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Research on the Output Value of Broiler Industry

Jingyu Zhang

People's Government of Lanhe Town, Nanxiong City, Guangdong Province, Shaoguan, Guangdong, China
vvvtcl@163.com

Abstract: ***In recent years, the government has continuously increased the capital investment in broiler industry, aiming to promote the high-quality development of broiler industry. Under the guidance of the government's lead, the social capital has also been gradually invested in broiler industry, and the research on the production value of broiler industry in the economic field of broiler industry provides a realistic reference basis for the development of broiler industry. Grey correlation analysis is an important method to analyse the influencing factors of broiler industry output value, and it provides a theoretical basis for the study of broiler industry output value by establishing mathematical models to analyse the output value of broiler industry under different scale farming modes. Based on the relevant data of broiler industry in Henan Province from 2013 to 2022, this study uses grey correlation analysis method to select seven factors affecting broiler production value: litter fee, labour cost, medical and epidemic prevention fee, concentrate feed fee, fuel and power fee, death loss fee and fixed asset depreciation fee as comparison sequence, and per 100 broilers' production value as reference sequence, to calculate the degree to which the production value of broilers in large-scale farming is affected by the impacts of various influencing factors. The degree of influence by various influencing factors is calculated. The calculation results show that the broiler output value under small-scale farming conditions is mainly affected by depreciation of fixed assets (0.8528), death loss cost (0.7903) and fuel and power cost (0.7671), and the broiler output value under medium-scale farming conditions is mainly affected by depreciation of fixed assets (0.8798), medical and epidemic prevention cost (0.8457), death loss cost (0.8433), and broiler production value under large-scale farming conditions was mainly affected by fixed asset depreciation (0.8335), labour cost (0.8203), and fuel and power (0.8155), and fixed asset depreciation was an important factor affecting the production value of broilers in small-, medium- and large-scale farming at the same time.***

Keywords: Broiler industry output value; Gray correlation analysis; Large-scale farming; Henan Province.

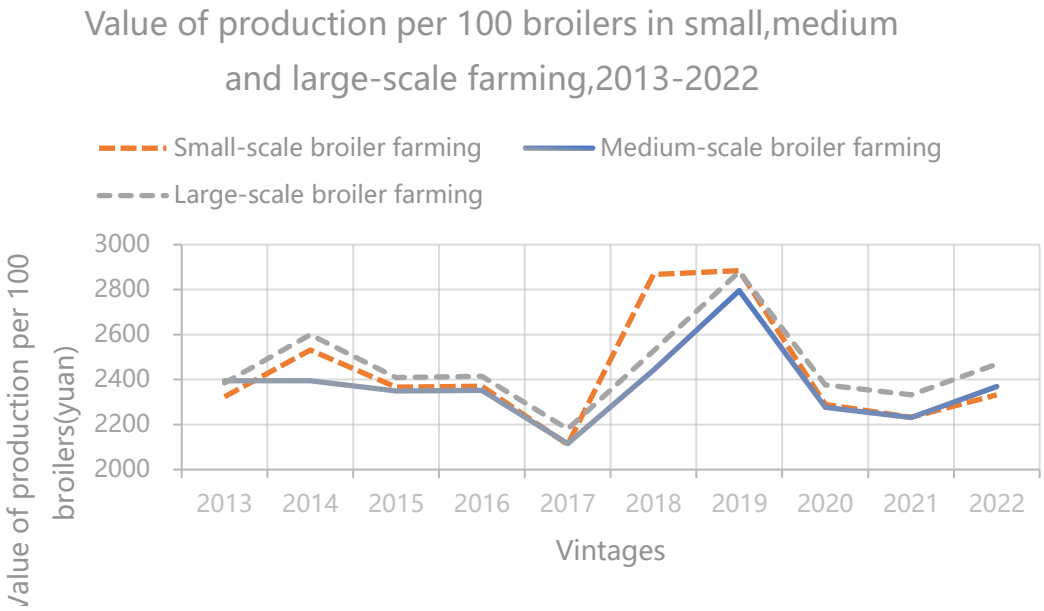
1. INTRODUCTION

Chicken is the second largest consumer meat product after pork, affected by African swine fever in recent years, chicken has become the main alternative to pork. Since the 21st century, the level of large-scale breeding of broilers has continued to improve, and large-scale broiler farms have made an important contribution to the rapid growth of China's broiler production. However, with the significant recovery of pig production capacity, rising feed costs, etc., the overall level of industry returns is low, and the development of the broiler industry is facing more intense market competition. In this context, exploring the influencing factors of broiler farming under different scales and finding the path of broiler development play an important role in promoting the high-quality development of broiler farming and making greater contributions to the economic development of broiler industry in Henan Province [1-3].

