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SUN DRIED BROILER LITTER IN LACTATING DAIRY BUFFALO RATIONS

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SUMMARY

A total of 27 lactating buffalo cows at lactation different seasons were used to study the effect of using various levels of sun dried broiler litter (BL) in ration for lactating dairy buffaloes on milk production and composition. Animals were divided into three similar groups of 9 heads each and were fed three experimental ration, where 0,30 and 60% of the concentrate nitrogen was replaced in T_1, T_2, and T_3 by BL nitrogen respectively.

The results showed what using medium level of BL (T_2) in dairy buffaloes had no significant effect ($P>0.05$) on milk production. However, using high level of BL resulted in significant ($P<0.05$) increase in milk yield compared with other treatments. There were significant differences due to the treatments, season and the interaction between them.

The overall mean of 4% fat corrected milk (FCM) through experimental lactation period (39 wk) for T_1, T_2 and T_3 were 2222, 2192 and 2582 kg respectively. In addition, inclusion of low level BL in dairy buffalo ration had no negative effect on butter fat production. Moreover, using high levels of BL resulted in an increas ($P<0.05$) in butter fat production; ($P<0.01$) total protein yeild and ($P<0.05$) lactose yield.

Keywords: Sun dried broiler litter, animal wastes, dairy buffaloes milk composition

INTRODUCTION

Recently there has been a world wide great deal of interest in using poultry wastes in ruminants rations as potential sources of nitrogen. In Egypt, poultry waste is available in plenty during the year. The total annual production may reach 2 million metric ton having a gross dry matter weight of about 800,000 tons. Considerable research has shown high nutritional value and favorable performance of beef cattle (Creger, et al, 1973; Fontenote and Webb, 1974); dairy cattle (Smith and Fries, 1973, Parthasarathy and Pradhan, 1985) and sheep (Khamis, et al., 1992) raised on rations containing poultry wastes.

The researchs are lacking , however, with commercially sun dried poultry wastes for lactating dairy animals. If dried poultry waste is ever to become a commercial feed, more research is needed to know the maximum amounts that can be fed for optimum performance.

Therefore, the objective of this trial was to study the effect of using two levels of sun dried broiler litter in complete ration for lactating dairy buffaloes on milk production and composition.

MATERIALS AND METHODS

This study was carried out at the experimental station of Milk Replacer Research Center, Faculty of Agriculture, Ain Shams University.

A total of 27 lactating buffalo cows at different lactation seasons were used in this trial. Animals were divided into three similar groups of 9 heads each, where each group consisted of 3 animals at the first, second and third lactating seasons. The animals of treatment 1 (T_1) received a control diet which consisted of concentrate feed mixture (CFM) and berseem hay plus rice straw as roughage. Concentrate: roughage ratio was 70:30.

Animals of T_2 and T_3 were fed the control diet but 30 and 60% of the concentrate nitrogen was replaced by broiler litter (BL) nitrogen, respectively. The wastes used in this study were collected from the intensive broiler production houses of El-Salam company, Cairo province. Broiler litter (wheat straw base) was spread on plastic sheets in layers of 10 cm. thickness and

shuffled every other day to be sun cured for 7 days. Then after, when the moisture content reached 10-15%, the litter was collected and stored in sacks. The chemical composition of the ingredients and nutritive values of the experimental ration are presented in Table 1.

Table 1. Chemical composition of feedstuffs and broiler litter used, (g/kg) and the components of the experimental rations

Nutrient	CFM	Berseem hay	Rice straw	BL
Dry matter	918	889	913	918
Organic matter	827	771	735	783
Ash	91	118	178	135
Crude protein	142	137	29	195
Ether Extract	44	24	19	12
Crude fiber	125	297	312	235
Nitrogen fr.ex.	516	313	375	341
T_1, %	70.0	15	15	--
T_2, %	52.0	15.9	15.9	16.2
T_3, %	31.7	16.9	16.9	34.5

The daily ration was divided into two equal portions and CFM was offered individually during milking time at 06.00 and 16.00 h. according to Shehata, 1971, allowances. The roughages were offered at 08:00 and 14:00 h daily after accessing the animal to fresh water.

