

## PRELIMINARY EVALUATION OF THE CURRENT GENERATION, BREEDING AND MILK PRELIMINARY OF DAIRY COWS IN BAGHLAN PROVINCE, AFGHANISTAN

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### ABSTRACT

**Background:** Dairy cattle is a major part of agriculture in Baghlan province. Farmers breed dairy cows as per classic methods without any science-based intervention which results in inefficient and ineffective dairy productions. The present study aiming to investigate the present status, progress, and the future of such classic husbandry practices.

**Materials and Methods:** This study undertaken at Baghlan province, 54 villages of two animal-enriched districts including Baghlan-e-Markazi and Pol-e-Khumri. The research method was qualitative in which, relevant questionnaire was designed and distributed to randomly to 390 farmers with tolerance of 5% error. Data were recorded on percent of females participating in dairy cows nurture, the experience of farmers with dairy cows nurture, breeding method of dairy cows in the targeted area, type and percent of artificial inseminations, breeding of local cows, speed of breeding process, access of farmers to milk production resources and factors that in turn motivate or threaten the dairy cows nurture. SPSS (version 26) software was used for descriptive analysis of the gathered data.

**Findings:** Results showed that the engagement of women in dairy cattle breeding is very low. In case of artificial insemination, sperm of Holstein and Brown Swiss generations is used for breeding local cows, and the access of dairy cattle breeders to the factors of production is relatively good compared to a few years ago. Based on the results of the study, it is recommended that for breeding of native cows, the sperms of Holstein Freeze and Brown Swiss strains are highly invaluable as results in good, adapted and effective breeds in Baghlan province.

**Keywords:** Breeding nurture, dairy cows, breeding, production resources and Generation reform.

## INTRODUCTION

Cattle breeding are one of the most important occupations of farmers and non-farmers in Afghanistan (Zia, 2011). Nurture dairy cows in Afghanistan is more traditional and, the level of milk production in local breeds is very low (Holland Committee, 2016). Nourishment, dairy cows are one of the people's food sources and provides employment opportunities for most rural people (Department of Animal Health, 2018). In dairy, Cows Nurture relatively constant income that can be guaranteed (Muradi, 2014). As the world's population grows, arable land available for food production will decrease to 0.5 hectares per capita, which will lead to the growth of the world's dairy industry (Haji, 2004). There are more than 800 different breeds of dairy cows in the world and rare breeds of Holstein, Jersey, Ayrshire, Guernsey Brown Swiss, Shorthorn milk, and Dion's very famous (thorn @ Clemson, edu). Also, a breed of local Afghan cattle is Kandahari, Kunari, Sistani, and local hybrids (with less production). And addition is the indigenous generation most Holstein Freeze, Brown Swiss, and Jersey breeds are strain in the country (Rahimi, 2016). And another country, milk production averages 10,000 liters per dairy cow per year (Norman et all, 2010). The number is of cows in Baghlan province has increased from 161,500 to 168,650 tons during the years 2014-2019 (Department of Agriculture of Baghlan province). As mentioned earlier, milk production in Afghanistan's local cows is much lower than in foreign breeds. On or contrary, outraces do not quickly agree with the country's environmental conditions with high milk production. Native and obtaining crossbred cows (Department of Animal Health, 2018). It is noteworthy that this problem also exists in Baghlan province, and in addition, the number of improved cattle and dairy cows in Baghlan is not known as yet aright, so the process of breeding dairy cows is slow. Hybrid breeds (the proportion of purebreds are highly resistant to adverse environmental conditions, and breeding dairy cows is not the duty of every Farmer (Tannin, 2008). And the world, breeding of dairy cows is done with Pure breeding and Crossbreeding systems, but in Afghanistan, a hybrid breeding system is often used (CARD-F Institute, 2018). Its use of crossbreeding in dairy cows has advantages such as the snuggle of different genetic traits and having economic potential in a new breed (Sorensen et all, 2008). In addition to breeding dairy cows, in the development of the dairy cattle breeding industry, farmers have access to milk production resources such as Concentrate, Roughage, artificial insemination services, spices, and animal vaccines, and a suitable breeding place (Tannin, 2008). Barriers to increasing cow's milk production include inadequate nutrition, deficiency, or even lack of