Currently, there is a great deal of academic research on the factors affecting the broiler industry. However, there are not many studies on the factors influencing the production value of broilers under 3 different scaled farming conditions. Therefore, the author decided that this study takes the broiler farming area in Henan Province as the research object, and uses the data related to 3 kinds of large-scale farming: small-scale, medium-scale, and large-scale broiler farming in the National Compendium of Agricultural Product Costs and Benefits from 2013-2022 to analyse the influencing factors on the output value of broilers under the 3 kinds of large-scale farming in Henan Province, and takes the cost of litters under the conditions of the 3 kinds of large-scale farming respectively, the labor cost fee, medical and epidemic prevention fee, concentrate feed fee, fuel and power fee, death loss fee and depreciation fee of fixed assets as a comparative sequence, and the output value of broilers per 100 heads as a reference sequence, through grey correlation analysis method, to analyze the impact of different influencing factors on broiler output value, and to provide references for farmers' choices of farming modes, with a view to improving the output value of broiler industry and realizing the high-quality development of the broiler industry in Henan Province [4-6].

2. OVERVIEW OF THE STUDY AREA

Henan Province is located in central China, between latitude 31°23′-36°22′N and longitude 110°21′-116°39′E, with 17 prefectural-level cities under its jurisdiction, and Zhengzhou as the provincial capital, with a total area of 167,000 square kilometres [7]. In 2022, Henan Province ranked first in the country in terms of egg production, with 4.562 million tonnes of eggs. In 2022, the output value per 100 broilers under small-scale farming conditions is RMB 2,332.08, under medium-scale farming conditions is RMB 2,368.90, and under large-scale farming conditions is RMB 2,469.38. The increasing production value of broiler production not only meets the demand within the province, but also lays the foundation for the improvement of farmers' income [8]. Affected by the complex economic and social situation at home and abroad, broiler development in Henan Province has encountered some problems, and the influencing factors affecting broiler production value in Henan Province are studied to solve the problems encountered by the broiler industry in its development. From 2013 to 2022, the production value of broilers per one hundred under small-, medium-, and large-scale farming is as shown in Figure 1.



3. RESEARCH DESIGN AND METHODOLOGY

3.1 Grey Correlation Analysis

Grey correlation analysis is a method of describing the strength, size and order between factors in grey correlation order, and it is an analytical method of determining the degree of influence between system factors or the measurement of the contribution of factors to the main behaviour of the system through grey correlation analysis [9]. The principle of this analysis method is relatively simple, easy to learn and master, simple calculation method, clear ordering method, no special requirements for data analysis and indicators, and has strong application value [10].

The steps for calculating the grey correlation analysis method are as follows:

Step 1, the data were collected and organised to determine the reference and comparison sequences.

The reference sequence: $\mathrm{X}_0 = \{\mathrm{X}_0(1), \mathrm{X}_0(2), \cdots, \mathrm{X}_0(\mathrm{n})\}$

comparison sequence: $\mathrm{X}_\mathrm{i} = \{\mathrm{X}_\mathrm{i}(1), \mathrm{X}_\mathrm{i}(2), ?, \mathrm{X}_\mathrm{i}(\mathrm{n}), \mathrm{i} = 1,2, \cdots, \mathrm{m}\}$

Step 2, the data were made dimensionless and homogenisation was chosen.

$$X_i' = \frac{x_i}{x_i(1)} = (x_i'(1), x_i'(2), \cdots, x_i'(n),), i = 0,1,2, \cdots, m \quad (1)$$

included among these $\mathrm{X}_0'(\mathrm{k})$ is the reference sequence, $\mathrm{X}_\mathrm{i}'(\mathrm{k})$ $\mathrm{k} = 1,2, \cdots, \mathrm{n}$ is the comparison sequence.

