

Research Article

Development Problems and Suggestions for the Giant Salamander Industry

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Abstract

The Chinese giant salamander (*Andrias davidianus*), the American giant salamander (*Cryptobranchus alleganiensis*), and the Japanese giant salamander (*A. japonicum*) are precious aquatic protected animals that currently exist in the world. The latter two cannot be traded locally, whether wild or cultivated, and can only be protected, so they have not formed an industry. However, China allows the second generation of artificially bred offspring giant salamander to be traded and has already formed a factory scale breeding. The Chinese giant salamander has high economic value in food, health, medicine, beauty and other fields. In recent years, its artificial breeding industry has been widely developed in China and has a certain industrial scale. However, there are also many problems in the development of the giant salamander industry. In order to promote the high-quality development of the giant salamander industry and improve its quality, this article conducts research on the giant salamander industry, identifies existing problems, and provides suggestions. Firstly, this article analyzes the problems in the development process of giant salamanders from multiple perspectives, including management, service, market, research and development, and brand awareness. Secondly, corresponding industrial development strategies are proposed, including increasing regulatory efforts, enhancing service awareness, building market order, expanding sales channels, increasing research and development investment, reducing disease occurrence, extending the industrial chain, and strengthening brand awareness. Finally, the prospects for the development of the giant salamander industry are discussed.

Keywords

Giant Salamander, Industry, Problems, Suggestions

1. Introduction

The economic value of giant salamanders is extremely high, and they have broad prospects for development and utilization

in various fields such as food, health, medicine, and viewing, thus attracting attention from all sectors of society [1-3]. The

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muscles of giant salamanders contain over 70 natural active substances that can promote physiological activities, improve metabolism, promote protein synthesis, regulate immune function, and enhance disease resistance in the human body [3-5]. The liver, mucus, skin, fat, cartilage and other organs of the giant salamander are also rich in various bioactive substances, such as collagen, glycoproteins, bioactive peptides, metallothioneins, frog skin hormones, etc. [6-9]. The food developed with giant salamanders has the effects of nourishing qi, blood, and intelligence, and has auxiliary therapeutic effects on diseases such as neurasthenia, anemia, dysentery, and malaria [10-12]. The skin, muscles, mucus, bones, and other organs of the giant salamander can also be used as traditional Chinese medicine. Giant salamander meat not only has nutritional benefits, but also has therapeutic effects on anemia, cholera, dysentery, etc. [12-15]. Giant salamander skin powder can be combined with tung oil as a special medicine for treating burns and scalds. Therefore, giant salamanders have broad development prospects in the healthcare industry. China allows the second generation of artificially bred giant salamanders to be traded, and has formed a factory scale breeding industry. However, there are also many problems in the process of industrial development. This article summarizes this and proposes corresponding suggestions.

2. The Problems of the Development of the Giant Salamander Industry

2.1. Insufficient Management and Lagging Service

The giant salamander is a second-class protected animal in China. According to relevant laws and regulations, such as the Wildlife Protection Law and the Implementation Regulations for the Protection of Aquatic Wildlife, artificial breeding of giant salamanders requires relevant permits for breeding, transportation, and trading. However, in reality, there are situations where legal supervision is not strict, such as many breeders operating without a license, and even illegal activities of privately trading wild giant salamanders. In addition, the service awareness of relevant departments for the development of the giant salamander industry needs to be strengthened, and the service system also needs to be improved. At present, China's giant salamander industry has reached a certain scale, but in the actual production process, farmers often encounter various technical difficulties, most of which rely on their own exploration to solve, and even rely on fate. The service efforts of functional departments in technical training, experience promotion, and financial support are not enough.

2.2. Market Disorder and Sluggish Sales

The breeding industry of giant salamanders has gone through ups and downs from scratch. In the early stages, due

to low production and high market demand, there was a shortage of supply, causing farmers to raise prices and making giant salamander breeding a profitable industry. In recent years, due to policy influences, the high-end consumer goods market has been sluggish, with a huge stock of giant salamanders and a shrinking demand, resulting in oversupply and a cliff like decline in market prices. In addition, in the process of operation, most breeders still operate in the form of small workshops on a household basis, with extensive management. There are not many leading enterprises with a certain scale. Furthermore, due to the relatively closed information system in rural areas, the sales channels for giant salamanders are narrow and their operations are relatively passive.

2.3. Insufficient Research and Development, Frequent Occurrence of Diseases

The large-scale artificial breeding of giant salamanders started relatively late and there is still a lack of scientific research and development. On the one hand, there is a lack of professional scientific research talents, teams, and institutions, and on the other hand, there is a lack of necessary investment in research and development funds, resulting in a low survival rate in the breeding and cultivation process of giant salamanders. There are also illegal drug residues in the adult quality inspection and quarantine process, and even diseased salamanders flowing into the consumer market, causing food safety hazards. At the same time, due to limited technology, extensive development models, and a shortage of professional personnel, the giant salamander breeding industry lags behind in germplasm protection and disease prevention technology, causing significant economic losses to breeders.

