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Civil Liability Arising from Genetically Modified Foods in China

Tong Zhanjun

Beijing University of Agriculture, Beijing, China

Abstract

Although the development of GMO technology can bring benefits to human beings, the safety and potential risks of genetically modified foods has always attracted the attention of researchers and has sparked lively debates among policymakers and legal scholars. In China, the legal framework governing GM foods remains a critical area of concern. This paper examines the regime of civil liability in China in relation to GM foods, focusing on the principles of no-fault liability and fault liability. It analyzes the legal provisions which shape the liability landscape of GM foods in China. If genetically modified food sold on the market poses a risk to consumer health, the producer and operator may be held liable under the principles of no-fault liability or fault liability in accordance with the provisions of the Civil Code and Food Safety Law of China. Consumers can also seek compensation for damages in accordance with the aforementioned legal document.

If the seller violates the consumer's right to be informed about genetically modified (GM) food and the right to choose, the consumer can demand the cancellation of the sale contract and seek compensation for losses under the Civil Code. Additionally, they may also claim punitive damages in accordance with the Law on the Protection of Consumer Rights and Interests. As a result of health damage caused by the eating of genetically modified food without approval, the injured party may claim liability for damages in accordance with the Civil Code. Even if no substantial damage to body tissues has been caused, the victim can still claim compensation for actual losses such as medical appraisal fees, transportation expenses, and lost earnings due to missed work. Regardless of whether there is substantial damage to physical health, the victim can also claim compensation for pain and suffering depending on the circumstances. The article aims to provide a comprehensive consideration of the current state of civil liability arising from GM foods in China, highlighting the challenges, opportunities, and implications for policymakers, industry stakeholders, and consumers.

Email: eebogdanova@msal.ru

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Защита сельскохозяйственных генетических ресурсов в Китае

Тонг Чжэньцзунь 

Пекинский сельскохозяйственный университет, Пекин, Китай

Аннотация

Хотя развитие технологии получения генетически модифицированных организмов может принести пользу людям, безопасность генетически модифицированных продуктов питания остается в центре внимания ученых. Если генетически модифицированные продукты питания, введенные в оборот, нарушают право потребителей на охрану здоровья, потребитель может потребовать возмещения ущерба в соответствии с положениями Гражданского кодекса и Закона о безопасности пищевых продуктов Китая. Если продавец данного продукта нарушает право потребителя на получение информации и право выбора, потребитель может потребовать расторжения договора купли-продажи ГМ-продуктов питания, а также возмещения убытков в соответствии с положениями Гражданского кодекса Китая и с Законом о защите прав и интересов потребителей. Если был причинен ущерб здоровью в результате употребления генетически модифицированных продуктов питания, пострадавшая сторона может потребовать возмещения ущерба в соответствии с Гражданским кодексом Китая. В случае если нанесенный ущерб был незначительным, пострадавшая сторона все равно может потребовать компенсацию затрат (например, расходы на медицинское обследование, транспортные расходы, потерянный заработок из-за пропущенной работы). Независимо от того, был ли нанесен существенный ущерб физическому здоровью, пострадавшая сторона также может потребовать компенсацию за моральный ущерб в зависимости от обстоятельств.

 Email: zhanjun.tong@bua.edu.cn

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Целью статьи является рассмотрение гражданской ответственности, возникающей в связи с генетически модифицированными продуктами питания, в соответствии с китайским законодательством на основе анализа конкретных случаев.

Ключевые слова: технологии генного редактирования, гражданская ответственность, Китай, китайское законодательство

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Introduction

(1) *GMO technologies*

“Gene” is a general term for a nucleotide sequence containing specific genetic information in a DNA (deoxyribonucleic acid) molecule, a DNA molecular fragment with genetic effects, a basic genetic unit that controls biological traits, and a code of life, recording and transmitting genetic information. The earth’s organisms include a huge number of animals, plants, and microorganisms with different forms, and their living environments and living habits are different, all of which are controlled by genes. The biological characteristics of a species are determined by genes and can be inherited. A gene encodes a protein, and the function of the protein determines the characteristic properties that an organism exhibits¹.