Step 3, Difference Sequence $\Delta_{0i}(k)$.

$$\Delta_{0i}(k) = |x_0'(k) - x_i'(k)|, i = 0,1,2,\cdots,n \quad (2)$$

Step 4, Extremely large values, extremely small values.

Maximum value: $\Delta_{max} = \underset{i}{max}\underset{k}{max}\Delta_{0i}(k)$

Minimum value: $\Delta_{min} = \underset{i}{min}\underset{k}{min}\Delta_{0i}(k)$

Step 5, Calculation of correlation coefficients. ρ take 0.5.

$$\gamma_{0i}(k) = \frac{\Delta_{min}+\rho\Delta_{max}}{\Delta_{0i}(k)+\rho\Delta_{max}} \quad (3)$$

$\gamma_{0i}(k)$ is $t = k$ correlation coefficient at time, ρ is the resolution factor.

Step 6, Relevance calculation.

$$\gamma_i = \frac{1}{n}\sum_{k=1}^{i}\gamma_{0i}(k), i = 0,1,2,\cdots,m, k = 0,1,2,\cdots,n \quad (4)$$

After calculating the correlation, the factors affecting broiler production value were ranked in terms of their correlation with broiler production value.

3.2 Selection of Relevant Indicators

Based on the grey correlation analysis method, taking into account the accessibility of data and the actual development of broiler industry in Henan Province, and with reference to the research of Zhang Qiubing and other scholars, seven factors affecting broiler output value were selected as the comparative sequence: litter cost, labour cost, medical and epidemic prevention, concentrate feed, fuel and power, death loss and depreciation of fixed assets. The output value per 100 broilers was the reference sequence.

3.3 Data Sources

By summarising and analysing relevant data from the National Compendium of Costs and Benefits of Agricultural Products, China Animal Husbandry and Veterinary Yearbook, and the official website of the National Bureau of Statistics of China, and combining the current development of the broiler industry in Henan Province, we find the relevant data from 2013-2022 on the three different farming modes of large-scale breeding of broilers in Henan Province: small-scale breeding of broilers, medium-scale breeding of broilers, and large-scale breeding of broilers.

3.4 Empirical Analyses

According to the definition of the National Compendium of Cost and Benefit Information of Agricultural Products, broiler large-scale farming is divided into 3 types: small-scale farming refers to the average stocking of more than 300 and less than or equal to 1,000, medium-scale farming refers to the average stocking of more than 1,000 and less than or equal to 10,000, and large-scale farming refers to the average stocking of more than 10,000. By analyzing the factors affecting the output value of broiler in Henan Province and using the grey correlation analysis method, we analyze the returns affecting the 3 types of large-scale broiler farming in Henan Province, namely small-scale broiler farming, medium-scale broiler farming and large-scale broiler farming, respectively.

1) Analysis of small-scale broiler production value

Taking the output value per 100 broilers of small-scale farming as the reference sequence, litter cost, labour cost, medical and epidemic prevention cost, concentrate feed cost, fuel and power cost, death loss cost and depreciation cost of fixed assets as the comparative sequence, grey correlation analysis was used to calculate the degree of correlation, and the results are shown in Table 1.

Table 1: Analysis of the correlation between the output value of broiler chickens raised on a small scale in Henan Province and the factors affecting it

Vintages	Costs Of Young Animals	Charges For Labour Costs	Costs Of Medical Defence	Cost Of Concentrate Feed	Cost Of Fuel Power	Costs Of Death Losses	Cost Of Depreciation Of Fixed Assets
2013	0.5837	0.8847	0.4827	0.8972	0.7358	0.9832	0.9162
2014	0.5366	0.9184	0.7370	0.9479	0.6136	0.6872	0.7801
2015	0.5443	0.6648	0.9321	0.9117	0.8390	0.9168	0.9844
2016	0.5767	0.6316	0.8888	0.7246	0.9937	0.8614	0.8932
2017	0.6475	0.4898	0.5117	0.8634	0.7608	0.6036	0.6816
2018	0.7453	0.4183	0.3335	0.5964	0.3373	0.5827	0.8014
2019	0.3629	0.5702	0.6072	0.5551	0.5041	0.9295	0.7027
2020	0.6843	1.0000	0.8327	0.8398	0.9359	0.7906	0.9071
2021	0.6916	0.8698	0.8010	0.5338	0.9770	0.6929	0.8841
2022	0.5925	0.7382	0.6787	0.5024	0.9737	0.8549	0.9772
$\bar{R}$	0.5965	0.7186	0.6805	0.7372	0.7671	0.7903	0.8528

