

# A Prospective Overview of Animal Husbandry, Milk Production, Consumption and its Marketing in Baghlan Province; Afghanistan

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**Abstract:-** The objectives of the study were to investigate problems against animal husbandry development, milk production, consumption and its marketing in Baghlan Province of Afghanistan. Therefore, totally eighty questionnaires were distributed randomly among 80 animal handlers. Interview with responsible of dairy cooperatives, dairy unions, administrative of dairy processing companies, directorate of Agriculture, Irrigation and Livestock, animal handlers and private sectors were done and founded out that there are a wide range of problems and constraints against animal husbandry development. Genetic resources problems, managerial constraints, human resources problems, lack of governmental and non-governmental services, natural and uncontrollable disasters in addition of un-facilitated institutions and low quality education are the main constrains against animal husbandry development in Baghlan province. Inexistence of reasonable market for produced milk, lack of hygienic milk and dairy products are other factors affect negatively on cattle husbandry. Dairy products used by consumers are produced 61% by indigenous and local cows and remaining 39% percent obtained from crossbreed cows. Averagely, dairy cows produce 230-days milk/lactation and 7kgs of milk per day. Existence of animal diseases, indigenous breed with low level of milk production, low price of milk in markets, lack of forage and balanced diet, high price of feed and concentrate in addition of unavailability of milk markets are the main constraints and reasons of animal husbandry development and lower milk production in Baghlan Province. Among diseases brucellosis and mastitis are the most prominent diseases in Baghlan province. Therefore, it is recommended to increase milk production in dairy cows throughout increasing genetic potentials of dairy cows by implementing programmed artificial insemination and using artificial reproductive technologies. Additionally, production of balanced diets according to the requirements of dairy cattle would alleviate hygiene of animals and subsequently improve immune systems of dairy cattle and reduces incidence of disease in the area.

**Keywords:-** Baghlan Province, Consumption, Dairy Products, Milk, Milk Marketing.

## I. INTRODUCTION

Milk is the secreted fluid of the mammary glands of female mammalian which mostly obtained throughout milking of dairy cattle [12]. Milk contains nearly all the nutrients necessary to sustain life. Since the earliest time mankind has used the milk of goats, sheep and cows as food. Today the term milk is synonyms with cow's milk [3]. Milk is a soft and watery product which contains of 87.4% water and 12.6% solid materials. As an average only 3.7% of solid materials is fat, remaining 8.9 percent of solid includes of protein (3.4%), lactose (4.8%) and minerals (0.7%) subsequently [11]. According to Par Yard [11] there are 220-million dairy cattle in the world which produces 430-million-tons of milk annually. Around 2/3 part of produced milk consumed directly as fresh or pasteurized and homogenized milk, remaining after processing consumed by human being.

Milk and dairy products are important elements for containing and improving health of human being and prevent from cardiovascular disease, cancer and other abnormal conditions which includes of diabetes and obesity [17].

Around 74 percent of Afghanistan's population are busy with agriculture and animal husbandry and 50 percent of them own dairy cattle [8]. Animal husbandry has an important value in Afghanistan. Before 1978 around 66 percent of Afghanistan's exports was agricultural products which among that plant products 50%, animal products contained 16% and wool products was 10 percent of total exports of Afghanistan [22]. According to FAO [7], 3.7 million cows, 8.8 million sheep, 12.16 million poultries, 0.42 million ducks and 0.6 million turkey exist in Afghanistan. Share of cattle, goat, camel and sheep in milk production according to 2014 report is 81.58, 6.52, 0.46 and 11.4 percent respectively. Cattle is mostly reared for milk production [22]. Additionally; Cattle, sheep and horse are mostly in northern provinces, poultries in central provinces, buffaloes in Hilmand province and yak are more in Badakhshan than other provinces of Afghanistan. Nomads are owners of 74.6 percent of sheep, 52 percent of goat and 1 percent of dairy cattle in Afghanistan. Sheep is reared for meat, wool and milk. Majority of Afghanistan's population

are busy with agriculture and animal husbandry which 53 percent of national income is related to agriculture and animal husbandry products and half of these is related animal products, but still scarcity of human food exists and annually around 50000-ton milk powder imported to Afghanistan [24].

Afghanistan's dairy cattle are Kunari, Kandahari and Sistani which are indigenous and cannot produce enough milk to meet the requirements of people. Cattle husbandry in Afghanistan is mostly done by family as livelihood and its improvement changes nutritional situation of families, increase incomes of handler and women and change them to active persons of the society [18].

