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Effect of Increasing Degradable Nitrogen from Adding Urea to the Ration of Awassi Ewes in Milk Yield and some Components

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ABSTRACT

This experiment conducted at 1/12/2017 to 4/3/2018 by using 30 ewes with their lambs. The weights of the ewes between (46-51) Kg and the ages between (3-5) years, to study the effect of increasing degradable Nitrogen from adding urea to the food of Awassi ewes milk yield and components. The experiment done by three levels of Nitrogen degradable (low, 0% urea) (mid, 0.75% urea), (high, 1.5 urea). and by three treatments each of them consists of 10 ewes.

The results indicated a significant increase ($p \leq 0.05$) in weekly, monthly and commercial yield for the treatment of high degradable protein.

For the milk components during sucking and after weaning (fat, protein, lactos, S.N.F) the results revealed non significant differences. The adding of urea to the ration of awassi ewes in creased milk production.

Keyword: Fat, Protein, Lactos

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INTRODUCTION

The production of milk was one of the important characteristics for lambs growth and for human needs for taking large quantities of milk. So the sheep breeders worked hard to increase the milk production (Al-Saegh and Al-Kass, 1992).

The best way to increase the protein rate in the food by adding different Oil Seed meal, but they were very expensive and their quantities were very little, also they were imported. Accordingly the scientists made many experiments to provide the needs of ruminants of protein frome cheap and non protein nitrogen source, So they depended on ability of organisms in rumen of animal to make a pactirial protein specialy from urea because it was available and very cheap and it was rich in nitrogen 46% and contained protein equiv 292% (Al-Hafz, 1992).

The Awassi sheep group was one of the most important kinds in lands semiarid lands of the middle east countries, and they have a good meat and milk, they can live with different environmental systems and they're resistant to diseases and dare the high temperatures, for that, they encouraged the sheep breeders on their breeding (Lafi, etal., 2009) and (FAO, 2006).

The aim of this experiment is to study the effect of increasing degradable nitrogen from adding urea to the food of awassi ewes in milk yield and some components.

The research is part of MS.C thesis.

MATERIALS AND METHODS

This study was done in afield of one breeder in Tal – yara village which affiliated to Baasheka from 1/12/2017 to 14/3/2018. 30 Awassi ewes were used in this study, they were divided into three treatments, and the table (1) show percentage of components of the bush and chemical analysis

Table (1) Ingredients and chemical composition of diets

Treatments Item	Treat. (1) 0% urea (Low D.)	Treat. (2) 0.75% urea (Mid D.)	Treat. (3) 1.5% urea (High D.)
Barly	65%	65%	65%
Wheat bran	32.25%	31.5%	30.75%
Urea	0%	0.75%	1.5%
Food salt (NaCl)	0.75%	0.75%	0.75%
Calcium blocks ($CaCo_3$)	1%	1%	1%
Bentonite	1%	1%	1%
Chemical Composition			
CP%	11.59	13.60	15.60
DM%	91.20	91.43	91.58
OM%	95.17	95.33	95.41
CE%	17.23	17.19	17.15
EE%	2.39	2.51	2.43
Ash%	4.36	4.42	4.33
RDP%	9.14	11.15	13.18
RUP%	2.45	2.44	2.10
D.P energy gm D.P/ M.J	8.76	10.76	12.80

* Means with different subscripts vertically differ ($p \leq 0.05$).

Percent calculated for DM, OM, CP, EE and Ash laboratory as (AOAC, 2000) and it was calculated NE and D.P. energy depend on DM (AL-Khawaja, etal., 1987).

Estimated the proportions of milk components by (milkana) machine. Data were analyzed by using (C.R.D) according to what was stated in (Al-Rawi and Khallafallah, 1980), and used the mathematical model

$Yij = \mu + ti + eij$

Yij = Samples.

μ = Samples means.

ti = The effect of treatment and it means the effect of urea.

eij = The random trial error value.

And using the test of Duncan (Duncan, 1955), and using the analysis program (SAS, 2003).

RESULTS AND DISCUSSION

1. Milk production:

The results indicated a significant increase ($p \leq 0.05$) in daily and weekly milk production since the fourth week till the end of experiment for the behalf of high degradable protein which compared with the behalf of mid degradable protein and the behalf of low degradable protein, as seen in table (2).

