

The Impact of Climate Change on the Livestock Situation in Badghis Province during the Years 2019 - 2023

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ABSTRACT

Climate change and drought have exerted severe pressure on the livestock situation in recent years. Climate change severely affects the access and price of animal feed and has put double pressure on the livestock industry. The price of animal feed in the country has increased by nearly 7 times in the past 10 years, while the average price of animal products has increased slightly more than 4 times. A large part of the country is dry and desert, which faces severe temperature fluctuations throughout the year. Lack of water resources, population growth, and water need for different sectors of agriculture can create problems such as reducing feed materials. These climatic problems have negatively impacted the sustainable development of livestock and economic growth of Badghis and require accurate planning, investment in infrastructure, and appropriate technologies for water resource management and promotion of production of resistant products in dry-drought conditions. Drought is one of the biggest challenges that the country's agriculture and livestock development will face in the future. Therefore, considering the limitations created in the way, especially in terms of water resources, a solution should be considered, which this article is applied in terms of purpose and descriptive and analytical in terms of nature. The statistical population of this study included livestock experts and staff in the livestock and agriculture sector, 40 of whom were selected as samples. Data analysis was performed using Graph Pad Prism Version 7 (Trial) software. This article refers to important and effective cases and solutions for the growth and development of livestock according to the country's climate, and the results of this article can be used as a guide and roadmap in development policies, plans, projects, and future studies.

Keywords: Climate Changes, Drought, Livestock, Pressure, Sustainable

INTRODUCTION

Climate change is one of the major challenges that affect agricultural and livestock production. Increasing temperature, decreasing rainfall, drought, flood, storms, and diseases are some of the phenomena that occur with climate change and can reduce the performance and quality of livestock and agricultural products. According to the report of the Intergovernmental Panel on Climate Change (IPCC, 2007), the average temperature of the earth's surface will increase by 1.4 to 5.8 degrees Celsius by the end of the 21st century. This increase in temperature can cause heat stress in animals and reduce their ability to produce milk, meat, wool, and reproduction (Thornton et al, 2015). Also, climate change can limit the water and feed resources of animals and reduce the quality and quantity of forages and animal feeds (FAO, 2009). In addition, climate change can change the distribution and prevalence of diseases and pests transmitted by insects and mites (Perry et al, 2002). These diseases and pests can threaten the health of animals and increase the costs of treatment and prevention (Grace et al, 2012). The average rainfall in Afghanistan is 240 mm per year, according to the recorded statistics, this amount has also decreased in recent years, which can be attributed to reasons such as population growth and inadequate distribution, water wastage, poor management, low water productivity, climate change, illegal wells, and inefficient agriculture. In the past 50 years, more than 20 different drought phenomena have occurred in the country, and based on this, drought should be considered a common phenomenon in the country (Orang et al., 2009). Considering the existence of different climates, some areas of the country have a suitable potential for breeding and keeping animals in supplying meat and dairy products needed inside the country (Azimi et al., 2015). Naturally, plant growth and production are dependent on water and livestock survival is also dependent on plants and water. Animals need water for drinking and food sources on the one hand and food sources on the other (Fazaeli, 2009). Animal husbandry has great economic and employment importance, on the one hand, the

main population employed in livestock in rural areas and villages, and on the other hand, a large part of the urban and rural populations is directly and indirectly engaged in industries related to animal and other products (Alipour, 2012). Factors affecting the sustainability of the agricultural sector, participation in promotional classes, and the attitude index towards sustainable agriculture have a positive and significant impact on livestock sustainability (Mohammadzadeh, 2017). From the perspective of livestock owners, organizational and structural barriers are recognized as the most important barriers to the industrialization of livestock (Mirzaei and Nouri Pour, 2014). In another study in Malaysia, factors such as proper land allocation for livestock breeding, climatic conditions, logistics costs, price and access to animal feed, weak animal breeds, lack of skilled and experienced labor, lack of knowledge and information on livestock rearing, inappropriate industrial space, were identified as the most important factors affecting the growth of the Malaysian dairy industry (Faqiri et al., 2019).

MATERIALS AND METHODS

The present article, considering the importance of the subject, is of the type of important applied studies that have been done in the center of Badghis province that took 60 days in the range of time and the research of this article, scientific criteria have been observed. The statistical population consisted of agriculture, environment, and professional staff, 40 of whom were selected as samples. The data collection tool was a questionnaire. The type of questions were binary, ternary, quaternary, quinary, open-ended, and descriptive, which were in the order of (very low, low, medium, high, and very high) levels, where the very low option was based on the value of 20 percent, the low option 40 percent, the medium option 60 percent, the high option 80 percent and the very high option was worth 100 percent. and data analysis was performed using descriptive and inferential statistics such as mean, mode, and standard deviation using Graph Pad Prism Version 7 (Trial) software.

Results

The results show that most people in the region have felt climate change in different cases. 85 percent of respondents say that rainfall in the region has decreased. 74 percent of respondents say that the temperature in the region has increased and 72 percent of respondents say that the winds in the region have increased.