Transgenic technology, also known as gene recombinant technology, refers to recombinant DNA technology, the core content of modern biotechnology. According to Article 3 of the Cartagena Protocol on Biosafety

to the Convention on Biological Diversity, “Modern biotechnology” means the application of: (a) In vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles, or (b) Fusion of cells beyond the taxonomic family, that overcome natural physiological reproductive or recombination barriers and are not techniques used in traditional breeding and selection. The former is genetically modified technology, and the latter is cell technology.

GMO technologies presuppose the use of modern biotechnology to introduce and integrate the desired target genes into the genome of organisms after artificial isolation and recombination, in order to improve the original traits of organisms or give them new excellent traits. In addition to the transfer of new exogenous genes, the genetic characteristics of organisms can also be changed through the processing, knockout, and shielding of organisms by transgenic technology in order to obtain the desired traits.

¹ *What Is a Gene?* Available at: http://www.moa.gov.cn/ztl/zjyqwgz/kpzc/201303/t20130331_3420006.htm (In Chinese).

The main processes of this technology include cloning of exogenous genes, construction of expression vectors, establishment of genetic transformation system, screening of genetic transformants, genetic stability analysis, and backcross transgenicity.²

(2) *Genetically modified foods*

According to the Food Safety Law of the People's Republic of China (hereinafter referred to as the Food Safety Law), food refers to all kinds of finished products and raw materials for human consumption or drinking, as well as articles that are both food and Chinese herbal medicines according to tradition, but do not include articles for therapeutic purposes. The quality and safety management of primary products derived from agriculture (hereinafter referred to as edible agricultural products) for consumption shall comply with the provisions of the Law on the Quality and Safety of People's Republic of China Agricultural Products (hereinafter referred to as the Law on the Quality and Safety of Agricultural Products). However, the provisions of the Food Safety Law shall be complied with in the market sales of edible agricultural products, the formulation of relevant quality and safety standards, the publication of relevant safety information, and the provisions of this Law on agricultural inputs. Article 2 of the Law on the Quality and Safety of Agricultural Products stipulates that agricultural products refer to primary products derived from crops, forestry, animal husbandry and fisheries, i.e. plants, animals, mi-

croorganisms and their products obtained as a result of agricultural activities.

Genetically modified organisms (GMOs) are organisms which have changed their genome composition through genetically modified technology. Genetically modified organisms are also known as "genetically modified organisms". Genetically modified organisms are also known as genetically engineered organisms, modern biotechnology organisms, genetically engineered organisms, organisms with new traits, living modified organisms, etc.³ According to the Regulations on the Safety Management of Agricultural Genetically Modified Organisms of the Ministry of Agriculture and Rural Affairs of People's Republic of China, agricultural genetically modified organisms refer to the animals, plants, microorganisms and their products which use genetic engineering technology to change the genome composition and are used in agricultural production or agricultural product processing. These mainly include: genetically modified animals and plants (including seeds, breeding livestock and poultry, aquatic seedlings) and microorganisms; genetically modified animals and plants, microbial products; direct processing of genetically modified agricultural products; seeds, breeding stock and poultry, aquatic seeds, pesticides, veterinary drugs, fertilizers and additives; and other products containing genetically modified animals and plants, microorganisms or their product ingredients.

Genetically modified food refers to food produced directly for consumption or as raw

² *What Is GMO Technology?* Available at: http://www.moa.gov.cn/ztzl/zjyqwgz/kpzc/201303/t20130331_3420007.htm (In Chinese).

³ *What Are GMOs?* Available at: http://www.moa.gov.cn/ztzl/zjyqwgz/kpzc/201303/t20130331_3420008.htm (In Chinese).

materials for deep processing through modern biotechnology, which artificially modifies the genetic characteristics and properties of organisms to alter them in terms of desired quality, nutritional composition and taste (Falkner, 2006). Genetically modified food refers to food made and processed or eaten fresh with genetically modified organisms as raw materials which can be divided into: plant-derived genetically modified food; animal-derived genetically modified food; and microorganism-derived genetically modified food according to the source of raw materials. For example, soybean oil, tofu, soy sauce and other soy products made from genetically modified soybeans, genetically modified papaya for fresh consumption, and cheese produced with genetically modified microorganisms are all genetically modified foods.⁴ Therefore, genetically modified foods can be foods made and processed from genetically modified organisms (GMOs) or GMOs that are eaten fresh.

