

Predicament of Chinese Legislation on GMF Labeling Management and Solutions—From the Perspective of the New Food Safety Law

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Abstract

BACKGROUND: This paper considers the background of Article 69 of the newly revised Food Safety Law in China, in combination with the current situation of Chinese legislation on genetically modified foods (GMFs) labeling management, compares with foreign genetically modified food labeling management system, reveals the deficiencies in Chinese legislation on GMFs labeling management, to note the institutionalize, systemic consider of GMFs labeling management system in China.

RESULTS: China adheres to the principle of mandatory labeling based on both product and process in relation to GMFs and implements the system of process-centered mandatory labeling under the negotiation-construction form. However, China has not finally defined the supervision mode of mandatory labeling of GMFs through laws, and it's a challenge for GMFs labeling management in the event the two mandatory labeling modes coexist.

CONCLUSION: There're flaws in the mandatory labeling of GMFs in Article 69 of the newly revised Food Safety Law of China, only principle-based terms have been included in Article 69 of the newly revised Food Safety Law, it's theoretically and practically difficult for mandatory labeling of GMFs in juridical practices. Moreover, the GMFs labeling management system has been lagging behind. This paper describes and analyses the Article 69 of the newly revised Food Safety Law, through defining GMFs, adding the concept of threshold, allergization, unique code, potential toxicity, to expand the scope of the definition of GMFs and realize regulation of GMFs, and improve GMFs labeling management legislation.

Key Words: Genetically Modified Food; Mandatory Labeling; Legislation Issues; Suggestions

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1002/jsfa.8342

1 Introduction

Intense discussion has been made on the security of the GM technology and whether GM crops are allowed to be commercially planted in China. In order to maintain consumers' right to know, China made a revision to the *Food Safety Law* in 2015 by stipulating the system of mandatory labeling of GMFs in Article 69 in legal form, which requests "GMFs shall be distinctively labeled as required in the process of production and operation", "consumers may purchase GMFs at their sole discretion" and "Those who fail to label GMFs as required shall pay a fine at an amount 5 times more than but 10 times less than the value of the foods at most. Those who break the rule seriously shall be ordered to stop production and business until their license is revoked". However, since there are still many defects and disadvantages in the system of mandatory labeling of GMFs specified in the *Food Safety Law*, it will be difficult to manage GMF labeling in juridical practices.

2 Background of GMF Labeling

Management System

The international conference for GMO safety was first proposed in Asilomar, California on February 24-27, 1975, marking that people start paying attention to the safety of GMOs. After the conference, consideration has been given to the safety of GMOs for the development of genetic engineering.¹ Since the 21st century, the safety of GMFs has been a spotlight throughout the world.

According to the data published in the *China Food Safety Development Report (2015)*, during the ten high-incidence years from 2005 to 2014, there were 227,386 food safety incidents throughout the country and about 62.3 incidents every day on an average basis.² During the period, the safety of GMFs has aroused many disputes. The genetic engineering technology had a great impact on the world over the past decades. China's demand for GM food juxtaposed against increasing consumer apprehension towards the food system in general.³ With the generation of the man-made GM products formed naturally through science and technology transformation, the management and regulation of the products boom. Since the latter half of the 20th century when the genetic engineering technology was invented, it has not only improved human life, but also drawn great attention of all circles of the society to GMOs and GM product safety. The safety problem of genetically modified (GM) crops is becoming increasingly obvious and the potential risks are increasing.⁴⁵ One risk is that they may have negative impacts on the ecological environment; the second one is that they may have negative impacts on human health; the third one is that they may have negative impacts on social production activities and commerce and trade.⁶ The safety of GM products for human health is the core issue of the research. GMOs can be found in places where consumers would least expect, and consumers are left in the dark because companies are not required to disclose whether the product contains GM products and/or ingredients.⁷ On the basis of the safety of GMFs for human health, the paper makes a study on the GMF labeling management. Nowadays, there is still no scientific basis for the fact that one food or crop is inedible for the reason that it is genetically modified and that a new crop

cultivated with the GM technology is more likely to cause an unpredictable impact comparing with those cultivated with the traditional cross breeding technology. While there are potential benefits of GM crops, there is still insufficient scientific data to support a conclusion that GM crops are safe for human consumption.¹ Recently, 108 Nobel Prize winners jointly made a negative statement to Greenpeace, the United Nations and the governments of all countries in relation to the safety of GM crops and requested the organizations like Greenpeace to stop opposing GMFs. In addition, they also indicated that the safety of GMFs is still unknown in science and there is a large dispute over whether GMFs will hurt human body. In the face of many doubts and uncertainties in safety, in order to protect consumers' rights to know and freely choose, each country generally manages GMFs by labeling them on a special basis. With the continuous development of the GMF market, the GMF labeling management system should be improved to a higher extent.

