

Research on the Development Status, Problems and Countermeasures of Group Standards in China's Food Industry

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Abstract: The formulation of food industry group standards is conducive to ensuring the effective supply of standards in the field of food safety and improving the development quality of the food safety industry. This article is based on the National Group Standards Information Platform and related materials to systematically analyze the current situation of group standards in China's food industry; At the same time, it is pointed out that there are problems with the current group standards in China's food industry, such as standards that do not comply with legal regulations, low innovation, and insufficient application. This will lead to a reflection on the management system of group standards. On the basis of fully considering the basic national conditions of our country and drawing on the experience of foreign standard management, provide comprehensive measures for the healthy development of group standards in China's food industry.

Keywords: Food Safety; Group Standard; Standard Management; Standardization

1. The Importance and Necessity of Formulating Group Standards in the Food Industry

Food safety is an important part of the national security system. China attaches great importance to food safety and has made long-term efforts to ensure the safety of the people's dining tables. However, there are still many risks in the field of food safety at present. From a global perspective, the risks in the global food supply chain continue to deepen, with ongoing outbreaks of diseases and epidemics, and Japan's nuclear contaminated water discharge into the sea highlighting environmental pollution and migration risks, bringing great uncertainty to food supply; From the perspective of local conditions, new

technologies, new formats, and new scenarios have given rise to new types of food safety risks. "Live streaming sales" food, takeaway food, "internet celebrity" food, "blind box leftovers" and other food safety risks have become high-risk areas.

Food safety standards are an important component of the food safety legal and regulatory system, and also an important measure to maintain national food safety. According to the Standardization Law of China, national standards are divided into mandatory standards and recommended standards, while industry standards and local standards are recommended standards. The nature of enterprise standards and group standards is different from the aforementioned standards. They are formulated by market entities themselves, voluntarily adopted and implemented, and belong to voluntary standards. Voluntary standards are an irreplaceable part of the standard system. Although mandatory national standards have enforcement power, the standard development cycle is too long and it is difficult to respond to the needs of the public in a timely manner; The main body responsible for formulating recommended standards is the administrative supervisory department, which has a strong public welfare attribute. The standard implementers are mostly recommended by the administrative supervisory department and rely on the state to promote recommended standards; The main body responsible for the formulation of voluntary standards is the relevant market entities, and the entire process from formulation to implementation is voluntary participation and consensus reached through consultation among all parties. The survival of the fittest of standards is based on the needs of market entities, and voluntary standards with high market acceptance naturally have a wide range of promotion. [1] As voluntary standards, group standards can play a crucial role in the field of food safety.

Due to the fact that group standards are jointly developed by social organizations and industry technology alliances with corresponding capabilities, such as societies, associations, chambers of commerce, and federations, to meet market and innovation needs. These standards are voluntarily selected by the market and independently formulated and published by social organizations and industry technology alliances. Therefore, they have the following characteristics: firstly, they are normative, serving as the basis for regulating members of social organizations to achieve the best order; The second is voluntary, where participants can freely express their will in formulating group standards and ensure the operation of group standards through voluntary implementation; The third is marketization, which is formulated based on market demand and enhances the effectiveness of standard supply to help the food industry provide high-quality products and services; The fourth is flexibility. The development cycle of group standards is short, which is an important supplement to national standards, industry standards, and local standards. It can respond more quickly to new food safety risks, such as the imported food safety risks caused by Japan's pollution discharge and the risks arising from technological innovation in the food industry such as artificial meat. [2]

However, due to the late start of group standard work in China, there are problems such as non-compliance with regulations, duplication of standard content, and non-public nature of standards. This article addresses these issues and proposes suggestions for the development of food group standards within the framework of the Food Safety Law and Standardization Law, in order to provide reference for strengthening the healthy development of group standards.

2. The Current Status and Application Challenges of Food Group Standards in China

2.1 The Current Status of Food Group Standards

All printed material, including text, From a quantitative perspective (As shown in Figure 1), by searching through the national group standard information platform and using publicly available group standard data

from April 1, 2020 to December 31, 2023 as the statistical basis, starting from the correlation between national economic industries and food safety, and using "agriculture, forestry, animal husbandry, and fishery", "wholesale and retail industry", and "accommodation and catering industry" as the statistical base, it can be seen that China's food group standards have been increasing year by year. Therefore, it can be inferred that the enthusiasm of various food groups to formulate standards has increased and there is great potential for development.

