J. Animal and Poultry Prod., Mansoura Univ., Vol.9 (3): 157- 162, 2018

Suckling Milk Yield of Zaraibi Goats as Affected by Measuring Methods

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ABSTRACT

This work was carried out on Zaraibi does to investigate the suckling milk yield as affected by different methods of the milk yield measurement. This work includes two studies, in the first study, 75, 75 and 87 Zaraibi does were kidding in March season 2006, 2008 and 2009, respectively, where suckling milk was estimated by techniques namely Hand-Milking (HM), Kid/Suckling (KS) and Oxytocin injection + Hand-Milking (OH). Data indicated that total and daily milk yield during suckling period with OH technique was significantly (P<0.05) higher (170.3 kg/h and 1.80 kg/h/d) than those obtained by KS technique (161.4 kg/h and 1.76 kg/h/d) and HM one (144.3 kg/h and 1.61 kg/h/d), respectively. In other words, the quantity of daily suckling milk yield measured by OH and KS were about 11.80 % and 9.32 % higher than that relative measured by HM, respectively. Therefore, OH technique gave considerably more return (9.91 L.E. /h) from milk during suckling period compared to the other two techniques, KS (9.68 L.E. /h) and HM (8.87 L.E. /h), respectively. On the other hand, results illustrated that measuring methods did not had any significant effect on total and daily milk production and length of lactation during the milk lactation stage (suckling plus lactation periods), being 260.8 kg/h, 1.12 kg/h/d and 234.1 days), (253.5 kg/h, 1.03 kg/h/d and 246.9 days) and (255.8 kg/h, 1.06 kg/h/d and 241.2 days) for techniques HM, KS and OH, respectively. Data indicated that type of measuring method of suckling milk yield did not have significant effect on kid performance, such as birth and weaning weight, being (1.86 kg and 10.03 kg), (1.65 kg and 10.12 kg) and (1.64 kg and 9.99 kg) for kids tested techniques HM, KS and OH, respectively. Therefore, change in live body weight of kids from birth until weaning had no effect being 8.17 kg, 8.47 kg and 8.35 kg for techniques HM, KS and OH, respectively. Also, average daily gain, obtained the same trend being, 90.8 g, 94.1 g and 92.8 g, for techniques HM, KS and OH, respectively. Over the second study, fifteen Zaraibi does were selected according to parity, weight, litter size and milk production and were used as one group, where these animals were kept under the same feeding and management practices. They were used to compare among the three measuring methods of suckling milk (HM, KS and OH), to select the suitable method. These methods of measuring suckling milk were experimented in three different and consecutive days (one of these methods every day) being at 14 day post-partum and repeated at 29, 59 and 88 day of the go-day suckling period. Results indicated that total milk yield during suckling period with OH technique was highly significant (P<0.05) higher (175.5 kg/h) than those estimated by KS technique (166.5 kg/h) and HM one (149.25 kg/h), respectively. So, the quantity of suckling milk yield obtained by OH and KS were about 17.59 % and 11.56 % higher than that relative measured by HM, respectively. Therefore, OH technique gave considerably more return (10.73 L.E. per/h) from milk during suckling period compared to the other two techniques, KS (10.18 L.E/per/h) and HM (9.12 L.E per/h), respectively. From this work, it is clear that the measurement of suckling milk yield by OH technique led to an increases the productivity of milk and thus increasing the economic returns in comparison with the KS and HM techniques without any adverse effect on kid performance such as birth and weaning weight or animals health. So, the OH technique is the suitable method to estimate the milk yield during suckling period for goats.

Keywords: Zaraibi goats, suckling milk and lactation milk, Hand-Milking, Kid/Suckling, Oxytocin injection + Hand-Milking .

INTRODUCTION

Goats are considered the first domestic's animals kept by small holders for the production of meat, milk, skin and fiber. Also, goats are more prolific than cattle, buffalo and most sheep species (Gall, 1981). Moreover, goats are more efficient than cattle in the conversion of animal feeds into food for human consumption (Devendra, 1976).

Egyptian Nubian goats are considered the main breed in Egypt, which is mainly raised in Damietta and Port-Said governorates. This breed is known now as Zaraibi goats and the specialists believed that they are considered the main progenitor of standard Anglo-Nubian goats breed (Abdel Raheem, 1998). Zaraibi goats are considered to be of high genetic potentiality as a dairy animal and prolific goat breed in comparison with other goats raised in Egypt (Aboul-Naga *et al*., 1993).