To strengthen GMF labeling management and safeguard consumers' right to know, all countries determine the applicable GMF labeling mode and gradually transfer the right to freely select GMFs to consumers. The GMF labeling management was first put forward in the EU Council Directive (90/220/EEC) concerning environmental release of GMOs published by the European Union in 1990, which provides that assessment shall be made on the risks of any GMO, GM product or product containing GMOs which might be caused to people and environment and approval shall be obtained level by level based on the assessment result before its environmental release or launch.⁸ The provision established the basic framework of the initial GMF labeling management. The new Food Regulation (258/97) published in 1997 further requests mandatory labeling of all GMFs throughout the European Union and sets up the threshold of 1%. In addition, it also requests the labeling of animal food, extending the labeling scope to a certain extent. In 1998, the European Union specially gave the regulation (No. 1138/98) to define the management

of labeling GM soybeans and maize. In 2002, the European Union made a revision to the GMO labeling management policy again, requesting the labeling of all food and fodders derived from GM plants and reducing the minimum of those required to be labeled to 0.9%. Due to the provision made by the EU on GMF labeling, each country formulates the laws and regulations on GMF labeling, forming its own characteristic GMF labeling management system. However, many intergovernmental and non-governmental organizations are considering how to establish a labeling system more beneficial to consumers and reach an international agreement upon the GMF labeling systems.⁹ The practices above show that GMF labeling systems have drawn positive attention throughout the domestic and international domain and reveal the significance and necessity of GMF labeling studies around the world. That's how a series of GMF labeling management systems emerge.

3 Current Situation of Chinese Legislation and Supervision Mode for GMF Labeling Management System

3.1 Current Situation of Legislation

3.1.1 Laws

Current Chinese laws, regulations and rules have made provisions for GMF labeling management. As specified in Article 30 of the *Law of the People's Republic of China On Agricultural Product Quality Safety* published in 2006, agricultural products which are part of agricultural GMOs shall be labeled according to the provisions on agricultural GMO safety management.² In accordance with the Law and the provisions on agricultural GMOs, agricultural products which are a part of agricultural GMOs shall be labeled on a mandatory basis. As China's first special law on agricultural product quality safety, this landmark Law proposes the GM

¹ Heather Hosmer, Note, Outgrowing Agency Oversight: Genetically Modified Crops and the Regulatory Commons Theory, 25 G.E.O. INT'L ENVTL. L. REV. 647, 670 (2013) (quoting Alek P. Szecsy, From the Test Tube to the Dinner Table in Record Time: Liberalizing Effects on Domestic and International Regulatory Frameworks for Controlled Environmental Introduction of Genetically Engineered Agricultural Organisms, 2 DICK. J. ENVTL. L. & POL'Y 177, 192 (1993)).

² National People's Congress of China: Law of the People's Republic of China on the Quality and Safety of agricultural products, order of the president of the People's Republic of China (2006)49:Article 30.

agricultural product labeling system. As specified in Article 8 of the *Law of the People's Republic of China on Protection of Consumers' Rights and Interests* revised in 2013, consumers shall have the right to know the purchased and used goods or accepted services. Article 20 provides that operators shall provide consumers with authentic and complete information like the quality, performance, purpose, term of validity of goods or services. No false or misleading publicity is allowed. The Law stipulates that consumers shall have the right to know food and producers and operators shall be obliged to provide authentic and complete food information for consumers. As specified in Article 69 of the *Food Safety Law* newly amended in 2015, GMFs shall be markedly labeled as specified in the process of production and operation. This is a mandatory provision in the GMF labeling management system which requests all GMFs to be markedly labeled as required in the process of production and operation and first defines a basic rule and general direction of GMF labeling. In addition, Article 125 of the Law provides the legal liability for failure to label GMFs as required in the process of production and operation.

