

# RESEARCH AND APPLICATION OF NEW ZEALAND'S IMPORTED ANIMAL HEALTH STANDARD SYSTEM

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**Abstract:** Currently, very few countries use imported animal health standards to control national biosecurity. The construction of China's entry animal health standards system is still blank. New Zealand is the first and most comprehensive country in the world to formulate health standards for imported animals. This article studies the scientific management, core content and main features of New Zealand's entry animal health standard system, import licensing, animal and safety requirements, pre-export quarantine, port of entry quarantine and quarantine clearance, veterinary certificates and documents accompanying animals Requirements, etc. constitute the core content of the standard. The standard has the characteristics of mandatory, legal and authoritative, systematic, operable, timely and easy to obtain. Based on the comparative analysis of the characteristics and problems of China's entry animal quarantine supervision, innovative suggestions were made to draw on the New Zealand entry animal health standard system to formulate China's entry animal health standards and clarify their legal status, and elaborated on the preparation of China's entry animal standards. Principles, system composition, basic framework, core content and main measures.

**Keywords:** Animals; Entry health standards; New Zealand; Laws and regulations

## 1 NEW ZEALAND ANIMAL IHS ANALYSIS

China is a major country of imported animals, and the construction of a health standard system for imported animals is blank. New Zealand is the first country in the world to formulate import health standards (HIS) and the most comprehensive ones. Currently, very few countries apply animal IHS to control national biosecurity. Animal IHS mostly adopts OIE recommended standards. Although it is an international standard, it is not the most advanced standard. There are not many studies on animal IHS adopted by developed countries in the animal husbandry industry. On the basis of studying the construction of the legal system for quarantine of imported terrestrial animals in New Zealand [1], the author systematically studied the scientific management of New Zealand animal IHS and its core content and main features [2-8], and comparatively analyzed China's entry animal quarantine supervision and management system. Advantages and gaps, it is proposed to learn from the New Zealand animal IHS system, Recommendations for building China 's animal IHS system, preliminary research on the legal status, compilation principles, basic framework, and main measures of China's animal IHS, in an attempt to provide technical standard support for building a quarantine supervision system for imported terrestrial animals with Chinese characteristics and building a powerful animal husbandry country.

New Zealand is the first country in the world (1988) to formulate the most comprehensive animal IHS. Although the "Biosafety Law" promulgated in 1993 clearly stipulated IHS provisions, it took nearly five years to announce four IHSs for the import of rabbits from Australia. The standards for the import of goats from Australia were in 2011, and the standards for the import of equine animals, cats and dogs. It was only formulated and released in 2014.

### 1.1 Important Role

IHS refers to the import of risky goods or the accidental import of new organisms. The regulations for implementing effective management are formulated and issued by the New Zealand Ministry of Primary Industries (MPI) in accordance with Section 24A of the Biosafety Act 1993. The legal document, which forms part of the issuance of the import license document, is The basis for biosafety qualification determination of inbound goods before customs clearance and release. system The purpose of establishing and implementing IHS is to reduce the entry of animals, plants and products into Biosecurity risks posed by New Zealand. IHS controls New Zealand immigration plants and plant products, animals and animal products, food and biological products as well as shipping or shipping containers, means of transport, wheels, Controlled/temporary isolation and quarantine facilities, etc.

### 1.2 Compilation Principles

Goods with biosecurity risks entering New Zealand need to develop an IHS to manage them. According to the principle of formulating one standard for one country and region and one animal, it is drafted and released. At the same time, it is stipulated that if New Zealand's policy changes, the animal health status of the exporting country changes, and legal and other reasons, the issued IHS can be reviewed, modified or invalidated.

### 1.3 Standard Classification

#### 1.3.1 By type of imported animals

Aquatic animals, breeding (poultry) eggs, farm animals, equine animals, experimental animals, Pets, semen and embryos, zoo animals, invertebrates 9 different animal categories IHS.

#### 1.3.2 According to standards related to imported animals

Confinement facility equipment, animal facilities and water use, biosafety handling methods, risk analysis IHS.