The animals were machine milked twice daily while milk samples were collected once every two weeks for 15 weeks, then every four weeks till the end of the experimental period which extented to 39th week of lactation season. Individual daily records for milk yield were kept for each animal. Immediately after milking, milk samples were used for acidity determinations. Composed samples (morning and evening) were analyzed for total solids (TS), according to Laboratory Manual (1949). The fat percentage was estimated by Gerber method for milk according to British Standard Institution (1951). Solid not fat content was calculated by the differences between (TS) and fat contents. Lactose was determined calorimetrically according to Barnett and Abd El-Tawab (1957). Total

protein and ash were determined according to Ling (1963).

Samples of feed ingredients e.g, CFM, BL, berseem hay and rice straw were subjected to chemical analysis according to A.O.A.C (1986). for the determination of DM, CF, EE, CP & ash, while NFE and OM were calculated by differences. The program of the least square (Domon and Harvey, 1987) using the general linear model program of SAS (1985), was followed for statistical analysis using IBM computer. Tukey procedure was used to test the significancy among treatment means.

RESULTS AND DISCUSSION

Milk Yield

The average daily milk yield at the third week postpartum of the experimental animals of T_1, T_2 and T_3 were 4.20, 6.00, 4.70 kg/d; 4.27, 4.57, 5.03 kg/d and 5.67, 6.17, 6.03 kg/d for the first (S_1), second (S_2) and third (S_3) seasons, respectively (Table 2).

Milk production of S_1, S_2 and S_3 was found to be 5.33, 7.30 & 7.40 kg/d for T_1; 5.43, 7.10 & 7.47 kg/d for T_2 and 6.40, 8.30 & 7.17 kg/d for T_3, respectively, at the fifth week of lactation.

The first calvers fed the control ration, T_1, showed peak at 11th week kg/d and the production was higher than 6 kg/d for two weeks only. While the peak was achieved for those of S_2 & S_3 at the 7th week kg/d and the milk production maintained over 6 kg/d till the 15th week.

On the same time, animals fed the ration which contained low level of BL e.g 16.2% of DM (T_2) showed the peak at the 11th , 7th and 13th weeks for S_1, S_2 & S_3, respectively. The production was higher than 6 kg for S_2 & S_3 till the 23rd & 27th week of lactation. (Fig 1).

On the other hand, the peaks for S_1, S_2 & S_3 for the animals of T_3 were at 13th, 9th & 9th weeks, respectively. The daily production remained above 6 kg/d up to 19th, 31st and 23rd weeks.

A sharp rise in milk yield was recorded for different treatments at the 5th week as compared to that of the third week being 134, 144 and 122% for T_1, T_2 and T_3 respectively. On the other hand, the peak of milk yield was recorded at 7th week for the animals of T_1 and T_2 however, the curve of milk yield for the animals of T_3

Table 2. Effect of inclusion rations with different levels of broiler litter on averages milk yield of buffaloes'milk during different lactation stages