By calculating the correlation between the output value of broiler chickens raised on a small scale in Henan Province and the influencing factors, the grey correlations were, in order, depreciation of fixed assets (0.8528), death loss (0.7903), fuel and power (0.7671), concentrate feed (0.7372), labour cost (0.7186), medical prevention and vaccination (0.6805), and litter cost (0.5965). Among them, depreciation of fixed assets has the greatest impact on the output value of small-scale broiler farming, and the ones in high association are depreciation of fixed assets, death loss, fuel and power, concentrate feed, and labour cost, the ones in medium association are medical and epidemic prevention fee, and the ones in low association are litter fee. It shows that depreciation of fixed assets, death loss, fuel and power, concentrate feed and labour cost have a high impact on the output value of broilers under small-scale farming conditions, medical and epidemic prevention costs have a general impact, and litter costs have the least impact on them. Broiler farming should consider the local natural ecological environment, avoid unnecessary damage to the local crispy natural ecological environment, reduce the extra cost brought by farming, and then enhance the production value of broiler industry.

2) Analysis of the production value of medium-sized broiler farming

The broiler litter cost, labour cost, medical and epidemic prevention cost, concentrate feed cost, fuel and power cost, death loss cost and depreciation cost of fixed assets in Henan Province under medium-scale farming conditions were taken as the comparative sequence, and the output value per 100 head of broilers in Henan Province under medium-scale farming conditions was taken as the reference sequence, and the results of the analyses are shown in Table 2.

Table 2: Analysis of the correlation between the output value of broiler chickens raised on amedium scale in Henan Province and the factors affecting it

vintages	Costs of young animals	Charges for labour costs	Costs of medical defence	Cost of concentrate feed	Cost of fuel power	Costs of death losses	Cost of depreciation of fixed assets
2013	0.6015	0.7971	0.7881	0.9577	0.7968	0.9363	0.9723
2014	0.6015	0.7971	0.7881	0.9577	0.7968	0.9363	0.9723
2015	0.5887	0.9287	0.8227	0.9165	0.8474	0.9393	0.9704
2016	0.6313	0.8343	0.9851	0.7405	0.8495	0.7871	0.9608
2017	0.6957	0.6333	0.6799	0.8843	0.7070	0.6035	0.7266
2018	0.7099	1.0000	0.9574	0.7256	0.9552	0.8032	0.8865
2019	0.3348	0.6166	0.6575	0.5913	0.6639	0.6274	0.6350
2020	0.6480	0.9518	0.9572	0.9252	0.8523	0.9981	0.8760
2021	0.6616	0.8830	0.9759	0.6033	0.8939	0.9036	0.8476
2022	0.7038	0.9295	0.8448	0.5509	0.9992	0.8983	0.9504
$\bar{R}$	0.6177	0.8372	0.8457	0.7853	0.8362	0.8433	0.8798

The grey correlation was calculated through the correlation analysis between broiler production value and each influencing factor in Henan Province under medium-scale farming conditions, and the grey correlation was, in order, depreciation of fixed assets (0.8798), medical and epidemic prevention cost (0.8457), death loss cost (0.8433), labour cost cost (0.8372), fuel and power cost (0.8362), and concentrate feed cost (0.7853), Litter cost (0.6177). Among them, the depreciation fee of fixed assets has the greatest influence on the output value of medium-sized broilers, and the six influencing factors, namely, depreciation fee of fixed assets, medical and epidemic prevention fee, death loss fee, labour cost fee, fuel and power fee, and concentrate feed fee, are all in high correlation. It indicates that all the above six factors have a relatively high impact on broiler production value in Henan Province under the condition of medium-scale broiler farming in Henan Province. The medium

correlation of the impact of litter fee on broiler production value indicates that litter is also one of the important factors affecting broiler production value. Farmers should be based on the farming conditions of the farm, combined with their own economic conditions, reasonable control of the expenditure of depreciation of fixed assets, scientific epidemic prevention of broiler chickens to avoid large-scale death of broiler chickens science, strict control of the cost of labour fee, reduce the use of concentrate feed, selection of better quality of young birds, in order to enhance the broiler production value under the conditions of medium-sized farming.