3.1.2 Administrative regulations

To a certain extent, the *Administrative Regulation on Agricultural GMO Safety* published by the State Council in 2001 also stipulates the labeling of agricultural GMOs in Article 3, Article 8, Article 28 and Article 29 from abstract to specific. According to Article 3, the safety of agricultural GMOs in the Regulation refers to the prevention against any danger or potential risk caused by agricultural GMOs to human, animals, plants, microorganisms and ecological environment, showing the Regulation's concern over the impact of GMOs on human, animals, plants, microorganisms and ecological environment. Article 8 provides that the state shall implement the labeling system for agricultural GMOs; According to Article 28, any agricultural GMO listed in the catalog of agricultural GMOs shall be labeled by producers, packaging units and individuals; those not labeled shall not be sold. Operators and individuals shall check goods and labeling during purchase and re-label those whose original packages are disassembled for marketing; According to Article 29, the labeling of agricultural GMOs shall indicate

the name of the products' main raw materials with GM ingredients, and the sales scope if required. In such case, the products shall be sold within the indicated scope.

3.1.3 Departmental rules

The *Agricultural GMO Labeling Management Method* published by the Ministry of Agriculture in 2002 made a detailed provision for the method of labeling agricultural GMOs, with Article 6 stipulating the system of labeling agricultural GMOs on a classified basis and Article 7 providing that agricultural GMOs shall be labeled in a distinctive manner and those difficult to be marked on the basis of the original package and label shall be marked with additional labels in a manner that keeps them secure and durable. Under the *GMF Hygiene Management Method* (abolished in 2007) published by the Ministry of Agriculture in 2002, Article 16 and Article 17 respectively provides the form of labeling GMFs and the positions where several types of GMF shall be labeled, and Article 18 stipulates the principle of labeling GMFs and part contents prohibited to be indicated in labeling.¹⁰ According to Article 2.1.4 of the *New Resource Food Management Method* published by the Ministry of Agriculture in 2007, the new resource food refers to any food material whose original ingredient or structure changes due to the new production process. This not only defines the new resource food but also reflects China's another definition of GMF at another level. The Method has not defined the difference and relation between new resource food and GMFs but includes the GMF labeling in the whole framework of new resource food, so it will easily confuse the two in practical operation and thus cause unclear definition of GMFs.

3.2 Supervision Mode

In relation to the supervision mode for GMF labeling management system, based on the traditional classification mode of labeling GMFs, the GMF labeling management system is generally divided into mandatory labeling mode and voluntary labeling mode. Mandatory labeling mode refers to that which legally requests producers or sellers of GMFs to label GMFs to distinguish with traditional food and not to produce or sell GMFs if

failure to do so and seriously punishment of those who break the provision. At present, mandatory labeling mode mainly consists of the process-based mandatory labeling and the product-based mandatory labeling. Where a product is processed using GM ingredients in the process of production, no matter whether the final product contains GM ingredients, it shall be labeled on a mandatory basis according to the production process as the GMF labeling standard, that is the process-based mandatory labeling. According to the product-based mandatory labeling system, a final product which contains GM ingredients through test shall be labeled, while those without GM ingredients are not required to be labeled no matter whether they are produced using GM materials. Throughout each country's provision on GMF labeling mode, most European countries led by the European Union adopt the supervision mode of mandatory labeling and mainly use the process-based basic mandatory labeling mode. The European Union manages GMFs in the principle of prevention and establishes a complete management system in such forms as regulation and directive. This shows that most European countries have established a strict mode of mandatorily labeling GMFs. Voluntary labeling means that producers or sellers may label GMF according to market trend or consumer preference at its sole discretion in the event when no legal provisions for GMF labeling are available. Current studies show that the voluntary labeling mode has no further detailed classifications.¹¹ For instance, the United States has been adhering to the supervision mode of voluntary labeling. This relates to the "Sound Scientific Principle" to which the Food and Drug Administration of the U.S. adheres, which considers that food supervision shall be based on product rather than process or method.¹² From such perspective, there is no essential difference between GMF and non-GMF, so no special labeling is required to distinguish the two. The voluntary labeling system of the U.S. does not mark absolute free labeling as GMFs are required to be labeled provided that there is a distinctive difference between it and traditional food or it contains any sensitizing ingredient. On July 15, 2016, the United States House of Representatives passed the GMF Labeling Act, requesting food producers to indicate GM ingredients. According to

the Act, producers may indicate the GM ingredients of a food in such forms as words, signs and QR codes to enable consumers to have access to more GMF-related information on the related websites. However, since three states of the U.S. have passed the Act on Mandatory Labeling of GMFs before, this GMF Labeling Act passed nationwide shows that it has changed the regulatory attitude towards GMFs significantly and the supervision mode contrary to that to which the European Union adheres and set up a firm stand that transfers from voluntary labeling to mandatory labeling. This also shows the facts that the GMF safety has drawn each country's great attention, the mandatory labeling system has been accepted and adopted by more and more countries and whether GMFs are labeled and how to label GMFs have been an important standard to measure whether consumers' right to know is safeguarded.