Population density in the cities of Afghanistan is increasing and demand for milk and dairy products is high; the only way to meet the requirement is improvement of dairy husbandry and milk production [23]. Improvement of dairy and dairy products in rural area improve economy of farmers, therefore processing and marketing is very valuable and important [13].

Annual milk consumption per person should be 150 liters/year while this amount in Asian countries is 95 liters/person. Consumptions of milk and dairy products in many Asian and African countries are lower than American and European countries (Tisimia and Marcus, 2009). Average milk and dairy consumption in developing countries are 50-60kgs while in developed regions of the world annual milk consumption/person/year exceeds 280 kilograms (Idres and Watan Khah, 1998).

Therefore, it is necessary to intensify milk production and subsequently dairy products to supply enough nutritious, high quality and processed food for human consumption in Afghanistan. Understanding of required food, milk and dairy products without a clear information about situation of animal husbandry, milk production and its consumption is seems to be impossible. In this case the objectives of the study were to find out constraints and problems against animal husbandry development, assess milk production and consumption in the purpose of resolving the problems in future and meet the requirements of growing populations of cities as well as urban areas of the country.

## II. MATERIALS AND METHODS

The research conducted in Central Baghlan and Pol-e Khumri districts of Baghlan Province which has better facilities and accessibility to milk and dairy products equipment. The system used for data collection was a multi stage random sampling method. Totally 80 questionnaires were distributed randomly among animal handlers which 40 of them had membership of Dairy Cooperatives and remaining 40 had not membership of any Dairy Unions or Dairy Cooperatives (Table.1) Interview with administrative of animal husbandry, animal handlers, cooperative members, processing factories' responsible, dairy union's chief and directorate of agriculture, irrigation and livestock of Baghlan Province, governmental and non-governmental organizations (NGOs) and private sectors was done. Additionally; direct observation from situation of animal husbandry system of animal handlers was done.

Table.1: description of research area included in the research

No.	District	Geographic Situation	Village	Village Situation	Number of Families
1	Pol-e Khumri	Center of Baghlan Province	Zaman khil	North	6
			Band-e Do	Band-e Do	7
			Transport Bonder	South-East	6
			Gaw Sawara	North- west	8
			600 kuti	West	6
			Hossain Khil	North	6
2	Central Baghlan	North-east	Sarak 2 Fabrika	North	7
			Baba Nazar	South	7
			BB AAiena	West	6
			Polchak Ghurbandiha	South	6
			Poza-eshan	South	7
Total	2		12		80

### Statistical analysis

Data and opinion which were received throughout interview with administrative office of animal husbandry, responsible of dairy cooperatives and dairy unions, directorate of agriculture, irrigation and livestock, animal handlers, representative of dairy processing companies were divided into groups to clarify their response according to the questionnaires. Following questionnaire distributed in research area and after receiving analyzed according to the response of targeted people in the area.

## III. RESULTS

### A. Constraints against animal husbandry development

Several factors exist in the research area which need resolution to bring development and improvement in the area of animal husbandry and dairy production. The following six factors are summarized according to the types of problems and constrains exist in Baghlan Province and research area.

### 1- Genetic resource problems

Breeds of animals that animal handlers mostly rear in the research area are indigenous and their potential for producing enough milk for consumption of local consumers and families are very low. Therefore, most producer and animal handlers keeps dairy cattle and other domestic animals only for household requirements as livelihood. The process of genetic reformation and animal breeding pace is very slowly. Any animal breeding center and genetic resources conservation is not existing and biotechnology of animal reproduction is not used efficiently. Although, some activities by directorate of agriculture, irrigation and livestock and Agha Khan Foundation (AKF) in the area was done but the result is not very satisfactory and still there is no dairy cattle with potentially higher level of production. A few cases of fourth and fifth generation of Jersey and Holstein reported which their availability are limited to the owners in remote villages (Andarabha) and their availability for using in the purpose of further improvement and breeding is impossible.

### 2- Managerial problems

There is not proper and accurate management of animals in the area. Most animals cannot receive enough feed to sustain life, hay and straw are the most common feed supplemented for the dairy cattle during winter, fall and summer. Just in some areas dairy cattle and other animals during spring season have access to fresh forages come from pasture or receive through rangelands. Graduated students and most businessmen/women are not eager to invest in animal husbandry and related opportunities such production, storage and processing, marketing and merchandising of animal products. Scarcity of water in rangelands and lack of drinking water has increased problems of animal rearing and decreased productivity and reproductive performance of all dairy and other domestic animals.