3) Analysis of production value of large-scale broiler farming

Taking the output value per 100 broilers in Henan Province under the condition of large-scale farming as the reference sequence, the litter fee, labour cost fee, medical and epidemic prevention fee, concentrate feed fee, fuel and power fee, death loss fee and depreciation fee of fixed assets affecting the output value of broilers as the comparative sequence, and applying the grey correlation analysis method to calculate the correlation degree of the correlation degree, and the relevant results are shown in Table 3.

Table 3: Analysis of the correlation between the output value of broiler chickens raised on a BIG scale in Henan Province and the factors affecting it

vintages	Costs of young animals	Charges for labour costs	Costs of medical defence	Cost of concentrate feed	Cost of fuel power	Costs of death losses	Cost of depreciation of fixed assets
2013	0.5709	0.7632	0.7167	0.9589	0.8293	0.9076	0.8927
2014	0.5586	0.7416	0.6065	0.9340	0.7383	0.6601	0.7739
2015	0.5670	0.9270	0.9693	0.8944	0.9754	0.8912	0.9517
2016	0.6026	0.9992	0.9248	0.7237	0.8069	0.8854	0.8911
2017	0.6640	0.7118	0.4780	0.8848	0.6744	0.4900	0.7500
2018	0.6730	0.9749	0.8724	0.7153	0.9003	0.9124	0.8717
2019	0.3358	0.6818	0.6084	0.5811	0.6382	0.7794	0.6618
2020	0.5793	0.8672	1.0000	0.8673	0.8850	0.8820	0.8211
2021	0.5915	0.7854	0.9818	0.5682	0.8223	0.9245	0.8113
2022	0.6344	0.7508	0.8954	0.5325	0.8848	0.8210	0.9095
$\bar{R}$	0.5777	0.8203	0.8053	0.7660	0.8155	0.8153	0.8335

By calculating the correlation analysis between broiler production value and factors affecting broiler production value in Henan Province under large-scale farming conditions, the correlation, in descending order, is: depreciation of fixed assets (0.8335), labour cost (0.8203), fuel and power (0.8155), death loss (0.8153), medical and epidemic prevention (0.8053), concentrate feed (0.7660), and litter cost (0.5777). Among them, the depreciation of fixed assets had the greatest impact on the output value of large-scale broilers, and the high correlation included depreciation of fixed assets, labour cost, fuel and power, death loss, medical and epidemic prevention, and concentrate feed, while the low correlation included litter cost. It shows that depreciation of fixed assets, labour cost, fuel and power cost, death loss cost, medical and epidemic prevention cost, and concentrate feed cost have a greater impact on the output value of broilers in Henan Province under the condition of large-scale breeding. Based on the realistic conditions of broiler industry development in Henan Province, the depreciation of fixed assets, labour cost, fuel and power cost, death loss cost, medical and epidemic prevention cost, and concentrate feed cost should be controlled in order to achieve the reduction of breeding cost, enhance the output value of broilers, and achieve the high-quality development of broiler industry.

4. CONCLUSIONS AND RECOMMENDATIONS FOR RESPONSE

4.1 Conclusion

Analyse the influencing factors of the output value of the broiler industry of large-scale farming in Henan Province from 2013 to 2022, and find that the output value of small-scale broiler farming is most affected by three kinds of expenses: depreciation of fixed assets, death loss and fuel and power, and should carry out the necessary control of depreciation of fixed assets, death loss and fuel and power, and take into account the natural ecological environment of the local area to avoid causing unnecessary damage to the local crisp natural Ecological environment to avoid unnecessary damage to the local crispy meat natural environment, reduce the additional costs of breeding, and thus enhance the output value of the broiler industry. The output value of medium-scale broiler farming is most affected by three factors: depreciation of fixed assets, medical and epidemic prevention costs and death loss costs; expenditure on depreciation of fixed assets; scientific epidemic prevention of broiler chickens to avoid large-scale deaths of broiler chickens; strict control of labour costs; reduction of the use of concentrate feed; and the selection of better-quality young birds to enhance the output value of broiler chickens under medium-scale

