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NATIONAL SURVEY DATA OF 13 PROVINCES [of China]**

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COST AND BENEFIT ANALYSIS OF MEAT RABBIT BREEDING BASED ON 2018 NATIONAL SURVEY DATA OF 13 PROVINCES

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ABSTRACT

This paper analyzed the costs and benefits of meat rabbit breeding by province and scale respectively based on the farmer survey data of rabbit production income in 2018. The results show that: in terms of the cost-benefit analysis of meat rabbit breeding in different provinces, the average production cost and output value of different provinces vary greatly. Henan and Sichuan are at a loss, and all other provinces are profitable. In terms of analysis on different scales, the scale effect of meat rabbit breeding is obvious, and the whole meat rabbit breeding industry is in a profit state.

Key words: Meat rabbit; Cost analysis; Benefit analysis; Scale.

INTRODUCTION

Rabbit meat as a kind of meat products, not only characterized by "three high and three low" of nutrition, but also delicate and tender, taste good and rabbit meat is more and more popular with consumers. According to our survey, there are three main rabbit species: meat rabbit, rex rabbit and long hair rabbit, and meat rabbits account for a large proportion of them. Therefore, research on the development of the meat rabbit industry is an significant part of study the development of the rabbit industry (Wu L.P., 2017). And it is beneficial to ensure the supply of meat rabbit products and the long-term stable development of rabbit industry to study the cost and benefit of meat rabbit industry. So, what this study tries to answer are as follows: How about the development of the meat rabbit industry? How cost-effective is it?

MATERIALS AND METHODS

Data source

The data used in this study come from a series of farmer survey of rabbit production income in 13 provinces and cities including Yunnan, Jilin, Sichuan and other major producing areas of rabbit in China conducted by the industrial economic team of the national technical system of agricultural rabbit industry from November to December 2018. The 13 provinces and cities are main production areas of meat rabbit. Therefore, the rabbit breeding situation in the surveyed areas can basically represent the overall development of the country. In the survey, the principle of random sampling is used, and questionnaire survey and interview are the mainly survey methods. A total of 350 rabbit breeders (farms) were investigated, among which 250 valid questionnaires of meat rabbit breeders were included, which basically represented the cost and benefit of meat rabbits in China. All data in this paper are from the questionnaire and interview of this survey.

Data processing and Methods

This study is a statistical analysis of production cost and profit based on the collected data. and The total production cost of rabbit breeding includes production cost and land cost . production costs are divided into material and service costs and labor costs. The labor cost consists of the family labor discount and the labor cost. In the cage-free mode, it is generally family self-employment, and there are few examples of employees to operate ; and scale farming community will account for a larger proportion of employment costs. The output value of meat rabbit includes the output value of main products and by-products(Zhu X.G, 2002).

RESULTS ANALYSIS

The cost and benefit analysis of meat rabbit by province

Feed cost, labor cost and depreciation of fixed assets occupy the first three positions in the total cost composition of rabbit production (Wu L.P.,2015) .The average total cost of rabbit breeding was 6.50 dollars per animal, while the lowest production cost was in Heilongjiang, and the highest is Henan. The reason for the highest total production cost of Henan province lies in the high material cost of feed, production costs vary greatly between provinces (Chen W. et al, 2018) .

The average output value of the 13 provinces where the meat rabbit is 7.81 dollars per animal , the average value of the main product is 7.66 dollars, and the average value of the by-products is 0.15 dollars. Zhejiang province is the highest, with the average value of main products as high as 27.04 dollars and the average value of by-products as high as 1.54 dollars. The lowest is Shannxi province, where the average product is only 5.66 dollars per unit. It is noteworthy that Shannxi province has the lowest total output value because of its low output value of main products. Therefore, the gross product value of meat rabbit is mainly determined by the output value of main products. At the same time, it can be found that there is a large difference in the output value of meat rabbits.

The average net profit of the 13 provinces is 1.31 dollars per rabbit. Fujian was the highest at 13.91 dollars followed. Henan province and Sichuan province are both in the red. The rest provinces are profitable.The average cost margin is 0.61%. Fujian province had the highest score at 3.87%. All the others are positive, within the range of 0~1%. (see table 1 below for details)

Table 1: Cost and benefit of meat rabbit of different provinces in 2018 (unit:per hundred)