### 3- Human resource problems

Skillful, experienced and well-educated veterinarian to diagnose, treat and do sanitation is not existing. Experts of feed, feeding and animal nutritionist to formulate the feed according to the physiological requirement of animals are unavailable. Moreover, laboratory specialist, technician and trained managers are not existing. Animal handler's knowledge are insufficient and do not understand management strategies for improving productivity of animals, sanitation, hygiene, quarantine and other required management skills. Most animals just receive feed for maintenance, therefore supplemented feed cannot meet their requirement for growth, reproduction and production and resulted low productivity and fertility of animals.

### 4- Governmental and non-governmental services problems

Although since 2001 and after collapse of Taliban regime billions dollar international aids descended to Afghanistan but the government could not use it efficiently for development and improvement of agriculture and animal husbandry. Infrastructures for genetic improvement and animal breeding were not established. Reproductive technologies such as Embryo Transfer (ET), Artificial Insemination (AI), Sexed Semen, Intracytoplasmic Sperm

Injection (ICSI) and In-vitro Fertilization (IVF) were not used. Non-governmental organizations (NGOs) and even FAO, World Bank, WFP and other international organizations also just surveyed the number of animals in Afghanistan and did not supported the country to have sustainable agriculture and animal husbandry to improve genetic potentials of animals for milk, meat, egg and fish. As a result, the animal husbandry of Afghanistan remained traditionally and unimproved.

### 5- Natural and uncontrollable disasters problems

Traditionally the animal rearing system in most areas are depending on rangeland's and grassland's forages which is completely depending on the amount of annual precipitation. If the amount of rainfall is enough availability of forages would satisfy the requirement of animal but if the rainfall during spring and winter decreases, animal husbandry and most especially sheep and goat rearing will fall down suddenly. Unfortunately, during years of conflict and during recent decades deforestation and desertification intensified and caused land degradation and soil erosion in the mountainous areas. The land is bared and plants, shrubs and trees are disappeared. Therefore, during warm seasons of the year's rainfall cause catastrophic flooding which reduces availability of feed for animals and human consumption.

In addition of natural disasters on going conflict between government and opposite groups, armed people, irresponsible armed groups are the main constraints against animal husbandry development and reduced the eagerness of investment in research area.

### 6- Lack of higher education development and institutional problems.

The ministry of higher education just increased the number of faculties and institutions related to agriculture, animal science and veterinary but there is not any laboratory, research center, experimental farm or equipment for practical subjects. Therefore, student graduate from universities without beneficial skills, knowledge and experiences to take part in animal husbandry development. As a result of low quality education after two decades of effort and attempt still there is no skillful expert to pay especial attention on expertizing graduated students. Some others with enough ability are leaving country as a result of ongoing conflict and inexistence of life insurance.

### *B. Milk production and consumption*

Indigenous dairy cattle and traditional animal husbandry system are the main characteristics of animal husbandry especially cattle husbandry (dairy and beef) in Baghlan province. Average, Maximum and minimum dairy cattle per families are 2.3, 8 and 1 dairy cattle respectively. Every individual dairy cattle produce 7kg of milk per day which in 24 hours' total milk production is 689kg.

Totally in a day 1242kg of milk produced by animal handlers in research area which 331.5 consumed by themselves and additional 929kg of surplus milk sold to dairy processing factories. As an average dairy producers

receives 24 Afghani (Afghanistan currency=Afg.) for every liters of milk. Minimum and maximum payment milk producers receive per every liter of milk are 18-45 Afghani (Table.2). Total incomes of dairy producers in a year is near

to 5 million Afghni in Baghlan Province which the incomes of families differ according to the daily milk production and average money they receive for produced and sold milks in processing centers.

Table 2: summary statistics of milk production and consumption in Baghlan Province.

No.	Items	Total	Average	Max	Min
1	Dairy cattle	189	2.3	8	1
2	Milk Pro/24hours per families (kg)	689	7	15	2
3	Total Milk Pro/24 hours (kg)	1242	12	70	7
4	Milk Consumption/Fa/24 hours (kg)	331.5	4	15	0.5
5	Surplus Milk/Family in 24 hours (kg)	929	12	90	1.5
6	Milk Price/kg (Afghani)		24	45	18
7	Incomes of Families in 1 lactation Period (Afghani=Afg*.)	4935187 Afg.	61690 Afg.	495000 Afg.	5670 Afg.