farming conditions. The output value of large-scale breeding broilers is most affected by three factors, namely, depreciation of fixed assets, labour cost fee and fuel power fee, to control the cost expenditure of the three influencing factors, namely, depreciation of fixed assets, labour cost fee and fuel power fee, to reduce the cost of breeding, to enhance the output value of broilers, and to achieve the high-quality development of the broiler industry. Broiler production value in Henan Province under small, medium and large-scale farming conditions are affected by the depreciation cost of fixed assets, indicating that the current depreciation cost of fixed assets is an important factor affecting the production value of broilers, farmers should be based on their own farm farming conditions, combined with the region's farming environment, reasonable control of broiler production of special rooms, simple sheds, power equipment and transport tools and other fixed asset depreciation expenses, so as to achieve the purpose of reducing the cost of broilers, thus enhancing the production value of broilers and achieving the high-quality development of the broiler industry.

4.2 Suggestions for Countermeasures

1) Cultivate and introduce scientific and technological talents in broiler industry to reduce labour cost

Cultivate scientific and technological talents in the broiler industry, establish a talent introduction system, create a professional team of talents in the broiler industry, improve the scientific and technological level of the broiler industry, reduce unnecessary expenses, and reduce labour costs. The broiler industry in Henan Province is relatively lacking in breeding technology talents, broiler farming is mainly divided into captive and free-range, broiler farming in Henan Province is mainly based on captive breeding, and farmers are mostly free-range. Due to the broiler breeding environment may lead to staff discomfort, the introduction of breeding technology personnel treatment system is not implemented, resulting in relatively few talents in broiler breeding technology, but also indirectly affect the technical level, affecting the development and progress of broiler breeding technology. Specific recruitment of breeding personnel should be carried out according to the breeding environments of small, medium and large-scale breeding of broilers. Based on the technical characteristics of the applicants, the corresponding work should be arranged in order to enhance the level of breeding technology and thus increase the output value of the broiler industry. Government departments to develop appropriate preferential policies to attract broiler industry professionals to settle at the grassroots level, encourage local personnel and outstanding college graduates to return to their hometowns to participate in the development of the broiler industry, and establish a perfect system for the introduction of talent. Recruit experts in the field of broiler industry, establish research and development bases, hire experts in the industry as development consultants, provide technical guidance and suggestions for the development of broiler industry on a regular basis, rely on Henan University of Science and Technology, Henan Agricultural University, Henan Academy of Agricultural Sciences and other agriculturally related colleges and universities, scientific research institutes and institutions, and regularly train broiler farmers on breeding techniques, establish a new vocational breeding training system, formulate training plans in advance, and strengthen the application of science and technology at the grassroots level, increase the breeding technology promotion and training, consolidate the agricultural science and technology talent team, create a professional talent team in the broiler industry, and reduce the labour cost of broiler farming.

2) Strengthen disease prevention measures and reduce medical and epidemic prevention costs.

Improve epidemic prevention measures, reduce medical and epidemic prevention costs in the broiler industry, reduce the incidence of disease, and improve the survival rate of broilers. High-quality epidemic prevention is the key to promoting the healthy development of the broiler industry. Common infectious diseases in broilers include Newcastle disease, mucous membrane chicken pox, avian influenza, etc., which also harbours a variety of parasites. More attention should be paid to zoonotic diseases. In order to protect the farmers' own health and improve the prevention and control of epidemics, the mature vaccines of broiler industry should be used to prevent and control the epidemics of broilers, so as to reduce the occurrence of epidemics and achieve the purpose of enhancing the output value of broiler industry. The relevant departments should speed up the pace of building the epidemic prevention and control system, reduce the cost of epidemic prevention drugs, and promote the healthy and orderly development of the broiler industry. First, the development of complete broiler industry epidemic prevention and management system, play the role of veterinary station epidemic prevention, do a good job of broiler industry epidemic prevention. Strengthen the training of broiler industry staff epidemic prevention knowledge, improve the professional quality of the staff, and contribute to the prevention and control of epidemics in the broiler industry. Secondly, the implementation of epidemic prevention and control work, in accordance with the broiler industry requirements on time and quality vaccination, reduce the cost of vaccination, improve the enthusiasm of farmers to inject vaccines, and do a good job in the prevention of epidemics in the broiler industry, and constantly improve