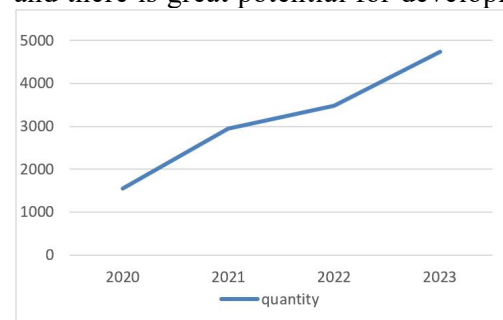


Figure 1. Trend of Changes in the Quantity of Food Group Standards

From a spatial perspective (As shown in Table 1), among the 426 group standards related to the food industry in the statistics, a total of 140 social organizations from 24 provinces have issued standards. Food group standards are distributed in all provinces, autonomous regions, and municipalities directly under the central government in China. The proportion of social organizations in Guangdong and Shanxi provinces issuing food group standards is 50%, indicating that they attach great importance to the work of group standards. In most areas, the activity of social organizations is low, and the food group standards issued are in single digits or even non-existent. The development of group standards is uneven in different regions.

Table 1. Domestic Distribution of Some Food Group Standards

Province	Yunnan	Beijing	Chongqing	Guangdong	Shanxi
Quantity	2	5	16	170	43

From the perspective of types, among the 426 group standards related to food safety in the statistics, it can be found that the types of group standards are mainly agricultural products and processed products, with local specialty foods being the most common. At the same time, starting from production, procurement, transportation, inspection and other links, a food group standard system is

constructed, but mainly focusing on the production link as the key regulatory object. [3]

2.2 Problems with Food Group Standards

2.2.1 Food group standards do not comply with legal regulations

At present, the enthusiasm of social organizations to formulate standards has significantly increased, but with the rapid growth of food group standards, there are quality issues with the standards. Article 12 of the Regulations on the Management of Group Standards stipulates that the technical requirements of group standards shall not be lower than the relevant technical requirements of mandatory standards. From the publicly available food group standard texts in 2023, it can be found that social groups have not complied with this requirement in carrying out standardization work.

Formally speaking, the food group did not implement the provisions of Article 15 of the "Regulations on the Management of Group Standards" and wrote group standards in accordance with the provisions of GB/T 1.1 "Guidelines for Standardization Work Part 1: Structure and Writing of Standards", resulting in non-standard food group standards. Firstly, the cover format of the food group standard is incorrect. The "Management Measures for Group Standards" clearly stipulate that the cover format of group standards should include the name and English translation of the group standard, ISC number, Chinese standard literature classification number, etc. However, among the 426 food group standards included in the statistics, 57.3% had incorrect cover formats, most of which lacked the English translation of the group standards, and some group standards did not specify the replaced group standard number. Secondly, the naming of food group standards is not standardized. The Jingyu County Specialty Products Association has released two standards with the same name "Production Regulations for Jingyu Linxia Ginseng of Geographical Indication Agricultural Products", but one specifies the use of the logo and the other specifies production, transportation, and other content, which can easily lead to confusion among standard users. Thirdly, the publication date and implementation date specified in the food group standard text are not standardized. Some food group standards are released later

than the implementation date, and some food group standards have implementation dates that are not consistent with those specified in the standard text and published on the national group standard information platform.

2.2.2 Insufficient innovation in food group standards

Article 13 of the Regulations on the Management of Group Standards stipulates that the development of group standards should aim to meet market and innovation needs, focus on new technologies, industries, formats, and models, and fill the gaps in standards. By reviewing publicly available food group standard texts, it can be found that the content of the standards is relatively simple, and the necessity of standard formulation has been questioned, especially for catering group standards that tend to focus more on dish preparation rather than standardization work. The T/SXPX 003-2021 "Taiwan Mushroom Stewed Chicken" of the Shanxi Province Culinary and Catering Industry Association only specifies the ingredients, production processes, and plating of the dishes. The quality requirements for the dishes are mostly based on general terms such as rich soup and tender meat, and there are no regulations on inspection methods, safety indicators, etc. that are closely related to food safety. The state encourages the development of group standards in the fields of "new technologies, new industries, new formats, and new models", but in practice, there are few relevant group standards, and the advantages of group standards have not been fully utilized in a timely manner for the food safety risks arising from new technologies and new formats. For example, there is no relevant food group standard to regulate the safety and quality of artificial foods such as "artificial meat", genetically modified foods, and takeaway foods. At the same time, there is a serious overlap between the content of group standards and national and local standards, which cannot achieve the goal of filling the gaps in existing standards. Although social organizations can quickly develop standards based on market needs, there is a phenomenon of blindly developing a large number of group standards following hot topics. Group standards have become a springboard for various social organizations to award and strive for honors. [4]