concentrate or dietary supplements. Dairy cows can use agricultural by-products (Charkhi, 2016). Our use of unusable, agricultural residues (such as wheat straw, tree leaves, etc.) in animal nutrition is a successful system to reduce feed costs (Taghavi *et al.*, 2020). Also, the presence of these products in animal nutrition balances the price of rations and improves animal production. (Britt et al., 2018). By-products for milk production also reduce the pressure on arable land (Haji, 2004). In addition to food, vaccination is one of the most useful, accessible ways to control infectious diseases in the dairy industry and all farm animals. Vaccines with, in addition to animal Health, reduce economic costs in the dairy cattle industry (Department of Animal Health, 2018). In addition, to the mentioned issues, the questions that are very important in this research are: Which breeds of dairy cows are bred in Baghlan province more, is the breeding of local cows done more than a few years ago or not? What is the purpose of farmers' access to milk production resources? What are the factors that develop the dairy cattle breeding industry in this province? Finally, the significant purpose of this study is to collect information about the development of the dairy cattle breeding industry in Baghlan province compared to a few years ago.

## MATERIALS AND METHODS

This survey was conducted in 2020 in the Baghlan Markazi and Pol-e-Khumri districts of Baghlan province within Three months (June, July, and August) and covers the Overall 56 villages in the two-county. In collecting data, farmers were randomly selected and, the staff of the Department of Agriculture was Randomly Selected, and a questionnaire was Distributed to them. In Baghlan province, the number of farmers is high, so to determine the number of samples from  $Z = 1.96$  with a 50% increase in growth in the livestock industry in recent years compared to a few years ago in Baghlan province and tolerating 5% error for 390 farmers before the questionnaire. Important parameters that were collected were: percentage of female participation in dairy Cows Nurture, the experience of dairy farmers in dairy Cows Nurture, breeding dairy cows in the research area, types of artificial insemination, breeding of local cows in the research area, process Speed of breeding, farmers' access to milk production resources and factors that develop and threaten the dairy Cows Nurture industry in the research area. The first data were analyzed in Excel software and later used by SPSS software version 26.

## RESULTS

### 1. Share of women in the dairy Cows nurture the sector

From the Figure 1, it can conclude that the share of women in the dairy nurture cows industry in Baghlan was not significant. Also, issues related to milking the milk processing to dairy products at home are the responsibility of women and for women in terms of dairy cows nurture and milk processing.

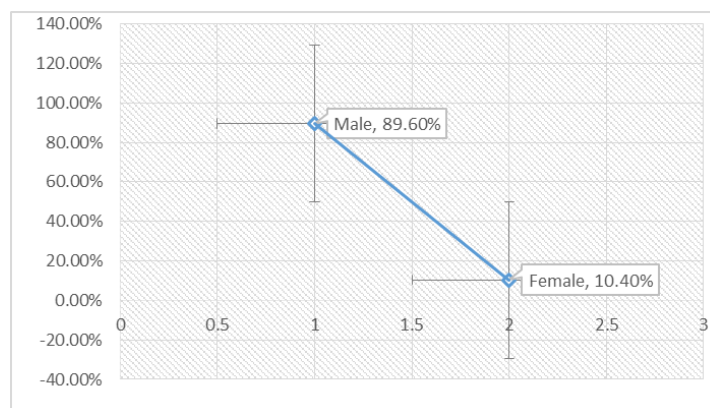


Figure 1: The share of Male (Men's) and Female (women's) in the dairy Cows industry in the research area

## 2. Livestock farmers' experience in the dairy Cows nurture industry

Findings show that in Baghlan province, the bulk of farmers have more than sixteen years of good experience in animal husbandry and, is the percentage of farmers who have less experience is much lower than those who have better Experience (Figure No. 2).