Week of Lactation	Milk Yield (Kg/day)								
	T1			T2			T3		
	S_1	S_2	S_3	S_1	S_2	S_3	S_1	S_2	S_3
3	4.20 ± 0.87	6.00 ± 0.80	4.70 ± 1.62	4.27 ± 0.89	4.57 ± 0.38	5.03 ± 0.94	5.67 ± 0.58	6.17 ± 1.19	6.03 ± 0.37
5	5.33 ± 0.72	7.30 ± 0.96	7.40 ± 0.20	5.43 ± 0.89	7.10 ± 0.86	7.47 ± 0.94	6.40 ± 0.57	8.30 ± 1.20	7.17 ± 0.52
7	5.77 ± 0.75	10.27 ± 3.48	8.03 ± 0.15	5.60 ± 0.75	7.80 ± 0.69	7.63 ± 0.69	6.40 ± 0.72	8.77 ± 1.07	7.83 ± 1.22
9	6.13 ± 0.71	6.73 ± 0.43	8.03 ± 0.43	5.57 ± 0.45	7.40 ± 0.96	7.83 ± 0.44	6.73 ± 0.93	9.13 ± 0.69	8.13 ± 1.62
11	6.27 ± 0.94	6.73 ± 0.35	7.27 ± 0.39	5.60 ± 0.67	7.23 ± 0.55	7.63 ± 0.62	6.87 ± 0.52	8.80 ± 1.46	7.93 ± 1.47
13	6.13 ± 0.73	6.63 ± 0.55	6.83 ± 0.17	5.40 ± 0.78	7.03 ± 0.52	7.93 ± 0.88	7.53 ± 0.79	9.07 ± 1.11	7.73 ± 1.79
15	5.83 ± 0.74	6.20 ± 0.87	6.43 ± 0.38	4.53 ± 0.86	7.23 ± 0.32	7.17 ± 0.71	6.57 ± 0.62	8.23 ± 1.13	7.03 ± 1.24
19	5.53 ± 0.84	5.63 ± 0.91	5.97 ± 0.42	4.77 ± 0.71	6.67 ± 0.17	7.17 ± 0.84	6.07 ± 0.59	7.83 ± 1.24	6.60 ± 1.59
23	5.33 ± 0.86	5.30 ± 0.89	5.17 ± 0.64	4.80 ± 0.72	6.27 ± 0.34	6.77 ± 0.75	5.83 ± 0.95	6.00 ± 1.27	5.87 ± 1.13
27	5.40 ± 0.38	5.40 ± 0.98	5.27 ± 0.69	4.47 ± 0.75	5.47 ± 0.73	6.40 ± 0.91	5.83 ± 0.54	9.27 ± 4.27	5.73 ± 1.18
31	5.17 ± 0.33	5.10 ± 0.95	4.70 ± 0.76	3.77 ± 0.77	5.50 ± 0.72	5.37 ± 0.58	5.93 ± 0.84	6.07 ± 0.87	5.53 ± 0.99
35	4.50 ± 0.12	5.05 ± 0.98	4.43 ± 0.81	3.00 ± 0.70	5.30 ± 0.38	4.53 ± 0.39	5.17 ± 0.57	4.83 ± 0.73	5.00 ± 0.98
39	3.80 ± 0.35	4.03 ± 0.57	3.80 ± 0.47	2.57 ± 0.47	3.50 ± 0.38	3.83 ± 0.13	3.67 ± 0.35	3.97 ± 0.13	3.60 ± 0.46
Mean ± SE		5.54 ± 0.14			5.52 ± 0.14			6.34 ± 0.14	
Overall Mean ± SE			5.80 ± 0.08						

which received high level of BL (about 34.5% of dry matter intake) continued its increase till the 13 th week of lactation.

It is clear from Fig. (1) that animals of T_3 were the most persistent group. The mean milk yield for the three treatments through experimental lactating period, 39 weeks, were 1512, 1506 and 1731 kg for T_1, T_2 and T_3 respectively being highest ($P<0.05$) for T_3.

Generaly, using low level of BL in dairy buffaloes showed non significant effect ($P>0.05$) on milk production (T_1 VS T_2). However, using high level of BL (T_3) resulted in a significant increase in milk yield ($P<0.05$) compared to the other treatments. It is of interest to note that statistical analysis showed significant differences due to treatments and seasons. The interaction was also significant.

Milk yield in this experiment seemed to be within the range of buffalo production reported by Kholif (1989) being 5.71 kg/d, and Abo-El-Nor (1991) being 6.68 kg/d for Egyptian buffalo. Moreover, these results are in accordance with those for cows fed dehydarted poultry excreta, reported by Thomas et al., (1972) and Smith and Wheeler (1979).

Considering FCM production it is clear that mean daily 4% fat-corrected-milk (FCM) at the third week of T_1, T_2 and T_3, respectively were 7.64, 6.23 and 9.84 kg/d (Table 3).

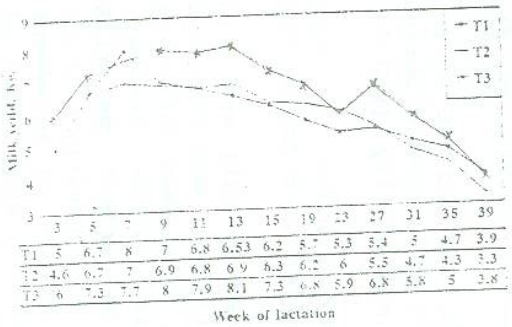
The peaks for T_1 & T_2 treatments were 9.76 and 9.46 kg 4% FCM /d respectively, at the 7th week of lactation. While milk production peak for animals of T_3 was 11.39 kg 4% FCM/d at the 19th week (Fig. 2). The mean FCM yield/day was higher than 8.0 kg/d till the 19th for T_1 and till the 31st week for both T_2 and T_3.

The overall means of FCM production through experimental lactation period (39 weeks) for T_1, T_2 and T_3 were 2222, 2192 & 2582 kg respectively, being highest ($P<0.05$) for T_3.