Milk yield is one of the most important function related to productive and reproductive traits of goats. Most native goat breeds in Egypt are low yielder over short periods, except Zaraibi goats, which usually produce 240 kg over 230 days (Galal, 1991) and 239.7 kg over 197.6 days (Abdel-Raheem, 1998). So, Zaraibi goats are considered as dairy animals and milk is their main product, while the second main product is meat (Abdel-Gawad, 2003), therefore, the selection depended mainly on milk production on El-Serw station Zaraibi flock goats which were mated normally to kid once/year. Kids were kept with their dams during the suckling period up to weaning at three months of age.

The amount of milk produced by various breeds at various stage of lactation has a strong influence on kid and lamb growth during the pre-weaning period, with 20 to over 60 % of the variation in weaning weight accounting for the volume of milk produced (Peart, 1982).

There are various methods of measuring milk yield during suckling period from lactating goats, namely Hand-Milking, Kid/Suckling and Oxytocin injection + Hand-Milking. So, the aim of the present study was to compare milk yield estimates using three methods and selected the suitable applied method.

MATERIALS AND METHODS

This study was conducted at El-Serw Experimental Research Station belongs to Animal Production Research Institute, Agriculture Research Center, Ministry of Agriculture, located in the north-eastern part of the Nile Delta, Damietta governorate, Egypt.

This work included two studies, where the data used in the first study were obtained from the production records of the flock of El-Serw Sheep and Goats Experimental Station. Available 75, 75 and 87

records for milk production from Zaraibi goats those were kidding in March month (season) 2006, 2008 and 2009, respectively. Milk production during suckling period were estimated by different techniques as Hand-Milking (HM), Kid/Suckling (KS) and Oxytocin injection + Hand-Milking (OH), respectively.

Milk production of 75 does kidding in March season 2006 recorded biweekly for each doe during the suckling period. The quantity of milk produced by a doe was estimated by Hand-Milking (HM) method. Kid were separated their dams at 5 p.m. on the previous day of measuring and put to suckle from another dams. Then, milk yield was measured by hand milking of each doe at 7 a.m. and 5 p.m.. The daily milk yield was considered the sum of both morning and afternoon measured suckling milk.

While, 75 does kidding in March season 2008, milk production was recorded biweekly for each doe during the suckling period. The quantity of milk produced by a doe was calculated by weighing kids before and after suckling in addition to the surplus milk obtained by hand milking thereafter. In this method, which named Kid/Suckling (KS), kid were separated their dams at 5 p.m. on the previous day of measuring and put to suckle from another dams. On the following day at 7 a.m. kids were allowed to suckle their dams till satisfaction and they were weighed before and at completion of suckling. The same procedure was followed again at 5 p.m. on the same day. The difference in weight and surplus milk of both morning and afternoon measured was taken as the daily suckling milk yield.

On the other hand, 87 does were kidding in March 2009 and milk production during suckling period was recorded at 15, 30, 60 and 90 days post-partum for each milked doe by method named Oxytocin injection + Hand-Milking (OH). On the days of yield determination, kids were separated from their dams for 4-hour period from 0700 to 1100 hours. Ten international units (1 ml of oxytocin) were injected intramuscularly into the rear flank at 7 a.m., then after 3 to 5 minutes animals were milked out rapidly until no more milk could be withdrawn. At 11 a.m., each doe was hand milking and the amount of milk obtained during this single separation period was multiplied by 6 to obtain daily suckling milk production. This technique (OH) is applied now to measure suckling milk in the records of flock Zaraibi goats in El-Serw Station while other two techniques were applied in the previous years. Therefore, data were collected from three March kidding seasons from measuring suckling milk were used in the present study to compare the three techniques and selected the suitable method which yield the highest economic benefit and an increase in milk production.

The length of mating season was 35 days to obtain one kid/year. Kids were kept with their dams during the suckling period up to weaning at three months of age. Some productive performance criteria of does were measured, such as total and daily milk yield, length of the suckling and lactation periods as will as kid performance (birth and weaning weight). During the post-weaning (lactation stage), does were hand milked twice daily, the daily milk yield was considered the sum of both morning and afternoon measured milk. The doe was considered for drying off when it produced less than 100 g milk daily. All animals of each kidding season were kept under the same feeding and general management practices. Feed allowances were offered twice daily at 8 a.m. and 3 p.m., and drinking water was available twice daily.