Since the advent of genetically modified technology and genetically modified organisms, there has been a debate around the safety of genetically modified organisms. The debate mainly focuses on the possible impact of genetically modified organisms on the ecological environment and human health. In the view of some researchers, the vast majority of arguments ignore the fact that the most rigorous testing scientific and technological studies in history have not led to the conclusion that genetically modified foods are unsafe, thus falling into the trap of useless arguments (Pang, Ma, Feng, Hu, 2016). Nevertheless, genetically

modified organisms are mostly used as human food or animal feed, so the safety of genetically modified foods is still a common concern of the public. This article discusses the civil liability arising from genetically modified foods in accordance with Chinese legal provisions.

Civil liability for genetically modified foods for infringing on consumers' right to health

(1) *The acts infringing on consumers' right to health by genetically modified food*

Even if scientists and companies use GM technology within the limits of policy, there is still the possibility of unexpected crises due to scientific uncertainty (Sun, 2019). If there is a safety problem with genetically modified food in circulation, it directly affects the consumer's right to health. The United Nations Guidelines for Consumer Protection, adopted by the United Nations General Assembly in 1985, set out in the form of international legal instruments the rights of consumers to be protected. One of these rights is "the protection of consumers from hazards to their health and safety". Article 7 of the Law on the Protection of Rights and Interests of Consumers of People's Republic of China (hereinafter referred to as the Law on the Protection of Consumer Rights and Interests) stipulates that consumers have the right not to have their personal and property safety harmed when purchasing and using goods and enjoying services. Consumers have the right to demand that the goods and services provided by business operators meet the requirements for protecting personal and property safety.

⁴ *What Is Genetically Modified Food?* Available at: http://www.moa.gov.cn/ztzl/zjyqwgz/kpzc/201303/t20130331_3420009.htm (In Chinese).

In April 2018, the Weekly Quality Report of China Central Television exposed the phenomenon of cutting corners and false labeling of non-GMO oil in four edible blended oil manufacturers in China. These edible blended oil producers reduce costs by adding low-priced soybean oil to low-end oils blended with ordinary vegetable oils. They were passing off low-priced oils as high-priced oils, and falsely labeling raw material ratios and non-GMO ingredients on product labels. They were also passing off GMO raw materials as non-GMO raw materials. In response to the problems found in the investigation, such as edible oil safety, cutting corners, and non-GMO false labeling, the state prosecutor urged the regulatory departments to perform their duties in accordance with the law through administrative public interest litigation. The market supervision and management authorities punished the enterprises involved in the case in accordance with the law⁵.

Since no rulings or news reports on the civil compensation in this case were retrieved, it is impossible to know whether any consumers consumed the above-mentioned GM blended oil and whether their health has been harmed. If the genetically modified edible oil produced by the above four edible blended oil manufacturers causes damage to consumer health due to the safety problems of genetically modified raw materials, it is a tortious act that infringes on the consumer right to health. If there is evidence to prove that the damage caused is a quality problem of the raw material but not the safety of the genetically modified material, although it is also an infringement of the con-

sumer right to health, it cannot be determined as a tort of damage caused by the genetically modified ingredient.

