Research on Organic Rice Industrialization and Ecological Economic Evaluation

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Abstract. Organic rice industrialization and ecological economic evaluation not only have obvious significance for production practice of organic rice, but also are deeply related to unification of economic value and social value as an important field of organic agriculture development in China. In the research process of the paper, the author combines current situation of organic rice industrialization development in China as well as economic and ecological society for in-depth analysis, thereby proposing development countermeasure.

Introduction

Consumers pay more and more attention to health with improvement of people living standard, which also promotes further agriculture development to harm-free and pollution-free direction objectively. Therefore, it is urgent to set novel technology and quality standards. Organic rice is an important development field of organic agriculture in China. It is matched with ecological principle with good development prospect.

Current Situation of Organic Rice Development in China

Existing condition shows that organic agricultural production and food development are still at the initial stage in China. There are various disadvantages, such as smaller production scale, single variety, etc. In addition, organic agricultural products have relatively low marketization level. Both marketing network and marketing channels are deficient. Processing technologies are also unsatisfied, especially for organic food in the aspects of preservation, storage and transportation, intensive processing, etc., which are relatively weak. In addition, since organic food market is relatively small, only a small percentage of enterprises are willing to participate in the market. Most enterprises are still lack of confidence on organic agricultural products market. Therefore, they do not have resolution for developing organic agriculture. Organic agricultural products are relatively weak themselves. Organic production base, agricultural product authentication management and other aspects are not standardized, thereby affecting long-term development of organic agriculture in China seriously. Compared with western developed countries, China organic agriculture is developed for shorter time, though corresponding research institution and consulting institution have been established, more perfect system is not formed. Therefore, there is not sufficient theory study in the aspect of organic agriculture production technology, and systematic thereof is insufficient as support.

Domestic and foreign scholars have achieved corresponding research results aiming at ecological economic evaluation of organic rice. Many scholars generally
believe that the fertility of the soil will be increased to a new level after organic production mode is adopted for rice. Organic rice yield will enter a production stage after corresponding transformation stage. It is also a stage for restoration and growth. In addition, soil and ecological conditions for continuous yield increase are also available.

**Analysis on Organic Rice Industrialization**

**Analysis on Organic Rice Base Construction**

The principle of ecosystem must be followed strictly in the process of constructing organic rice production base. Organic fertilizer is reasonably used, therefore healthy soil with vitality. It also can objectively promote optimization and establishment of ecosystem. Specifically, standardized and scientific unification should be ensured for organic rice base construction. Organic rice cultivation not only needs to follow scientific principles, but also should take into account the provisions of standards. Relevant certification institution needs to regularly check production base. If the production base violates related regulations of certification institution, the produced agricultural products can be sold in the market. In addition, related contents of ecological agriculture technology theory and recycled economy theory also should be considered for selecting organic rice base, thereby the base is rationally planned and designed; the market is expanded and extended. Secondly, the principle of combining production and market expansion should be followed. Since organic rice is safe with high quality, the sales are difficult since the price is higher than conventional rice. Therefore, the market should be placed in an important position during organic market base construction process. Market prospect should be fully considered, thereby perfecting related plan and contents of product marketing. Of course, coordination relationship among economy, environment and society also should be focused. Economic benefit is an important objective in the process of organic rice industrialization development. Concretely, agricultural ecological engineering should be utilized rationally from many levels. Thereby overall productivity of organic rice base construction can be improved effectively. Environmental benefits show that there is certain requirement on production of biodiversity. Bare land should be reduced as far as possible aiming at protection of water resources and soil resources. Water source pollution can be reduced to a minimum level. Safety of vast consumers should be mainly considered aiming at social benefits; thereby workers can achieve more employment opportunities, thereby maximally ensuring that awareness of environmental protection can be improved in the whole society.

**Organization Mode of Organic Rice Production**

At present, the most common rice production mode in China is that Distribution Company is placed in a leading position. Integrated operation of production, processing and sales can be realized through signing contract with production base, thereby improving economic benefits finally. Under the mode, corresponding farmer transaction cost and risks can be improved, and a series of services are provided for farmers maximally. In the organization mode, leading enterprises must ensure sufficient fund and advanced technology. The key of agriculture industrialization operation lies in that a batch of stronger empty enterprises should be cultivated; the enterprises should have stronger driving ability and wider radiation scope. Therefore, farmers can benefit from the production link, and farmer income can be effectively increased.
There is a production mode combining organic farming cooperatives and farmers in China. Under the mode, corresponding agricultural professional associations, supply and marketing cooperatives, rural cooperatives and other cooperative economy organizations are combined together to provide farmers with integrated services in many links such as production, processing, sales, etc. The mode can better promote further coordination between farmers and market. Joint cooperation of several farmers is related on one hand, it is also related to joint cooperation of the whole village in the aspect of organization mode.

**Key Technology of Organic Rice Production**

First of all, choice of rice varieties has a vital role in the development of organic rice industrialization. Operators not only should focus on variety optimization, but also should fully consider the climate condition in the planting area in the selection process. Of course, soil fertilizer management is also required for fine varieties. There is an important fertilizer application principle in the production process of organic agriculture that all synthetic regulator or sewage should be prohibited. In addition, the fertilizer source in the system should be developed and utilized, thereby ensuring rational cycle of the organic substances comprehensively.