MILK Composition and Nutrients Yield

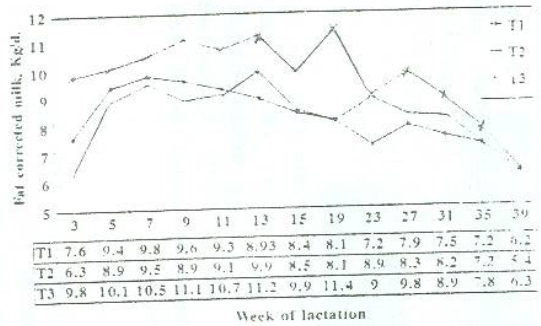
1- Fat

It should be noted that animals of T_3 showed highest milk fat percentage at different sampling times except that of the 9th week (Fig. 3). Mean daily fat yields were found to be 376, 292 and 497 g at the third week of lactation. These values increased gradually to reach



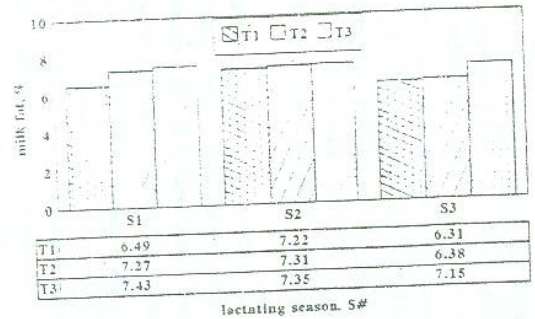
	3	5	7	9	11	13	15	19	23	27	31	35	39
T1	5	6.7	8	7	6.8	6.53	6.2	5.7	5.3	5.4	5	4.7	3.9
T2	4.6	6.7	7	6.9	6.8	6.9	6.3	6.2	6	5.5	4.7	4.3	3.3
T3	6	7.3	7.7	8	7.9	8.1	7.3	6.8	5.9	6.8	5.8	5	3.8

Fig (1): Effect of inclusion different levels of BL in lactating buffalo ration on daily milk yeild, Kg.



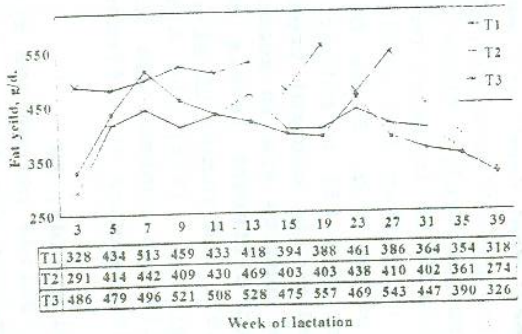
	3	5	7	9	11	13	15	19	23	27	31	35	39
T1	7.6	9.4	9.8	9.6	9.3	8.93	8.4	8.1	7.2	7.9	7.5	7.2	6.2
T2	6.3	8.9	9.5	8.9	9.1	9.9	8.5	8.1	8.9	8.3	8.2	7.2	5.4
T3	9.8	10.1	10.5	11.1	10.7	11.2	9.9	11.4	9	9.8	8.9	7.8	6.3

Fig (2): Effect of inclusion different levels of BL in lactating buffalo ration on Fat corrected milk, Kg/d.



	S1	S2	S3
T1	6.49	7.22	6.31
T2	7.27	7.31	6.38
T3	7.43	7.35	7.15

Fig (3): Effect of inclusion different levels of BL in lactating buffalo rations on milk fat percent.



	3	5	7	9	11	13	15	19	23	27	31	35	39
T1	328	434	513	459	433	418	394	388	461	386	364	354	318
T2	291	414	442	409	430	469	403	403	438	410	402	361	274
T3	486	479	496	521	508	528	475	557	469	543	447	390	326

Fig (4): Effect of inclusion different levels of BL in lactating buffalo ration on Fat yeild, g/d.

their peak at the 9th week for T_1 (454 g), 13th week for T_2 (455 g) and 19 th week for T_3 (577 g), (Fig. 4). Moreover, the over all means of fat yield through lactation period were 103, 104 and 128 kg fat for T_1, T_2 & T_3 respectively. These results indicate that the inclusion of BL in dairy buffalo ration had no negative affect on butter fat production. However, using high level of BL e.g. 34.5% of the diet resulted in an increase ($P<0.05$) in butter fat production of about 22% compared to the control treatment (Fig. 4).

These results are in accordance with those for dairy cows fed different levels of poultry waste, (Bull and Reid, 1971 and Thomas et al., 1972). On the other hand, Smith et al. (1976) and Arave et al. (1990) reported that milk fat content was increased when cows were fed on poultry wastes at different levels.