(2) *Liability for infringement of consumers' right to health by genetically modified food*

Attention should be paid to the balance between the rights and interests of producers, sellers and consumers of genetically modified foods in the pursuit of responsibility and compensation (Lin, 2011). The principle of attribution of tort liability in Chinese civil law can be divided into fault liability, presumptive fault liability, and no-fault liability. China does not have a specific legal provision on the infringement of genetically modified foods. The provisions of the Food Safety Law can be applied to the infringement of genetically modified foods, including edible agricultural products. Article 147 of the Law stipulates that anyone who violates the provisions of this Law and causes damage to persons, property or other damages shall be liable for compensation in accordance with the law. Article 148 of the Law stipulates that if a consumer suffers damage due to food which does not meet food safety standards, they may claim compensation from the operator or the producer. Producers and operators who receive consumer compensation requests shall implement a first-bear responsibility system, pay compensation first, and must not pass responsibility. If it is the responsibility of the producer, the operator has the right to recover from the producer after compensation. If it is the responsibility of the operator, the producer has the right

⁵ The Supreme People's Procuratorate Released the Fifth of the Top Ten Typical Cases of Procuratorial Public Interest Litigation: The Public Interest Litigation Case of False Non-GMO Labelling of Edible Oil in Minhou County, Fujian Province. Available at: <https://www.pkulaw.com> (In Chinese).

to recover from the operator after compensation. If a consumer produces food which does not meet food safety standards or sells food that they know does not meet food safety standards, in addition to claiming compensation for losses, they may also demand compensation from the producer or operator for 10 times the price or 3 times the loss. If the amount of increased compensation is less than 1,000 RMB, it will be 1,000 RMB. Article 1166 of the Civil Code of the People's Republic of China (hereinafter referred to as the Civil Code) stipulates that where an actor harms the civil-law rights and interests of another person, if the law provides that tort liability shall be borne by such an actor disregarding whether or not the actor is at fault, such provisions shall be followed. According to the above provisions, if a consumer suffers damage due to genetically modified food which does not meet safety standards, they can claim compensation from the operator and producer. There is no element of fault here, and the principle of no-fault liability is adopted. Additional damages are also known as punitive damages, an independent liability and its legal basis lies in the direct provisions of the law (Thomas, 2018). As for punitive damages, as long as the producer produces food which does not meet the GMO food safety standards, regardless of whether it is at fault or not, it should bear the liability for punitive damages, and the law provides for the principle of no-fault liability. As far as operators are concerned, they need to "knowingly" operate food which does not meet the food safety standards of genetically modified food to bear punitive damages, and the law

provides for the principle of fault liability. Since "knowingly" is a subjective state of mind of the seller, and it is very difficult to prove it in practice, the objective criterion is generally adopted in judicial practice, i.e. to examine and judge whether the seller has fulfilled the reasonable duty of care of the usual seller (Broughton, Walker, 2010).

Article 1004 of the Civil Code stipulates that a natural person enjoys the right to health. The physical and mental health of a natural person are protected by law and free from infringement by any organization or individual. Article 1179 of the Civil Code stipulates that where a person suffers personal injury as a result of an infringement by another person, compensation shall be made for medical expenses, nursing expenses, transportation expenses, nutrition expenses, food allowances for hospitalization, and other reasonable expenses for treatment and rehabilitation, as well as lost earnings due to missed work. Where a person is disabled as a result of an infringement by another person, compensation shall also include the costs of auxiliary equipment and disability compensation. Where a person dies as a result of an infringement by another person, compensation shall also include funeral expenses and death compensation. The specific scope of compensation for damages caused by genetically modified food infringing on consumer right to health may be determined on the basis of the above-mentioned legal provisions on the basis of the circumstances of the case. Of course, the injured consumer can also claim punitive damages from the producer or operator in accordance with Article 148 of the Food Safety Law.

Civil liability for infringing on consumers' right to know and choose genetically modified food

(1) *The acts infringing on consumers' right to know and choose genetically modified food*

The act described in the previous chapter is the act of causing health damage to consumers by eating genetically modified foods. Consumer health is damaged due to the purchase of genetically modified foods by producers or operators who do not label or do not correctly label genetically modified raw materials, and the consumer rights to know and choose are also violated. If a consumer is deceived into mistakenly purchasing a genetically modified food but has not yet consumed it, the operator's action only infringes on the consumer's right to know and choose, which will be analyzed in this chapter.