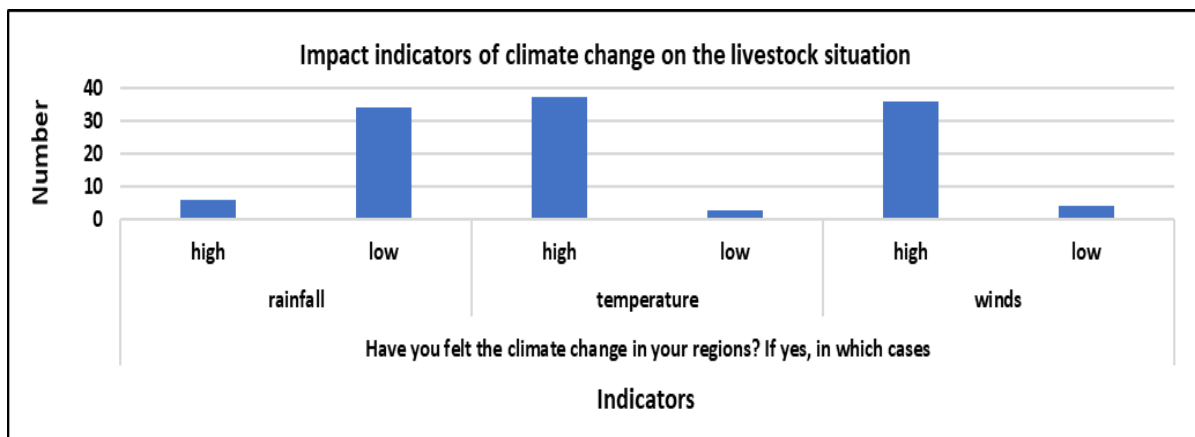


Figure 1. The level of knowledge of people's impact of climate change on the livestock situation in Badghis province

The costs of raising farm animals and the price of animal products:

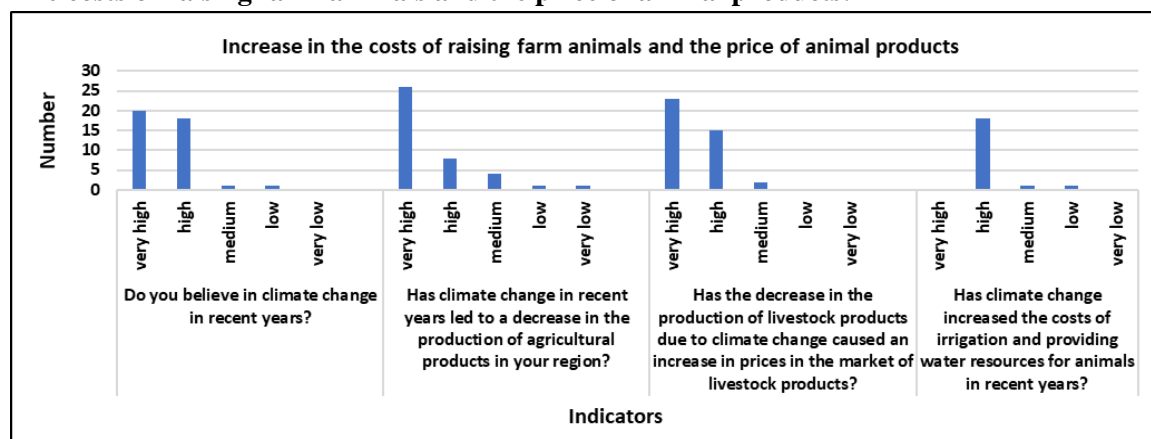


Figure 2. increase in the cost of raising farm animals and the price of animal products

The graph shows that most people in the region believe in climate change and feel its effects on agriculture and livestock. 95 percent of respondents say that climate change in recent years has led to a decrease in livestock production in the region. 95 percent of respondents say that the reduction in livestock production due to climate change has led to an increase in prices in the livestock products market. This result is consistent with reports that show that climate change has increased production costs and reduced the supply of livestock products in Badghis.

The importance of preserving climate and its impact on the quality of animal products: Most people in the region suffer from the negative effects of drought and are dissatisfied with the performance of the government and relief organizations. Some of the results that can be said are that 54 percent of respondents say that the government or relief organizations have not taken any action to help livestock owners and those affected by drought in the years that climate change has intensified. This result is consistent with the fact that drought has reduced the production of meat, milk, wool, and other livestock products in Badghis.