2- Total solids, TS

Total solids percentage started high at the beganing of the season for different treatments (Fig 5 & 6) then decreased to reach the minimum value between the 5th and 7th week for T_1 & T_2. While it was between the 9th & 11th week for T_3.

A gradual fluctuating increases were observed for different groups till their peak values at 39th week for T_1 and T_2 and at 31st week for T_3.

Total solid mean yields were 270, 268 and 310 kg for T_1, T_2 and T_3 respectively during the experimental period (39 weeks). Values of T_3 are statistically ($P<0.05$) higher than the other groups.

Values of TS recorded here were similar to those reported for buffaloes by Kholif (1989) and Abo El-Nor (1991).

Similar observations were obtained by Bull and Reid (1971) and Kneale and Garstang (1975), who reported increased values of TS content of milk when lactating cows were fed on dehydrated poultry wastes. However, Mello, et al. (1973) claimed no effect on milk composition when cows were fed 36% poultry litter containing rations. This finding is not in agreement with our results although they used the same level of our high level of BL ration. Such discrepancy may be due to different plane of nutrition, level of feeding, bedding material and waste managements.

Table 3. Effect of inclusion rations with different levels of broiler litter on mean daily fat-corrected-milk yield of buffaloes'milk during lactation period.

Week of Lactation	Fat-corrected-milk (Kg/day)								
	T1			T2			T3		
	S_1	S_2	S_3	S_1	S_2	S_3	S_1	S_2	S_3
3	6.27 ± 1.48	8.57 ± 1.58	8.07 ± 2.95	5.88 ± 1.63	6.31 ± 1.18	6.49 ± 0.98	9.42 ± 0.99	11.72 ± 3.89	8.38 ± 0.23
5	7.12 ± 0.52	11.11 ± 2.45	9.90 ± 0.79	7.02 ± 1.45	9.84 ± 0.85	9.73 ± 0.87	8.75 ± 0.83	11.64 ± 1.81	9.84 ± 0.86
7	7.98 ± 1.23	10.96 ± 2.40	10.49 ± 0.84	7.92 ± 1.85	10.59 ± 0.88	9.88 ± 0.51	9.05 ± 0.65	11.95 ± 2.51	10.44 ± 1.44
9	9.12 ± 0.75	9.19 ± 1.21	10.52 ± 0.99	7.21 ± 0.55	9.37 ± 1.63	10.14 ± 0.58	9.38 ± 1.74	12.85 ± 1.83	10.93 ± 2.08
11	9.53 ± 1.78	9.44 ± 0.99	8.87 ± 0.56	7.59 ± 1.07	9.53 ± 1.10	10.30 ± 0.72	9.16 ± 0.75	11.82 ± 2.26	11.17 ± 1.99
13	8.87 ± 0.84	9.08 ± 0.11	8.62 ± 0.52	7.39 ± 0.31	10.78 ± 0.78	11.49 ± 0.86	10.23 ± 1.01	11.86 ± 2.39	11.42 ± 2.47
15	8.31 ± 1.09	8.34 ± 1.01	8.46 ± 0.92	6.07 ± 0.73	9.59 ± 0.96	9.85 ± 1.13	9.38 ± 0.84	10.29 ± 1.25	10.14 ± 1.70
19	7.82 ± 1.49	8.79 ± 1.77	7.75 ± 0.72	7.03 ± 0.93	7.89 ± 0.74	9.42 ± 1.26	9.86 ± 1.64	14.93 ± 4.26	9.39 ± 2.14
23	7.17 ± 0.90	7.63 ± 1.63	6.64 ± 1.04	7.60 ± 1.09	10.09 ± 1.29	8.99 ± 1.16	10.30 ± 2.89	9.72 ± 2.44	9.23 ± 0.64
27	8.05 ± 0.38	8.14 ± 0.92	7.45 ± 1.51	6.65 ± 0.96	9.20 ± 1.44	8.78 ± 1.41	8.16 ± 0.69	10.24 ± 3.52	8.73 ± 1.81
31	7.31 ± 0.52	8.38 ± 1.25	6.68 ± 1.54	6.92 ± 1.90	10.01 ± 1.19	7.80 ± 1.17	8.97 ± 0.92	9.49 ± 1.34	8.28 ± 1.21
35	7.09 ± 0.27	8.11 ± 1.34	6.43 ± 1.48	5.51 ± 1.66	9.45 ± 0.94	6.54 ± 1.07	8.70 ± 0.35	7.46 ± 1.04	7.22 ± 1.42
39	5.76 ± 0.35	7.02 ± 0.73	5.85 ± 1.63	4.41 ± 0.66	6.01 ± 1.11	5.79 ± 0.49	5.89 ± 0.07	6.81 ± 0.68	6.18 ± 0.83
Mean ± SE		8.14 ± 0.22			8.03 ± 0.22			9.46 ± 0.22	
Overall Mean ± SE			8.73 ± 0.13						