The consumer right to know, also known as the consumer right to obtain consumer information or the right to obtain consumer intelligence, is the right of consumers to know the truth about the goods they purchase and use and the services they receive in accordance with the law. The right of independent choice of consumers is the right of consumers to choose to purchase goods and receive services according to their own wishes. The consumer right to know and the right to choose are important components of consumers' rights. The right to know is the premise of the right to choose, and the two are inseparable. One of the consumer rights to be protected under the United Nations Guidelines for Consumer Protection is "access of consumers to adequate information, in order to enable them to make informed choices according to individual wishes and needs". Article

8 of the Law on the Protection of Rights and Interests of Consumers stipulates that consumers have the right to know the truth about the goods they purchase or use or the services they receive. Consumers have the right to request that the operators provide the price, place of origin, producer, use, performance, specification, grade, main ingredients, production date, expiration date, inspection certificate, instruction manual, after-sales service of the products, or the content, specification, and cost of the services according to the different circumstances of the goods or services. Article 9 of the Law stipulates that consumers have the right to choose goods or services independently. Consumers have the right independently to choose the business operators that provide goods or services, to choose the types of goods or services, to decide whether to buy or not to buy any kind of goods, and to accept or not to accept any kind of services. Consumers have the right to compare, identify and select goods or services when they choose goods or services independently.

The safety of genetically modified technology is currently being questioned by the general public, and the choice of genetically modified food will be rejected when choosing food (Jen, Chen, 2017). It is important for consumers to know the true information of genetically modified foods and make choices accordingly. Ms. Zhu purchased a bag of Nestlé Qiaoban at Lianjia Supermarket and later learned through the news media that the food contained genetically modified ingredients. Ms. Zhu then sued Nestlé and Lianjia Supermarket on the grounds that the actions of Nestlé and Lianjia Supermarket constituted fraud and infringed on the plain-

tiff's right to know and choose. The Shanghai Academy of Agricultural Sciences conducted a test according to the Qualitative PCR Method for the Detection of Soybean by Transgenic Plants and Their Products formulated by the Ministry of Agriculture, and concluded that the disputed food did not contain genetically modified ingredients. Accordingly, the court ruled against the plaintiff.⁶ Although the plaintiff in the case lost the case due to evidentiary reasons, the consumer right to know and choose genetically modified food has been recognized by the public.

The research and development of genetically modified foods requires relatively professional knowledge. It is difficult for consumers to know which genetically modified ingredients are contained in the food and whether the genetically modified ingredients contained in the food will cause damage (Guo, Bai, Gong, 2019). Producers of genetically modified foods have strong economic strength and even have their own independent laboratories to grasp the relevant information of genetically modified foods. However, consumers cannot be compared with producers and operators in terms of technical knowledge and economic strength. It is difficult to obtain them through other channels except for the relevant information of genetically modified foods informed by producers and operators, and there is a serious information asymmetry between the two. In the case of information asymmetry, i.e. when the quality of genetically modified goods in the market is largely controlled by a party in possession of hidden information, producers and operators with such information will take advantage of their information

dominance, in order to conceal information which may have an adverse impact on consumers and infringe on the consumer right to know for the purpose of maximizing their own economic interests.

(2) *Liability for infringement of consumer right to know and choose genetically modified food*

With regard to genetically modified food, the infringement of the right to know is closely related to labeling. Based on the particularity of genetically modified food, Article 69 of the Food Safety Law stipulates that the production and operation of genetically modified foods shall be prominently labeled in accordance with regulations. The relevant provisions of the Administrative Measures for the Labeling of Agricultural Genetically Modified Organisms can be applied to the edible genetically modified agricultural products. For example, edible genetically modified animals and plants and their products bear a clear label: "genetically modified ××". The directly processed products of genetically modified agricultural products shall be labeled as "genetically modified ×× processed products (finished products)" or "processed raw materials are genetically modified ××". Although the Food Safety Law and the Administrative Measures for the Labeling of Agricultural Genetically Modified Organisms have made relevant provisions on the labeling of genetically modified foods, there is a lack of specific provisions on the civil liability for producers and operators who fail to label or correctly label genetically modified foods. Thus, infringement of the consumer right to know and choose can be resolved by applying the relevant provisions of the Civil Code.

