

Impact of COVID-19 on India's Poultry and Dairy Industries and the Lessons Learned

Zulfqar UL Haq*, Azmat Alam Khan, Syed Mudasir Ahmad,
Mohammad Iqbal Yattoo, Hena Hamdani, Javaid Farooq and
Gowher Gull

Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University
of Agricultural Sciences and Technology of Kashmir, Shuhama, Srinagar Jammu and
Kashmir, India

***Corresponding Author:** Zulfqar UL Haq, Faculty of Veterinary Sciences and Animal
Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology of
Kashmir, Shuhama, Srinagar Jammu and Kashmir, India.

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et al.**

Abstract

The animal sector is extremely dynamic globally. It is growing in response to the rapidly increasing demand for livestock products in developing countries. While demand for animal products is stagnant in developed countries, many production systems are increasing their efficiency and environmental sustainability. Historical changes in the demand for livestock products have been driven largely by human population growth, income growth and urbanization, and the production response in different livestock systems has been linked to science and technology as well as increases in animal products. In the future, production will be increasingly affected by competition for natural resources, particularly land and water, competition between food and feed, and the need to operate in a carbon-constrained economy. Animal products are more likely to be affected by disease restrictions (animal or human diseases) and animal welfare legislation. Future demand for livestock products may be largely governed by socio-economic factors such as human health concerns and changing socio-cultural values. There is considerable uncertainty about how these factors will play out in different parts of the world in the coming decades. In addition, the Covid-19 pandemic has caused an increase in the availability of these products, making it difficult for farmers to put them on the market due to lockdown orders and the sudden high cost of feed and feed materials. This means that there is little/no profit for animal producers at this critical time.

Keywords: Poultry; Dairy; Covid-19; Coronavirus Disease

Introduction

Coronavirus (CoV) is clustered under the viral family group Coronaviridae, which causes disease in mammals and poultry. It caused a number of pneumonia cases in Wuhan, a city in China's Hubei Province, at the end of 2019. It spread rapidly, resulting in an epidemic across China, followed by an increasing number of cases in other parts of the world. In February 2020, the World Health Organization identified the disease COVID-19 and declared it a Pandemic on March 11. The virus that causes COVID-19 is

called severe acute respiratory syndrome coronavirus 2 or SARS-CoV-2 [1]. This is a deadly third-generation virus in the Corona family, succeeding Middle East Respiratory Syndrome (MERS) in 2012 and severe acute respiratory syndrome (SARS) in 2003. After Rhinoviruses, Coronaviruses are ranked as the main cause of the commonplace cold without triggering any sickness [2].

The Coronavirus outbreak has stalled the Indian economy, forcing factories and offices to close. GDP of all sectors fell by minus

fifty points in sectors like construction), but agriculture emerged as a bright spot, registering a 3 percent growth rate. This is good news as India employs more than half of its workforce. Livestock occupies an important place in the farmer's economy. Farmers in India maintain the mixed farming system, i.e., a combination of crops and livestock, in which the output of one farm becomes the input for another, thereby realizing resource efficiency [3].

India is the leading country in total milk production. Approximately 30.5 million people earn their living from animal husbandry. Livestock contributes 26% to the income of small farm households, compared to an average of 24% for all rural households. Livestock provides the livelihood of two-thirds of the rural population. It also employs about 18.8% of the population in India. India has huge livestock resources. Livestock sector contributes 4.11% to GDP and 25.6% to total Agricultural GDP [4]. Together with its allied activities it provides livestock, milk and dairy products, meat and meat products, and also forms a major supplier of food and foodstuffs, raw materials and finished products. The livestock sector includes livestock, dairy and fisheries sectors. For this reason, the livestock sector plays a vital role in the country's economy and socio-economic development of the country. It also plays an important role in the rural economy by supporting family incomes and creating lucrative employment in the rural sector, particularly among landless workers, small and marginal farmers, and women [5].