3- Total protein (TP)

Fig. (7) shows that T_1 showed two peaks for milk protein percentages at the 9th and 35th weeks of lactation while the lowest total protein values (3.78%) was noticed at 3rd week of lactation.

Total protein values of T_3 were highest at the 3rd and 39th week, being 4.13 and 4.12%. Similar trend was recorded for T_2. No significant differences were detected between treatments on TP percentage, while in total protein yield, differences were highly significant where TP yields all over the experimental lactating period for T_3 was higher (73 kg) significantly ($P<0.01$) than the other two treatments (61 and 62 kg for T_1, T_2 resp.).

These results are in full agreement with those obtained by Bruhn et al. (1977) who fed cows on rations which contained poultry waste and could not detect any difference in milk protein percentage. Moreover, total protein yield values were in accordance with those reported for Egyptian buffalo's milk by Kholif (1989) being 61 kg TP/39 weeks.

4- Milk lactose content and yield

Lactose percent was 5.05% at the 3rd week and declined to 4.78% at the 5th week for T_1. In the same time, lactose percentage was highest at the third week (5.8%) and declined to 5.3% at the 5th week for T_2 (Fig 9 & 10).

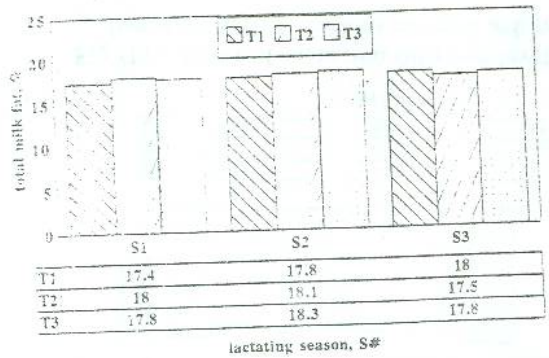
On the other hand, lactose percentage of T_3 was 5.3% at the 3rd week then increased to reach 5.5% at the fifth week. Animals fed high level of BL, e.g T_3, produced milk with higher lactose content ($P>0.05$) than those of the other two groups. The overall mean of lactose yeild through 39 weeks were 80.9, 84.2 and 93.6 kg. The same trend was recorded by Bruhn, et al. (1977).

5- Milk ash content and yield

Ash content was highest for T_1 during the first 9 weeks of lactation, then fluctuated till the 35th week and formed more than 1% at the 38th week (Fig. 11)

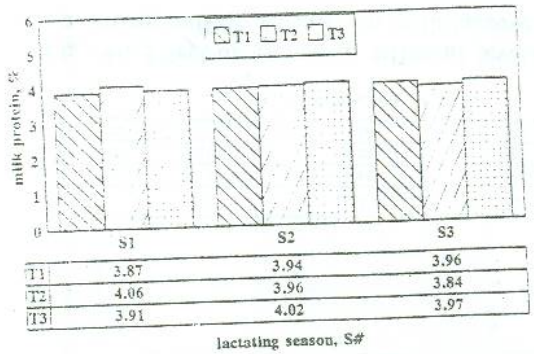
Ash percentage and total milk ash secreted by the animals of T_2 and T_3 ranged between 0.86 and 1.03%. However, ash formed more than 1% at the 23rd and 39th week of lactation season for T_2 and T_3 respectively. Differences were not significant ($P>0.05$).

The overall mean milk ash secreted during 39 weeks of lactation was 15.0, 14.6 & 16.8 kg for T_1, T_2 & T_3 resp.