\*Afghani=Afg.=currency of Afghanistan

C. Incidence of Diseases

The most prominent disease in the research area was Foot and Mouth Disease (FMD) which contains 45% of all diseases and abnormalities occurs in research area. Following to FMD, brucellosis and mastitis are other diseases which includes 20 percent and 15 percent of incidence respectively and cause milk reduction and economic loses for animal handlers and dairy producers. Other diseases include of Bovine Ephemeral Virus, external and internal parasites (Fig.1). Additionally, because brucellosis is a zoonosis disease it threatens the health issues of consumers. There is not enough knowledge about diseases and especially zoonosis among animal handlers to pay attention on hygiene of milk and dispose contaminated milk. Furthermore, booklet, guidance and instruction file for animal handlers and dairy producers are not exist and it would increase incidence of zoonosis in research area as well as among households and consumers which depends on internal milk and dairy products as source of income and nutritious food to sustain life and support internal productions.

D. Preference of consumers

Eagerness to consuming and purchasing internal dairy products is high in the research area (Fig.2) which contains 50 percent of all consumers and 35% of consumers buy external and imported milk and dairy products only 15 percent of milk customers do not showed preference to any type of milk (Internal or external) and buy the most available in stores and supermarkets.

High quality of milk, neutrality, clearness and feeling of cooperation for supporting animal handlers and internal producers are the main reasons of customers for consuming internal milk and dairy products. While consumers and customers of imported milk and dairy products responded that their reason for choosing externally imported milk and dairies are good processing, favorite packaging, hygienic and availability in all supermarket and store.

Milk production by goats and sheep are not very reasonable but some families depends on milk produced by goats and sheep in research area. According to Saleemi [19] there is six breeds of sheep in Afghanistan which mostly reared for breeding, meat, milk and wool production. But according to Zafar [21] cited form Yalcin’s publication (1979), there is 8 breeds of ship in Afghanistan which six of them are fat-tailed (Hazaragi, Ghiljaee, Gadic, Karakul, Baluchi and Kandahari/Herati) and two other breeds are rump tailed (Arabi and Turkey). Sheep contribute meat, milk, skin, fiber and manure to agricultural system and help to meet the country’s demand for carpet wool, ropes, bags, Kuchi’s tents, skin and meat. Because milk of sheep and goat is very low, their milk production mostly denied by researcher and producer. While sheep rearing is an important source of earning for livestock owners, and are the sole or subsidiary occupation for many small, marginal farmers and landless laborers which most of them are poor and engaged with subsistence agriculture. Additionally, length of lactation in goats and sheep are very short and cannot produce milk for longer term (Table.3).

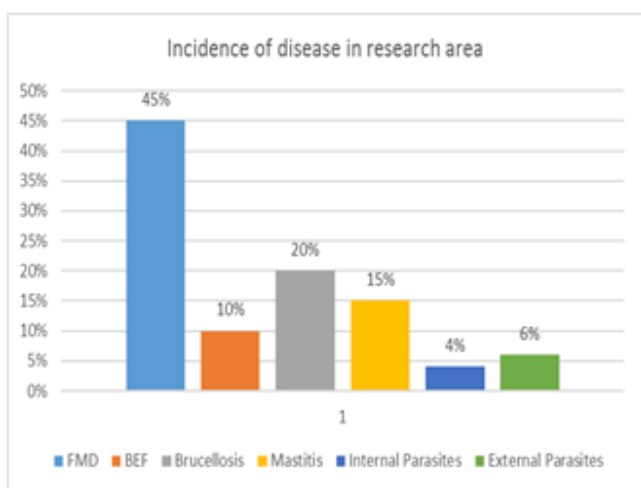


Fig.1: incidence of diseases in research area with highest occurrence of FMD and lowest internal Parasites.

In Baghlan province most shepherds own Turkey and Arabi breeds which rearing them for meat production and other breeds of sheep is not exist.

Table 3: characteristics of sheep breeds of Afghanistan with length of lactation, amount of milk production and type of breed according to their production (Saleemi, 2015).

Breeds of sheep	Length of lactation (days)	Amount of milk production/lactation (liter)	Type of breed
Qaraqul	120-130	35-45	Skin, wool
Arabi	130-140	45-55	Meat
Ghilja-e	120-130	35-45	Wool, meat
Turky	130-140	55-65	Meat
Balachi	120-130	35-40	Wool, meat
Hazaragi	120	30-35	Wool, meat