Project	Output value of main product (dollars)	total cost (dollars)	Production cost (dollars)	Material cost (dollars)	Net profit (dollars)	Cost-profit ratio (%)
<i>mean</i>	765.80	650.05	648.53	460.77	130.67	0.61
yunan	680.03	322.19	322.19	306.96	357.84	0.28
jilin	747.34	611.44	611.44	445.60	146.26	0.74
sichuan	594.01	646.51	646.51	550.44	-48.48	0
shandong	695.58	693.46	691.44	492.11	16.96	0.1
shanxi	730.40	420.93	420.93	393.19	309.46	0.46
guangxi	604.47	405.33	405.33	367.76	199.14	0.28
jiangsu	665.42	471.46	463.67	281.31	201.24	0.17
henan	1192.27	2087.54	2083.88	1628.03	853.56	0.99
zhejiang	2550.10	1989.03	1981.62	1692.67	714.72	0
fujian	1728.57	368.51	368.12	185.56	1390.80	3.87
guizhou	687.11	354.70	354.70	324.11	332.41	0.75
shaanxi	565.51	345.79	344.15	47.33	219.80	0.01
heilongjiang	738.79	239.41	239.41	166.14	524.57	2.43

The cost and benefit analysis of meat rabbit by scale

Because there is no authority of rabbit breeding scale classification standard, this article uses the classification of free-range breeding, small-scale, medium-scale and large-scale based on the national development and reform commission "cost-benefit compilation of data of main agricultural products in China". That is, the annual column quantity of meat rabbits less than 300 is defined as free-range breeding households; between 300 and 1000 is small-scale households; between 1000 and 10000 is defined as medium-scale households; and the annual column quantity over 10000 is large-scale households (Zhao C.X., 2013). According to our survey, there are no meat rabbit farmers whose column quantity is less than 1000 in 2018, so the cost and income of meat rabbits are divided into only two categories: medium scale and large scale.

The average total production cost of rabbits of different sizes is 6.50 dollars per rabbit. Among them, the average total production cost of medium-sized households is 10.15 dollars; The total production cost of large-scale households is relatively low, averaging 4.72 dollars per unit. the average output value of meat rabbits of different sizes is 8.48 dollars per rabbit, and the average output value of main products is 8.33 dollars. The output value of medium scale raisers was 9.09 dollars, while that of large scale raisers decreased to 8.18 dollars per rabbit.

The average net profit of large scale farmers reaches 3.46 dollars per animal, while the average net profit of medium scale farmers is as high as 1.06 dollars per animal. And medium scale farmers are generally in a loss state, while large scale farmers are in a profit state. (see table 2 for details)

Table 2: Cost and benefit of meat rabbit of different scale in 2018(unit: per hundred)

project	Output value of main product (dollars)	total cost (dollar)	Production cost (dollars)	Material cost (dollars)	Net profit (dollars)	Cost-profit ratio (%)
mean	833.00	650.05	648.53	460.77	197.87	0.61
Medium-scale	879.34	1015.07	1012.30	616.04	-106.39	1.24
Large-scale	810.39	471.88	470.97	384.99	346.38	0.3

CONCLUSIONS AND SUGGESTIONS

Through the above analysis, the following conclusions can be drawn:

(1) In terms of costs and benefits of different provinces, the total production cost of rabbit is the lowest in heilongjiang province and the highest in Henan province. The reason for the high total production cost in Henan province is the high feed cost. And Fujian has the highest net profit, while Henan and Sichuan are in the red. At the same time, Fujian province has the highest cost profit rate, and all other provinces have positive value, which is within the range of 0~1%.

Therefore, the improvement of the benefit of rabbit breeding should be carried out from two aspects. On the one hand, we should control the total production cost of the meat rabbit, including control the material expenses of the meat rabbit production, especially the feed expenses and strengthen standardization of meat rabbit breeding, and the prevention of epidemics to reduce the breeding cost of meat rabbit. On the other hand, we should improve output value, including increasing the output value of main products by raising the breeding level and bringing in good varieties, and improving utilization of by-products to increase the output value of by-products. In addition, it is a good way to increase breeders' income by for deep processing of rabbit meat.

(2) In terms of costs and benefits of different scales, meat rabbit shows the trend of decreasing cost with the expansion of breeding scale, although the scale effect of meat rabbit is not obvious from the point of output value, which may be caused by large-scale households controlling production cost at a lower level through scale. And we can see the meat rabbit industry is in the profit state as a whole, and the profit degree presents an increasing trend with the expansion of breeding scale. Medium scale breeders are in the loss state, while large scale breeders are in the profit state, which indicates that the development of the meat rabbit industry will become more and more large-scale and centralized (Wu L.P., 2017).