For the second study, fifteen Zaraibi goats were selected according to parity, weight, litter size and milk production during the previous season and used as one group, where these animals were kept under the same feeding and management practices, They were used to compare among the three measuring methods of suckling milk (HM, KS and OH, as described in the 1st study and selected the suitable techniques). These methods of measuring suckling milk were experimented in three different and consecutive days (one of these methods every day) being at 14 day post-partum and repeated at 29, 59 and 88 days of the go-day suckling period. During three days of measuring suckling milk of three technique methods, some physiological parameters were recorded, such as respiration rate, pulse and rectal and skin temperature of all experimental animals at about twelve noon day.

During the 2nd study, animals were offered their requirements of concentrate (CFM) and roughage (BH) according to NRC (1981) allowances of does and the amounts of CFM and BH were estimated to cover 50% and 50% of dry matter requirements, respectively. The CFM was consisted of 26% undecorticated cotton seed meal, yellow corn (40%), wheat bran (27%), molasses (3.5%), limestone (2%), common salt (1%) and minerals mixture (0.5%). Diets were offered twice daily at 8.0 a.m. and 3.0 p.m. and had free access to water and vitamin/minerals block. The chemical compositions of basic rations were analysis according to A.O.A.C. (1995). The chemical approximate analysis of experimental diets as CFM and BH are given in Table 1.

Table 1. Chemical analysis of basic rations (% on DM basis).

		Chemical composition %					
Diets	**DM**	**OM**	**CF**	**CP**	**EE**	**NFE**	**Ash**
CFM	91.05	93.95	15.93	15.0	3.35	59.67	6.05
BH	88.3	87.3	30.0	11.3	2.4	43.6	12.7

DM: Dry matter; OM: Organic matter; CF: Crude fiber; Crude protein; EE: Either extract and NEF: Nitrogen free extract.

The data were analyzed according to statistical analysis system using the General Model (SAS, 2003) for complete randomized design. Differences among means were carried out by using Duncan's Multiple Range test method (Duncan, 1955).

RESULTS AND DISCUSSION

Milk yield during suckling period (about 90 days-post partum) and lactation period (post-suckling) are presented in Table 2. From the 1st study, total (Fig. 1) and daily milk yield during suckling period harvested by Oxytocin injection + Hand-Milking technique (OH) were significantly ($P<0.05$) higher (170.3 kg/h and 1.801 kg/h/d) compared with harvested by Kid/Suckling (KS) technique

(161.4 kg/h and 1.760 kg/h/d) and that harvested by Hand-Milking (HM) technique (144.3 kg/h and 1.612 kg/h/d), respectively, whereas, suckling length, days, were significantly ($p<0.05$) higher 94.17 and 93.53 days with OH and KS technique compared 89.32 days by HM measuring method of suckling milk yield. Therefore, the quantity of total suckling milk measured by OH and KS technique was 17.99 % and 11.85 % higher than those measured by HM techniques, respectively. Moreover, the quantity of daily suckling milk measured by OH and KS technique was 11.72 % and 9.18 % higher than those measured by HM techniques, respectively. So, the economic return L.E. of the three measuring method studies are presented in Table 2.

The OH technique achieved the highest margin per head, estimated as LE 936.38 (170.25 kg x 5.5 LE), while the KS and HM methods techniques were the lowest and achieved 887.59 LE (161.38 kg x 5.5 LE) and 793.54 LE (144.28 x 5.5 LE), respectively. Also, the OH technique achieved the highest margin per head per day, estimated as LE 9.91 (1.801 kg x 5.5 LE), while the KS and HM methods techniques were the lowest and achieved 9.68 LE (1.76 kg x 5.5 LE) and 8.87 LE (1.612 x 5.5 LE), respectively.

Table 2. Influence of different measuring milking techniques on milk yield during suckling period of Zaraibi goats in the 1st study.