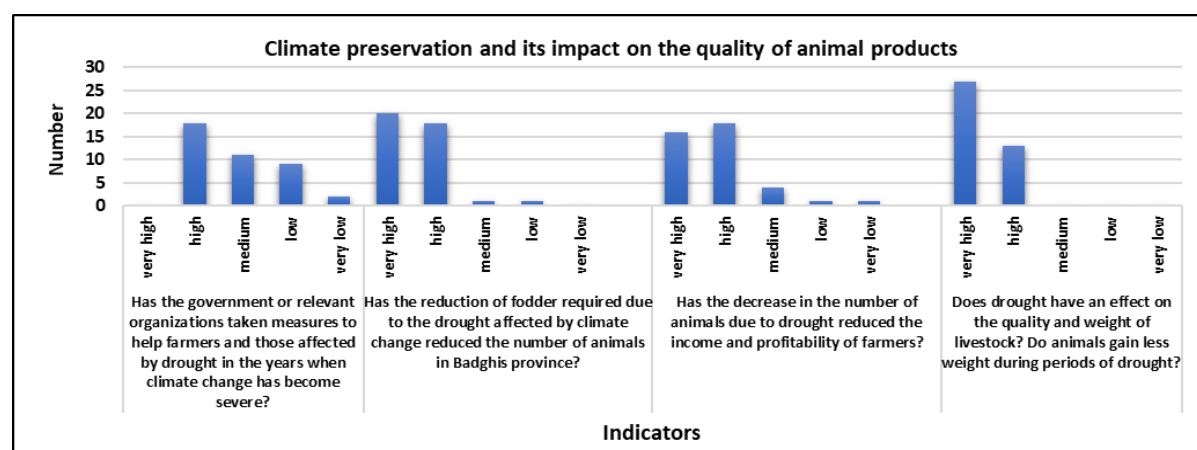


Figure 3. The importance of preserving the climate and its effect on the health and quality of animal products

Cultural and traditional preventive measures and initiatives regarding climate preservation:

The results show that most people in the region are concerned about the potential health risks associated with climate change and agree with the formulation and implementation of environmental and conservation laws and regulations that reduce climate change. 55 percent of respondents say that the formulation and implementation of environmental and conservation laws and regulations that reduce climate change is positive. 64 percent of respondents say that preserving and protecting the environment, including water, soil, forests, seas residential

areas, and wildlife habitats, reducing air pollution, and conserving natural resources can help reduce climate change.

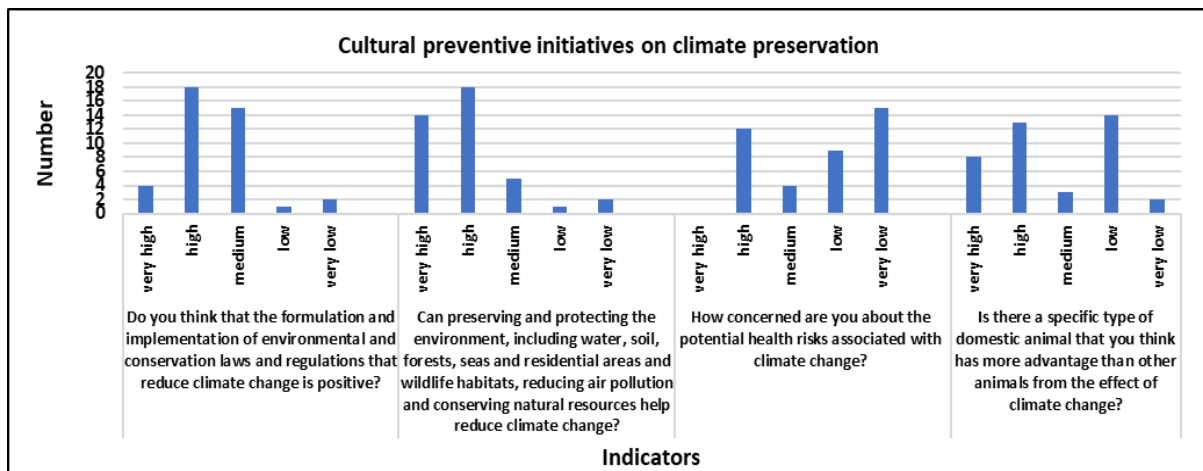


Figure 4. Preventive cultural measures regarding the preservation of climate and environment

DISCUSSION AND CONCLUSION

Similar results of research by FAO (2018) of the United Nations about 1.3 billion people in the world are directly or indirectly engaged in the livestock industry. Also, as a result of climate change livestock accounts for about 40 percent of global agricultural production and produces about 15 percent of total greenhouse gases. Therefore, livestock can be both a factor in creating climate change and affected by it. This shows that livestock must face strategies that both reduce its negative impacts on the environment and facilitate its adaptation to the changed climatic conditions. Drought and climate change have had a lot of negative impacts on livestock farming in Badghis province. These climate changes have reduced the production of fodder for animals, decreased the quality of soil, limited access to water and pasture for farm animals in this region, and severely reduced both the quality and quantity of animal products. All these factors have negatively affected the health, growth, and production of livestock and resulted in low numbers of animals. These climate changes have also increased the diseases, pests, fires, and social and economic tensions that have caused a lot of problems for farmers and rural communities. We have also witnessed the reduction of waste and food loss that has led to lower demand for animal products following all these climate changes and droughts. Climate change in recent years has resulted in reduced livestock production, reduced quality of agricultural and pastoral products, increased feeding costs and reduced livestock production, reduced income of livestock farmers, and consequently negative impacts on the livestock industry and the economy of the region of interest.

suggestions and Solutions related to climate change and drought: Water resources management, balanced animal nutrition, increasing forage production, increasing supplementary feed, natural resources management, financial management, education, and counseling. Also, cooperation with relevant organizations, participation in national and regional programs and policies to cope with climate change and ensure food and water resources.

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