

SURVEY ON MILK YIELD AND COMPOSITION IN AZERI BUFFALOES OF NORTHWEST OF IRAN

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ABSTRACT

The aim of present study was investigate on milk yield and composition in Azeri buffaloes of northwest of Iran. The milk production of 30 herds of Azeri buffaloes maintained at eastern Azerbaijan province, Iran, was determined for two continuous years 2010-2011. Also, the parity (up to 4th), daily milk yield of buffaloes and protein or fat percentages were recorded. The mean values for fat and protein percentages were compared with similar measures of khuzestani buffaloes (another population on Iranian buffaloes) via t-test. As results, parity of Azeri buffaloes was not affect milk yield, fat or protein percentages of milk. Based on present comparison, among Iranian populations of buffalo, the milk yield and protein of Azeri population of buffalo is less than in Khuzestani buffaloes, but milk fat of Azeri buffaloes is more than in Khuzestani.

KEY WORDS: lactation, milk yield, milk composition, parity.

INTRODUCTION

Buffalo is most important livestock after cow and sheep, when the world livestock population is considered. The world population of domestic buffaloes, *Bubalus bubalis* is estimated about 180.70 million; 96.4% are in Asia and 74.81% are in south west Asia (FAO, 2010). Buffaloes are important genetic resource for meat and milk production in southern and south eastern Asia. Buffalo milk is significantly lower in cholesterol and higher in calcium and natural antioxidant (such as tocopherol) than cows, sheeps or goats milks (Anonymous, 2012). A characteristic of buffalo milk is the very high fat content and the fat to protein ratio is about 2 : 1 (Tripaldi *et al*, 1997). Azeri population of buffaloes was distributed in Azerbaijan republic (Farajev and Bashirov, 2002) and northwest region of Iran (Mohsenpour Azary *et al.*, 2007). Farajev and Bashirov, (2002) had recorded 300000 buffaloes in Azerbaijan, including 140000 female buffaloes with an average milking rate of around 1200-1600 kg (eight to ten percent fat content).but, there was two recorded Iranian population for buffaloes, according to FAO (Food and Agriculture Organization of the United Nations) report (Borghese, 2005; Ghanemi, 1998) [Table1].

In the 1930s, there were 1500000 buffaloes in Iran. By 1995 this number had decreased to 500000. It is clear that buffalo is a native animal of Iran, with over 80 percent of its population concentrated in the north and north-west (Azeri buffaloes) and 18 percent in the south of the country (Khuzestani buffaloes). In Iran it is proposed that official neglect and pro-Holstein propaganda have caused a considerable decrease in buffalo population in recent decades (Mohsenpour Azary *et al.*, 2004). Ninty nine percent of Iranian buffalo farming is based on smallholders (Kianzad, 2000).

Table1. Milk production of buffaloes in Iran*

Population	Khuzestani	Azeri
Lactation period (days)	210	210
Milk yield (kg/year)	1865	1200

*Borghese (2005) and Ghanemi (1998).

The first published study on milk productivity of Azeri population of Iran's buffaloes was conducted at twenty four years ago (Ghanemi, 1998). But numerous studies on Iranian buffaloes and their productivity were conducted by Sanjabi *et al.*, (2009), Baharizade and Vaez Torshiz, (2011), Toopchi Khosroshahi *et al.* (2011), Taheri Dezfuli *et al* (2011), Baharizadeh (2012). The aim of present study was investigate on milk yield and composition in Azeri buffaloes at northwest of Iran.

MATERIALS AND METHODS

Data recorded on milk production of 30 herds of Azeri buffaloes maintained at eastern Azerbaijan province, Iran, for two continuous years 2010-2011. The parity (up to 4th) of buffaloes, daily milk yield and protein and fat percentages were recorded. The Milkometer[®] instrument was used for determination of milk fat and protein percentages. Measures were compared based on parity of buffaloes. The mean values for fat and protein percentages were compared with similar measures of Khuzestani buffaloes (another population on Iranian buffaloes).

Statistical analysis

The influence of parity on milk yield and composition was examined by comparison of parities by Duncan's Multiple Range Test (P<0.05).

RESULTS AND DISCUSSION

Effect of parity

In the table 2, there was not any significant effect of parity on milk yield, fat or protein percentages ($P < 0.05$), although the fat and protein of buffaloes in first parity were somewhat more than multiparous Azeri buffaloes (2nd - 4th parities).

Table2. Milk yield, fat and protein percentages of Azeri buffaloes on North West of Iran

Parity	Milk yield (kg)/ year	Mean daily milk yield (kg)	Fat (%)	Protein (%)
First	1210	6.00	8.00	3.63
Second	1240	4.83	7.04	3.41
Third	1259	6.67	7.52	3.24
Fourth	1279	5.33	7.02	3.18
P value	0.1021	0.3148	0.3636	0.2529
Significance	ns	ns	ns	ns

- ns: not significant

Studies on Murrah buffaloes showed that Buffaloes in first parity produced less quantity of milk with low fat and total solids content (Sarkar *et al.* 2006). Chaudhry (1992) had found a significant effect of parity on milk production and lactation length in Nili-Ravi buffaloes. But, Hussain *et al.* (2006) had stated that effect of parity on the milk production trait of Ravi buffaloes is not significant. Also, Das and Balaine (1985) had reported that parity couldn't affect milk production traits such as lactation length. Present findings (table 2) for milk yield and composition of Azeri buffaloes are according to Hussain *et al.* (2006) and in agreement with Das and Balaine (1985) that had studies on Indian buffaloes. Pawar *et al.* (2012) had stated that total milk yield of Murrah buffalo was lower in first parity and highest in fifth parity. Our finding for milk yield (table1) has similar trend, although the differences between milk yields of parities are not significant.

Comparison with Khuzestani buffaloes

Mean fat and protein percentages of Azeri buffalo milk were 7.39 and 3.36, respectively, whereas these measures for Khuzestani buffaloes (Baharizadeh, 2012) are 6.29 and 4.19 % (Figure1).

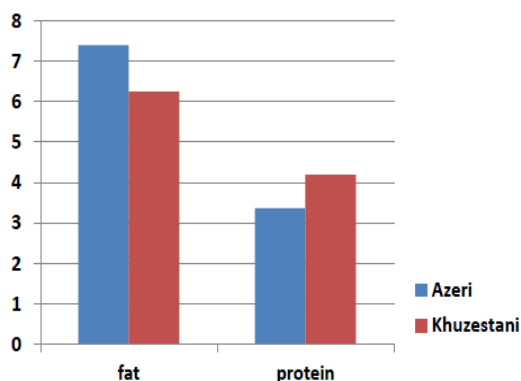


Figure1. Comparison of milk fat and protein (%) for two Iranian populations of buffaloes (Azeri and Khuzestani*) * Baharizadeh, (2012)

Comparison between Azeri and Khuzestani buffaloes shows that milk yield and protein percentage for Khuzestani buffaloes are more than in Azeri buffaloes, where fat percentage of Azeri buffalo milk is considerable more. It can be concluded that parity of Azeri buffaloes was not affect milk yield, fat or protein percentages of milk. Among Iranian populations of buffalo, based on present comparison, the milk yield and protein of Azeri population of buffalo is less than in Khuzestani buffaloes, but milk fat of Azeri buffaloes is more than in Khuzestani.

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