Destroy of insects pest is not pursued completely in organic agriculture development idea. Balance among all organisms should be kept, thereby ensuring healthy growth of rice. Under the environment, organic rice resistance can be improved; natural disaster defense ability will be improved properly. Because organic agriculture itself is also an ecological agriculture, breeding of heaven and earth can be utilized for effectively solving diseases and insect pests. Related measures of agriculture and labor should be integrated in the process of selecting high-quality disease-resistant varieties, thereby realizing comprehensive unification of many aspects, and controlling pests effectively.

The following contents should be focused in the process of disease prevention and control: the diseases are basically the same during production of organic rice and conventional rice. However, agricultural prevention and control should be reinforced mainly aiming at organic rice. The purpose of resisting diseases can be achieved through cultivation. Meanwhile, field management during production should be reinforced. Sound ventilation and stronger light penetration should be ensured; thereby humidity can be effectively lowered.

Drug can be used in the process of insect and pest prevention and control, which can be used under emergency condition and cannot be regarded as conventional rescue measures. There is the most effective mode in pest prevention that a sound environment is created for organic rice growth, natural enemies are released or the mode of using microorganisms should be limited for pest control.
Marketing Mode of Organic Rice

In an efficient industrial system, an orderly market circulation network is required for perfection; organic rice itself belongs to a safe agricultural product with higher quality. In the process of keeping healthy development, there must be a sales channel belonging to it. Concretely, there are two channels for organic rice to enter market currently in China. One is supermarket, and another is the exclusive store. Since certain pressure can be produced on sales of organic rice due to goods source and cost, it is urgent to establish corresponding base. It should enter the sales terminal from the production field. Currently, novel marketing mode has been tried aiming at a part of rice in China. The leadership role of the government should be exerted fully under the mode, thereby obtaining market recognition, fully exerting the driving role of the leading enterprise, realizing integrated marketing mode of organic rice in the aspects of production, processing and trade as soon as possible.

Ecological Economic Evaluation of Organic Rice

Economic Evaluation of Organic Rice

Conventional rice production system is inevitably affected by rice quality factor and other objective factors. It is lack of market competitiveness. Therefore, there is certain friction and barrier between conventional rice production and economic income of farmers. Development of organic rice is within the scope of sustainable development. Effect unification in many aspects can be coordinated effectively and actively. Since fertilizer and pesticides are prohibited in organic rice, organic rice production investment can be reduced as a result. Of course, the safety of organic rice can be ensured objectively. The quality of rice must be improved for long term; the market competitiveness thereof can be improved to a brand-new level. It should be noted that development of organic rice can be beneficial for increasing income of farmer, and more farmers can actively take part in the organic production system. When employment is driven, the purpose of increasing income also can be realized.

The conventional rice production system is related to a lot of urea and compound fertilizer. Some pesticides for preventing and controlling diseases and insect pests also should be used. Therefore, the former is related to investment of some pesticide cost, meanwhile it can lead to pollution of ecological environment compared with organic rice 239 Yuan will be investment for rice of each mu on average.

<table>
<thead>
<tr>
<th>Item</th>
<th>Fenghuang Village of Yixing</th>
<th>Yuejin Farm of Chongming Island</th>
<th>Liufang Village of Liping County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>4125</td>
<td>6635</td>
<td>7248</td>
</tr>
<tr>
<td>Organic/ (kg/hm²)</td>
<td>7500</td>
<td>7075</td>
<td>9000</td>
</tr>
<tr>
<td>Percentage of organic rice in conventional rice/%</td>
<td>55</td>
<td>93.78%</td>
<td>81.65%</td>
</tr>
<tr>
<td>Rice purchase price/ (Yuan/kg)</td>
<td>6.34</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Organic</td>
<td>1.9</td>
<td>2.02</td>
<td>1.7</td>
</tr>
<tr>
<td>Difference multiple</td>
<td>3.16</td>
<td>1.68</td>
<td>2.12</td>
</tr>
</tbody>
</table>

However, although organic rice has stronger market competitiveness, organic rice production is lower within short term, organic rice production mode is adopted, and the input-output ratio is only slightly increased compared with conventional rice from
the perspective of industry development and industrial structure. It does not have prominent advantages in the aspect of net income. China provides corresponding rice subsidies on the farmers in order to prevent the farmers from bearing risks. The mode can bring corresponding income to farmers in the base actually, and they do not face economic risk problems.

**Evaluation of Ecological Benefit of Organic Rice**

Existing data show that beneficial organisms produced by organic rice after cultivation show prominent increase trend, mainly including frogs, spiders, dragonflies, etc. It is obvious that the ecological system can be utilized for effectively controlling harmful organisms. In conventional rice planting process, pesticides are excessively depended; thereby both beneficial organisms and harmful organisms can not be distinguished in paddy field.

**Evaluation of Social Benefit of Organic Rice**

Organic rice not only has more prominent economic benefits and ecological benefits, but also has more obvious social benefits in process of development. Since organic rice yield is relatively low, related market price is high; farmers can obtain many benefits from it. Farmers are clearly supported by current policies in China. Therefore, economic security of farmers can be satisfied. In addition, modern conventional rice has excessive dependence on pesticides, therefore non-renewable resources are consumed continuously, and more serious industrial pollution is even produced, which is conflicted with sustainable development concept of human beings. Closed cycle utilization is adopted in organic rice. Ecological relationship should be adopted for prevention and control of plant diseases and insect pests. Therefore, it has important role for maintaining ecological stability and social harmony.

**Conclusion**

In general, China does not form a relatively perfect production technology system. Therefore, conventional rice production technology should be summarized and induced in current production and development of organic rice on one hand, modern technology also should be blended in it, thereby giving full play to the driving role of leading enterprises, and ensuring that farmers can be served in the aspect of technical level during organic rice production.

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**References**