Techniques[1]	HM	KS	OH
No. of does	75	75	87
Suckling period:			
Total suckling milk, kg/h	144.3 ± 5.6 [b]	161.4 ± 5.6[a]	170.3 ± 5.2[a]
Suckling length, days	89.32 ± 1.20[b]	93.53 ± 1.21[a]	94.17 ± 1.12 [a]
Daily suckling milk, kg/h/d	1.612 ± 0.06[b]	1.760 ± 0.06 [a]	1.801 ± 0.05 [a]
Suckling milk comparison%, relative to HM	100.0 %	109.18 %	111.72 %
Return, L.E /h*	793.54	887.59	936.38
Return, L.E/h/d**	8.87	9.68	9.91
Lactation milk (post-suckling period)			
Lactation milk, kg/h	116.6 ± 5.65[a]	92.10 ± 5.65[b]	85.6± 5.25[b]
Lactation length, days	144.7 ± 5.29	153.4 ± 5.29	147.0 ± 4.91
Daily lactation milk, kg/h/d	0.781 ± 0.03[a]	0.591 ± 0.03[b]	0.545 ± 0.03[b]
Total milk yield, kg/h (suckling + lactation)	260.831 ± 9.07	253.460 ± 9.07	255.812 ± 8.42
Lactation period, days	234.093 ± 5.09	246.920 ± 5.09	241.172 ± 4.73
Daily milk yield, kg/h/d	1.121± 0.03	1.027 ± 0.03	1.059 ± 0.03

Techniques[1]: namely Hand-Milking (HM), Kid/Suckling (KS) and Oxytocin injection + Hand-Milking (OH)
***Return, LE (total suckling milk per head x selling prices of 1 kg milk was 5.5 L.E)**
****Return, LE (daily suckling milk per head x selling prices of 1 kg milk was 5.5 L.E)**
Means in the same row with different superscripts differ significantly at P<0.05.

In the same trend, the 2nd study data illustrated that the total suckling milk (90 days) measured by OH technique was significant higher ($P<0.05$) (Table 3) (175.5 kg/h) compared with that measured by KS technique (166.5 kg/h) and that measured by HM technique (149.25 kg/h). Therefore, the quantity of suckling milk measured by OH and KS technique was 17.59 % and 11.56 % higher than those measured by HM techniques, respectively. So, the economic return L.E. of the three measuring method studies are presented in Table 3. The OH technique achieved the highest margin per head, estimated as LE 965.25 (175.5 kg x 5.5 LE), while the KS and HM methods techniques were the lowest and achieved 915.75 LE (166.5 kg x 5.5 LE) and 820.88 LE (149.25 x 5.5 LE), respectively.

Table 3. Influence of different measuring milking techniques on milk yield during suckling period of Zaraibi goats in the 2nd study.

Techniques[1]	HM	KS	OH
No. of does	15	15	15
Total suckling milk, kg/h	149.25 ± 5.43[b]	166.5 ± 5.55[a]	175.5 ± 5.65[a]
Daily suckling milk, kg/h/d (90 days)	1.659 ± 0.06[b]	1.849 ± 0.06 [a]	1.949 ± 0.06 [a]
Suckling milk comparison%, relative to HM	100.0 %	111.58 %	117.61 %
Return, L.E./h/d*	9.12	10.175	10.725

Techniques[1]: namely Hand-Milking (HM), Kid/Suckling (KS) and Oxytocin injection + Hand-Milking (OH).
***Return, LE (daily suckling milk per head x selling prices of 1 kg milk was 5.5 L.E)**
Means in the same row with different superscripts differ significantly at P<0.05.

The significant difference in estimates of total and daily milk yields among HM, KS and OH techniques through lactation are in agreement with the findings of Mill and Steinbach (1984) who obtained higher estimates when Oxytocin Hand-Milking technique rather than Kid/Suckling technique was used. Banda *et al*. (1992) reported that the quantity of milk harvested by Hand-Milking (HM) was 36.5 % less milk than the other two methods (SK and OH). It may be due to OH technique usually gave no second milk letdown or residual milk in the udder as confirmed by palpation. Bencini *et al*. (1992) examined the influence of the does of oxytocin in measurement milk production in Merino ewes and its effect on fat content, they proved that 1 I.U. could be the most suitable dose for measuring milk output in Merino ewes and that, within the range of dose tested (0, 0.5, 1.0 and 5.0 I.U), oxytocin does not affect the fat content of the milk withdrawn.

On the other hand, during lactation period (post-weaning), Table 2 showed that the quantity of milk

yield obtained by HM was significantly (P<0.05) higher (116.6 kg/h or 0.781 kg/h/d) compared with those obtained by KS (92.10 kg/h or 0.591 kg/h/d) and OH technique (85.6 kg/h or 0.545 kg /h/d) in the 1st study, respectively.