2.2.3 Insufficient practical application of food group standards

Despite the significant increase in the number of food group standards, the actual adoption rate in food production, processing, and sales is not high. Food companies have insufficient trust in group standards, coupled with the lack of widespread application of food group standards, their applicability has not been fully tested by the market, and the market recognition of group standards is not high, which increases the difficulty of application in the food industry. Taking Shanxi Province as an example, according to the data on the Enterprise Standard Information Public Service Platform, as of December 31, 2023, the proportion of implemented food group standards among the 6 food group standards publicly available on the platform is 14% compared to the total of 43 food group standards in Shanxi Province.

The State Administration for Market Regulation clarified in its response to the question "Can group standards be used as implementation standards for food?" that group standards can be used as implementation standards for food, but they should obtain authorization from the group standard organization in advance. The authorized production enterprises should publicly disclose the corresponding standard numbers, names, and the full text of the published standards as required. The standard content should include functional indicators and performance indicators of the product, as well as effective technical requirements such as corresponding testing methods, inspection methods, or evaluation methods. That is, the implementation of group standards by food enterprises is based on the disclosure of the standard text. The group standard implements a self declaration and disclosure system, and there is no mandatory requirement for the text of the group standard to be disclosed. On the one hand, it reflects the voluntary nature of the group standard, and on the other hand, it protects the copyright of the group standard. However, the food industry has its own particularities and is closely related to personal safety. Without publicly disclosing the group standards it implements, it is difficult to gain public trust. Most food group standards are not sellable, and if other food companies outside of social organizations want to adopt these

standards, it is difficult to know the content of the standards, resulting in the inability to verify the effectiveness of food group standards.

3. The Institutional Causes of Inadequate Management of Food Group Standards

3.1 Insufficient Understanding and Professional Competence of Social Organizations

Unclear understanding of the positioning of group standards among members of social organizations can affect the application of food group standards. At the same time, the group standards in our country are a new phenomenon, and the publicity and education efforts are insufficient. Social groups can only explore in the process of formulating standards, lacking systematic learning of knowledge related to group standards, which affects the quality of food group standards. [5]

The entry threshold for the formulation of food group standards is low. Article 8 of the Measures for the Management of Group Standards stipulates that staff familiar with relevant laws, regulations, policies, and professional knowledge of standardization should be equipped, and an internal work department with functions such as standardization management coordination and standard development should be established. However, in reality, social organizations only need to complete registration with relevant administrative departments to start the institutional activities of group standards, and there will be no substantive review of the professional knowledge reserves of the formulating body. The main bodies responsible for formulating food group standards are mostly industry associations, societies, and company members, with insufficient professional standardization capabilities, making it difficult to provide strong intellectual support for standard formulation. When national or provincial social organizations formulate standards, they often cooperate with professional institutions such as standardization research institutes and inspection companies to form expert teams to provide technical support; However, for some municipal and county-level food group standards, they are directly drafted by members of relevant companies and industry

associations, and there is even a situation where there is only one drafting member, resulting in weak industry representativeness of group standards. Social organizations have insufficient understanding of their own positioning, and have developed group standards beyond their business scope. The scientificity and applicability of the standards are questionable, greatly reducing the competitiveness of food group standards.

3.2 The Regulatory Mechanism for Food Group Standards Is Not Perfect

Review is an internal supervision method of social organizations, which is an important task to evaluate the effectiveness of standard implementation and timely eliminate outdated standards. However, in practice, the initiation of review is often passive, making the review provisions a formality and difficult to continuously track and supervise the implementation of group standards. In the group standard formulation documents released by various social organizations on the national group standard information platform, there are three main ways to initiate the standard review work: first, the drafting unit of the relevant group standard actively applies; Secondly, according to the development needs of relevant fields; The third is to promptly organize reexamination activities after receiving complaints and reports. However, the drafting unit lacks the initiative to apply for review, and there is no reliable basis for judgment in the development of related fields. The nondisclosure of standards and the operation of complaint and reporting mechanisms seem to be a paradox, making it difficult to initiate the review work and reducing the possibility of the self supervision mechanism for food group standards.