⁶ *Consumer Loses Lawsuit in the Nestle Genetically Modified Case*. Available at: <https://news.sina.com.cn/c/2004-04-22/09582374468s.shtml> (In Chinese).

In the case of a consumer who has been deceived into purchasing genetically modified food but has not yet eaten it, the consumer cannot claim tort liability under the Civil Code due to the lack of damage elements. However, if a consumer enters into a contract for the sale and purchase of genetically modified food due to the fraudulent act of the operator, the consumer may claim civil liability based on the relevant legal provisions on contracts of the Civil Code. A contract is a typical civil juristic act, which can only be established if the parties express their intentions in agreement. Pursuant to Article 143 of the Civil Code, the genuine expression of intent is one of the valid elements of civil juristic acts. Fraud is one of the causes of the ungenue expression of intent, manifested in the form of informing the other party of false information or concealing the true information which should be communicated to the other party. Therefore, whether it is a lack of labeling on a genetically modified food that should be labeled, or labeling it as a non-GMO food, it should be recognized as fraud. Article 148 of the Civil Code stipulates that where a party by fraudulent means induces the other party to perform a civil juristic act against the latter's true intent, the defrauded party has the right to request the people's court or an arbitration institution to revoke such act. Therefore, the consumer who has entered into a contract for the sale of genetically modified food due to the fraudulent act of the business operator may request the people's court or arbitration institution to revoke such sales contract. Pursuant to Article 157 of the Civil Code, where a civil juristic act is void, revoked, or is determined to have no legal effect, the property thus obtained by a person as a result of the act shall be returned, or compensation be made

based on the appraised value of the property, if it is impossible or unnecessary to return the property. Unless otherwise provided by law, the loss thus incurred upon the other party shall be compensated by the party at fault, or, if both parties are at fault, by the parties proportionally. A consumer who has fraudulently purchased genetically modified food may claim compensation from the operator. Because the sales contract of genetically modified food has been revoked, the liability for damages at this time is not liability for breach of contract based on a valid contractual relationship, but liability for contractual negligence. Liability for contractual negligence refers to the liability for damages incurred by one party due to the loss of the trust interests of the other party due to the breach of its obligations under the principle of good faith and the law during the conclusion of the contract (Jones, 2019). Article 500 of the Civil Code stipulates that a party shall be liable for compensation if intentionally concealing material facts or providing false information concerning the contract. A consumer who has fraudulently purchased genetically modified food may claim compensation from the operator of the genetically modified food in accordance with the provisions of this article.

Adhering to the principle of special protection of consumer rights and interests is conducive to achieving the goal of legal regulation and safety of genetically modified food and the goal of fair value. Article 55 of the Law on the Protection of Rights and Interests of Consumers stipulates that if a business operator commits fraud in providing goods, it shall, at the request of the consumer, increase the compensation for the losses suffered. In such a case the amount of the increased compensation shall be three times

the price of the goods purchased by the consumer. Where the amount of increased compensation is less than 500 RMB, it is 500 RMB. Accordingly, the consumer who fraudulently purchases genetically modified food can also claim punitive damages from the operator in the amount of three times the purchase price of the goods.

Civil liability for infringing on the right of consumers eating genetically modified foods that are not approved for food

(1) The acts infringing on the right of consumers eating genetically modified foods that have not been approved for food

Recombinant DNA technology can modify organisms from the most basic genetic material (DNA) level of organisms. By bringing biotechnology into the era of genetic engineering, human beings have mastered the key technology to design and construct organisms according to their own wishes. They can use it to create new biological species, varieties, or diagnose and treat diseases (Li, Peng, Hallerman, Wu, 2014). Compared with the first generation of GM crops focusing on improving production efficiency, GM crops that improve food quality are more beneficial to consumers (Li, Luo, Chen, 2019). Since genetically modified products can bring benefits to humans, some countries have stipulated that GM experiments are allowed upon approval. Scientists and researchers normally use a range of technologies such as molecular biology, biochemistry, bioinformatics, and ecology to conduct safety assessments (Wen, Wang, Sun, 2024). Safety assessment in China is performed

both for production methods and for products. Nevertheless, there is still the possibility of infringing on the right to health of people before the GMO is approved for food.