### 1.4 Develop Procedures

MPI is responsible for IHS development. First, risk analysis. If the analysis results show that risks can be adequately controlled through IHS regulations, it will be determined to prepare an IHS. If it is a high-risk pest or disease, a technical review of the animal quarantine system, transportation channels, facilities, etc. of the exporting country will be required. Next, write the release. MPI publishes IHS drafts or prepares risk management proposals and extensively solicits opinions from relevant parties, such as the MPI Industry Supervision Forum, industry associations, overseas authorities, importers, etc. Again, notify the WTO and issue an interim version of IHS. Finally, the final version of IHS was released 10 days later.

### 1.5 Standard Composition

To date, 80 animal IHSs and 22 facility (FS) and related IHSs have been released, including 7 for aquatic animals, 5 for farm animals, 4 for pets, 2 for equine animals, 4 for laboratory animals, and 28 for zoo animals. 3 invertebrates, 7 breeding (poultry) eggs, 20 semen and embryos. 11 facility standards, animal welfare domestic Transportation, air freight, shipping containers, biosafety handling methods, use of disinfectants, wooden packaging containers and risk analysis 11.

### 1.6 Core Content

The IHS has not been prepared in accordance with the requirements of ISO/IEC Guidelines Part 2: 2004. The standard focuses on animals and licensing countries/regions, and describes its requirements in sections according to the animal's entry process. According to GB/T1.1[9] Analysis of imported aquatic animals-ornamental fish and marine invertebrates [2], animals of the genus Equus [3], farm animals-goats [4], pets-cats and dogs [5], experimental animals-Australian rabbits [6 ], zoo animals-Australian deer [7], invertebrates-fruit flies [8] Relevant elements and core content of other standards.

#### 1.6.1 Factor analysis

##### 1.6.1.1 Informative summary elements

Cover, table of contents, preface and Introduction 4 part. The cover describes the name of the standard as well as the developing department, issuing organization, and basis for issuance, or (title page) introduces the name of the standard, implementation time, substituted/obsolete versions, contact departments and personnel, and email addresses, etc. IHS claims that the preface is not part of the standard and the content The content includes purpose, background, reader scope, importance, equivalence principle, standard revision history and other information [3, 5, 6, 8].

##### 1.6.1.2 Normative general elements

There are 3 parts: standard name, scope and normative reference documents. The cover of IHS states the name of the standard, and standards such as the entry of Australian deer are also marked with the words "Develop and Protect New Zealand" in the lower left corner of the homepage. The scope of IHS can be derived from the name of the standard, and the scope of application is also described in the first clause of the standard. Standard reference terms are similar to normative document references.

##### 1.6.1.3 Normative technical elements

Contains terms and definitions, abbreviations, requirements, normative appendix 4. IHS terms and definitions are in Part 1 Requirements [3, 4, 6] and Part A description [5, 8]. It is required that import licenses, customs clearance procedures, lists of identified risk organisms and control requirements, veterinary certificates, etc. be reflected in the IHS. The contents of the appendices vary, including standard revision history, terms and definitions, list of specific requirements for risk organisms [3], and isolation and quarantine requirements [4] etc. are quoted from the relevant provisions of the standard text. Analysis believes that the IHS terms and content are consistent with the GB/T1.1 standard [9] Element requirements are compatible.

#### 1.6.2 Core content

The IHS structure of different animals is slightly different. In summary, the core contents include import licensing, animal qualifications and safety requirements, pre-export isolation and quarantine, port of entry quarantine (including biosafety customs clearance) and post-entry isolation and quarantine (including biosafety customs clearance), veterinarian Certificates and documentation requirements for traveling with animals, etc. IHS does not include quarantine access, which is a prerequisite for developing IHS.

### *1.6.2.1 Import license*

Obtaining an import permit from MPI for imported animals is a prerequisite and no exceptions are required.