In China, the laws and literatures related to GMO labeling mainly focus on the GMF labeling management concept and the specific mandatory labeling mode. Some scholars indicate that China's GMF labeling system should have a strict management concept and follow the principle of presumption of guilt provided that the safety of any GMF is uncertain, that is, the food should be assumed to be unsafe before being scientifically tested and strictly managed.¹³ This shows a strict attitude and stand towards mandatory labeling of GMF. However, it only defines the direction towards which the mandatory labeling of GMF should move but fails to involve the mandatory labeling and the labeling mode which China should adopt. Afterwards, some scholars think that China implements the process-based mandatory GMF labeling mode which is adopted by the European Union, in combination with the current laws and theoretical data related to GMO labeling.¹⁴ In some scholars' opinion, there are no detailed provisions for GMF labeling in China and no retroactive management and archive preservation system is available to safeguard production in labeling, so China adheres to the product-based mandatory labeling mode.¹⁵ From the author's point of view, although the trend of mandatory labeling of GMF is increasingly clear, China's GMF labeling mode is still to be defined. As specified in Article 69 of the new Food Safety Law, China adopts mandatory

labeling mode for GMF. However, Chinese provisions related to GMF labeling contain not only the process-based mandatory labeling mode but also the product-based mandatory labeling mode. According to Article 6.1.3 of the *Agricultural GMO Labeling Management Method* of China, a product shall be labeled provided that the final product does not contain any GM ingredient through test. The product-based mandatory labeling mode is included in most laws and regulations related to GMF labeling. In accordance with the current situation of laws and practices on GMF labeling in China, China has initially established a systematic GMF labeling system in part food fields and the cases which arise out of failure to label GM materials on food packages rapidly increase. The increase in the number of lawsuits in relation to the dispute over GMF labeling fully shows that the management systems associated with GMF labeling have been practically implemented. In particular, the tort cases with respect to GMF labeling reflect that the public's awareness of normalizing GMF labeling has greatly improved. On request of the public, necessary supervision must be conducted for the behaviors of GMF producers through the related systems to protect its own rights. This requires stricter and more perfect GMO labeling management of China. In the opinion of the author, China currently adopts the principle of mandatory labeling based on both product and process in relation to GMF labeling and the system of process-centered mandatory labeling under the negotiation-construction form.³ However, China has not finally defined the supervision mode of mandatory labeling of GMFs through laws, and it is a challenge for GMF labeling management in the event the two mandatory labeling modes coexist, of which the process-based mode is only applicable to particular types of GMO. The provision on the product-based mode just requests distinctive labeling of GMF but fails to identify products as the final labeling objects.

³ Elizabeth Fisher, Professor of the UK Environmental Law, summarized the rationality-tool form and the negotiation-construction form according to the administrative constitutionalism standard. The former includes public administration in the boundary of legislative authorization and identifies the legality of public administration based on expert knowledge through quantitative analysis. The latter grants public administration the discretion to continuously solve problems through comprehensive consideration of the claims of each party. Under the negotiation – construction form, consideration must be given to the benefits and opinions of the public in terms of the validity of public administration decision governing technical risks and the public should be granted the right to participate in negotiation.