In general, in suckling period, the quantity of milk yield was lower with HM technique compared with the other two techniques and conversely in lactation period in which the quantity of milk yield was higher with HM technique compared with the other two techniques. Generally, the non-significant difference in estimates of total and lactation period among HM (260.8 kg/h and 234.1 days), KS estimate (253.5 kg/h and 246.9 days1.027) and OH estimate (255.8 kg/h/d and 241.2 days), respectively was found. These findings of total milk production and lactation period are close to the value obtained for the same breed by many authors being 240 kg in 230 days (Galal, 1991) and 239.7 in 244 days (Abdel Raheem, 1998).

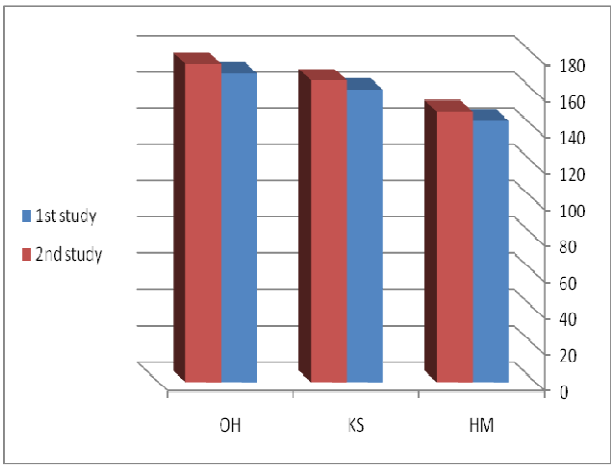

Fig. 1. Suckling milk as affected by different measuring methods.

Table 4 showed some physiological parameters recorded of dairy Zaraibi goats during the 2nd study. The obtained results illustrated no significant differences in respiration rate, pulse and rectal and skin temperature. Values among three technique revealed that the animals, generally, were in good health condition.

Data in Table 5 show that type of measuring technique of suckling milk did not have significant influence on birth and weaning weights of Zaraibi kids. Birth and weaning weights (Table 5 and Fig.2) were (1.86 kg and 10.03 kg), (1.65 kg and 10.12 kg) and (1.64 kg and 9.99 kg) for kids born from does measuring suckling milk of techniques HM, KS and OH, respectively. It is worthy to note that does milked by OH was harvested significant higher (P<0.05) daily suckling milk yield (1.80 kg/h/d) than those of KS (1.76 kg/h/d) and HM (1.61 kg/h/d), respectively, although, did not have significant effect of three methods on birth and weaning weight, where these estimates occurring in the present study in the same kidding season (March 2006, 2008 and 2009, in the 1st study), respectively, where animals were kept under the same feeding, general management practices and environmental condition.

Also, data in Table 5 showed that there were no significant effect of sex and type of birth on birth weight, but there were a significant (P<0.05) effect only due to type of birth on weaning weight. Similar results for the same breed were reported by many investigators, where, Ahmed (1999) reported that the average birth weight of males (2.16 kg) was heavier than that of female (1.91 kg) and average weaning weight was 13.82 kg vs. 11.46 kg in males and females Zaraibi kids, respectively, with a highly significant (P<0.01) difference between the two sexes. There is a general agreement among most authors that birth weight of kids declines as litter size increases. In addition, there is a significant effect of type of birth on weaning weight and single birth kid suckle more milk than those of multiple birth (Abdel-Gawad, 2003). Therefore, OH is the suitable method of measuring suckling milk despite there is no significant effect on kid performance such as birth and weaning weights and obtained a significant of total and daily suckling milk yield in relation with KS and HM techniques.

Table 4. Influence of different measuring techniques on some physiological parameters during suckling period of Zaraibi goats in the 2nd study.