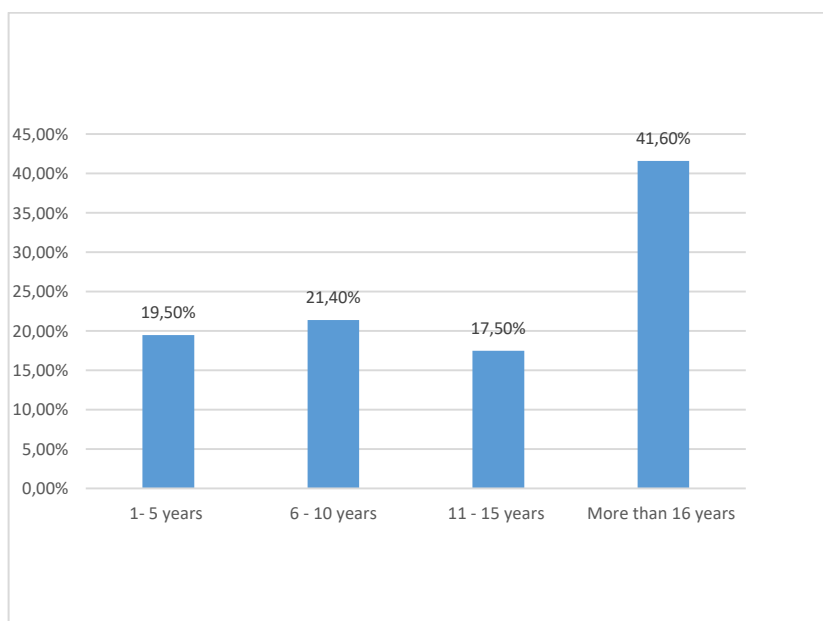


Figure 2: Livestock farmers' experience in raising dairy cows in the research area

### 3. Nurture breeds of dairy cows in Baghlan

Results showed that in research area, most farmers breed hybrid cows, and People are less interested in breeding purebreds because purebreds have low yields and xternal breeds are sensitive to environmental conditions (Figure 3).

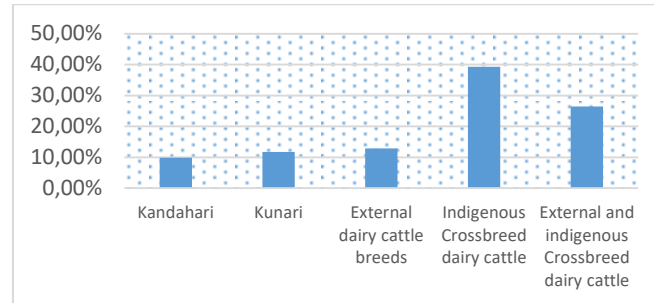


Figure 3: Percentage of breeding cows in the research area

### 4. How to Generation reform dairy cows in Baghlan province

#### A- Generation reform

Results showed that in Baghlan province, majority of farmers' own replaced the offspring of endogenous or local cows with hybrid or improved cows (breeding). And the breeding process of dairy cows in this province during 2014-2017 is (Figure 4).

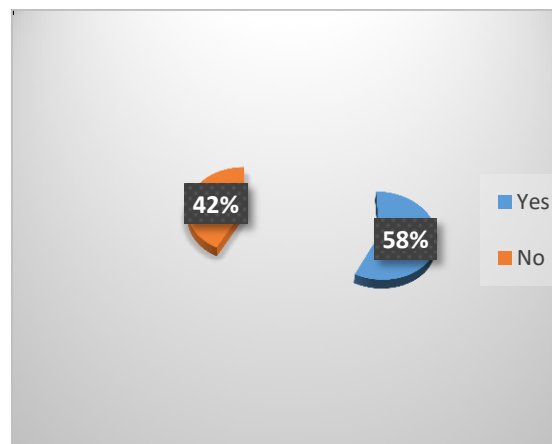


Chart 4: Percentage of ranchman (farmers) in Baghlan province who have bred dairy cows

### 5. Speed of Generation reform process of dairy cows in Baghlan province

Results showed that in Baghlan, the speed of the breeding process of dairy cows has improved compared to the past few years if more than 54% of respondents rated the speed of breeding as excellent and well. And the percentage of those who said that the breeding rate of dairy cows was poor was less than 21% (Figure 4).

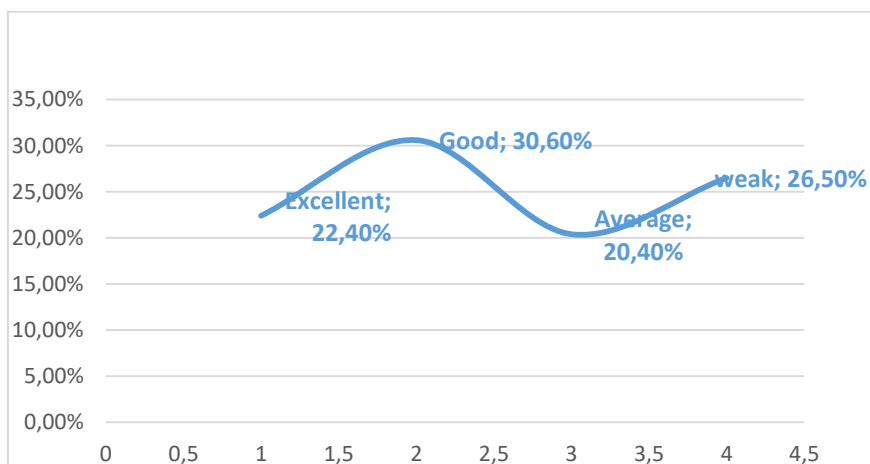
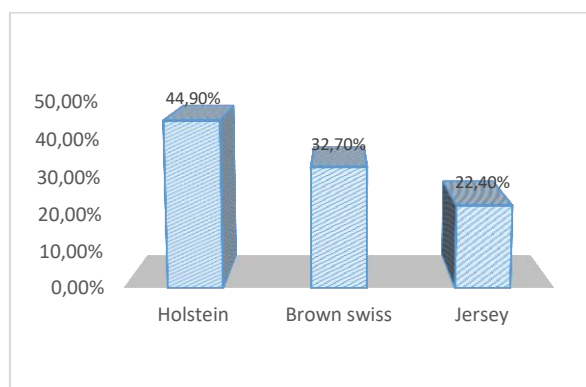


