring until weaning. In any flock of sheep, a large number of lambs is lost every year because of unsatisfactory suckling. Moreover, in many cases the growth of lambs is affected as a result of inadequate milk supply of their dams.

In this work, the suckling ability of both Ossimi and Rahmani sheep as well as its relation to growth and weaning weights of lambs, were studied.

MATERIALS AND METHODS

This study comprised 33 Ossimi and 27 Rahmani ewes of the flock belonging to the Faculty of Agriculture, Giza, Egypt. All ewes had given birth to single born lambs throughout a period of 32 days. These ewes were put under the same management and nutrition during the experimental period which lasted for 12 weeks from the date they gave birth to the date their lambs were weaned.

Milk consumption determination was made at daily intervals during the first four weeks from lambing, and at weekly intervals thereafter. The milk consumption was determined as follows: lambs were weighed at 8 a. m., then left to suckle their dams till satisfaction and weighed again. Dams were then driven to pasture and lambs were left in the barn. The same procedure was followed again in the afternoon. The differences between the lambs' weights before and after suckling represented the estimate of the daily milk consumption of the lambs, then multiplied by 7 to give the weekly milk consumption.

RESULTS AND DISCUSSION

The average weekly milk consumption of the lambs given in Table 1, showed that the milk production of Ossimi and Rahmani ewes reached its maximum at the first four weeks, then declined in the next 8 weeks. This result agrees with the findings of Burris and Baugus (1955). The Ossimi and Rahmani breeds differed significantly from each other in regards to their milk production throughout the experimental period (Table 1). This result had been previously reached by Sirry *et al.* (1950).

Milk consumption is one of the main factors affecting growth during the first stage of lamb life. The gain in weights of lambs follows the dam's milk yield very closely, especially at the early stages (Barnicoat, Logan and Grant, 1949). The body weights of Ossimi and Rahmani lambs are given in Table 2. From this table it could be observed that the latter breed surpasses the former in all body weights from birth till the age of 12 weeks, which is in agreement with the results arrived at by Ragab

TABLE 1

Average milk consumption (kgs.) of Ossimi and Rahmani lambs from birth to 12 weeks of age.

Age (wks.)	Average consumption \pm S. E.		t. value
	Ossimi	Rahmani	
1st. 4 weeks	17.478 \pm 0.6815	20.983 \pm 0.5326	9.530 $\times\times$
2nd. » »	15.162 \pm 0.5701	15.322 \pm 0.2985	0.280 N. S.
3rd. » »	15.367 \pm 0.4952	17.152 \pm 0.3282	3.868 $\times\times$
Total milk consumed in the 12 weeks (kgs.) ...	48.007 \pm 1.168	53.467 \pm 0.9144	5.493 $\times\times$

$\times\times$: Highly significant. N. S. : Not significant.

TABLE 2

Average weights (kgs.) of Ossimi and Rahmani lambs.

Age (Wks.)	Ossimi wts. \pm S. E.	Rahmani wts. \pm S. E.	t. values
At birth	3.08 \pm 0.14	3.66 \pm 0.16	10.43 $\times\times$
4 weeks	7.87 \pm 0.33	8.98 \pm 0.50	4.31 $\times\times$
8 weeks	9.88 \pm 0.36	11.21 \pm 0.22	11.99 $\times\times$
12 weeks.....	12.95 \pm 0.47	15.37 \pm 0.65	9.31 $\times\times$

et al (1953). This breed difference in lamb weights is mainly due to the difference in the genetic make up of each one as well as to their different response to the environmental factors affecting this trait.

Table 3 showed that the milk consumed from birth till 4 weeks of age is generally correlated with body weight at four weeks, 8 weeks and 12 weeks of age. Burris and Baugus (1955) also reported that the amount of milk consumed by lambs during this period is correlated with

the average daily gain from birth to 4 weeks ($r=0.9$), and from birth to 16 weeks of age ($r=0.84$). The correlation between milk intake of lambs and their body weights during the first 11 weeks of age was also stated by Bonsma (1939). However, this work indicates that the milk consumption during the other two studied periods (*i. e.* from 4-8 weeks and from 8-12 weeks) had no significant correlation with the 8th or 12th weeks weights in both breeds. In the case of Rahmani sheep (Table 3) it can also be concluded that the amount of milk consumed during the first 12 weeks of age was nearly as highly correlated with the body weight at 12 weeks as the milk consumed during the first four weeks. This does not hold true with the Ossimi breed.

TABLE 3

Correlation coefficients between milk consumption and lamb weights from birth to 12 weeks of age.

Milk consumption	Body wt. at 4 weeks	Body wt. at 8 weeks	Body wt. at 12 weeks
Birth- 4 weeks : Ossimi.....	+0.6674 ××	+0.6196 ××	+0.3708 ×
Rahmani ...	+0.5555 ××	+0.6733 ××	+0.6256 ××
4-8 weeks : Ossimi.....	—	+0.0458·	+0.0332·
Rahmani ...	—	+0.1034·	+0.0246·
Birth- 8 wks. : Ossimi.....	—	+0.5864 ××	+0.3003 ××
Rahmani ...	—	+0.7053 ××	+0.6271 ××
8-12 wks. : Ossimi.....	—	—	+0.0926·
Rahmani ...	—	—	+0.2615·
Birth-12 wks. : Ossimi.....	—	—	+0.2835·
Rahmani ...	—	—	+0.6017 ××

×× : Highly significant.

× : Significant.

· : Not significant.

Therefore, it seems that the first 4 weeks suckling period is the most reliable criterion in both breeds which affects the weights at the age of 12 weeks. Further evidence to the importance of this period may be provided by the results given in Table 4. They show that the 4 weeks weights in both breeds are much more correlated to the subsequent weights than the birth weights.

