Journal Tikrit Univ. for Agri. Sci., Vol.(17) No.(Special), 6th Scientific Conference for Agricultural Researches, 28-29 March, 2017
ISSN-1813-1646

Study The Effect of Breeding System in Milk Components of Awassi Ewes

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Keywords:
Awassi ewes, milk components, breeding system.

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ABSTRACT

The study was carried out in two locations, first the breeding and improvement station of sheep and goats of the General Authority for Agricultural Research / Ministry of Agriculture (in Akkurov area 25 km west of Baghdad) and second outside the station of one of the sheep breeders (private sector) In some milk components of Awassi ewes.
120 Awassi ewes used to study the effect of breeding system in the milk components : protein, fat, ash , lactose , solids non-fatty and milk density. Through comparison between the breeding herds the results show a significant effect ($p<0.01$) shepherd herd compared with others at first analysis of the milk in the ash percentage (0.955, 0.905, 0.900) and a shepherd herd record highest percentage of solids non-fatty as it was (11.46, 11.03, 10.97) for the three herds respectively (improve herd , non-improved herd, shepherd herd), Also recorded milk density shepherd herd ($p<0.01$) highest density among the three herds (41.09, 37.51, 36.83) and show a significant effect ($p<0.01$) shepherd herd in the second analysis of the density of milk (37.91, 36.05, 34.84), the fat percentage has improved herd scored highest percentage fat analysis (8.18, 6.91, 4.77) in the second analysis of milk. When a comparison between the first and second analysis and through statistical analysis results showing superiority the shepherd herd of the second analysis on the first analysis in ash content (0.955, 0.906) and the proportion of non-fatty solids (11.46, 11.00).The density outperforming second analysis on the first analysis in improved herd (36.83, 34.84) and the herd is non-improved (37.51, 36.05) and shepherd herd (41.09, 37.91) and outperformed the results of the first analysis of the results of the second analysis in the percentage of fat for improved herd (8.18, 5.92) and the herd is non-improved (6.91, 4.69) and the shepherd herd (4.77, 2.59).

دراسة تأثير نظام التربية في مكونات الحليب للنعاج العواسية

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الكلمات المفتاحية:
نعاج عواسية ، مكونات حليب ، نظام التربية .

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الخلاصــة

اجريت هذه الدراسة في موقعين احدهما في محطة تربية وتحسين الاغنام والماعز التابعة للهيأة العامة للبحوث الزراعية / وزارة الزراعة (في منطقة عكركوف 25 كم غرب بغداد)، والثاني حقل خارج المحطة تابع لاحد مربي الاغنام (قطاع خاص) في ابي غريب لدراسة تأثير اختلاف نظام التربية في بعض مكونات الحليب للنعاج العواسية. أستخدم في هذه الدراسة 120 نعجة عواسية لدراسة تأثير نظام التربية في مكونات الحليب والمتمثلة بالبروتين والدهن والرماد واللاكتور والمواد الصلبة غير الدهنية وكذلك كثافة الحليب. اجري تحليلان للحليب ، التحليل الاول خلال الشهر 3 من الولادة والتحليل الثاني خلال الشهر 4 من الولادة ، وذلك لحاجة المواليد للحليب خلال الشهرين الاوليين من عمر المواليد) من خلال المقارنة بين قطعان التربية تبين وجود تفوق معنوي ($p<0.01$) لقطيع المربي على القطيعين الاخرين للتحليل الاول للحليب في نسبة الرماد (0.955 ، 0.905 ، 0.900) وسجل قطيع المربي اعلى نسبة للمواد الصلبة غير الدهنية اذ كانت (11.46 ، 11.03 ، 10.97) للقطعان الثلاثة على التوالي ، كما سجلت كثافة الحليب لقطيع المربي ($p<0.01$) اعلى كثافة بين القطعان الثلاثة (41.09 ، 37.51 ، 36.83) ، وتبين وجود تأثير معنوي ($p<0.01$) لقطيع المربي في التحليل الثاني لكثافة الحليب (37.91 ، 36.05 ، 34.84) ، اما نسبة الدهن

فقد سجل القطيع المحسن اعلى نسبة دهن للتحليل الثاني (8.18 ، 6.91 ، 4.77).
وعند اجراء مقارنة بين التحليل الاول والثاني ومن خلال نتائج التحليل الاحصائي تبين تفوق التحليل الثاني على التحليل الاول لقطيع المربي في نسبة الرماد (0.955 ، 0.906) ونسبة المواد الصلبة غير الدهنية (11.46 ، 11.00) اما الكثافة فتفوق التحليل الثاني على التحليل الاول في القطيع المحسن (36.83 ، 34.84) والقطيع غير المحسن (37.51 ، 36.05) وقطيع المربي (41.09 ، 37.91) وتفوقت نتائج التحليل الاول على نتائج التحليل الثاني في نسبة الدهن للقطيع المحسن(8.18 ، 5.92) والقطيع غير المحسن (6.91 ، 4.69) وقطيع المربي (4.77 ، 2.59).