Techniques[1]	HM	KS	OH
Physiological parameters			
Respiration rate, berating/minute	20.4 ± 2.3	19.65 ± 2.16	20.10 ± 2.56
Pulse rate, pulse/minute	81.60 ± 5.8	81.84 ± 6.02	82.0 ± 3.92
Rectum temperature, Ċ	38.90 ± 0.20	39.4 ± 0.18	39.55 ± 0.24
Skin temperature, Ċ	38.34 ± 0.34	38.50 ± 0.21	38.65 ± 0.23

Also, data in Table 5 showed that there were no significant effect of sex and type of birth on birth weight, but there were a significant (P<0.05) effect only due to type of birth on weaning weight. Similar results for the same breed were reported by many investigators, where, Ahmed (1999) reported that the average birth weight of males (2.16 kg) was heavier than that of female (1.91 kg) and average weaning weight was 13.82 kg vs. 11.46 kg in males and females Zaraibi kids, respectively, with a highly significant (P<0.01) difference between the two sexes. There is a general agreement among most authors that birth weight of kids declines as litter size increases. In addition, there is a significant effect of type of birth on weaning weight and single birth kid suckle more milk than those of multiple birth (Abdel-Gawad, 2003). Therefore, OH is the suitable method of measuring suckling milk despite there is no significant effect on kid performance such as birth and weaning weights and obtained a significant of total and daily suckling milk yield in relation with KS and HM techniques.

Table 5. Kids performance (birth and weaning weight) as affected by the measuring techniques of sucking milk, sex and type of birth.

Items		No.	Birth weight (BW)	No.	Weaning weight(WW)
Techniques (T)	HM	147	1.861 ± 1.712	147	10.034 ± 3.795
	KS	138	1.649 ± 0.273	138	10.116 ± 3.305
	OH	164	1.640 ± 0.285	164	9.988 ± 6.717
Sex	Male	235	1.777 ± 1.362	235	10.621 ± 3.084
	Female	214	1.647 ± 0.303	214	9.407 ± 6.341
Type of birth (TB)	Single	14	1.964 ± 0.365	14	11.643 ± 2.274[a]
	Twin	261	1.779 ± 0.307	261	11.015 ± 5.569[a]
	Triplet	144	1.624 ± 1.722	144	8.771 ± 3.307[b]
	Quadruplet	30	1.450 ± 0.153	30	6.933 ± 3.956[b]

Means in the same column with different superscripts differ significantly at P<0.05.

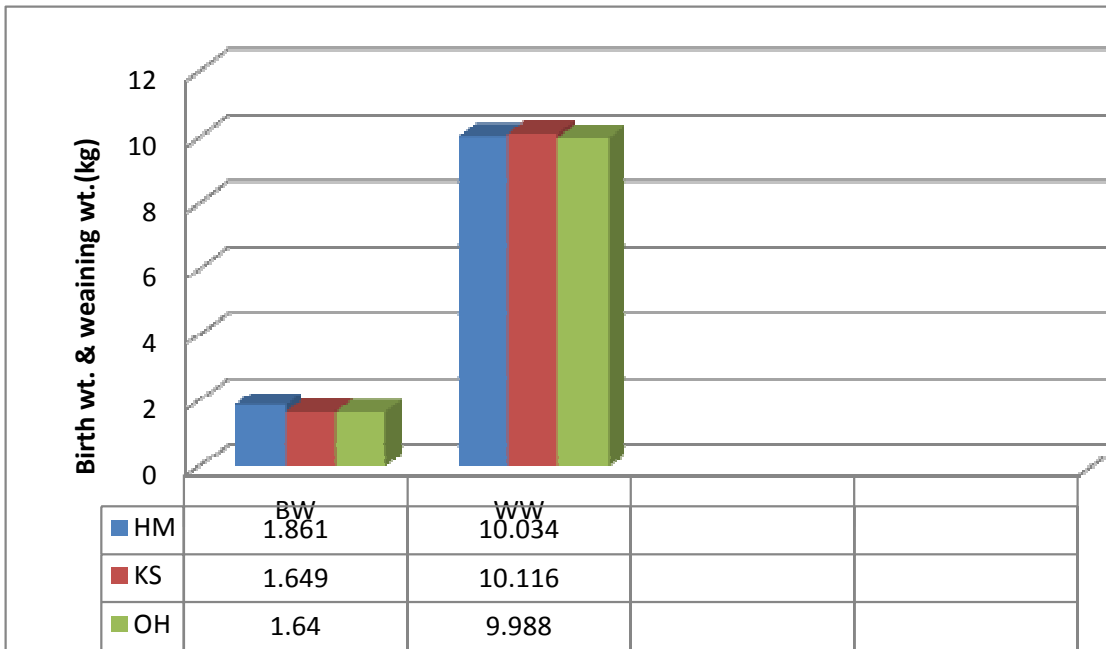

Fig. 2. Birth weight (kg) and weaning weight (kg) as affected by the measuring techniques of suckling milk.