In developing countries, the average individual's intake of animal protein falls between 8 - 15 g per day, well below the FAO (2008) [6] recommended 65 grams of protein per day. In part, it may be a result of the high cost of finished feeds due to the rise in prices of traditional feed ingredients and Covid-19 exacerbating the situation. The biggest obstacle to better understanding the impact of the epidemic and the prolonged quarantine on the various livestock and poultry sub-sectors is the lack of adequate nationwide information on the relevant factors [7]. As a result, an attempt was made to conduct comprehensive research on the subject by compiling published documents as well as information obtained through public interactions, the results of which are summarized below.

First busting the myths about covid-19

Adapted from World Health Organisation. (www.who.int).

Major impeding channels of covid-19 on animal husbandary

Less access to animal feed

Physical distancing and additional personal protective equip-

Myths	Facts
Coronavirus is spread by pets	There is NO evidence that companion animals or pets such as cats and dogs have been infected or have spread 2019-nCoV or novel coronavirus.
Coronavirus is spread from animal meat	The new coronavirus is a respiratory virus which spreads primarily through contact with an infected person through respiratory droplets generated when a person, for example, coughs or sneezes, or through droplets of saliva or discharge from the nose
Can the new coronavirus be transmitted through mosquito bites?	NO The new coronavirus cannot be transmitted through mosquito bites.

Table a

ment requirements reduce the efficiency of industrial feed businesses. Movement restrictions and diseases are causing labor shortages and reduced supplies of raw materials or other components. Disruption of supply routes further delayed the supply of feed.

Less access to inputs and services

Movement restrictions and disruption of national and international trade routes prevent farmers from accessing breeding materials and replacement stocks (for example, day-old chicks and semen). This can jeopardize sales for input providers. Import restrictions will have a greater impact on areas that depend on imports to sustain production or import meat and milk for consumption.

Less access to markets

The closure of livestock markets in many countries means that small-scale producers cannot sell their wares. The interruption of the logistics channel and the decrease in demand reduces sales and lowers prices. Income cuts from small ruminants or poultry are hit hardest by reducing their purchases of essentials and nutrients. Movement restrictions also disrupt the role of intermediaries who collect animals or products and assemble them for further feeding, processing or retail sale.

Reduced processing capacity and handling

Staff reductions due to lockdown measures are constraining the meat and dairy processing industries due to their labor-intensive nature. Movement restrictions endanger transportation, which reduces the supply of livestock and livestock products. Delays in vehicles carrying raw materials for processing meat threatened to cause famine until movement bans are relaxed.

Reduced consumer purchasing power

Quarantine and curfews restrict purchasing power, especially in countries with informal workers and little or no social safety net. The economic slowdown and rising unemployment have deprived people, including millions of migrant workers in India, with little or no income to buy food. In the current crisis, informal markets are being shut down or restricted.

Impact of covid-19 on Indian poultry industry

In terms of industry dynamics, India is currently the fourth largest poultry producers in volume terms though per capita consumption is still one of the lowest in the world. Domestic poultry industry can broadly be divided as broiler meat and table egg with other poultry meat forming marginal proportion of overall market. The total broiler market size was estimated at 4.7 million tons (carcass weight). At a per capita meat consumption of 3.4 kg p.a., the total broiler meat market size was over Rs. 85,000 crores in terms of retail price. The domestic table egg production for 2019 was estimated at 109 billion eggs translating to a per capita egg consumption of 80 eggs p.a. and market size of over Rs. 45,000 crores as per ICRA reports. The recent Covid-19 lockdown has impacted the domestic poultry industry severely being the worst quarter in recent time. The corona virus outbreak and the consequent lockdown have pushed the poultry sector in the country into a crisis with losses projected at Rs 22,500 crore beginning February this year. Before COVID-19 the prices for broiler was about INR 80 per kg and INR 4 for egg the price dropped to almost no value like INR 6 per kilo and INR 1 - 1.50 per egg. As a result, industry loss about INR 25000 crore and it is unpredictable for coming months. A few organizations could likewise see a sharp disintegration in working capital. A vast number of little poultry farmers in the nation are reeling after deals have slammed 80% over bogus cases that chickens are bearers of the coronavirus. During cries of help, poultry farmers are looking for government help, expressing that the CO-

VID-19 emergency has all the earmarks of being more far-reaching in India than the influenza episode of 2006, which was confined toward the western part of the nation [8].