TABLE 4

Correlation coefficients between Ossimi and Rahmani lamb weights at different ages.

Lamb weights at :	Birth weight		4 weeks weight		8 weeks weight	
	Ossimi	Rahmani	Ossimi	Rahmani	Ossimi	Rahmani
4 wks..	+0.5809 ××	+0.4893 ××				
8 wks..	+0.5840 ××	+0.6290 ××	+0.9685 ××	+0.7115 ××		
12 wks..	+0.5289 ××	+0.6769 ××	+0.8050 ××	+0.6620 ××	+0.8053 ××	+0.9152 ××

Considering the fact that the lambs depend solely on the milk of their dams in their first four weeks, it seems logical that the milk consumed during these weeks and the lambs' weights reached at this age are highly correlated with weaning weight.

The strong relationship represented by the highly significant correlation coefficients between the milk consumed and body weights must be taken into consideration. Selection among sheep for rapid growth or heavy weight should not be carried out without taking into account the milking ability of ewes. The establishment of selection indices, concerning body weight, rate of growth and milking capacity of ewes seems to be the basis of any successful scheme heading at the improvement of mutton qualities in sheep.

ACKNOWLEDGEMENT

We would like to express our gratitude and thanks to Professor Dr. M. T. Ragab for his helpful interest and constructive guidance which has contributed much to this research.

REFERENCES

BARNICOAT, C. R., LOGAN, A. G. and GRANT, A. I. (1949). *J. Agric. Sci.*, 39, 237.
 BONSMAN, F. N. (1939). Univ. of Pretoria, Publication Series I, *Agriculture* No. 48,
 Pretoria, S. A. (Cited by BARRIS and BAUGUS, 1953).
 BARRIS, M. J. and BAUGUS, C. A. (1955). *J. Anim. Sci.*, 14, 186.
 RAGAB, M. T., ASKER, A. A. and YOUSSEF, A. A. (1953). *Faculty of Agric. Bull.* No. 27.
 Cairo Univ. Press.

SIRRY, I., EL-SOKKARY, A. M. and HASSAN, H. A. (1950). *Empire J. of Exper. Agric.*,
 18, No. 71.

Weight	1	2	3	4	5	6	7	8	9	10
1 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
2 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
3 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
4 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
5 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
6 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
7 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
8 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
9 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800
10 wk.	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800	40.5800

Considering the fact that the lambs showed slight gain in the milk of their dams in their first four weeks it seems logical that the milk consumed during these weeks and the lamb's weight reached at this age are highly correlated with weaning weight.

The strong relationship represented by the highly significant correlation coefficient between the milk consumed and body weights must be taken into consideration. Selection among sheep for rapid growth or heavy weight should not be carried out without taking into account the milking ability of ewes. The establishment of selection indices, concerning body weights, rate of growth and milking capacity of ewes seems to be the best method for successful schemes leading to the improvement of milk production in sheep.

ACKNOWLEDGEMENT

It would like to express our gratitude and thank to Professor Dr. M. T. Ragab for his helpful interest and constructive criticism which has contributed much to this research.

FACTORS INFLUENCING WOOL FOLLICLE
CHARACTERISTICS IN ESTABLISHED BREEDS
الملخص

تعتبر قدرة الحيوانات على حضانة وإرضاع نتاجها وبالقدر الكافي حتى الفطام من أهم المظاهر الدالة على كفاءتها الإنتاجية . وموضوع بحثنا هذا يشمل تقدير كفاءة النعاج الأوسيمي والرحماني على إنتاج اللبن وإرضاع نتاجها ، كما يتضمن مدى علاقة هذه الكفاءة بنمو الحملان وأوزانها حتى الفطام .

ولقد تضمن هذا البحث ٣٣ نعجة أوسيمي ، ٢٧ رحماني من قطيع كلية الزراعة بالحيزة كلها قد أعطت ولادة فردية . وكانت هذه الحيوانات كلها تحت نفس ظروف التغذية والرعاية ، ولقد كانت تجري تقديرات مقدار ما يستوعبه الحمل من لبن في وجبة الرضاعة يومياً لمدة الأربع أسابيع الأولى ثم أصبحت التقديرات أسبوعية .

ونتائج هذا البحث قد دلت على أن كلاً من النعاج الأوسيمي والرحماني تصل إلى أقصى إنتاجها للبن عند الأسبوع الرابع بعد الوضع ثم يقل هذا الإنتاج في الثمانية أسابيع التالية . وكذلك فلقد أيد هذا البحث ما وصل إليه سري وزملاؤه سنة ١٩٥٠ في أن هناك اختلاف جوهري بين الأوسيمي والرحماني في إنتاجهما للبن . كما وافقت نتائج هذا البحث ما جاء في بحث رجب وزملائه سنة ١٩٥٣ من أن أوزان الرحماني تفوق ما يقابلها للأوسيمي من الولادة حتى عمر ١٢ أسبوع الأمر الذي يعزى في معظمه للاختلافات الوراثية بين النوعين .

كما وجد ارتباط بين كمية اللبن التي استوعبها الحمل في الفترة ما بين الولادة إلى عمر أربعة أسابيع وبين وزنه عند عمر ٤ ، ٨ ، ١٢ أسبوع وبذلك يمكننا أن نخرج من هذا البحث بأن الوزن الذي يصل إليه الحمل عند سن ١٢ أسبوع مرتبط لحد كبير بكمية اللبن التي يستوعبها في فترة الأربعة أسابيع الأولى من الرضاعة .