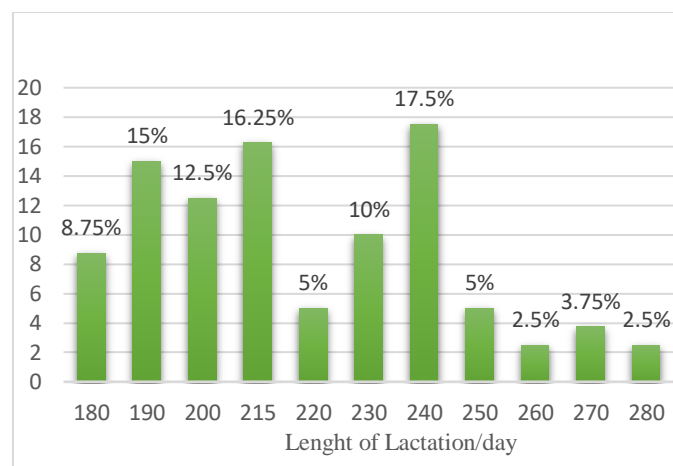


Fig.3: Length and percentage of lactation periods in dairy cattle of Baghlan province.

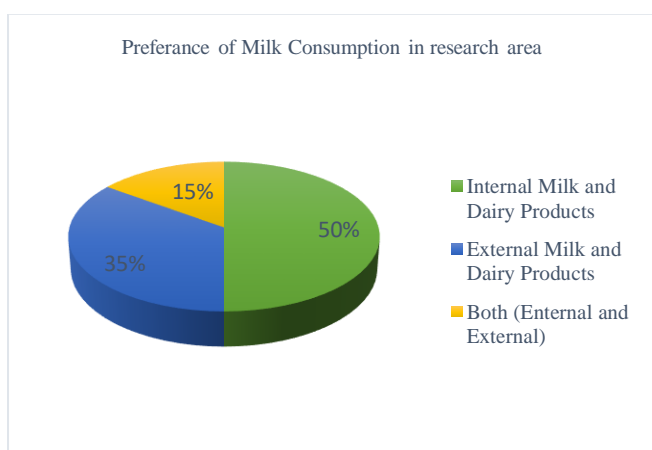


Fig.2: Preferences of consumer for consuming milk and dairy products of internal, external and both resources.

**E. Length of lactation period**

Length of lactation period in research area is varying from 180-days/lactation as minimum up to 240-days/lactation as a maximum length according to the respondents of questionnaires' in research area. The average, minimum and maximum length of lactation period/dairy cattle is 230.4545-days, 180-days and 240-days respectively. Near to 18% of dairy cattle have 240-days length of lactation and 16.25 percent of dairy cattle produce 215-days milk per lactation. While milk production in 15% of dairy cattle just continue for 190-days after parturition and 12.5 percent continue to produce milk for only 200-days per lactation. Except five percent of dairy cattle which produce 220-days and 250-days milk per lactation for each, the percentage of others are under 5% for 260, 270 and 280-days respectively (Fig.3).

**F. Availability of markets for milk and dairy products**

Accessibility to market is an important issue that can improve animal husbandry and increase productivity. Unfortunately, in Baghlan province availability of market and market place for all producers and animal handlers is not very reasonable. Dairy cattle's owners sell produced milk to local seller, local milk collectors of districts and provincial centers, then local salesmen/women distribute products to consumers. But in remote villages and mountainous areas milk collection centers and local salesmen/women is not exist, instead milk producers change milk to milk products such as ghee, butter, cheese, whey, yogurt, churned yogurt (doogh) and dried yogurt and on a reasonable time sell to customers.

According to finding of this research milk, dairy products and other by-products of animals is an important source of income for farmers in remote districts of Baghlan Province, but war, conflict, drought, diseases, weak economy of animal handlers, unavailability of market, inexistence of credit throughout government, indigenous and local breeds with low level of production caused reduction in production as well as investment in animal husbandry systems. Furthermore, low quality feeds (wheat and rice straw) during winter, fall and part of summer reduces milk production during these seasons of the year.

Seventy-three percent of animal handler do not have access to market and sell own products very cheap to local salesmen or milk collectors. Eleven per cent of producers sell own produced milk to cooperatives. only 11% of milk producer have access to market to sell milk and dairy products and 5% of produced milk is consumed by ice-cream producers (Fig.4).

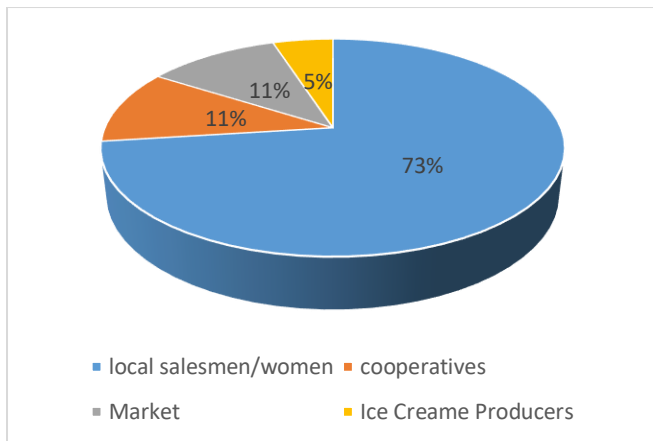


Fig.4: Availability of market for milk producers in Baghlan province.