Introduction:

Local sheep characterized by down production of meat and milk, which is due to genetic factors, environmental, and because of the likelihood of recipes ability to live in hard environmental conditions on the qualities of productivity calculation and therefore, the production efficiency of ewes low, which requires attention in accordance with the developments of modern science in the management of herds and nurtured and improved (Al-kass et al ,1993).

Many states have consistently improve milk production of sheep and attention to strains with the ability to produce milk which led to increase the quantity marketed and benefit from them in different and distinctive cheese manufacturing (Othman et al., 2002). It was followed league registration method for the milk production over specific periods (monthly), and adopted as an indicator in the process of improving the productive performance of these ewes and to assess the productive capacity, assessment (Carta *et al*., 2001).

Many studies predictability milk production through a few of periodic measurements of the production (Kominakis *et al* have demonstrated, 2002 and Abdel-Rahman *et al*., 2002), as well as their interest in the impact of various factors Allaorathih in the production of milk and different qualities, Hence the importance of periodic measurements of the milk components came to stand on the direct relationship with milk production because of its importance in giving the nutritional value of milk product and its importance in the different manufacturing processes and to determine the price value of raw milk producer (El-Barody et al. 2002) and (Morgan et al. 2006).
The research aims to determine the effect of raising Awassi sheep in different flocks in some milk components (protein, fat, lactose, ash, density, non-fatty solids).

Materials and methods:

This study was conducted at two sites, one in the breeding station and improve sheep and goats of the General board of Agricultural Research / Ministry of Agriculture (in Akarkof area 25 km west of Baghdad), and the second field outside the station continued for one sheep breeders (private sector) in Abu Ghraib to study the effect of different breeding system in some milk components of Awassi ewes. The study includes three herds of Awassi sheep namely:

1. The first herd (improve herd): 40 Awassi sheep (3-7 years old) have the ability to produce twins (selected 3-5 seasons to produce a recipe twins) and placed in a private hangar at the station.
2. The second herd (herd is non-improved): 40 Awassi sheep (3-7 years old) randomly selected from a herd station and placed in a private hangar at the station.
3. The third herd (shepherd): 40 Awassi sheep (3-7 years old) randomly selected and placed in a private hangar belonging to a breeder near his home in a nearby pasture.

Ewes fed improved herd and non-improved on followed feeding program by the station management, where it fed ewes during pregnancy (after fertilization until birth) on concentrated diet as in the table (1) rate of 1.25 kg / ewe / day, either after birth feed provided the amount was raised to 1.5 kg / ewe / day in addition to the green fodder contained alfalfa and barley mixture. And the animals grazing in some days of the week by four hours a day as it included a pasture plants

(alfalfa, Trefoil, barley, Tirtia with other jungle) in spaces allocated grazing either coarse fodder has included alfalfa hay at 1 kg / ewe / day.

Table (1) the default content of energy (kilocalories / kg) and protein content of the concentrated diet in sheep and goats Research Station.

Material	Percentage	Protein	Energy kcal/kg
Wheat bran	40	15	2000
Barely	37	10	2300
Corn	15	9	3300
Soybean	5	45	2250
Lime	2	–	–
Salt	1	–	–
Total	100	13.3	2075

The sheep shepherd (grazing) has offered her fodder concentrate 1.75 kg / ewe / day for the duration of the experiment, which included barley, bran, rice and abrasor rice, dates and impurities rods, and gave it a coarse feed also sponsors animals a day 7 hours by almost three hours in the morning and 4 evening included feeding when grazing (grass and bushes like safrandah, green halva, and the remains of plants and Tomato eggplant, okra and Weed, and watermelon peel).
It took milk samples by manual milking ewes (first analysis during the 3rd month of the birth and the second analysis during the 4th month of birth, therefore the lambs need milk during the first two months of life births), and placed in special containers and analyzed the forms to your analysis of milk components (Milk Analyzer Milkoscope) Europe origin in the private laboratory breeding and improvement of sheep and goats in the Department of Agricultural research / Ministry of Agriculture.

Data were statistically analyzed using the General Linear Model method (GLM) within SAS statistical program (2010) follows the model athlete.

$Yij = \mu + Fi + eij$

As the:

Y_{ij} : The value of viewing j belonging to the breeding system i.

μ: the overall mean for the recipe studied.

Fi: the influence of breeding system i (1.Improved herd 2. unimproved 3. shepherd).

e_{ij}: random error which is distributed naturally average equal to zero and the variation of $\delta^2 e$.