4 Problems of Chinese Legislation on GMF Labeling Management and Legislative Suggestions

4.1 Problems

First, the new *Food Safety Law* fails to provide the definition of GMF and GMF labeling or sets up the corresponding intension and extension for the concept, that is, the Law only puts forward the term “GMF”, without complete provisions for the reason why GMFs are governed by the *Food Safety Law*, the types of GMF and the specific meaning of GMF labeling. The 2002 Management Measures on GM Food Hygiene Act (which was later repealed by the 2007 Management Measures on New Resources Food Act) provided the Chinese legal definition of GM food as “food and food additives that are made from animals, plants and microorganisms whose genome structures have been modified through genetic engineering technology.”¹⁶ In 2009, the Codex Alimentarius Commission gave the definition of GMF, that is, foods or food ingredients obtained through GM technology refer to those containing GMOs or made from GMOs obtained through the modern biotechnology, or those produced with GMOs obtained through the modern biotechnology but containing no GMOs.¹⁷ The GM Science Review First Report also gave the definition, genetically modified foods or GM foods, also genetically engineered foods, are foods produced from organisms that have had changes introduced into their DNA using the methods of genetic engineering. Genetic engineering techniques allow for the introduction of new traits as well as greater control over traits than previous methods such as selective breeding and mutation breeding.¹⁸ Nowadays, there are no laws in China that define the GMFs not required to be labeled through the concepts related to threshold, allergization and unique code and the restrictions under which no mandatory labeling is required for GMFs. There is no significant difference between GMFs and non-GMFs in appearance, while the biggest difference between the two is the production and processing method. The final

purpose of mandatory labeling of GMFs is to ensure consumers effectively exercise the rights to know and choose, while it is suggested to appropriately define the rights but not to expand at random. Chinese administrative laws and regulations and departmental rules also only briefly provide the definition of particular kinds of GMFs like agricultural GMOs, while there is rarely correct general definition of GMFs and GMF labeling.

Second, the new *Food Safety Law* fails to further provide the subjects, obligations and contents for GMF labeling, leaving many difficulties in practical implementation of the mandatory labeling system. Under Article 69 of the *Food Safety Law*, all of those who undertake the production and operation of GMFs seem to be obliged to noticeably label GMFs. However, it has not defined the subjects who do so or listed any situation or type excluded in the subjects. The labeling contents mean the methods, positions and exemption of labeling. The GMO labeling management policies of most countries and regions provide the GMF labeling contents to a certain extent, allowing non-GMFs to contain few GM ingredients and requesting the labeling of the foods where the content of GM ingredients contained exceeds the threshold. Besides, Many countries and international organizations have specifically implemented label management on GM foods. The EU's labeling management regulation uses the "limit management" approach which specifies that if there is more than 1% GM ingredient, labeling is required.¹⁹ In addition, China has not established a perfect GMF labeling exemption system. This is a legal system under which part GMFs are allowed not to be labeled. Therefore, in China's GMF labeling system, the definition of the GMFs required and not required to be labeled is unscientific, leaving it unbalanced to protect the rights of interests of consumers and producers.²⁰ China's ambiguous provisions will inevitably cause GMF labeling chaos in practice and make it difficult to distinguish labeling obligations, thus affecting the final imputation and punishment.

Third, the *Food Safety Law* fails to further define the laws, regulations or rules based on which GMFs shall be labeled. Except for Article 69 and Article 125 which stipulate the distinctive GMF labeling

obligation and legal liability, no other provisions for GMF labeling are available in the new *Food Safety Law*. It is rough to implement labeling just based on the two abstract articles, which go against the juridical practice. Since the mandatory labeling of GMFs involves many related laws and regulatory departments, it is difficult to keep coordinated among the execution subjects or define the authorities of departments. In such event, many issues would arise, such as repeated management activities, unstable law enforcement, inconsistent management activities, blind spots for management and conflicts among the public health goal, trade facilitation and industrial development.²¹ Therefore, it is theoretically and practically important to formulate consistent laws and regulations on GMF labeling and identify unified regulatory departments for GMF labeling.

Fourth, the new *Food Safety Law* fails to provide the definition of distinctive labeling and how to define the standard of distinctive labeling. Although Article 69 stipulates the obligation of distinctive labeling, it fails to appropriately explain the term of distinctive labeling afterwards or in otherwise added articles. Lawmakers should balance theory and practice in an appropriate manner and judge the practicality of laws according to juridical practices. In the case that any legal provision is practically inoperable, immediate revision and improvement should be made. Ambiguous definition of the standard of distinctive labeling will confuse those who have the labeling obligation and result in labeling problems. Where no standards or rules are available to define the ambiguous term "Distinctive", errors may arise in the process of law application, thus seriously obstructing juridical practices.

Fifth, there are no general provisions for GMF safety certification in the *Food Safety Law*. It is irregular for the Chinese provisions on GMF safety certification at present. Due to failure to conduct safety certification for some GMOs in strict accordance with the specified procedure and the impact of the GMO industry benefit chain on safety certification, the authorities' statements on GMF safety certification might be inconsistent. The loss of safety certification at legal level may also greatly affect the credibility of safety certification. The public is highly alert to the safety of GM crops or

foods and might be caught in a form-based trap provided that the mandatory GMF labeling system is established without the safeguard of safety certification.

