



# MILK Urea Nitrogen(MUN) As Tool To Asses The Nutritional Status Of Buffaloes In Iran

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# Introduction

- ◉ Convert low quality noncompetitive feed sources into high quality protein for human consumption
- ◉ Adequate Protein and Energy nutrition supply
- ◉ Higher demands for milk protein
- ◉ Decreasing of environmental N emissions and pollution

- ◉ Economical profitability
- ◉ Urgent need for on farm diagnostic to monitor the adequacy of protein feeding
- ◉ Milk Urea Nitrogen (MUN) used as a management tool to improve dairy herd nutrition



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# MUN As a Tool Of Management:

- ⦿ Milk urea nitrogen used as a signal or “red flag” In feeding program.
- ⦿ High MUN= excessive dietary cp or low degradable NFC
- ⦿ MUN testing In feeding management program can following results:



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1. Precisely meeting nutritional requirements
2. Lower feed costs
3. Identify over feeding and underfeeding
4. Increased reproductive performance
5. Increased milk protein yield
6. Minimizing nitrogen excretion



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- Asia has the most population buffalo in the world (97.2%) (Sarhaddi et al., 2006)
- The buffalo is a native animal of Iran.
- North and north-west (Azerbaijan Province) is the greatest zone of buffalo breeds in Iran
- Buffalo breeding in Iran is the most of under rural condition
- This study was conducted on buffalo and determining of their MUN





## Method

### Collection milk samples

- ✚ The province was divided to three region:  
North, central and south
- ✚ Milk sampling was done for 3 month
- ✚ Each month : morning and evening
- ✚ Milk samples were collected from milk tank





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- ✚ The MUN was estimated by enzymatic kits (De Jong et al, 1992)
- Data were subjected to ANOVA statistical analysis and mean values compare with Duncan test



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# Results:

## MUN Values (mg/dl) In Buffaloes Milk

Region	Morning	Evening	P value
North	9.71 <sup>a</sup>	10.67 <sup>a</sup>	Ns
Centre	8.65 <sup>b</sup>	8.97 <sup>b</sup>	Ns
South	10.82 <sup>a</sup>	10.84 <sup>a</sup>	Ns

Figures with different superscripts in column differ significantly,  $P < 0.05$

- All buffaloes MUN were lower than Normal Range (12-16 mg/dl)
- Evening Samples MUN in all areas were higher than morning
- + This results may be due to the difference between feeding and sampling time
- + Buffaloes were under rural condition
- + and insufficient dietary protein



Herd average MUN: 12-18 mg/dl of milk  
Individual cow MUN : 8-25 mg/dl of milk

A low MUN (less than 12 mg/dl) indicates:

- ❖ Low crude protein in the rations
- ❖ Improper mix of rumen undegradable and rumen degradable protein and (or)
- ❖ High rumen fermentable non-fiber carbohydrate



## Conclusion:

- ◉ Testing for MUN can be useful, economical and easy tool to flag potential nutrition-related problems
- ◉ Breeding in rural condition is very different
- **And** MUN influenced also by parity, milking frequency, days in milk, season, breed, level of production and sample type



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**The End**  
**Thanks For Your Attention**