Figure 4: Percentage of the speed of the dairy generation process in the research area

## 6. Most famous Generations used to breed Indigenous cows

Results showed that in Baghlan, due to the breeding of local cows, the Holstein breed is used more, and may be due to the climatic conditions of the province, which are favorable for breeding Holstein breeds, the second most farmer's generation Kandahari breed. This generation large among the indigenous races of the country and used to generation reform more than the Holstein and Brown Swiss breeds (Figure 6).



## 7. Farmers' access to milk production factors in Baghlan province

The results show that farmers' access to concentrate is will and medium reported. But farmers 'access to roughage is a high and good report, to be noted that farmers' access to artificial insemination services, vaccines, and animal medicines is high and well-reported (Figure 6).

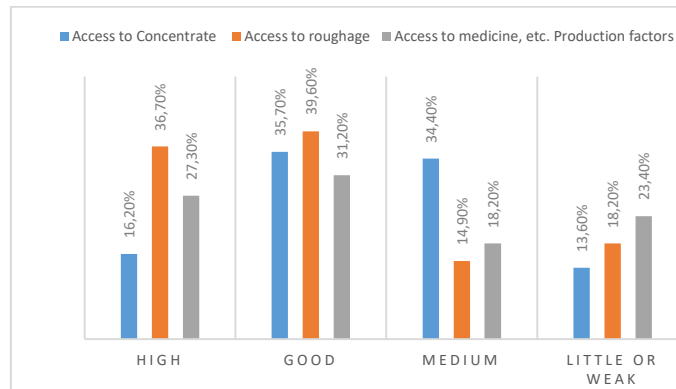


Figure 6: shows farmers' access to milk production resources in the research area

## DISCUSSION

Our results showed that the share and participation of women in dairy cows' nurture was too low. Most female activities regarding cows nurture restricted only to homes. Dairy products are not paid any special fees (money) at the family level. A 2013 study in the Rajkot district of Gujarat state found that women accounted for more than 50% of dairy cows and dairy sales (Kathiriya et al, 2013). Nurture Cows has given women jobs and, by earning income, their position at the family level will be elevated (Muradi, 2014). It reported that in the Qom province of Iran, in each rural family, about five people (both male and female) are directly and indirectly engaged in the dairy cows industry (Haji, 2004).

Our findings showed that in Baghlan province, the male farmers have more than 16 years of experience in animal husbandry. The findings of this study are consistent with the results of Charkhi (2016). According to the FAO, having enough experience in raising cows is one of the most important ways to increase dairy products. Also, in raising cows to better producers, products, various factors such as sufficient expertise and experience are good important (Domina or Iranian livestock network).

Our results showed that most farmers breed hybrid cows, and people are less interested in breeding purebreds because purebreds have low yields and external breeds are sensitive to environmental conditions (Figure 3). These results are in harmony with Charkhi findings (2016) in Logar province, the process of breeding services of Indigenous cows with external cows is Do out by different institutions, so it is more common in External crossbred (Charkhi, 2016). Results also showed that milk production and consumption of milk production factors in hybrid generations are suitable compared to pure generations. This part of the findings is consistent with Rahimi's (2016) report

if milk production in External crossbred breeds has reported on average 7500 kg in a lactation period (Rahimi, 2016). Milk production of Afghanistan's best indigenous breed averaged 7 kg in 24 hours (Zia, 2011). In hybrids, agreement with the environment is better than the External generation and, their production is better than the indigenous race (Generation) (Farhang far, 2015). In addition, hybrids are resistant to pathogens, while External breeds, especially Holstein, are very susceptible to pathogens (Charkhi, 2016). Another noteworthy point, that emerged from this research findings was that in the area covered by the study, the average number of dairy cows in each family was 3,2 According. To Naimi's finding, in (2017), the average number of cows in each livestock family in the covered area in Baghlan province. It was, reported to be 2, 44 (Naimi, 2017). The number of cows in each family in Logar is 5.7 cows (Charkhi, 2016).