Table (2) The effect of increasing degradable Nitrogen in weekly milk production (gm)

Groups	Weeks					
	2	4	6	8	10	12
Group (1) 0% urea (Low Dig)	473 ± 55.12	597b ± 68.36	664ab ± 71.80	669ab ± 73.07	330c ± 27.13	368b ± 40.24
Group (2) 0.75% urea (Mid Dig)	589 ± 55.99	602b ± 41.46	632b ± 50.43	592b ± 55.77	481b ± 64.60	422b ± 51.96
Group (3) 1.5% urea (High Dig)	644 ± 67.42	807a ± 87.46	836a ± 54.84	831a ± 35.49	714a ± 10.82	632a ± 21.73

* Means with different superscripts differ ($p \leq 0.05$).

This result was agreed (Tayyeb, 2017), (Kassem & Abdullah, 2013) and (Birto & Broderick, 2007), and it was different with the results of (saleh & Al-Mallah, 2013) and (Shihab, 2012).

The results also indicated significant increase ($p \leq 0.05$) in monthly milk production for the behalf of high degradable protein wich agreed with the results of (Tayyeb, 2017), (Kassem & Abdullah, 2013) and (Biro & Broderick, 2007) and it differs with the result of (Shihab, 2012).

Also the results indicated significant increase ($p \leq 0.05$) in commercial milk production for the behalf of high degradable protein, the result was agreed with the results of (Kassem & Abdullah, 2013) and (Saleh & Al-Mallah, 2013) and it differs with result of (Shihab, 2012), as seen in table (3).

Table (3) The effect of increasing degradable Nitrogen in monthly and commercial milk production (Kg)

Total milk production	Treatments groups		
	Group (1) 0% urea Low Dig.	Group (2) 0.75% urea Med Dig.	Group (3) 1.5% urea High Dig.
Monthly milk production	41.87 b ± 4.014	44.12 b ± 2.557	59.83 a ± 3.695
Commercial milk production	18.538 c ± 1.742	21.515 b ± 1.942	32.887 a ± 2.122

* Means with different subscripts horizontally differ ($p \leq 0.05$).

May be the reason of the increase in milk production was the addition of urea which gave the animal the necessary nitrogen to produce the microbial protein which caused this significant in crease in milk production.

2. Milk Components:

The result indicated non significant differences in milk components (fat, protein, lactos, S.N.F) and that mean there were no significant effect on the level of decomposition as seen in table (4). These results a greed with that of Tayyeb (2017), Saleh & AL-Mallah (2013) and Shihab (2012).

Table (4) The effect of increasing degradable Nitrogen in milk components

Homologous groups	Fat %	Protein %	Lactose %	S.N.F %
Group (1) 0% urea (Low Dig)	4.78 ± 0.144	4.35 ± 0.058	5.14 ± 0.083	11.58 ± 0.133
Group (2) 0.75% urea (Mid Dig)	4.81 ± 0.212	4.32 ± 0.053	5.21 ± 0.100	11.64 ± 0.096
Group (3) 1.5% urea (High Dig)	4.79 ± 0.238	4.34 ± 0.033	5.22 ± 0.113	11.70 ± 0.126

* Means with different subscripts vertically differ ($p \leq 0.05$).

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دراسة تأثير الزيادة في النيتروجين المتحلل المتناول من اليوريا في علائق النعاج العواسية في إنتاج الحليب ومكوناته

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الخلاصة

اجريت هذه الدراسة للفترة من 2017/12/1 لغاية 2018/3/14 باستخدام 30 نعجة عواسية مع مواليدها، وكانت اوزان النعاج بين (46-51) كغم وعمر النعاج بين (3-5) سنوات, لمعرفة تأثير الزيادة في النيتروجين المتحلل المتناول من اليوريا في علائق النعاج العواسية في انتاج الحليب ومكوناته, وقد كانت معاملات التجربة بثلاث مستويات تحلل للنيتروجين صفر% يوريا (منخفض), 0.75% يوريا (متوسط), 1.5% يوريا (عالي) وبثلاثة معاملات كل معاملة مكونة من 10 نعاج.

أظهرت نتائج الدراسة زيادة معنوية ($P\leq0.05$) في معدل انتاج الحليب الاسبوعي والشهري خلال فترة الرضاعة والحليب التجاري بعد الفطام لصالح معاملة تحلل النيتروجين العالي, بينما كانت نسب مكونات الحليب (الدهن, البروتين, اللاكتوز, المواد الصلبة اللادهنية) متقاربة ولم تظهر عليها فروقات معنوية. بشكل عام أدت اضافة اليوريا إلى العليقة إلى زيادة معدل انتاج الحليب.

الكلمات المفتاحية: نعجة عواسية، علائق النعاج، معاملات التجربة.

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