the supervision and management platform of animal health information, to ensure that the validity and authenticity of the information on epidemics in the broiler industry, to improve the level of prevention and treatment of epidemics in the broiler industry, so as to improve the system of breeding of the broiler industry. The establishment of emergency plans, broiler industry epidemic for the development of the implementation of the programme, do a good job of epidemic prevention and control and other work. Third, do a good job in the broiler industry disease prevention and control technology services and guidance, the development and publicity of a more standardised broiler industry breeding model. At present, there are still more problems in the broiler industry, such as: breeding broiler farmers, due to the lack of strict implementation of field disinfection, resulting in the entry of personnel to carry infectious disease germs, infectious diseases to the farm's broilers, resulting in broilers suffering from epidemics, causing a greater impact on the production value of the broiler industry. Therefore, it should be based on the veterinary professional and technical personnel of each township and street department to do epidemic prevention and control and disease prevention for the healthy development of the broiler industry; from time to time, train broiler breeders in epidemic prevention and control and guide broiler farmers in epidemic prevention and control; strengthen the technical treatment guidance and other services when broilers are infected with epidemics; and retrain the breeding mode of raising broilers. Reduce the occurrence of epidemics in the broiler industry, increase the output value of the broiler industry, and achieve high-quality development of the broiler industry.

3) Strengthen the management of breeding areas and improve the management of broiler breeding

Broiler breeding area is the place for broiler activities and production, which not only affects the growth rate and fattening quality of broilers, but also influences the development of broiler industry. Firstly, the environment of broiler breeding area should be strictly implemented in accordance with the quality standards of livestock and poultry breeding places, and the breeding environment includes the external environment and local small environment. The external environment refers to the airflow, temperature, humidity and other atmospheric environment, and the local small environment refers to the local atmospheric hygiene, temperature, humidity and other factors, which have a more direct impact on the growth of broilers. Secondly, the harmless treatment of waste in the broiler farming area is an important solution to the problem of broiler farming pollution. Should be based on the environmental conditions of the broiler breeding region, from the actual breeding of each region, with the help of advanced agricultural science and technology, in the source of broiler breeding waste, intermediate links, pollution of the finished product, etc., in accordance with the national provisions of the breeding area of the necessary treatment standards, and then solve the broiler breeding brought about by environmental pollution and other issues. For example: optimise the production technology of non-polluting feed to provide ecological feed for broilers; optimise and promote the gas emission purification technology in the breeding area to reduce the gas emission produced in the process of broiler breeding and protect the atmospheric ecological environment; optimise the treatment process of biogas liquid and slag, develop biogas engineering in combination with the actual situation of the breeding area, and realise the intensive use of resources in the broiler industry's wastes.

4) Multi-faceted development of broilers, realising the value-added of broilers

Broiler has high economic value and nutritional value, and the quality and quality of broiler chicken meat are relatively good. However, because some farmers do not fully understand the value of broilers and lack of economic awareness, the current market of broiler products is mainly dominated by eggs and chicken meat, and the development of its incidental value is relatively small. With the elevated market demand, broiler farming should be multi-directional development of its economic value and nutritional value. In addition to eggs, chicken meat, broiler can also be developed in depth its incidental economic value, so that it can form a broiler product production chain, such as independent breeding, breeder breeding, egg hatching, feed processing, broiler breeding, broiler processing, food processing, product sales and so on. In terms of ideology, let the farmers fully understand the value of broiler, and then improve the production mode of broiler, improve the production efficiency of broiler, and promote the steady development of broiler industry. At present, the output and quality of broiler industry in Henan Province cannot fully meet the needs of local residents. By upgrading the level of agricultural science and technology, the development momentum of broiler industry can be effectively enhanced, which will in turn increase the output value of broiler industry. Combined with the characteristics of broiler industry in Henan Province, according to the environmental carrying capacity, based on the geographical advantages of the breeding area, optimise the development direction, scientific planning of the breeding mode, and vigorously develop ecological farming, and build a new type of resource-saving and environmentally friendly farming industry. Finally, to improve the efficiency of broiler farming must keep up with the development of the times, take the road of modern industry, build modern agricultural parks, and realise the application of modern information management

technology in broiler farming.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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