Although some small poultry farms planned to continue their growing farming operations in hopes of gaining a lucrative price later from the sale of their products, most of them did not have access to adequate feed supplies from or from local agents. Forage crops located in remote locations. The backyard poultry industry, which is mostly confined to small and marginal farmers and landless workers, was probably equally affected, due to the lack/inaccessibility of surrounding village markets and limited access to adjacent small towns. Poultry hatcheries have been severely affected in recent days due to the lack of demand for chicks from breeders. Hatcheries have also witnessed the unloading of hatched eggs and newly hatched chicks during the first days of quarantine. Despite the government's approval of the resumption of farming, hatchery operations and other activities related to supply and market value chains, there is still a shortage of labor due to the lack of adequate public transport and the widespread fear of COVID-19 infection in everyday life [9].

Effect on dairy industry and future recommendations

Covid-2019 locked down has disturbed all activities related to dairy farming globally. Covid-2019 increased the fear and terror in the world which increased locked down period in the world which affect the food of the dairy animals and decreased the production of milk in the world while on other side due to locked down the supply of dairy product was decreased to market, but the demand was also negatively affected which negatively affected the socioeconomic condition of the world community in the world. So locked down and dairy animals' products have negative relationship in the world [10]. However, the government was in a difficult situation as if they would increase the locked down period then the corona number of sick people was decreased while the people business of the world was negatively affected which affect the socioeconomic condition of the world people. The world majority people are very poor and mostly depend on their small business and without these business survival of life is impossible in this world so those people help is required by government in the world; The farmers are the producers of the food to the whole world, so it is necessary for the government of the world to provide credit facilities to farmers for their input purchasing to purchase input for their crops in

time; Provide fodder for their dairy animals; Provide market for their dairy products in the world; Help in product marketing in the world [11].

In India recent crisis of low milk prices is due to destruction of demand in the hotel, restaurant and catering sector, which is estimated to consume about 25% of the total marketable surplus. The farmers are forced to sell milk at about Rs 30 per litre while they were getting Rs 45 per litre before the lockdown in March 2020. If milk producers had a clout like that of sugar mill owners (in the name of sugar cane farmers), the government would have come out with a relief package, including the creation of buffer stock of skimmed milk powder (SMP). Another impending cause of concern for dairy farmers is India's ongoing trade talks with the US for a 'quick deal'. It is feared that to get market access for textiles and information technology etc., the government may agree to bring down the import duty on milk from 60%. This will enable import of higher value milk products as well as SMP from the US. If that happens, milk producers will be subsidising IT and textile exports from India and perhaps influencing the presidential elections in the US [12].

Small farmers produce more than 70% of milk; milk gives fast income for their livelihood. These small farmers are the most impacted by low demand and, as a result, no/partial supply. The majority of milk is produced by dairymen, dairy contractors, halwai stores, dairy shops, city-based private dairy shops, and so on. While the unorganised sector processes the majority of it, the organised sector milk cooperatives and private dairy companies processes only 30% of it. Milk is a perishable foodstuff that must be handled carefully. As a result, there have been tales of farmers from all over the world unloading fresh milk. Milk is collected twice a day (morning and evening) in India, as opposed to industrialised countries where it is held in silos on dairy farms and collected weekly or biweekly by dairy companies. Sales of dairy goods, particularly value-added products, declined in tandem with the decline in milk demand. Private facilities, mostly those producing value-added dairy products, are experiencing a severe cash problem.

When there is a surplus of liquid milk, dairy companies often convert it into skimmed milk powder (SMP) to fulfil peak demand during the summer season. However, dairy manufacturers are unable to manage the distribution of extra milk, owing mostly to the liquidity problem and a lack of operating capital. Some dairy

companies take farmers' milk on a deferred payment basis, while others have instituted a weekly milk holiday, which means no milk collection on that day [13]. There are also issues with determining milk costs. Milk prices are decreasing, and producers may be selling milk for less than their production cost. The government must act immediately to rescue the dairy business. To address the working capital requirements of dairy manufacturers, the government can assure seamless and quick credit availability through banks. It could be a good idea for banks to issue loans in return for stock of SMP/butter/ghee (long-lasting items) when needed. The government can make it easier to get milk delivered to your door. Allowing halvah shops/creams to open for a few hours a day may be considered, as long as social distance standards are maintained. Milk sachets may be included in the government's free rationing plan during the lockdown. Milk may be converted into ghee and other products with a longer shelf life by dairy farmers and crops [14].