Article 32 of the Regulations on the Management of Group Standards stipulates that the standardization administrative department and relevant administrative departments shall supervise and inspect the implementation of group standards. However, in practice, government supervision is difficult to achieve effective results. Government regulation is mostly post implementation supervision of group standards, lacking detailed regulatory measures for proposals, projects, drafting, and other processes, making it difficult to control the quality of group

standards from the source. Due to various business reasons, the government has failed to take timely measures to regulate, resulting in the existence of non-standard group standards. For the T/TYXH TYXH10-2017 "Bowl Steamed Salt Pond Tan Sheep Lamb Meat" released in 2018, several experts and scholars pointed out the problem of referencing and abolishing standards. However, until 2023, it has not been corrected in the standard text published on the national group standard information platform and the standard is still valid.

3.3 Lack of Standardized Coordination Platform for Social Organizations

Different local social groups are independent of each other, and the coordination mechanism between them is underdeveloped. Generally speaking, the application of standards has a strict geographical scope, but group standards can effectively break through the effectiveness barriers of local and industry standards due to the diversity of developing entities and the flexibility of application. Due to the closed information and lack of communication and coordination among various food groups, the possibility of jointly issuing group standards has decreased. Group standards that could have been universally applicable and cross applicable are difficult to break through administrative planning, and their application is still limited to local areas. Such group standards essentially become an extension of "local standards", and the scope of implementation and application of group standards is limited.

In the process of standard approval, there is a lack of relevant coordination agencies to regularly organize food groups for communication, build a platform for communication and cooperation for groups with similar group standard approval plans, gather cohesion, promote cooperation among food groups, and expand the application scope of group standards. At the same time, there is a lack of relevant organizations for supervision at the industry level, and administrative departments sometimes find it difficult to adjust standards in a timely manner when they are duplicated. However, industry organizations have a better understanding of the current situation of the industry and the need for relevant standards, which can better

measure duplicate standards and play a role in the market's survival of the fittest.

4. Optimization Path for Formulating Group Standards in the Field of Food Safety in China

4.1 To Strengthen the Capacity Building of Social Organizations and Achieve the Goal of Improving the Quality of Food Group Standards

Carry out publicity and education work on group standards, clarify the nature and effectiveness of group standards, enhance the cognitive ability of members of social organizations, and provide normative education on the compilation of food group standards, clarify the requirements for naming and content compilation, and strictly adhere to the bottom line of standard format. [6] At the same time, by strengthening pre review and post evaluation, the threshold for setting food group standards can be raised. When conducting research and project approval for group standards, it is important to focus on reviewing the composition of personnel. Not only should the quantity ensure sufficient industry representation and involve all stakeholders, but also personnel with food safety related research background or practical experience should be equipped in depth, especially in the process of determining food safety indicators with professional guidance; When evaluating the good behavior of social groups by third parties, the standardized talent reserve of social groups and the composition of personnel in the standard setting process are taken as one of the evaluation indicators. Each social group should base themselves on their own market positioning, fully leverage their resource advantages, and develop food group standards with market competitiveness, rather than blindly pursuing the quantity of standards. Whether the standards are implemented in practice and the effectiveness of implementation should also be one of the evaluation criteria for good behavior. Strengthen cooperation with professional institutions to improve the quality of food group standards, fully leverage the role of consulting experts as "external brains", seek the help of standardization research institutes, inspection companies and other professional institutions, and present vague sensory

evaluation indicators such as taste and texture in concrete data such as texture and flavor. [7]

4.2 Relieve the Phenomenon of Duplicate Standards through Industry Autonomy

The voluntary standard system in the United States is one of the most effective and comprehensive standard systems in the world. The American National Standards Institute (ANSI) is the governing and coordinating body for the voluntary standards system in the United States, described as being at the top of an umbrella organization. ANSI issues project approval and coordination notices during the standard development phase, and various market entities can provide written opinions to prove the existence of standard duplication or conflicts, and conduct mandatory review meetings for review. During the standard approval stage, ANSI's standard review department may reject group standards that conflict with current standards. During the implementation phase of the standard, if potential or existing duplications are found in the current standard, the standard negotiation will investigate and organize relevant groups for coordination. The National Institute of Standards and Technology (NIST) is responsible for coordinating government standards and fully utilizing voluntary standards in government procurement and legislation. [8]

The German Institute for Standardization (DIN) is responsible for coordinating between Germany and regional and international standardization organizations. It adheres to the principle of not allowing contradictory standard setting, so early standard proposals often need to be reviewed. At the same time, a Process Quality and Review (PQ) team has been established to address issues of duplicate and conflicting annotations, and to conduct editorial and technical reviews of standards during the standard development process. The German Standards User Committee (ANP) provides a platform for social groups to communicate and exchange ideas, which can to some extent reduce the occurrence of standard duplication and conflicts. [9]

