

Effect of COVID-19 on animal breeding development in China and its countermeasures

Yaqiong Ding,^{†‡} Chengyu Wang,[‡] Liuqin He,^{†‡} Yulong Tang,[‡] Tiejun Li,[‡] and Yulong Yin[‡]

[†]Hunan Provincial Key Laboratory of Animal Intestinal Function and Regulation, Laboratory of Animal Nutrition and Human Health, College of Life Sciences, Hunan Normal University, Changsha 410081, China

[‡]Key Laboratory of Agro-ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Hunan Provincial Key Laboratory of Animal Nutritional Physiology and Metabolic Process, Changsha 410125, China

Implications

- Since the global outbreak of COVID-19 in 2020, China's agricultural production has been severely affected.
- COVID-19 presents a huge challenge to the development of animal breeding.
- This review mainly focuses on the negative effects of COVID-19 on animal breeding development in China and then puts forward the strategies to reduce the negative effects and help promote the sustainable, stable, and healthy development of animal breeding in China.
- This review should also provide a theoretical basis and feasible solutions for the sustainable and healthy development of animal husbandry in China and even all over the world.

Key words: animal breeding, China, COVID-19, sustainable development

Introduction

In 2020, the coronavirus disease (COVID-19) has spread to more than 200 countries and regions and has far-reaching effects on human safety and living standards. In order to stop the spread of the virus and effectively bring it under control, a series of effective measures have been taken by the Chinese government; for example, no one is allowed to go out in different provinces on holidays. However, due to the long epidemic prevention and control period, significant challenges have brought to the development of China's agricultural industries, including animal husbandry, planting, and agricultural

product processing. The objective of this review is to analyze the adverse impact of COVID-19 on the development of animal breeding in China. Then it provides some suggestions to reduce the negative impact and help promote the sustainable and healthy development of animal husbandry to ensure that China can win the battle against COVID-19.

Effects of COVID-19 on the Development of Animal Breeding in China

Since the earliest African pig disease was discovered in China in August 2018, it has spread across the whole country and the regions, which caused the death of large numbers of pigs, a shortage of pork products, and a significant increase in the price of pork and other meat products. This year has seen another outbreak. To prevent the spread of the virus, trade markets were closed, slaughterhouses resumed work with a delay, and transportation was blocked. These factors lead to feeding supply shortage, unmarketable products, and an increase in production and storage costs (Jiang, 2020). Furthermore, during the COVID-19 epidemic, a large amount of funds were needed for safe isolation and personnel health management, which caused some enterprises to break the capital chain (Liang, 2020). China's livestock and meat prices rose 80.8% in early 2020, with pork prices rising 122.5%, according to the National Bureau of Statistics (Wei, 2020). However, the production of poultry meat and eggs has increased significantly since last year, with a relative surplus of products and prices falling rapidly after reaching a peak (Figure 1). Therefore, with the implementation of policies such as the resumption of pig production, it is desirable that China's pig production will basically return to the perennial level by the end of this year.

In order to effectively control the epidemic, China has implemented traffic control for a long period of time, strictly controlling the flow of people and vehicles. On the one hand, this has serious implications on the normal supply of animal husbandry production materials and the sales and transportation of products and even leads to the disruption of the entire industrial supply chain. On the other hand, due to poor antirisk capability and a low level of epidemic prevention, small- and

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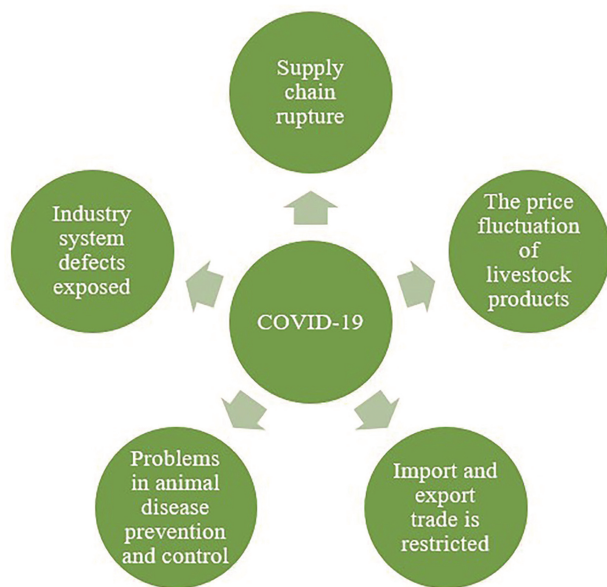


Figure 1. The relationship between supply, production, and sale.

medium-sized enterprises have some difficulties in continuing to operate after the epidemic (Cai, 2020). In addition, the impact of COVID-19 has fully exposed the shortcomings of China's animal husbandry industry, with weak regional structure, small environmental bearing capacity, and lack of major grain-producing areas. Therefore, combined with the current development situation at home and abroad, it is extremely urgent to promote the transformation and upgrading of China's animal husbandry industry structure to the direction of mechanization, scale, and standardization.

Meanwhile, the sudden outbreak of COVID-19 is also a warning for the prevention and control of the disease in China's animal husbandry industry. This shows that China's livestock industry does not afford enough attention to animal epidemic prevention and control. Therefore, we should enhance the animal epidemic prevention system, especially the prevention of African swine fever, avian flu, foot-and-mouth disease, and other diseases (Hu, 2020). In addition, we should also improve the immunity of animals, and we should enhance the monitoring and detection technology for major diseases. At the same time, we must accelerate the establishment of a biosafety management system that can be placed in real time, monitored and traceable.