2.4. Single Product, Lack of Brand

The giant salamander is full of treasures and has a very high economic value. It has a wide range of development and utilization prospects in food, health, medicine, and ornamental fields. Although there are many reports on the development of giant salamander products in the academic community, such as research on giant salamander skin gelatin, in reality, these scientific research achievements are rarely translated into industry, and the integration of industry, academia, and research is not close enough. Therefore, overall, the development of related industries of giant salamanders is insufficient, the industrial chain is short, the products are single, the added value of the industry is not high, and there is no integration with ecological tourism and cultural industries to achieve resource complementarity and promote industrial upgrading. In addition, some breeders have conservative ideas and a speculative mentality of making quick money. They lack long-term development plans for their enterprises, focus on production while neglecting quality, have weak brand awareness, and develop in a herd like manner. Homogenization competition is fierce, products lack characteristics, and

they have not formed their own unique brands, making it difficult to grow and strengthen their enterprises.

3. Suggestions for the Development of the Giant Salamander Industry

3.1. Intensify Regulatory Efforts and Enhance Service Awareness

Government departments should strictly regulate all aspects related to giant salamanders, including capture, domestication, breeding, cultivation, and management. Strengthen the administrative review of domestication and breeding of giant salamanders, enhance the supervision of introduction, feeding, medication, and disposal of dead and dead salamanders, and promote the healthy and sustainable development of the giant salamander industry. At the same time, it is necessary to strengthen the protection of the rare resource of wild giant salamanders, increase the protection of their habitats, eliminate human destruction from the source, and gradually restore the population of wild giant salamanders. In addition, efforts should be made to enhance the service awareness of functional departments and strengthen the integration of science and technology with the production of giant salamanders. Establish industry associations, formulate industry development plans, provide more services and guidance to farmers from both policy and technical perspectives, establish multi-channel and multi-level funding mechanisms, including national and provincial financial subsidies, poverty alleviation funds, agricultural funds, and related supporting funds, etc., to break through the bottleneck of the development of the giant salamander industry.

3.2. Building Market Order and Expanding Sales Channels

Economic principles tell people that prices fluctuate around value. The recent decline in the market price of giant salamanders can be seen as a rational return. To ensure the healthy development of the market, it is necessary to strengthen the supply side regulation of the giant salamander industry. On the one hand, it is necessary to improve the quality of finished products, reduce diseases and drug residues. On the other hand, it is also necessary to follow market rules, eliminate speculative psychology, and release products in a reasonable price range. Only in this way can a stable and orderly market be built. At present, e-commerce is in the ascendant. It makes all aspects of traditional business activities electronic and networked, realizing the sharing of information and resources. "Internet plus" has been integrated into all walks of life, changing people's consumption patterns. The giant salamander industry can consider fully combining "Internet" and "Internet of Things" to develop e-commerce economy, which can reduce sales costs and expand sales channels.

3.3. Increase Research and Development Investment to Reduce the Occurrence of Diseases

At present, there is a lack of integration between scientific research on giant salamanders and production practices. Government functional departments should coordinate planning, bridge the gap, organize relevant research institutes, connect various scientific research forces, establish close connections between enterprises and research institutions, build scientific research platforms, increase investment in human and financial resources for scientific research, promote scientific research planning, research and development, exchange, provide all necessary support for scientific research on giant salamanders, and strive to promote the transformation of scientific and technological achievements, so that scientific research can generate economic benefits and truly achieve effective integration of industry, academia and research. During the breeding process of giant salamanders, the occurrence of diseases is the most deadly, and a large-scale epidemic may cause the breeding enterprises to lose everything. Therefore, in addition to strengthening supervision and regulation in disease and epidemic prevention and control, government departments should also organize scientific research and technical personnel to increase technical guidance in this area. For example, a specialized research institution for giant salamander diseases should be established under the leadership of functional departments, and regular training on disease prevention knowledge, medication guidance, and experience promotion should be conducted to minimize the occurrence of diseases as much as possible.

3.4. Extend the Industrial Chain and Strengthen Brand Awareness

At present, most giant salamander enterprises are still focused on the primary processing and packaging of giant salamander meat, with a single product and an incomplete industrial chain. To achieve greater economic benefits, enterprises must extend the industrial chain, increase efforts to develop deep processed products related to giant salamanders, such as health products, skincare products, medicinal wine, etc., gradually improve the giant salamander resource-based industrial chain, increase the added value and profits of products, and achieve a healthy development of the giant salamander resource-based industry. At present, there are few nationally renowned brands in the giant salamander market, indicating that farmers have weak brand awareness and are still in the stage of extensive operation and homogeneous competition. This inevitably leads to a mixed market of good and bad products. Therefore, in order to play the unique card of giant salamander, we should strengthen brand awareness, support local leading enterprises, concentrate our efforts to create a distinctive giant salamander brand, and enhance market awareness and influence.

4. Outlook

After experiencing ups and downs from scratch, the giant salamander industry has eliminated a number of small workshop style operators. At the same time, some enterprises have also gained experience, emerged from the waves, and become industry leaders. Take Zhangjiajie City as an example, there are 7 giant salamander product processing enterprises, which have developed nearly 100 giant salamander products, such as giant salamander longevity noodles, oligosaccharide peptide fruit drinks, giant salamander Rice noodles, giant salamander cans, skin care products, etc. Some companies have collaborated with well-known pharmaceutical companies to develop maternal and child products such as Wawayu maternity health products and infant rice paste. Some companies have successfully listed on the "New Third Board" and established "TM (Trade Mall)" flagship stores to develop e-commerce teams, while others have successfully listed overseas and formed WeChat business teams with good development momentum. Looking ahead to the future, we believe that under the guidance of these well-known enterprises, the Chinese giant salamander industry will steadily develop and more products will be able to go abroad and enter the world.

Abbreviations

TM Trade Mall

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Conflicts of Interest

The authors declare no conflicts of interest.

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