Researchers from Tufts University in United States, the Hunan Center for Disease Control and Prevention, the Institute of Nutrition and Food Safety of Disease Control and Prevention Center of China, and the Zhejiang Academy of Medical Sciences jointly conducted a GM food experiment at a primary school in Hunan Province in 2008. The research group held an information briefing meeting for the parents and guardians of the students, but did not explain to the parents and guardians that the experiment would be using genetically modified “golden rice”. Only the last page of the informed consent form was issued instead of the complete informed consent form. The student’s parents or guardians signed the last page, where there was reference to “golden rice”, let alone any information that it was “genetically modified rice”. The golden rice was cooked by a researcher in the United States and brought into the country without being declared to the relevant domestic authorities as required. Eighty children were randomly divided into three groups: in one of which 25 children were given 60 grams of golden rice with their lunch on June 2. After investigation, the relevant responsible personnel were subjected to the party discipline and administrative sanctions.⁷ Although this incident occurred more than ten years ago, it is a typical case of people being deceived into eating genetically modified food during the experimental stage.

⁷ *Investigation of the Paper on the β -carotene in Golden Rice and the β -carotene in Oil Capsules Are Equally Effective in Supplementing Vitamin A in Children.* Available at: https://www.chinacdc.cn/zxd/201212/t20121206_72794.html (In Chinese).

In addition, Chinese authorities have also detected a number of cases of the unauthorized production and sale of genetically modified seeds. For example, a corn production and marketing cooperative in Liaoning Province illegally produced and processed genetically modified corn seeds. One person carried out the illegal seed production of genetically modified corn in Xinjiang Uygur Autonomous Region.⁸ An agricultural material store operator in Jilin Province illegally sold genetically modified corn seeds. A farmer cooperative in Heilongjiang Province illegally sold genetically modified corn seeds.⁹ The relevant authorities imposed administrative punishments on units and individuals in violation of the law. Genetically modified agricultural products planted and harvested using illegally produced genetically modified seeds can be used as raw materials for food. Although there have been no news reports of the consumption of the above-mentioned genetically modified foods, or the damage caused after eating, this possibility exists. The case of “Star Link” genetically modified corn in the United States is an example. Aventis produced a genetically modified corn called Star Link that had only been approved by the Environmental Protection Agency of the United States for use in animal feed. However, it was banned from food production due to possible allergic reactions in humans. Despite this tests conducted in September 2000 and subsequently found that many corn products con-

tained Starlink. Although Starlink’s acreage accounted for less than 1% of the total corn acreage in the United States that year, about 10% of the corn harvested in the United States that year was contaminated by Starlink due to mixing with other corn species during processing and storage. In March 2002, Aventis paid \$9 million in a consumer class action lawsuit. In addition, Aventis and related insurance companies paid about \$1 billion for the recycling of more than 300 food products in the market that may contain Starlink.¹⁰ There have been no cases of damage caused by the consumption of unapproved genetically modified foods in China, but the possibility of similar cases in the future cannot be absolutely ruled out.

(2) *Liability for infringement of the right of consumers eating genetically modified foods not been approved for human consumption*

From the perspective of behavior, the golden rice incident occurred in the experimental stage, when the golden rice had not yet been put into circulation. Those who are the product were not consumers in market, and the behavior of the researchers was not an infringement of market consumers’ rights to health, the right to know and the right to choose. The golden rice used in the test was claimed to have been tested for safety in the United States, and that test in Hengyang was purely nutritional and therefore not a safety problem. According to relevant news

⁸ *Circular on the Handling of 8 Cases of Agricultural Genetically Modified Organisms Safety Management Violations*. Available at: http://www.moa.gov.cn/xw/bmdt/202102/t20210209_6361595.htm (In Chinese).

⁹ *Circular on the Handling of 9 Cases of Agricultural Genetically Modified Organisms Safety Management Violations*. Available at: http://www.moa.gov.cn/nybg/b/2022/202203/202204/t20220401_6395105.htm (In Chinese).