Sixth, although the *Food Safety Law* provides the legal liability for failure to label GMFs as required in the process of production and operation in Article 125, the provision is not fully applicable to the related producers and operators who fail to conduct distinctive labeling and mostly involves the food materials and additives and food-related products not compliant with the food safety standard, which are different from the GM foods not labeled. Due to the launch of new laws, the provision on legal liability is almost abolished in the *Administrative Regulation on Agricultural GMO Safety* published by the State Council in 2001. The *Food Safety Law* obviously aggravates the punishment on the basis of the original administrative regulations, but fails to stipulate the form in which those who are ordered to correct within the specified period undertake the legal liability. In addition, it is too rigorous provided that those who fail to correctly perform the GMF labeling obligation are punished in multiples and those who seriously break the rule are ordered to stop production and business until their license is revoked.

4.2 Legislative Suggestions

Although the *Food Safety Law* has made an obvious revision and provided a legislative basis for mandatory labeling of all GM food for the first time, it still lacks the detailed rules sufficient to command compliance and to be enforced. The regulation on implementation of the Food Safety Law and judicial interpretations fail to make a revision at the same time. Therefore, those not defined in the Food Safety Law should be further provided through revision to the regulation on implementation of the Food Safety Law and the judicial interpretations.

First, definition should be given to the GMFs required to be labeled through generalization and enumeration. Accurate definition of GMFs is an important prerequisite to improve the GMF labeling system. It is convenient to manage GMF labeling by defining GMFs in a reasonable manner. Generalization is to give an abstract and general definition to GMFs and include all eligible GMFs

in the definition. Enumeration is to set out the types of GMF in a positive or negative form and make the definition of GMFs more specific and clear, that is, those required to be labeled should be specifically and completely defined in a positive way and restricted in a negative way, while definition should be given to the intension and extension of those not required to be labeled. In addition, it is suggested to expand the applicable scope of GMF labeling system by legislative means, appropriately list the second and third batches of agricultural GMOs and GM products required to be labeled, or directly describe the scope as “foods and food additives produced with GM animals and plants, microorganisms or their directly processed products”.²² China may properly consider to include the downstream GM foods into the labeling scope, such as soymilk, bean powders, dried tofu, fermented bean curds and soy made of GM soybeans.²³ The applicable scope of GMF labeling should be expanded on the condition that adheres to rational labeling.

Second, China's mandatory labeling system should give the concept of threshold, allergization, unique code, potential toxicity and the relevant legal provisions. A perfect GMF labeling exemption system should be established to guarantee consumers' right to know and reduce the labeling cost for producers and operators, thus making better dynamic adjustment, contributing to the sound development of GMF industry and balancing the whole social benefit.²⁴ Threshold refers to the restricted maximum content of the GM ingredients in GMFs. In case the content of the GM ingredients in a food exceeds the threshold, the food should be labeled. According to the GM ingredient source, the threshold of those approved by the European Union for labeling is 0.9%.²⁵ Allergization means a food contains any material to which some people are allergic. Unique codes are used to labeling GMFs in a special form so as to distinguish GMFs and general products. In general, it is likely to mix GM ingredients and non-GM ingredients in the process of producing foods. Besides allergens, other perceived safety concerns of GM food, such as potential toxicity and antibiotic resistance, contribute to consumers' fear of consuming GM food.²⁶ Potential toxicity in the context of GM foods generally refers to the relative ability to cause

indirect damage or simply the ability to damage the organism after GM foods interact with a living organism or enter a living body. Compared to threshold, allergization, and unique code, the potential toxicity is more concerned by many consumers. Compounding the problem of consumer concerns in China is the practice by some companies, motivated by covering costs and making profits, to commercialize secretly GM crops without government permits.²⁷ China's GMO labeling system fails to provide the threshold, allergization, unique code and potential toxicity, showing that China gives a qualitative but not quantitative stipulation for the system. Japan stipulates that those in which the GM materials are lighter than three main ingredients in the food and than the food are not GMFs. Korea provides that those in which the content of GM materials is not highest are not GMF materials.²⁸ Therefore, according to China's actual conditions and current biotechnology level, a percentage of GM ingredients which could be safely tested should be provided on a matter-of-fact basis so as to facilitate practical operation and confirmation.²⁹ China should identify the mandatory labeling of GMFs through combination of quantitative provisions and qualitative provisions, and define the threshold in accordance with China's realistic conditions related to GMFs. In legislation, it should be recommended that the threshold be quantified in addition to qualitative regulation. According to China's national conditions and the existing level of biotechnology, a safe percentage of GM ingredients and an appropriate range of proportion such as from 1% to 5% shall be specified for practical operation and specific identification. Considering that the type and number of GM products in China are increasing, a wider threshold can more scientifically define GM foods and increase the feasibility of law enforcement. With regard to allergization, the legislation should make clear provisions about "GM food allergization should be mandatorily labeled". In corresponding laws and regulations, the regulatory authorities for GM foods shall be determined and producers or sellers shall report about GM foods. Through the establishment of a GM food safety evaluation system, the risk of GM food allergization can be reduced. With regard to the unique code of GM food, our country's law