Therefore, farmers increase income by different method in different scale : for large-scale farmers, it is better to improve earnings by increasing labor input, health and epidemic prevention cost and technical investment, and standardizing their building of rabbit cage and other feeding equipment, etc.; And extending the industrial chain of the rabbit industry to a certain extent. for medium-scale farmers, it is much better to pay attention to disease prevention, strengthen health protection, and increase the care of rabbits to improve the income. In addition, in the future, necessary policy measures should be adopted to encourage the transformation of qualified medium-scale farmers to moderate large-scale farmers, so as to improve the economic benefits of the meat rabbit industry.

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COST AND BENEFIT ANALYSIS OF MEAT RABBIT BREEDING

---Based on 2018 National Survey Data of 13 Provinces in China

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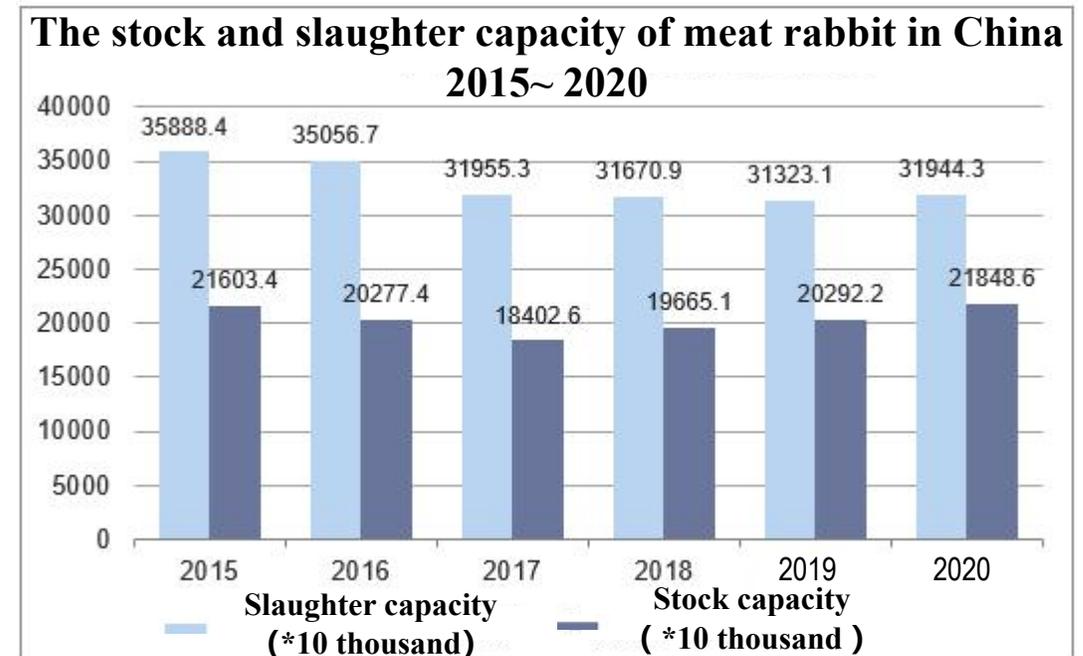
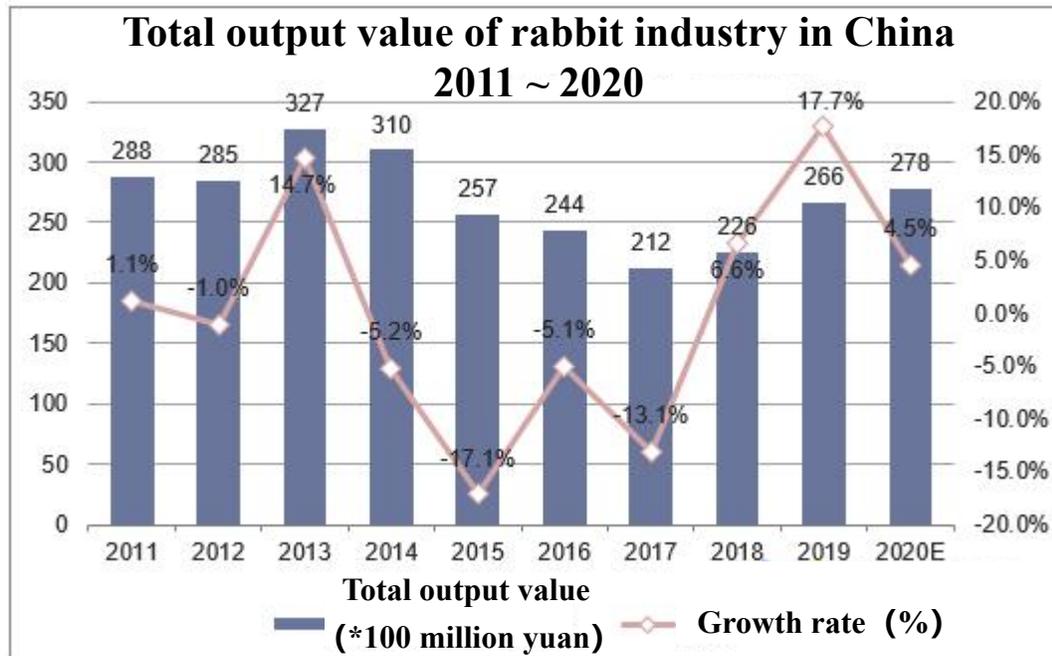
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CONCLUSIONS AND SUGGESTIONS