#### IV. DISCUSSION

Annual Consumption of milk in Afghanistan is 1.55-million-ton while internal production was 1.45-million-ton, additional 10000-million-ton milk is required to import from abroad and neighboring countries. Reformation of veterinary services, nutrition, breeding and improving market places for selling milk and dairy products can solve the problem. But problems against animal husbandry development in Baghlan province is wider and need more accurate strategy and plan to meet the requirement of people.

Analytical points and categorization of the problems against animal husbandry development in Baghlan province showed six categories of problems which includes of 1- genetic resource problems (indigenous breeds with low potential of production, low fertility, low reproductive performance, and low capacity for converting feed to consumable products for human consumption, lack of data about genetic capacity of existing breeds), 2- managerial problems (inexistence of trained and well-educated person in the area of animal management, scarcity of feed, forage and concentrate, lack of available feed and concentrate for animals according to their physiological requirement, lack of knowledge and low investment eagerness in the area of animal husbandry, dairy products and milk processing among businessmen/women), 3- Human resource problems (inexistence of experienced, well-educated and skillful veterinarian to diagnose, treat and do therapy for reducing incidence of diseases, inexistence of animal nutritionist to formulate feed according to requirement of animals, lack and inexistence of technician, managers and animal pharmacist), 4-lack of governmental and nongovernmental services (lack of technology transformation for improving animal genetic resources which includes of artificial insemination=AI, in vitro fertilization=IVF, embryo transfer=ET, frozen sexed semen and other artificial reproductive technologies, lack of investment in infrastructures to increase genetic capacity and conserve existing genetic resource), 5- natural and uncontrollable problems (low level of precipitation in some area, warmth during summer and fall, ongoing conflict between opposite groups and government, trafficking, smuggling and land

degradation, disastrous floods, draught and diseases of forages and crop products) and 6- higher education and institutional problems (inexistence of laboratory, experimental farm and practical lessons for students of animal science department and veterinary faculty as well as institutes of agriculture, unavailability of teaching material and laboratory chemicals and equipment). These six mentioned category is not reported previously by any other researcher. But Zia [22] stated partially some problems categorized by researchers of this publication and reported that low level of production in developing countries is because inappropriate management, unbalanced feeding, feeding of low quality forages, and inexistence of concentrate and high quality feed are the main reasons of low production.

According to Nadim [14] and Almas [2], Problems and constraints against animal husbandry development in Baghlan province is divided into five categories which includes other findings of this research, except higher education and institutional problems.

According to Omari [15] there is an increase of 16 percent in dairy cattle during 2008, 2009, 2010 and 2011. Unfortunately, the animal husbandry and other related activity in Afghanistan and especially in Baghlan Province depend on annual precipitation and drought. If during winter season there is enough rainfall on the following year the animal husbandry, milk production, goat and sheep rearing would increase but if rainfall decreases subsequently negative impacts become obvious on all aspects of animal husbandry as well as incomes of families and economic of animal handlers.

Marketing, production and consumption of milk according to our finding is not reasonable. Seventy-three percent of milk producer do not have access to market and sale own milk very cheap to local consumer, this finding reported by Nadim [14] and assign that marketing, production and consumption is not improved during recent years. Only improvement done is pasteurization and caning of some amount of milk by local milk processors in Pol-e Khumri and Baghlan Dairy Factory. But still some producers produce yogurt in glass can and sell them as local retailer no wholesaler exist in the research area.

According to Nadim [14], incidence of diseases such as FMD, mastitis, anthrax and tuberculosis in Baghlan province is 34%, 23%, 15% and 10 percent respectively, while according to our finding incidence of FMD includes 45 percent of total diseases happening in the research area and shows 11 percent increase in comparison to 2019. Eight percent reduction in mastitis happened in 2021 (15%) in comparison to 2019 (23%). According to Nadim [14] incidence of rinderpest, anthrax, Gambro, tuberculosis and influenza was existing in Baghlan province which is 2021 according to finding of this research is not exist in Baghlan province, instead internal and external parasites contains 4% and sex percent of total diseases respectively.