And compared the significant differences between the averages test Duncan (1955) polynomial

Results and discussion:

1 - The first analysis of the milk:

By the results of the first analysis Table 2 shows that the breeding system has had a significant effect in the forgotten ashes where it excelled shepherd (0.955%) on improved herd and non-improved (0.900, 0.905) %, respectively, while the solids non-fatty was to shepherd herd superiority of the improved herd and the herd is unimproved (11.46, 11.03, 10.97) and density (41.09, 37.51, 36.83), respectively.

Table 2 the impact of breeding system in the milk components of Awassi ewes first analysis (mean ± standard error)

Flock / Trait	Improved herd	Non-improved herd	Shepherd herd
	No. 24	No. 20	No. 26
Ash %	0.900 ± 0.011 a	0.905 ± 0.009 b	0.955 ± 0.021 a
Protein %	4.06 ± 0.05 a	4.06 ± 0.07 a	4.19 ± 0.08 a
Solids non- fatty	11.03 ± 0.14 ab	10.97 ± 0.11 b	11.46 ± 0.19 a
Lactose %	6.05 ± 0.08a	6.03 ± 0.06a	6.29 ± 0.10 a
Density	36.83 ± 0.53b	37.51 ± 0.43 b	41.09 ± 0.72 a
Fat %	5.92 ± 0.40 a	4.69 ± 0.34 a	2.59 ± 0.18 a

Different letters within the same row indicate a significant difference

2. The second analysis of milk:

No significant effect of breeding system on the protein , ash , the solid non fatty materials and lactose percentage (table 3). The effect of breeding system was a significant on density, as well as , breeder herd Excellence on the improve herd and the herd is non-improved (37.91, 36.05, 34.84). While the breeding system a significant effect in terms of fat content exceeds improved herd on non-improved herd and shepherd herd (8.18, 6.91, 4.77) %. This result was consistent with the results Komprej *et al*. (1999) and Nudda *et al*. (2002) and Morgan *et al.* (2006) and different with Hernandez and Hohenboken (1979) and El-Barody *et al.* (2002).

Table 3 The effect of breeding system in the milk components of Awassi ewes in second analysis (mean ± standard error)

Flock / Trait	Improved herd	Non-improved herd	Shepherd herd
	No. 23	No. 21	No. 26
Ash %	0.890 ± 0.009 a	0.907 ± 0.012 a	0.906 ± 0.011 a
Protein %	4.05 ± 0.04a	4.07 ± 0.05 a	4.08 ± 0.04 a
Solids non- fatty	10.99 ± 0.11 a	11.03 ± 0.15 a	11.00 ± 0.13 a
Lactose %	5.99 ± 0.07a	6.05 ± 0.08 a	6.08 ± 0.07 a
Density	34.84 ± 0.36 b	36.05 ± 0.51 b	37.91 ± 0.58 a
Fat %	8.18 ± 0.44 a	6.91 ± 0.45 b	4.77 ± 0.37 c

Different letters within the same row indicate a significant difference

3. The first analysis & second analysis:

Table 4 shows that the second analysis is significant superiority on the first analysis of shepherd in ash content (0.955, 0.906) and the proportion of non-fatty solids (11.46, 11.00). And the superiority of the second analysis on the first analysis significantly in density improved herd (36.83, 34.84) and non-improved (37.51, 36.05) and shepherd (41.09, 37.91), while fat content was the first analysis the significantly superiority on the second analysis in improved herd (8.18, 5.92) and the non-improved herd (6.91, 4.69) and a shepherd (4.77, 2.59) was an outcome consistent with the results Komprej *et al*. (1999) and Nudda *et al.* (2002) and El-Barody *et al.* (2002) and Morgan *et al.* (2006).

Table 4 The impact of breeding system in the milk components of Awassi ewes first analysis + second analysis (mean ± standard error)

Treatment	Improve herd		Non-improved herd		Shepherd flock	
No.	24	23	20	21	26	26
analysis	First	Second	First	Second	First	Second
Ash %	0.900 ±0.011a	0.890 ±0.009a	0.905 ±0.009a	0.907 ±0.012a	0.955 ±0.021a	0.906 ±0.011b
Protein %	4.06 ±0.05a	4.05 ±0.04a	4.06 ±0.07a	4.07 ±0.05a	4.19 ±0.08a	4.08 ±0.04a
Solids non- fatty	11.03 ±0.14a	10.99 ±0.11a	10.97 ±0.11a	11.03 ±0.15a	11.46 ±0.19a	11.00 ±0.13b
Lactose %	6.05 ±0.08a	± 0.07 5.99a	6.03 ±0.06a	6.05 ±0.08a	6.29 ±0.10a	37.91 ±0.58b
Density	36.83 ±0.53a	34.84 ±0.36b	37.51 ±0.43a	36.05 ±0.51b	41.09 ±0.72a	37.91 ±0.58b
Fat %	5.92 ±0.40b	8.18 ±0.44a	4.69 ±0.34b	6.91 ±0.45a	2.59 ±0.18b	4.77 ±0.37a

Different letters within the same row indicate a significant difference to the one herd

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