01 INTRODUCTION



- As a meat product, rabbit meat is characterized by relatively low calorie and fat content.
- The output value of China's rabbit breeding industry fluctuates greatly.
- Research on the development of the meat rabbit industry is significant. **So how is the development of the meat rabbit industry? What is its cost-benefit?** Studying the cost and benefit of meat rabbit industry is beneficial to ensure the supply of meat rabbit products and the long-term stable development of rabbit industry.



02 MATERIALS AND METHODS



●Data source

- The farmer survey data obtained by the Industrial Economic Team of the National Agricultural Rabbit Industry Technology System in China's main rabbit-raising areas from November to December 2018.
- The rabbit breeding situation in the surveyed areas can basically represent the overall development of the country.

●Data processing and Methods

- This study is a statistical analysis of cost and profit of meat rabbit based on the collected data.

03 RESULTS ANALYSIS

□ The cost and benefit analysis of meat rabbit by province

Cost and benefit of meat rabbit of different provinces in 2018 (unit: per hundred)

project	total cost (\$)	Production cost (\$)	Output value (\$)	Output value of main product (\$)	Net profit (\$)	Cost-profit ratio (%)
mean	650.05	648.53	780.71	765.80	130.67	0.61
yunan	322.19	322.19	680.03	680.03	357.84	0.28
jilin	611.44	611.44	757.69	747.34	146.26	0.74
sichuan	646.51	646.51	598.03	594.01	-48.48	0
shandong	693.46	691.44	710.42	695.58	16.96	0.1
shanxi	420.93	420.93	730.40	730.40	309.46	0.46
guangxi	405.33	405.33	604.47	604.47	199.14	0.28
jiangsu	471.46	463.67	672.70	665.42	201.24	0.17
henan	2087.54	2083.88	1233.98	1192.27	-853.56	0.99
zhejiang	1989.03	1981.62	2703.75	2550.10	714.72	0
fujian	368.51	368.12	1759.31	1728.57	1390.80	3.87
guizhou	354.70	354.70	687.11	687.11	332.41	0.75
shaanxi	345.79	344.15	565.59	565.51	219.80	0.01
heilongjiang	239.41	239.41	763.98	738.79	524.57	2.43

03 RESULTS ANALYSIS



- The average total cost of each meat rabbit is 6.50 dollars per animal, while the lowest was in Heilongjiang, and the highest is Henan. The reason for the high total cost in Henan province is the high feed cost.
 - The average output value is 7.81 dollars per animal, the average value of the main product is 7.66 dollars. The gross product is mainly determined by the output value of main products.
 - The average net profit is 1.31 dollars per rabbit. Both Henan province and Sichuan province are in a state of loss, The rest provinces are profitable. The average Cost-profit ratio is 0.61.
- ◆ The average total cost and output value of different provinces vary greatly. In terms of profit, except for Henan and Sichuan, all provinces have made profits.

03 RESULTS ANALYSIS

□ The cost and benefit analysis of meat rabbit by scale

Cost and benefit of meat rabbit of different provinces in 2018 (unit: per hundred)

project	total cost (\$)	Production cost (\$)	Output value (\$)	Output value of main product (\$)	Net profit (\$)	Cost-profit ratio (%)
mean	650.05	648.53	847.92	833.00	197.87	0.61
Medium-scale	1015.07	1012.30	908.68	879.34	-106.39	1.24
Large-scale	471.88	470.97	818.26	810.39	346.38	0.3

- ◆ The meat rabbit industry is in the profit state as a whole
- ◆ Meat rabbit shows the trend of decreasing cost with the expansion of breeding
- ◆ The development of the meat rabbit industry will become more and more large-scale and centralized

04 CONCLUSIONS AND SUGGESTIONS

- In terms of cost and benefit of different provinces and scales:
- Strengthening the standardization of meat rabbit breeding and the prevention of epidemics
- Improving utilization of by-products; participating in deep processing of rabbit meat
- Encouraging the transformation of qualified medium-scale farmers to moderate large-scale farmers

THANK YOU!