¹⁰ *Genetic Contamination Threatens China’s Biosecurity*. Available at: <https://tech.sina.com.cn/o/2003-07-23/1311212631.shtml> (In Chinese).

¹¹ *25 Children in Hengyang, Hunan Province Have Eaten Golden Rice and Propose to Compensation 80,000 RMB per Household*. Available at: <https://china.huanqiu.com/article/9CaKrnjy3C8> (In Chinese).

reports, the victims of the golden rice incident received compensation through an agreement: each household was compensated 80,000 RMB for lost earnings due to missed work and spiritual comfort for the child ate the golden rice.¹¹

Assuming that there is no compensation agreement, how can a victim claim civil liability? Article 1004 of the Civil Code stipulates that a natural person enjoys the right to health. A natural persons' physical and mental health are protected by law and free from infringement by any organization or individual. Due to the deception used by the relevant researchers, 25 children ate genetically modified golden rice without the knowledge of the children and their parents or guardians. This can be considered to have caused damage to the children's physical and mental health. Even if the golden rice used in the experiment did not cause substantial damage to the body tissues of the children who ate it, the actual expenses incurred by the victim for defending the rights such as medical appraisal fees, transportation expenses, and lost earnings due to missed work can still be claimed against the infringer. In addition, there is no conclusion on whether genetically modified organisms are as safe as conventional organisms. Concerns about GMOs mainly include toxicity, allergic reactions, drug resistance, beneficial ingredients, and immunity (Li, Peng, Hallerman, Wu, 2014). The general public is still cautious about genetically modified foods even if they are allowed to be eaten through safety evaluation. There may even be a heavy psychological burden on the safety of genetically modified foods in the experimental stage that are deceived into eating. Article 1183 of the Civil Code stipulates that where an infringement upon the personal rights and interests of a natural person causes

serious mental distress thereto, the infringed person has the right to request compensation for pains and suffering. So, the injured party in the above case may claim compensation for pains and suffering from the infringer.

The basic social goal of law is to regulate the social order and achieve predictability of social behavior events. Therefore, the law must be appropriately anticipatory. Genetically modified food infringement cases do not exist at the present time, but that does not mean they will not in the future (Balzano, 2024). The actual victims of illegal genetically modified food in China may demand compensation from domestic grain processors, domestic grain sellers, domestic genetically modified grain research and development providers, grain import consignees or foreign grain merchants in accordance with the law (Pray et al., 2018). Assuming that genetically modified agricultural products planted and harvested using illegally produced genetically modified seeds are eaten by the victim, resulting in damage to health, in accordance with Article 1004 and Article 1179 of the Civil Code, the victim may claim compensation from the infringer for reasonable expenses incurred in the treatment and rehabilitation. These may include medical expenses, nursing expenses, transportation expenses, nutrition expenses, and hospital meal subsidies, as well as lost earnings due to missed work. Where disability is caused, compensation for assistive devices and disability compensation may be claimed. If death is caused, compensation for funeral expenses and death compensation may be claimed. Even if no substantial damage to body tissues has been caused, the victim can still claim compensation for actual losses such as medical appraisal fees, transportation expenses, and lost earnings due to missed work. Of course,

regardless of whether there is substantial damage to physical health, the victim can also claim compensation for pain and suffering depending on the circumstances.

Conclusion

Due to the uncertainty arising from existing scientific and technological conditions, the safety of genetically modified food is

the focus of people's attention. Genetically modified food not only requires strict government supervision, but once the genetically modified food infringes the rights of consumers or persons eating such food, the victims can claim civil liability for post-event remedies. This article discusses the civil liability caused by genetically modified food in accordance with Chinese law and is based on case studies.

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INFORMATION ABOUT THE AUTHOR:

Tong Zhanjun, Faculty of Law, Beijing University of Agriculture, Beijing, China.

ИНФОРМАЦИЯ ОБ АВТОРЕ:

Тонг Чжаньцзунь, юридический факультет, Пекинский сельскохозяйственный университет, Пекин, Китай.