should stipulate that GM foods entering the market circulation must all have a unique code. The specific form of the unique code can be stipulated in accordance with the Measures for the Administration of Commodity Bar Code promulgated by the State Administration of Quality Supervision, Inspection and Quarantine in 2005. The unique code should be set up in strict accordance with national standards and should be made clear in the legislation. Potential toxicity is not only related to the safety of consumers but also to the safety of the ecological environment. Therefore, the legislation shall individually stipulate that the potential toxicity of GM foods should be mandatorily labeled and differently labeled according to the degree of the potential toxicity. In addition, a perfect GMF labeling exemption system should be established to guarantee consumers' right to know and further reduce the labeling cost for producers and operators through restriction on GMF labeling. As for the perfection of legislation about the GMF labeling exemption system, should start from the guideline, exemption objects, and exemption procedures of the GMF labeling exemption system. The guideline shall be determined from the perspectives of feasibility, ecology, economy, safety, and sustainability. The exemption objects shall be determined based on the threshold, sensitization, and percentage of potential toxicity of GM foods. Meanwhile, certain special exemption circumstances shall be set up, for example, some GM food additives have been added to the food, but their content is very small and in this case, the labeling can be exempted. Alternatively, GM foods sold by some special market entities can be exempted from labeling. China's laws and regulations require that practitioners in the catering industry, self-employed entrepreneurs in farmer's market, vendors with no fixed business premises, farmers and other market entities shall label GM foods when selling them. However, in practice, there is basically no one fulfilling this legal obligation, which indicates that the system design is flawed and seriously departs from China's national conditions. Therefore, instead of ignoring the laws and rendering the laws useless, we can, based on the reality, actively improve the system and exempt GM foods sold by these special entities from

labeling.³⁰ thus protecting the rights and interests of producers and operators, balancing their benefits, contributing to the sound development of GMF industry and achieving the social benefit and substantive fairness.

Third, definition should be given to those who label GMFs and specific labeling obligations. Current laws specifically provide that producers and operators of GMFs have the mandatory obligation of labeling GMFs, but have not stipulated those who have the obligation and the labeling obligation in detail. Provided that those who should label GMFs and the labeling obligation are unknown, any provision for mandatory labeling of GMFs will not work. Therefore, this should be defined and detailed through judicial interpretations or revision to the *Regulation on Implementation of the Food Safety Law*. Judicial interpretations may directly provide that producers and operators are those who have the obligation of labeling GMFs or indirectly stipulate those other than producers and operators who should noticeably label GMFs. Judicial interpretations and the corresponding regulations may appropriately expand the scope of personnel who has the labeling obligation, such as sellers of GM seeds, planters of GM crops, processors and users of GM ingredients and sellers of GMFs and food ingredients.³¹ In addition, they should further refine the labeling obligations, distinguish the obligations between producers and operators, stipulate the obligations according to the difference and the situation in which those who have the labeling obligation could be exempt from liability. Producers who cannot figure out whether a food contains GM ingredients could assume mitigated liability or be exempt from liability but should be obliged to supplement labeling.