Prospective alleviation measures

Addressing the effects of the COVID-19 epidemic on the long-term functioning of the food supply system has become a major factor in ensuring food security worldwide. When it comes to the cattle supply chain, there are risks in all measures that endanger its longevity. Reducing these risks requires greater cooperation between many parties, including governments, politicians, non-governmental organizations, and scientists. Various efforts must be made at the government and institutional level to assist livestock systems to maintain operational livestock supply networks (FAO 2020) [15]. These measures are based on.

- Facilitating the direct distribution of food/animal products to consumers and the provision of electronic marketing platforms.
- The provision of livestock production equipment, such as animal feed, drugs, and machinery.
- Support the resumption of meat/dairy processing businesses.
- Agricultural development, health care, and animal disease control systems.
- Provide direct financial support to seasonal and informal laborers.

By strengthening relationships between producers, retailers, target markets, and consumers, technologies acquired during the

COVID-19 crisis may help to expand the segment of the livestock supply chain that includes processing, marketing and marketing. Significant wastes in animal products (milk and meat) stemmed from poor communication between these key components, which could be prevented by building online marketing platforms and online technology services [16]. Focusing on using local feed resources and/or introducing newly developed agro-industrial products as other supply sources may be a viable option. A variety of feed strategies, such as increasing the forage-to-concentrate ratio, using grass-based feed blocks, recycling of human food waste and non-edible food components, and recycling of agricultural waste/products, can be used to achieve this. Transforming pastures by adding perennial plant species may help to provide sustainable feed for grazing in areas where animal feed depends on natural pastures [17].

Given the potential for disease outbreaks in livestock in the future, it would be vital to take prompt action to maintain the scheduled immunization programmes for bovines and other animals as needed. It would also be important to give enough scientific and technical support for the resumption of the interrupted surveillance programme and the improvement of the country's capacity to deal with the possibility of a transboundary disease outbreak in the coming years. To reduce the risk of COVID-19 illness spreading, all stakeholders in the industry, including producers, employees in value chains, and consumers, must be educated about personal hygiene and product quality maintenance through vigorous awareness campaigns and training.

Remedial measures that may increase the resilience of the livestock supply chain have been introduced by the scientific community. One of the recommended options is to introduce new protein sources in the food supply chain as alternatives to animal protein sources, such as insects, algae, and dairy products. Another promising way to use tissue culture biotechnology is to improve animal tissue in vitro as an environmentally friendly production method, to reduce methane emissions from farm animals. Farm animals, as an integral part of this food supply chain, must be able to withstand environmental pressures such as illness, mistreatment, and other factors [18]. Improving animal immunity and resistance to illnesses and severe environments while retaining acceptable production potentials should be one of the practical uses in this context. Creating animals with a more

effective immune system might indirectly lower production costs by reducing the need of pharmaceuticals and treatments, particularly antibiotics. Reduced veterinary medication residues in animal products will also benefit consumers and human health.

Conclusion and Recommendations

As the global population decreases due to the Covid-19 pandemic and possible hunger in most developing countries of the world, it is noteworthy to say animal products suffer consumption as an average individual just wants to survive without considering the nutritional requirement of the body system for functionality and production. Animals suffer a great deal due to restrictions on the movement of personnel, availability of feed ingredients/materials, drugs, and vaccines which are very vital in animal production. Farmers are making a lesser profit due to reduced consumption of different animal products, the paying of farm workers is paramount and important in farm growth.

From this review, it is hereby recommended that adequate processing and storage should be made available with good innovations and pre-existing ones to mitigate animal product wastage and ensuring the availability of such products post-pandemic. Identifying critical supply chain areas in agriculture products; and establishing specific performance measures for continuous measurements of supply chain efficiency need to be immediately focused.

Furthermore, governments should encourage farmers by not only concentrating on plant-based foods which are limited in most essential amino acids needed for a strong immune system rather balance both plant and animal research processing and storage.

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