### *1.6.2.2 Animal Qualification and Safety Requirements*

the birthplace of animals, Basic requirements such as breeding time, animal disease catalogue, and requirements for identified biological risks (animal diseases) vary depending on the animal species. For example, ornamental fish and marine invertebrates are affected by 18 kinds of diseases such as biRNA virus infection, goats imported from Australia are affected by 5 kinds of diseases including bluetongue, domestic cats and dogs are affected by 10 kinds of diseases such as rabies, and horses are affected by 24 kinds of diseases such as African horse plague., Australian rabbits have 15 diseases such as rabbit viral hemorrhagic disease, deer have 7 diseases such as bluetongue, fruit flies have mites, and there are no pathogenic microorganisms growing in the culture medium.

### *1.6.2.3 Pre-export quarantine*

After obtaining the permit and animal ear tags, start the quarantine of the animals before export. IHS has clear requirements for animal quarantine, facilities, medication, vaccines, etc. before export, which are stated in the veterinary certificate.

### *1.6.2.4 Quarantine clearance and quarantine clearance at the port of entry*

Quarantine officials at the port of entry inspect the animals and certificates, implement unqualified treatment, pass the customs clearance of qualified animals, and clear the animals after passing the quarantine and quarantine, and release the animals to the importer [5, 8].

### *1.6.2.5 Veterinary certificate and documentation requirements for traveling with animals*

beast The medical certificate complies with the OIE Aquatic Animal Health Code and the OIE Terrestrial Animal Health Code. requirements recommended by the Animal Health Code. Contains basic animal information and health There are two parts of health information. Animal health information includes identification, animal Fulfillment of material qualifications, disease status, drug treatment and handling, vaccination, isolation and quarantine results and transportation process control, etc. [3-5, 7]. Or confirmation of the owner's statement of the animal (goods), such as pets [6] and experimental animals [7-8].

## **1.7 Main Features**

The construction of a sound animal IHS system in New Zealand is a long, practical and constantly improving process, with the following characteristics.

### ***1.7.1 Authoritative***

MPI formulates IHS, and the New Zealand government Section 24A of the Property Safety Act 1993 was promulgated and implemented. It is a legal document. It is mandatory. Introduce scientific and advanced concepts such as the principle of equivalence, risk analysis, biosafety management areas, and appropriate animal safety protection levels. IHS covers 9 categories of imported animals and facilities, transportation tools, biosafety handling and animal welfare requirements related to the entire process of imported animals. It not only meets the requirements of OIE standards, but also exceeds its requirements, showing that IHS of authority.

### ***1.7.2 Systematic***

From the perspective of the standard structure, the basic information shows the standard's release basis, implementation time, release unit, etc. The general information highlights the responsibilities and obligations of importers and the principle of equivalence. The import procedures range from obtaining an import license, providing information, animal qualification requirements, to isolation and quarantine before export, and paying certificates with imported animals. The customs application procedures and post-entry isolation and quarantine follow-up supervision describe a series of requirements based on the animal import process, showing the systematic nature of the standards.

### ***1.7.3 Operable***

After risk analysis of imported animals, a draft When an animal becomes HIS, a highly targeted program is initiated. From the imported animal quarantine practice to the standard formulation and release process, the standard is mature and in line with national regulations and OIE recommended standards. The isolation and quarantine period and veterinary certificate before export of risk organisms shall be clearly required and stipulated. Use information technology to publish the contact information of specialized quarantine officials for import licenses and entry declarations. The standards have clear and specific requirements for epidemic diseases, isolation and quarantine, drug handling and treatment, vaccination, forage and transportation, showing the operability of the standards.

### ***1.7.4 Strong timeliness***

Each IHS has special provisions to clarify the requirements for standard verification, invalidation and revision. New, such as handling requirements-standard for biosafety handling methods, implemented on July 22, 2019 day. Revised in a timely manner, such as Animal Welfare: Domestic Transport October 1, 2018 It was implemented on December 16, 2016, replacing the standard on December 16, 2016. The 2015 version of IHS replaced the 2014 version. The standards for imported ornamental fish and marine invertebrates were revised three times from 2018 to 2019, showing that the standards are extremely timely.

### ***1.7.5 Easy to get***

Imported animal management makes full use of the Internet Technologies such as the Animal Identification and Traceability System (NAIT) identify imported animals. Email message communication is convenient and fast. The IHS is fully available on the MPI website, which greatly facilitates relevant parties involved in the import and export of animals to understand New Zealand's requirements, and it is extremely convenient to obtain display data.