Japan has formed a government led standardization work model that is different from the United States and Germany. The Japan Industrial Standards Corporation (JISC) is the national standard organization in Japan,

whose main task is to investigate, research, and review standards. JISC has established a general committee to conduct research and discussion on relevant standardization issues, determine standard development plans, and enhance the scientific nature of standards. At the same time, 26 technical committees have been set up to be responsible for the formulation of standards in specific industry fields. They absorb different stakeholders as committee members according to market demand, and set up cross industry technical committees to handle cross industry affairs. Before the release of standards, a special committee will investigate and review specific affairs. [10]

By analyzing the characteristics of each country, it can be found that the commonality lies in the establishment of institutions with market participants to conduct research, planning, and coordination of standards. Therefore, based on the national situation where group standards are led by the market, China can play a role in industry autonomy. Firstly, various social organizations should focus on conducting research on the formulation of food group standards and strengthen the top-level design of group standards. Various social organizations can establish specialized committees for research, with a diverse composition of personnel to ensure that all stakeholders can participate in the research process of group standards and enhance the feasibility of food group standards. At the same time, the specialized committee should promptly clarify the needs of stakeholders, develop a list of standard requirements, and propose project proposals for group standards based on the group's positioning and list. Secondly, China can establish a group standard coordination organization at the industry level. On the one hand, it can review and coordinate the content of group standards in the industry, avoid the phenomenon of standard duplication, and provide a platform for food groups to cooperate and communicate, enhance the possibility of jointly formulating group standards, and expand the scope and influence of application; On the other hand, when there is a duplication of group standards across fields and regions, relevant groups can be organized and coordinated for negotiation to timely withdraw the duplicated group

standards.

4.3 To Improve the Supervision Mechanism and Ensure the Application of Group Standards

Strengthen the construction of the review process and timely eliminate outdated food group standards. Firstly, administrative departments should strengthen the legal construction of the review work for social organizations. The "Regulations on the Management of Group Standards" stipulate that the general procedure for developing group standards includes review, but does not provide clear guidance on the review work of group standards, resulting in social organizations only making broad provisions for review in relevant documents. Secondly, improve the review operation mechanism. By clarifying the deadline for reexamination to enhance the initiative of social organizations to carry out reexamination work, group standards have flexible characteristics, so it is not necessary to be limited to the national standard reexamination deadline of once every five years. According to the number and frequency of standards released by the social organization, a reexamination working group can be formed regularly to flexibly determine the reexamination deadline and process. Finally, it is necessary to improve the mechanism for revising and exiting food safety standards. After the review is completed, promptly absorb the results of the review and the suggestions generated during the review process. For food group standards that need to be revised, advance the revision work by determining the revision deadline to prevent the failure of the review results; For food group standards that need to be abolished, it is necessary to promptly notify the internal team and publicly disclose the information of the standard abolition to the outside. If other group standard documents reference the standard, it should be revised in a timely manner to avoid referencing the abolished standard and causing the quality of the group standard to not meet the requirements.

Increase the way of self declaration disclosure to safeguard the autonomy of food groups. The original intention of establishing a self declaration disclosure system is to make standard information easily accessible and facilitate standard users to obtain group

standards to regulate the development of specific market areas. [11] The government sets incentive measures to encourage group participation. The effective participation of social groups is a prerequisite for the good operation of the self declaration disclosure system. [12] Therefore, it is necessary to design effective incentive measures and regulatory measures from the perspective of the group, so that social groups can personally feel the benefits brought by the self declaration disclosure system. Firstly, providing certain financial support or spiritual rewards to social organizations that publicly disclose the content of group standards. The second is to encourage national level social organizations to take the lead in publishing the content of group standards, which will provide positive incentives for provincial and municipal level social organizations, thus forming a leading effect between levels.

5. Conclusion

China is vigorously developing group standards, and it is imperative to use group standards to address food safety risks in our country. Social organizations in the field of food safety should closely focus on market demand and food safety needs, continuously innovate and develop, strengthen the capacity building of social organizations, deepen professional knowledge reserves, design a food group standard system, and increase the supply of high-quality group standards. At the same time, actively drawing on successful standard management experience from abroad, and leading the healthy development of group standards with industry autonomy. By improving the supervision mechanism, expanding the scope of application of group standards, strengthening the popularization and promotion of group standards, and using high-quality group standards to help achieve the goal of building a strong quality country.

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