CONCLUSION

From this work, it is clear that the measurement of suckling milk yield by Oxytocin injection + Hand-Milking (OH) technique increases the productivity of milk, thus increasing the economic returns in comparison of measurements Kid/Suckling (KS) and Hand Milking (HM) techniques without any adverse effect on kid performance such as birth and weaning weight or general health of animals. So, the OH technique is the suitable method for estimating the milk yield during suckling period for lactating goats.

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مدى تأثر محصول لبن الرضاعة للماعز الزرايبى بطريقة التقدير

عبد الجواد مجاهد عبد الجواد و أحمد لولى إبراهيم دسوقى

قسم بحوث الأغنام والماعز- معهد بحوث الإنتاج الحيواني – مركز البحوث الزراعية – وزارة الزراعة- مصر.

أجريت هذه الدراسة في محطة بحوث الإنتاج الحيواني بالسرو- محافظة دمياط- التابعة لمعهد بحوث الإنتاج الحيواني- وزارة الزراعة. وكان الهدف من البحث دراسة الطرق الشائعة لتقدير لبن الرضاعة وتأثيرها على إنتاجية اللبن والصفات الإنتاجية للأمهات لقطيع الماعز الزرايبى بمحطة السرو. حيث اشتملت الدراسة على تجربتين:- التجربة الأولى:- أجريت على سجلات إنتاج اللبن لقطيع الماعز الزرايبى مواسم ولادة مارس ٢٠٠٦، ٢٠٠٨، ٢٠٠٩م، حيث قدر اللبن أثناء فترة الرضاعة (حوالي ٩٠ يوماً) لتلك المواسم بطريقة الحليب اليدوي وطريقة رضاعة الجداء وطريقة الحقن بهرمون الأوكسيتوسين على التوالي. وأظهرت النتائج: أن إنتاج اللبن الكلى واليومي أثناء فترة الرضاعة لطريقة التقدير بالحقن بالأوكسيتوسين كان عالي المعنوية (١٧٠.٣ كجم/رأس ، ١.٨٠ كجم/رأس/يوم) عن تقدير لبن الرضاعة بطريقة رضاعة الجداء (١٦١.٤ كجم/رأس ، ١.٧٦ كجم/رأس/يوم) وطريقة التقدير بالحليب اليدوي (١٤٤.٣ كجم/رأس ، ١.٦١ كجم/رأس/يوم) على التوالي. لذا كان تقدير اللبن اليومي أثناء فترة الرضاعة بطريقة الحقن بالأوكسيتوسين، وطريقه التقدير برضاعة الجداء حققت تحسن قدره ١١.٤% ، ٩.٣٢% منسوبا لطريقة تقدير اللبن أثناء الرضاعة بطريقه الحليب اليدوي، على الترتيب. وبناء على ذلك تقدير اللبن أثناء فترة الرضاعة بطريقة الحقن بالاوكسيتوسين كان له مردودا وعائدا اقتصادياً أعلى ٩.٩١ جنيه مصري/ رأس/ يوم بالمقارنة بطريقتي التقدير برضاعة الجداء ٩.٦٩جنيه مصري/ رأس/ يوم وطريقة التقدير بالحليب اليدوي ٨.٨٧جنيه/رأس/يوم على التوالي. لم يكن هنالك أي تأثير معنوي لطريقة تقدير اللبن أثناء فترة الرضاعة على إنتاجية اللبن الكلى واليومي (مجموع فترة الرضاعة + باقي موسم الحليب حتى الجفاف) وطول موسم الحليب. فكانت النتائج (٢٦٠.٨ كجم/رأس ، و١.١٢ كجم/رأس/يوم ، و ٢٣٤.١ يوماً) لطريقة الحليب اليدوي ، وكانت (٢٥٣.٥ كجم/رأس ، و ١.٠٣ كجم/رأس/يوم ، و ٢٤٦.٩ يوماً) لطريقة رضاعة الجداء ، وأخيرا كانت (٢٥٥.٨ كجم/رأس ، ١.٠٦ كجم/رأس/يوم ، و ٢٤١.