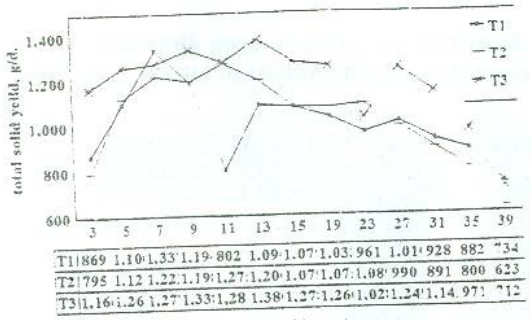
	S1	S2	S3
T1	17.4	17.8	18
T2	18	18.1	17.5
T3	17.8	18.3	17.8

Fig (5): Effect of inclusion different levels of BL in lactating buffalo rations on the percentage of milk total solid.



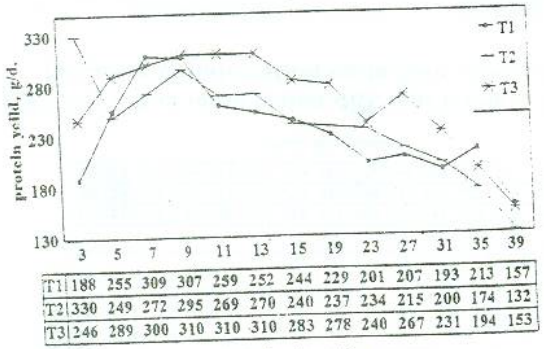
	S1	S2	S3
T1	3.87	3.94	3.96
T2	4.06	3.96	3.84
T3	3.91	4.02	3.97

Fig (7): Effect of inclusion different levels of BL in lactating buffalo rations on milk protein percent.



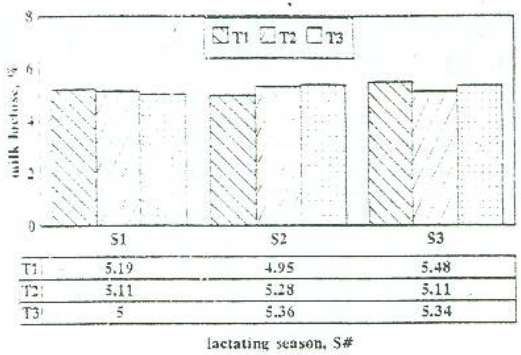
T1	869	1.10	1.33	1.19	802	1.09	1.07	1.03	961	1.01	928	882	734
T2	795	1.12	1.22	1.19	1.27	1.20	1.07	1.07	1.08	990	891	800	623
T3	1.16	1.26	1.27	1.33	1.28	1.38	1.27	1.26	1.02	1.24	1.14	971	712

Fig (6): Effect of inclusion different levels of BL in lactating buffalo ration on total solid yeild, g/d.



T1	188	255	309	307	259	252	244	229	201	207	193	213	157
T2	330	249	272	295	269	270	240	237	234	215	200	174	132
T3	246	289	300	310	310	310	283	278	240	267	231	194	153

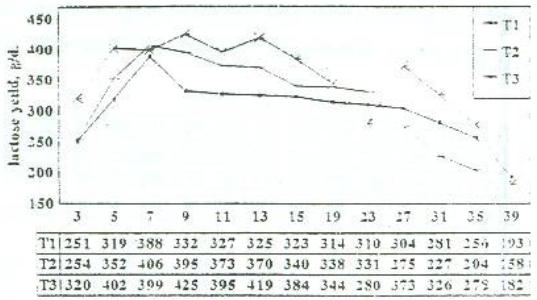
Fig (8): Effect of inclusion different levels of BL in lactating buffalo ration on protein yeild, g/d.



	S1	S2	S3
T1	5.19	4.95	5.48
T2	5.11	5.28	5.11
T3	5	5.36	5.34

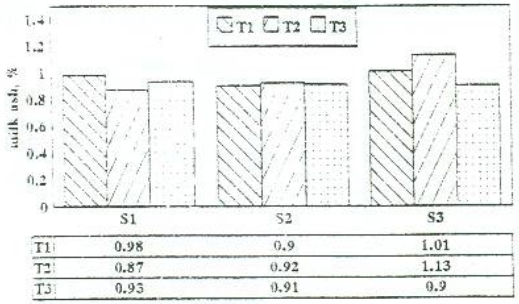
lactating season, S#

Fig (9): Effect of inclusion different levels of BL in lactating buffalo rations on milk lactose percent.