Results showed that in Baghlan province, are bulk of farmers' own replaced the offspring of endogenous or local cows with hybrid or improved cows (breeding). And the breeding process of dairy cows in this province during 2014-2017 is. Similar results were reported Rahimi (2016). To improve the genetic and economic characteristics in hybridization or breeding, the selection must make carefully (Hassani et al., 2012). Without the adaptation of artificial insemination, the process of breeding dairy cows is not possible. Such results show that in Baghlan, farmers use both methods (natural and artificial methods) to inseminate their dairy cows. Meanwhile, farmers have the high cost of an artificial insemination unit and a lack of veterinarians. Experts complain. Breeding without the use of artificial insemination will be very slow (Valergakis et al. 2007). Also, the increase of livestock products is not possible without breeding (Yamchi, 2004). One of the easiest ways to increase livestock production is breeding (Rahimi, 2016). In addition, the cost of artificially inseminating dairy cows will be lower (Valergakis *et al.* 2007).

Our analysis of the data showed that in Baghlan, due to the breeding of local cows, the Holstein breed is used more, and may be due to adaptation to the climatic conditions of the province, which are favorable for breeding of Holstein breeds, the second most farmer's generation Kandahari breed. This generation large among the indigenous races of the country and used to generation reform more than the Holstein and Brown Swiss breeds. The genetic combination of Holstein and Brown Swiss with Kandahari will improve milk production in their hybrids. Replacing the entire genetic composition of a dairy breed in a dairy farm is no longer economical. And replacing a certain proportion of the genetic combination of an external generation will be effective in breeding and improving milk production (Rahimi, 2016). Is breeding of Holstein, Brown Swiss





and, Jersey generations has prevalent in Afghanistan since 1998 (Tannin, 2008)? To breed and crossbreed Indigenous cows have been used since 1975 (Rahimi, 2016).

Our findings were that the farmers' access to concentrate is will and medium reported. But farmers 'access to roughage is a high and good report, to be noted that farmers' access to artificial insemination services, vaccines, and animal medicines is high and well-reported. Regarding the access of farmers in Baghlan, to be noted that the results of this study are similar to the results of the Charkhi (2016) in Logar province, while Logar and Baghlan, farmers' access to concentrates is medium, In Afghanistan, cattle breeders use grains such as wheat, barley, corn, in the diet of dairy cows(Rahimi, 2016).The results also showed that the access of cattle breeders in Baghlan is Higher reported, which is reported differently from, the results of (2016), which is due to the large, agricultural area of Baghlan compared to Logar, By increasing the amount of forage in the diet, the amount of rumination, saliva production, and ruminal buffering capacity improves(Hajmahmoodi et al., 2018). Regarding the access of farmers to artificial insemination services, spices, and animal vaccines, it is inferred that the farmers are satisfied with their access and the result of this section is consistent with the results of Charkhi (2016) in Logar province, but farmers have to find these resources. They have to pay a lot of money, which is not in line with the charkhi Survey (2016), because in Logar province, institutions, especially the FAO, help livestock farmers to get vaccines and artificial insemination for free.The results show that the most opportunity for raising cattle in Baghlan is the objectivity of a large agricultural area where the bulk of farmers. Have better access to roughage. Every farmer is obliged to meet the nutritional needs of dairy cows to achieve more production (Amalou, 1994).The results also showed that in Baghlan, farmers are have allocated suitable areas for raising dairy cows, and in terms of location, there was no problem with dairy cows. Due to the high price of land and lack of land in Logar, there is less area than Baghlan due to high land prices and lack of land. The preparation suitable breeding ground plays a source role in the quantity and quality of animal products (Charkhi, 2016).And the main threat to the dairy industry in Baghlan in the war and security.

## CONCLUSIONS AND RECOMMENDATIONS

This study showed that women's share was small than men in dairy industry, but industry needs to be improved by contemporary breeding techniques to meet people demands. In addition, the speed of development of dairy cattle breeding in Baghlan has improved because the vast area of agricultural and rangeland lands and population growth rate in this

province is higher than neighboring provinces. But the major problem that prevented the growth of this industry was not proper, cooperation of officials Livestock and war in the area.

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