٢ يوماً) لطريقة الحقن بالأوكسيتوسين على الترتيب. أيضا لم يكن هنالك أي تأثير معنوي لطريقة تقدير لبن الرضاعة على الصفات الإنتاجية للأمهات متمثلة في وزن الميلاد والفطام للجداء حيث أظهرت النتائج أوزان ميلاد وفطام (١.٨٦ كجم ، ١٠.٠٣ كجم) ، (١.٦٥ كجم ، ١٠.١٢ كجم) ، (١.٦٤ كجم ، ٩.٩٩ كجم) لطريقة تقدير لبن الرضاعة بطريقة الحليب اليدوي ورضاعة الجداء والحقن بالأوكسيتوسين على التوالي. أيضا لم يكن هنالك اى تأثير معنوي في التغير في وزن الجسم الحي للجداء من الميلاد حتى الفطام، وكذلك في معدل الزيادة اليومية في النمو فكانت النتائج (٨.١٧كجم ، ٩٠.٨جم ، ٨.٤٧كجم، ٩٤.١جم، ٨.٣٥ كجم ، ٩٢.٨ جم) لطريقة تقدير لبن الرضاعة بطريقة الحليب اليدوي ورضاعة الجداء والحقن بالأوكسيتوسين على الترتيب. التجربة الثانية:- تم اختيار عدد ١٥ معزه ولادة موسم مارس ٢٠١٠م على أساس الوزن ، موسم ونوع الولادة وإنتاجية اللبن في المواسم السابقة لتشكل مجموعة واحدة متماثلة وضعت تحت ظروف غذائية ومناخية ورعاية واحدة خلال فترة الرضاعة (٩٠ يوما) لدراسة تأثير الثلاث طرق السابقة لتقدير اللبن أثناء فترة الرضاعة خلال ثلاثة أيام متتالية ومتناوبة كل يوم طريقة ولأربعة تقديرات خلال فترة الرضاعة تبدأ من اليوم الـ ١٤ بعد الولادة وتكرر بالتناوب بداية ايام الـ ٢٩ ، ٥٩ و ٨٨ خلال فترة الـ ٩٠ يوم رضاعة. وأظهرت النتائج وجود تأثير معنوي لطريقة تقدير اللبن أثناء فترة الرضاعة بطريقة الحقن بالأوكسيتوسين حيث كانت أعلى ١٧٥.٥ كجم/رأس مقارنة بطريقة رضاعة الجداء ١٦٦.٥ كجم/رأس وأخيرا طريقة التقدير بالحليب اليدوي ١٤٩.٢٥ كجم/رأس. أيضا يتضح من ذلك بأن تقدير اللبن أثناء فترة الرضاعة (٩٠ يوما) بطريقة الحقن بالأوكسيتوسين، وطريقه التقدير برضاعة الجداء حققت تحسن قدره ١٧.٥٩% ، ١١.٥٦% منسوبا لطريقة تقدير اللبن أثناء الرضاعة بطريقه الحليب اليدوي ، على الترتيب. وبناء على ذلك تقدير اللبن أثناء فترة الرضاعة بطريقة الحقن بالأوكسيتوسين كان له مردود وعائد اقتصادي أعلى ١٠.٧٣ جنيه مصري/ رأس/ يوم بالمقارنة بطريقتي التقدير برضاعة الجداء ١٠.١٨جنيه مصري/ رأس/ يوم وطريقة التقدير بالحليب اليدوي ٩.١٢جنيه/رأس/يوم على التوالي. أيضا لم يكن هناك أى تأثير معنوي للطرق الثلاث محل الدراسة لتقدير اللبن أثناء فترة الرضاعة على الصحة العامة للحيوان متمثلة في بعض القياسات الفسيولوجية مثل معدل التنفس والنبض ودرجة حرارة المستقيم والجسم أثناء فترة التجربة . يتضح من تلك الدراسة : تقدير اللبن أثناء فترة الرضاعة بطريقة الحقن بالاوكسيتوسين قد حققت زيادة في الإنتاجية الفعلية للبن وبالتالي مردود اقتصادي أعلى دون وجود أى تأثير معنوي على الصفات الإنتاجية للحيوان متمثلة فى وزن الميلاد والفطام للجداء وكذا الحالة الصحية للأمهات بالمقارنة بطريقة التقدير بطريقة الرضاعة للجداء وطريقة الحليب اليدوي ، لذا ينصح بتطبيق طريقة تقدير لبن الرضاعة بطريقة الحقن بالأوكسيتوسين في قطعان الماعز الزرايبى الحلابة.