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# *Short communication*: Opportunities and contests of modern camel dairying

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## Abstract

The onset of the 21st century opened new prospects for camel milk and the sentience of camel dairies arose and was initiated practically. Many modern camel dairies (intensive camel farming) were established (especially in Arabian Peninsula) with high initial investment. Such models ensured continuous and abundant supply of milk, however this was accompanied with many challenges; primarily the incongruence of the diversity that existed (camels, teat sizes, behaviour, etc.) and the uniformity of factory farms. This study is mainly focused on the practical challenges faced by a camel dairy farm near Alain UAE. Thorough selection (fitness traits, teat sizes, machine milking ability, adaptability to intensive farming, and actual milking time etc.) and technological developments (teat cups, mastitis control, vacuum pressure, parlor design etc.) can be good tools to combat challenges of modern camel farming. Inclusive efforts are required (at all levels) to assemble scattered information (regarding modern camel dairying) and transform them into knowledge for future generations.

**Keywords**: Camel dairying, camel milk, knowledge management, climate change, food security

## Introduction

Camels were originally domesticated for milk, but later on became predominantly a means of transportation (wars, pastoral transportation, desert accessibility etc.). Milk, meat and other products or purposes were considered by-products, or additional assets (Raziq. 2015).

The onset of the automobile revolution limited the use of camels for transportation and a dark age for camels spanning from 1960 to 2000 ensued. As time passed, new options emerged to explore the potential of this unique animal. These can be grouped in three major segments.

A. Hobbies and Ecotourism (GCC, Egypt, Sahara and India)
B. Products diversification (bio paper India, table lamp Pakistan, camel jewelry Sudan, camel cashmere Mongolia etc.) and
C. Development of camel milk and its products (Shubat in Kazakhstan, Sorain in Balochistan, Camelait and Camelicious in UAE, Caravane in Mauritania etc.)

Of these three segments, the development of camel milk is of prime importance because of its quality and demand. This manuscript highlights the

challenges faced by intensive farming of camel milk.

The increased interest in camel milk caused a shift in the primary functions of camels to that of their original task (Raziq, 2015). This revolt shifted the breeding goals, mainly focusing on greater yields for longer lactation periods, easy milking, and calmness in milking parlors, fitness and dairy traits etc.

The potential high yielding camels are centering in the Arab peninsula (cradle of domestication) and from different parts of Asia and Africa. Modern camel dairy farming is emerging with highly sophisticated milking facilities and other farm machinery. Milk processing and value addition are revitalizing precious milk while attracting interest of consumers in the domestic and international markets. On the other hand, intensive farming poses many challenges too. This study focuses on the challenges of intensive camel farming and suggests ways to cope.

## Material and Methods

Three camel dairy farms were visited from time to time. The people who worked there were interviewed with an open-ended questionnaire. Questions asked were mainly of a qualitative nature. The challenges discussed in this study are the outcome of the informal discussion/interview, as well as the authors' own observations at the farms level.

## Results and Discussion

### *Challenges of Intensive Camel Farming*

All the constraints faced during the five year period (all 3 farms have existed in this period) at the farm are considered as the challenges of the intensive camel farming. Such challenges are grouped based on their intensity and volume of threat posed. The challenges are grouped into 4 major categories.

1. Constraints at farm level.
2. Milking.
3. Processing and packing.
4. Marketing and export.

| | Challenges | Constraints |
|---|---|---|
| Farm Level (general) | Walking restriction | • Obesity, especially in dry animals<br>• Comparatively slow efficiency in feed conversion to milk<br>• Lowers beauty, poor confirmation |
| | Contrast to camel behavior "from browsing to stall feeding" | • Results in mineral deficiency; camel cannot eat powdered leaves of hay<br>• Difficult to eat from manger, as camel browse on trees and bushes |
| | Health complications | • Lameness (unknown reasons)<br>• Weight loss (reason not well established)<br>• Sudden raise in body temperature<br>• Mange |

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| Farm Level (Breeding) | Naqa | • Low fertility, more empty camels<br>• Poor synchronization between milking and fertility<br>• Abortion (mineral deficiency and poor walk)<br>• Once conceived, the milk production ceases |
| | Bull | • Poor efficiency of Baeer (bull) because of continuous confinement and other reasons<br>• Selection is also problem because of long calving interval |

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| Farm Level Calf Management) | Nursing problem | One Naqa does not allow calf from other Naqa |
| | Calf death | Milk ceasing in absence of calf |
| | Calf absence | In first phase (almost 1 month after calving) milk let down is very poor in milking parlor |

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| Milking | Hardware and noise | Reluctance resulting in poor milk let down |
| | Mastitis Control | Poor mastitis control because of many reasons |
| | Teat size fitness | There is wide diversity in size and orifice diameter of teat |
| | Actual Milking Time | Different in different animals (5-15 minutes) |
| | Machine Milking Ability | Lag time, Actual Milking time, calmness etc. |

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| Processing etc. | Milk composition | Very sensitive to type of feed, season, health etc |
| | 2.5% fat (factory requirement) | Low roughages intake results in lower fats |
| | 8% SNF (factory requirement) | Many reasons, hard to maintain especially in summer |
| | Cheese, Laban, etc. | Low attraction of expats |

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| Marketing and Export | Legislative issues | Export to EU, USA and other countries |
| | Higher prices | 15 AED/liter |
| | Low desirability among young Emirates | Pepsi, Red Bull etc. are preferred |
| | Shelf life Problem | Only pasteurization which has lower shelf life |
| | More foam production in processing | Bottling is difficult |

## Conclusion

There is a paramount need for time to compile the scattered information regarding modern camel dairying and transform it into knowledge for the development of this unique profession to ensure food security in climate change scenario.

There is immense need of experience sharing, technology transfer, knowledge management and introduction of new ideas to keep modern camel dairying sustainable. I have no doubt that camels will resume their original place as a dairy animal of the dry ecosystem of the world. Camels have great potential to produce in the harsh climatic conditions without requiring extra care regarding cooling or heating systems. As such, camels would be of great benefit in the future production of milk in changing climates.

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