Fourth, supplementary provisions are required to determine the standard or requirement for distinctive labeling of GMFs. According to the *Food Safety Law*, the distinctive labeling of GMFs aims at protecting consumers' rights to know and choose and closely relates to consumers' exercising of the right to choose. Distinctive labeling should be defined according to the trademark distinctiveness recognition rule in the field of intellectual property due to its extensive extension and uncertain intension. The distinctive labeling of GMFs should have two meanings, including

identification and distinctiveness. Identification is a part of labeling, that is, the labeling of GMFs should be identifiable for relevant public. Distinctiveness is to indicate source in the commercial field, that is, the labeling of GMFs should enable the public to distinguish products especially GMFs and non-GMFs.³² In the opinion of the author, only identifiable and distinctive labeling of GMFs should be considered compliant with the distinctive labeling standard and requirement specified in the *Food Safety Law*, which should be reflected through unified color, font size, position and coverage to achieve effective labeling to a maximum extent. The standard of distinctive labeling of GMFs should be defined in a manner that enables consumers to identify GMFs by checking the label at the time of purchase in general cases. GMF labeling color, font size and position should be provided. It is suggested to choose the colors easily noted and identified by consumers; font size should be appropriate to an extent that words are easily visible to consumers; based on the font of other labeling contents on food packaging bags, font should be easily noted by consumers and determined according to the font size; Labeling position should be noticeable on food packaging bags. Such principle as labeling after product or material name could be provided.³³ Labeling should be mainly in a positive form, and in a negative form under strict supervision. It is suggested to label non-GMFs identified through strict testing procedure in a negative form but not the GMOs which have not been commercially planted; it is not allowed to label the products made of commercially planted GMOs in a manner that contrasts with the similar non-GM products.³⁴ In addition, in combination with a distinctive labeling judgment standard, it is achievable to completely define the distinctive labeling.

Fifth, it is suggested to improve Chinese laws and regulations on GMF safety certification. The *Food Safety Law* should provide a GMF safety certification system which requests safety certification of GMFs. Improvement should be made to the GM crop and food tests and evaluation system in other laws and regulations on China GMFs. The *Regulation on Implementation of the Food Safety Law* should stipulate the specific procedure and regulatory department for safety

certification, process of inquiring and making public safety certification information, certificate issuance and term, and guarantee the GMF safety certification departments are neutral, objective and authoritative through normative design of the certification procedure, thus enabling the system to be really implemented. Only the GMFs which pass the safety certification should be labeled and launched. Laws should define the legal liability which the GMF safety certification departments should assume for their defaults or a public interest litigation system should be included in civil litigation laws for breach of the GMF safety certification to grant the public or relevant organizations the right to maintain the public interests.

Sixth, it is suggested to otherwise formulate a new special provision on the legal liabilities for breach of the GMF labeling obligation. The *Food Safety Law* stipulates that those who fail to label GMFs as specified in the process of production and operation should undertake the legal liability according to Article 125. As failure to label GMFs as specified does not mean that the GMFs do not meet the safety standard as specified in Article 125.1.1 and Article 125.1.4 of the *Food Safety Law*, it is unreasonable to mix the legal liabilities for the two and give punishment based on a unified standard. In addition, under Article 125, those who seriously break the rule shall be ordered to stop operation and business until their license is revoked, which fails to conform to the GMF labeling system. No quantitative or qualitative standards are available to define the severity of those related to GMF labeling. It is doubtful and controversial whether the operators or producers who refuse labeling GMFs should be punished according to the provision or their license should be revoked to achieve the legislatively required purpose and effect. A special provision on the legal liability for breach of the GMF labeling obligation should be prepared. Consideration should be legislatively given to a punishment clause which should provide an appropriate penalty amount. Those who break the mandatory obligation of GMF labeling intentionally and unintentionally shall be punished to a different extent. Those who fail to label GMFs known well should be given a severe punishment, while those who fail to label GMFs due to negligence should be

given a lesser punishment. Those who should perform the labeling obligation should be responsible for proving that they fail to do so intentionally or unintentionally. In addition, such liability clause as “those who fail to immediately label GMFs should supplement the labeling” to make the laws and regulations more practicable and more compliant with the current situation of GMF labeling management.

5 Conclusion

Since April 2015 and October 1, 2015 when the *Food Safety Law* was revised and formally implemented respectively, the applicable judicial interpretations and enforcement regulations have not made applicable revisions and only principle-based terms have been included in the *Food Safety Law*, it is still theoretically and practically difficult for mandatory labeling of GMFs in juridical practices and conflicts between the principle of GMF labeling and the purpose that safeguards consumers' right to know remain. Moreover, the GMF labeling management system has been lagging behind. With the launch and implementation of the GMF labeling system, it is foreseeable that there will be more infringement cases in relation to GMF labeling to a certain extent and the system should be legislatively and practically improved to an extent that protects consumers' right to know.

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