## **2 CHARACTERISTICS OF CHINA'S ENTRY ANIMAL QUARANTINE SUPERVISION SYSTEM**

### **2.1 Advantage**

China's entry animal quarantine supervision system meets the requirements of the OIE Terrestrial Animal Health Code, Aquatic Animal Health Code and other regulatory requirements, and the system is relatively sound. A series of technical specifications, testing method standards, quarantine and health requirements protocols, etc. are the basic compliance and operational guidelines for entry animal quarantine. They are used in the practice of port entry animal quarantine supervision and play a fundamental role in preventing and controlling the spread of major animal diseases. input, ensuring food safety, animal husbandry and ecological security.

### **2.2 Gap**

Comparative analysis with the New Zealand Animal IHS shows that the current quarantine supervision and management methods and the single entry animal quarantine diagnostic supervision are strong in principle, but are poorly systematic and not very operable, resulting in differences in law enforcement at different ports. China 's quarantine and supervision measures for imported terrestrial animals and the standardization of imported animal health are still blank. Management and technical standards are not mandatory. The legal status of quarantine standards and technical specifications has not been clarified. It is inconvenient for importers and exporters to obtain standard texts.

## **3 CONSTRUCTION OF CHINA'S ANIMAL IHS SYSTEM**

In summary, based on the above analysis and the fact that China is a large animal husbandry country, but not a powerful country, with large import volume and many types, it is believed that it is urgent to establish an animal IHS system that conforms to China's animal quarantine reality by learning from the New Zealand animal IHS system.

### **3.1 Clarify Legal Status**

With reference to the relevant provisions of New Zealand's "Biosafety Law" and China 's "Food Safety Law" and "Animal Epidemic Prevention Law", when amending the "Entry and Exit Animal and Plant Quarantine Law" and implementation regulations or formulating the "Biosafety Law", additional animal and plant cargoes shall be formulated. IHS system terms, clearly It is indeed a mandatory standard and is approved or authorized to be issued by the State Council.

### **3.2 Establish Basic Principles**

Follow scientific principles, adopt the SPS protocol and OIE standards, and adhere to the principles of equivalence, risk management, and full-process control. Determine the equivalence principle with the animal quarantine measures of the exporting country, and based on the risk analysis results, formulate a Chinese entry animal health standard for each type of animal imported from different countries. The standards focus on animals, focusing on export, import, release of animals to cargo owners and subsequent quarantine supervision, and stipulate animal quarantine and health requirements. The IHS must clearly stipulate that due to changes in animal diseases in the exporting country, adjustments to China's import policies and any legal reasons, China's animal husbandry and veterinary authorities have the right to review, revise and invalidate the IHS, and reserve the right to conduct on-site audits and veterinary pre-inspections in the exporting country, etc. Quarantine access is included in the development of IHS prerequisites.

### **3.3 Animal IHS Framework**

#### **3.3.1 Standard architecture**

Taking imported animals as the main body and the whole process as the main line. The IHS system architecture is supported by core contents such as import licensing, disease control, and veterinary certificates, as well as process hygiene control related to imported animals.

##### **3.3.1.1 Animal subject**

According to the living environment of animals, they are divided into three categories: aquatic animals, terrestrial animals, and amphibians. According to the animals/purposes in different countries and regions (breeding, food, dairy, ornamental, performing arts, athletics, pets, laboratories, zoos) ) and their combinations to formulate IHS respectively.

For example, China IHS-imported breeding pigs from the United States, China IHS-imported cattle for slaughter from Australia, and China IHS-pets (cats and dogs) from permitted countries.

#### *3.3.1.2 Entire entry process*

Animals are kept at breeding farms in the exporting country, isolation and quarantine sites before export, pre-export inspection (if necessary), transportation of animals from the breeding farm to the departure port, transportation (imported to designated ports in China), quarantine at the port of entry, and isolation and quarantine after entry (when necessary), follow-up supervision, etc. are clearly stipulated in the standard preparation in sequence. Quarantine requirements for transit animals may also be specified (when necessary).