Main reasons for prevalence of diseases according to Nadim [14] are contaminated and spoiled feeds, lack of vaccination, high temperature during summer and low temperature during winter which cause heat stress and cool stress, improper milking, inappropriate feeding, unstandardized housing and unreasonable hygiene and sanitation accordingly.

According to our finding in this research preference of consumers is very high and consumers tend to pay for internal milk and dairy products more (50%) than imported products (35%), but consumption of internal milk and dairy products is completely related to the availability of milk and its products in the markets. According to Ministry of Agriculture, Irrigation and Livestock cited from CSO [10] Afghanistan import 62.72 million kg milk and dairy products (US\$62.98 million) from Pakistan (58%), Iran (12%), Ireland (6%), Uzbekistan (5%), India (4%) and other abroad countries (15%). When internal products is not available consumers are compelled to consume imported milk and dairy products.

Dairy cows in Baghlan Province produce 7kg of milk per day and their lactation period averagely continue until 230-days according to finding of our research. While in some other provinces of Afghanistan the situation of milk production is worst than Baghlan. According to Charkhi [4] minimum and maximum milk produced by local and crossbreed dairies in Logar province is 6kg and 10kg respectively and minimum length for lactation is reported 180-days/dairy cattle, while maximum length of lactation in the same province is not reported.

According to Akbary [1], daily milk production in dairy cattle's of Kapisa province 3.5kg and the length of lactation as an average is 200-days. Finding of this research in comparison to milk produced by dairy cattle in Logar and Kapisa Provinces is better and improved.

According to Dunkley and Pelissier [5] today's many dairy breeds in developed countries is reformed, their adaptation and consistency to environment differs completely. Dairy cattle rearing by animal handlers in Baghlan and other area is not reformed but their adaptation and consistency to the environmental condition and harsh climate of areas is very well.

## V. CONCLUSION

A wide range of problems and constraints exist against animal husbandry development in Baghlan Province. (1) Genetic resource problems, (2) managerial problems, (3) human resources problems, (4) governmental and NGOs services problems, (5) natural and uncontrollable disasters and (6) higher education and institutional problems are the most prominent problems and needs improvement and resolution ways for animal husbandry development. Average milk production per dairy cattle in Baghlan province is 7kg and most dairy cattle produce 5 kg of milk/day. Average milk consumption by every individual person in Baghlan Province is 300-400 gr per day. milk

producer which are animal handlers and dairy cattle owners sell surplus milk to dairy cooperatives and milk processing centers. The amount paid for every kilogram of milk is 24 Afghanis, poor families sell more milk to receive more cash for supplying other requirements of live, therefore, consume less amount of milk in the families. Length of lactation differ completely because dairy cattle are indigenous and their management, feeding, breeds and environmental condition is different. Maximum and minimum length of lactation in dairy cattle is 280 and 180-days respectively but as an average the length of lactation is 230 days. Preference and eagerness for consuming local milk and dairy products is very good (50%), but still 35% of consumers prefer to buy imported milk and dairy product, remaining 15% do not prefer source of milk and dairy products (internal or external) and just pay attention on price and says cheaper is better. Markets for produced milk is not existing and most dairy producer sell own milk very cheap to local consumers.

## RECOMMENDATIONS

Animal husbandry in Baghlan Province is completely traditional and mostly animal handlers own indigenous breeds of animals which their genetic capacity for producing meat, milk and other products is very low, in this case it is recommended to establish animal breeding center and intensify reformation of breeds throughout Artificial Insemination (AI), Embryo Transfer (ET), sexed semen and other reproductive technologies.

Management of water resources and controlling surface waters of Afghanistan can sustain and irrigate rangelands, pastures and grasslands to produce enough feed for grazing and improve extensive sheep and goat rearing. Therefore, Ministry of Agriculture, Irrigation and Livestock (MAIL) with coordination and cooperation of Ministry of Rural Rehabilitation and Development (MRRD) and National Water Affairs Regulation Authority (NWARA) efficiently manage water resources for improvement and sustainable development of agriculture and animal husbandry which subsequently increase availability of feed for animals and decrease scarcity of forages.

Graduated students and even most professors and lecturers of universities and institutions of Agriculture, animal science and veterinary do not have enough knowledge about treatment and diagnosis of diseases, therefore Ministry of Higher Education (MoHE) and Ministry of Education (MoE) should improve infrastructures in Agriculture Faculties and Institutions throughout constructing experimental farms and equipped laboratories to increase practical lesson for student and research opportunities for lecturers and professors.

Animal handler are poor people, they cannot expand animal husbandry system and change traditional animal husbandry to semi-industrial and industrial system, if the government support them through giving credit and loan as well as insurance, they would develop and expand animal rearing systems.