With the global spread of COVID-19, the growth rate and trade scale of the global economy have dropped significantly, and livestock products are in short supply. World meat production in 2019–2020 is expected to achieve 33.5 billion tons, with a reduction of 1.0% over the previous year. This is a sharp departure from the trend of steady growth over the past two decades (Li, 2020). This short supply of animal products in some countries and their measures and technical barriers promoted trade restrictions, which caused difficulties for Chinese soybeans, corn, and other raw materials, as well as difficulty importing meat products. It further increases the tension between the domestic supply and demand, increases the instability of the domestic market, and promotes product price volatility.

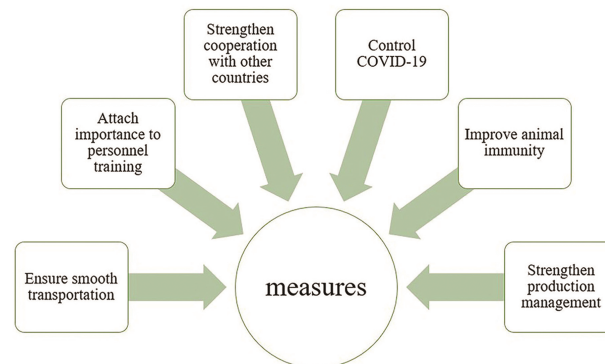


Figure 2. Recommendations and measures.

Strategies for Responding to COVID-19

Animal husbandry is a major industry related to the national economy and people's living standard in China. Meat, eggs, and milk are important varieties of people's "vegetable basket". Therefore, the COVID-19 epidemic presents both opportunities and challenges to China's livestock industry. Faced with a series of problems caused by the outbreak of COVID-19, China should ensure the future development of a high-quality livestock industry and comprehensively improve the safety guarantee capability of China's livestock and poultry products, both from the perspective of long-term development and short-term impact. This provides a basic guarantee for consumers and is essential for winning the battle against COVID-19. It is suggested that, while preventing and controlling COVID-19, decisive measures should be taken in accordance with the law to better ensure the safe production and effective supply of the breeding industry (Figure 2). First, local governments should, on the premise of scientific and safe epidemic prevention and control, guarantee the normal production order of the breeding industry and the circulation of products (meat, eggs, milk, and aquatic products) in accordance with the law. Second, we should do a good job in production management and guarantee an effective and safe supply of animal husbandry products so as to stabilize market prices. Third, it is proposed to improve the immunity of breeding animals. Further attention should be paid to the protection and cultivation of high-quality breeding varieties. Moreover, we need to actively carry out the detection and evaluation of novel varieties that may impact the breeding process. The government should also increase financial investment in aquaculture and speed up the cultivation of more high-end technical talents in the aquaculture industry. Sixth, we should actively respond to international trade restrictions and take a series of measures to strengthen China's external cooperation in animal husbandry.

Conclusions

In conclusion, novel coronavirus prevention and control in China needs the joint efforts of all Chinese. We should rely on the power of policy macro-control and scientific and

About the Authors



Yaqiong Ding is a graduate student majoring in physiology at The College of Life Sciences, Hunan Normal University, China. She received a bachelor's degree in agriculture from the Southwest University of China. At present, her main research direction is animal nutrition and human health. She has an interest in the mechanism of muscle formation in pigs and how to improve the quality of pork. Currently, she is doing research on the influence of maternal serine on muscle formation in young pigs.

Chenyu Wang is a graduate student in environmental engineering at the Institute of Subtropical Agriculture, Chinese Academy of Sciences. He received his Bachelor's degree from Northwest A&F University. His current research focuses on the effects of aspartate on intestinal health in pigs.



Liuqin He is a Professor at the College of Life Sciences, Hunan Normal University. She received her PhD in ecology from the University of Chinese Academy of Sciences in 2018. She won the Young Elite Scientists Sponsorship Program by the China Association for Science and Technology, "Huxiang Young Talents Plan" of Hunan Province, the Natural Science Foundation for Outstanding Youth Scholars of Hunan Province. She mainly engages in amino acid nutrition regulation and animal health.



Yulong Tang received his PhD from Zhejiang University in 2010. He is currently an Associate Professor in the Animal Nutrition Department, Institute of Subtropical Agriculture, Chinese Academy of Sciences, PR China, and a member of the Animal Nutrition Branch of the Chinese Association of Animal Science and Veterinary Medicine. His current research interests include understanding the molecular mechanisms of amino acids nutrition and cell growth. **Corresponding author:** tangyulong@isa.ac.cn.

Tiejun Li is with the Institute of Subtropical Agriculture, Chinese Academy of Sciences, School of Modern Agricultural Sciences, University of Chinese Academy of Sciences; executive vice president of the National Strategic Alliance of Pig Industry Technology Innovation; and Director of the Animal Nutrition Credit Committee of China Animal Husbandry and **Veterinary Association. He mainly engaged in carbon and nitrogen** nutrition regulation and pig ecological health breeding research.



Yulong Yin is an Academician of the Chinese Academy of Engineering, Professor and PhD Supervisor of the Institute of Subtropical Agriculture, Chinese Academy of Sciences (CAS). He earned a doctorate in animal nutrition from The Queen's University of Belfast, UK. Currently, he is the Director of the National Engineering Laboratory for Pollution Control and Waste Utilization in Livestock and Poultry Production, the Chairman of the Trace Elements and Food Chain Chapter, China Association of Agricultural Science Societies, and the Director of the National Pig Industry Technology Innovation Strategic Alliance.

technological innovation to stabilize the production of the livestock and poultry industry and the supply of livestock and poultry products in China. We should also speed up the transformation and upgrading of China's animal husbandry and promote its development to a higher quality. These countermeasures are hoped to help China better control the

COVID-19 epidemic and provide stable material security and maintain social stability.

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Conflict of interest statement. There are no conflicts of interest to declare.

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