	3	5	7	9	11	13	15	19	23	27	31	35	39
T1	251	319	388	332	327	325	323	314	310	304	281	254	193
T2	254	352	406	395	373	370	340	338	331	275	227	204	158
T3	320	402	399	425	395	419	384	344	280	373	326	279	182

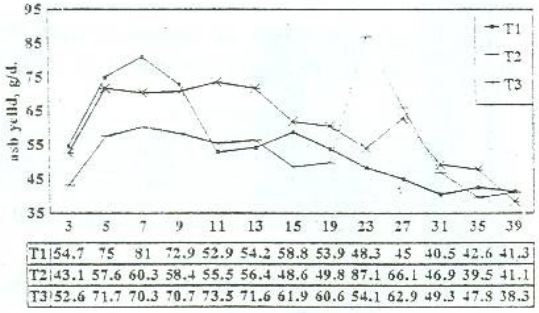
Fig (10): Effect of inclusion different levels of BL in lactating buffalo ration on lactose yeild. g/d.



	S1	S2	S3
T1	0.98	0.9	1.01
T2	0.87	0.92	1.13
T3	0.93	0.91	0.9

lactating season, S#

Fig (11): Effect of inclusion different levels of BL in lactating buffalo rations on milk ash percent.



	3	5	7	9	11	13	15	19	23	27	31	35	39
T1	54.7	75	81	72.9	52.9	54.2	58.8	53.9	48.3	45	40.5	42.6	41.3
T2	43.1	57.6	60.3	58.4	55.5	56.4	48.6	49.8	87.1	66.1	46.9	39.5	41.1
T3	52.6	71.7	70.3	70.7	73.5	71.6	61.9	60.6	54.1	62.9	49.3	47.8	38.3

Fig (12): Effect of inclusion different levels of BL in lactating buffalo ration on ash yeild. g/d.

The values of ash content reported here are in accordance with those reported for Egyptian buffaloes milk by Kholif (1989) and Abo El-Nor (1991).

Results of the present study indicate that replacement of CFM nitrogen up to 60% by sun dried BL nitrogen for lactating buffalo had no negative effect neither on milk yeild nor composition. Nevertheless, increasing the replacement up to 60% of dietry nitrogen had significant increased total milk yield, fat, and protein.

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فرشة الدجاج المجففة شمسيا فى علائق الجاموس الحلاب

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لدراسة إستخدام فرشة دجاج اللحم المجففة شمسيا فى علائق الجاموس الحلاب على نتائج اللبن وتركيبه ١٠٠٠ استخدم عدد ٢٧ جاموسة فى ثلاثة مجاميع (٩ بكل مجموعة) بحيث اشتملت كل مجموعة على ثلاثة حيوانات فى كل من موسم الحليب الأول والثانى والثالث ٠
تغذت المجموعة الأولى(مجموعة المقارنة) على مخلوط العلف المركز (٧٠٪) مع دريس البرسيم وقش الأرز (٣٠٪من المادة الجافة) فى حين تغذت المجموعة الثانية والثالثة على نفس العليقة المقارنة مع إستبدال ٣٠، ٦٠٪ (على التوالى) من المواد الأزوتية لمخلوط العلف المركز بنفس الكمية من فرشة دجاج اللحم المجففة شمسيا٠
قد تم تجهيز فرشة الدجاج (قش الأرز) للتغذية بنشرها على مسطحات من البلاستيك بسمك حوالى ١٠ سم وتركها لتجف هوائيا خلال ٧أيام مع التقليب يوميا حتى تراوحت نسبة الرطوبة بها إلى ١٠-١٥٪٠
استمرت التجربة لمدة ٣٩ يوما تم فيها حلب الحيوانات ميكانيكيا واخذت عينات اللبن اولا مرة كل أسبوعين ثم مرة كل ٤ أسابيع لقياس مكونات اللبن٠
وقد أظهرت النتائج أن احتواء العليقة على٣٠٪ من فرشة الدجاج ليس له تاثير معنوى على كمية اللبن المنتجة فى حين رفع نسبة الفرشة فى العليقة إلى٦٠٪من أزوت المادة ادى إلى زيادة انتاج اللبن المنتج زيادة معنوية ٠
كما أظهرت النتائج ايضا وجود تأثيرات معنوية للمعاملات المختلفة على انتاج اللبن وتركيبه وكذلك لمواسم الحليب والتداخلات بينهم ٠
وأوضحت النتائج أن تغذية الجاموس الحلاب على عليقة بها٣٠٪ من فرشة دجاج اللحم لم يكن لها أى تأثير سالب على كمية الدهن المنتجة فى حين ارتفاع نسبة الفرشة فى العليقة ادى إلى زيادة معنوية فى انتاج الدهن والبروتين واللاكتوز ٠