### ACKNOWLEDGMENT

The Directorship of Agriculture, Irrigation and Livestock of Baghlan Province, dairy unions and cooperative's members in addition of Baghlan Dairy Factory cooperated kindly and supported researchers in the area of data collection and shared own opinions patiently, therefore, their cooperation warmly welcomed and greatly appreciated.

### REFERENCES

- [1]. Akbary, N. M. "Milk Production and its Marketing in Kapisa Province," Master's Thesis, Kabul University, 2016, pp.55-68
- [2]. Almas, M. M. "Constraints and problems against animaml hubadry deveopment in Baghlan Province," Scientific conference, Baghlan University, 2020.
- [3]. Belitz, Hans Dieter, Grosch Werner and Peter Schieberle," Food Chemistry, Milk and Dairy Products," 2014, p.495
- [4]. Charkhi, Wahidullah. "Situation of Milk Production and availability of Production Factors in Logar Province," Master's Thesis, Kabul University, 2016, pp.49-75
- [5]. Dunkley, W.L. and C.L. Pelissier. "Relashionship of United States dairy industries to . dairy. Internationally," J. Dairy Science, 1981, p.35
- [6]. FAO. "Final Report, Afghanistan National Livestock Census," Food and Agricultural Organization of the United Nations, 2003, pp.9-156
- [7]. FAO. "Final Report, Afghanistan National Livestock Census," Food and Agricultural Organization of the United Nations, 2006, pp.9-155
- [8]. FAO. "Final Report, Afghanistan National Livestock Census," Food and Agricultural Organization of the United Nations, 2007, pp.7-167
- [9]. Idres, M. A. and Mahmood Watan Khah. "Genetic and Breeding in Dairy Cattle," Arkan Publisher, Tehran, Iran, 1998, p.15
- [10]. Ministry of Agriculture, Irrigation and Livestock. "Request for expresions of intrest," Minitry of Agriculture, Irrigation and Livestock, Afghanistan, 2020, p.1
- [11]. Millar, Gregory, Judith, Lois. "Hand books of Dairy foods and nutrition," National dairy council, nd, p.1-2
- [12]. Morady, Abdul, Ghafor. "Effective Methods for Consumption of Milk and Dairy Products in Afghanistan," Scientific Journal of Kabul University, No.3, 2015, p.135
- [13]. Morady, Abdul, Ghafor. "Improvement and Development of Cattle Husbandry in Rural area and Its Effect on Food Safety," Scientific Journal of Kabul University, No.3, 2014, p.205
- [14]. Nadim, Ali, Riza. "Present situation of cattle husbandry in Baghlan Province," Origanl publication for Juonior Assistancy, Baghlan University, 2019, pp.10-36
- [15]. Omary, Aminullah. "Production and Marketing of Milk in Maidan Wardak Province," Master's Thesis, Kabul university, 2015, pp.23-25
- [16]. Par, Yard, Ali. "). Milking in Dairy Farms," Tehran, Iran, 2007, pp.17-142
- [17]. Pereira, P.C. "Milk nutritional composition and its role in human health. Nutrition," PMID, 2014, pp.619-627
- [18]. Rashiq, Mohammad, Hassan. "Dairy Cattle Husbandry," textbook for Master's program of Kabul University, 2015, pp.87-113
- [19]. Saleemi, Fazl, Hamed. "Analyzing of Production and Marketing of Milk in Kabul City," Master's Thesis, Kabul University, 2015, pp.5-90
- [20]. Tisimia, A.B.B. and Marcus Tibu. "Milk Processing Technologies for local Milk producer, Technical Information," ICARDA, No.3, 2009, p.1
- [21]. Zafar, Mustafa. "First Draft Country Report on the Status and Perspectives of the Animal Genetic Resources Development and Conservation in Islamic Republic of Afghanistan," National Livestock production field officer, FAO, Afghanistan, pp.31-34
- [22]. Zia, Ziauddin and Abdul Ghafor Morady. "). Introductory Animal Husbandry, Chap.6, Anatomy of Mammary Glands and Milk Secretion," , Naamani Publishing Company, Kabul, Afghanistan, 2019, pp.95-106
- [23]. Zia, Ziauddin. "Animal Nutrition, Chap.12, Physiological Steps of Animal Products" Naamani Publishing Company, Kabul, Afghanistan, 2015, pp. 168-174
- [24]. Zia, Ziauddin. "Dairy Products, Chap.1, Inroduction to the Dairy Products Histroy," Sayed Hasibullah Publishing Company, Kabul, Afghanistan, 2016. pp.5-33.