#### *3.3.1.3 Disease risk identification and specific requirements*

After risk analysis, referring to OIE standard requirements, and in accordance with the quarantine and health requirements protocol signed by the exporting country and China and the confirmed veterinary certificate, the types and requirements of risky animal diseases are determined.

#### *3.3.1.4 IHS related to incoming animals*

Organizations, personnel and facilities related to incoming animals, including the exporting country's veterinary quarantine system, veterinary authorities, official veterinary requirements for pre-inspection, animal quarantine-related facilities, animal-related packaging or restrictive facilities, litter, feed, Water, domestic transportation management, traceability and biosafety handling method requirements, as well as importer's responsibilities, quarantine handling responsibilities and IHS rules formulation, etc.

### **3.3.2 Basic framework**

According to GB/T1.1[9] The rules take the bilateral quarantine and sanitary conditions of breeding pigs entering the United States and the second revision as an example [10] write. The content includes: preface and introduction, scope of application, normative reference documents, terms and definitions, principle of equivalence, general requirements, specific requirements for identified risk organisms, veterinary certificates, appendices, etc. (can be deleted). The core content and key links cannot be deleted.

#### *3.3.2.1 Informative summary elements*

Includes cover, table of contents, preface, and introduction. (1) Introduction. Standard formulation, revision, deletions and changes, Refer to international standards, centralized management departments, drafting units, drafting personnel, standard release profiles, etc. (2) Introduction. reason, purpose, background, Readership, other information. For example, before American breeding pigs are imported into China, Isolation and quarantine standards before export, isolation and quarantine requirements after entry, etc., or document requirements approved by the animal husbandry department, etc.

#### *3.3.2.2 Normative general elements*

Includes standard name, scope of application, and normative reference documents. (1) Standard name. Import health standards: Breeding pigs imported from the United States to China. (2) Scope of application. State that breeding pigs can be imported from countries that meet the requirements of this IHS. Clarify breed requirements or permit national listings. (3) Normative reference documents. Reference OIE relevant standards and other relevant standards.

#### *3.3.2.3 Normative technical elements*

Core content, essential elements. Contains terms and definitions, abbreviations, general requirements and specific requirements for identified swine diseases, veterinary certificates, and normative appendices. (1) Terms and definitions. Reference OIE terms and definitions, or China-specific related terms and definitions. (2) General requirements. Including, but not limited to, the following requirements, which may be deleted. ① Basic requirements for breeding pigs. Such as age, breed, regulations for pregnant pigs, etc. ② American breeding pig epidemic prevention requirements. Meet China's IHS requirements, evaluate the veterinary epidemic prevention system of exporting countries, etc. ③ Quarantine before export. Meet China's pre-export isolation and quarantine standards. ④ Laboratory requirements. It complies with the requirements of accredited laboratories by the US competent authorities and the requirements of Chinese laboratories. Tests must be conducted in accredited laboratories, vaccines and treatments meet the requirements, and the collection and storage of samples are stipulated. ⑤ Transportation. Information communication before export, such as air, shipping, land transportation dates, flights, ship names, license plate numbers, etc., requirements for packaging containers, cages, feed and bedding materials, veterinary health requirements for transportation vehicles from the isolation site to the departure port, etc.. ⑥ Requirements for designated isolation or temporary isolation sites. Meet the required post-entry quarantine standards. Port transportation requirements, vehicle veterinary health requirements, etc. ⑦ Treatment, handling and vaccine requirements for breeding pigs before importation. Treatment requirements for swine *Treponema* and *Leptospira* during pre-export quarantine, immunization requirements for swine parvovirus disease, and deworming requirements for surface parasites in pigs, etc. ⑧ Other information. Such as ear tags, information files, veterinary inspection requirements before export, etc. ⑨ Documentation that accompanies breeding pigs. Such as import license certificate, veterinary certificate, etc., especially the language, expression, content, official veterinarian signature, seal, anti-counterfeiting requirements, etc. of the veterinary certificate. ⑩ Port entry customs clearance. It stipulates the verification of quarantine license certificates, veterinary certificates and animal compliance,

clinical examination and quarantine processing requirements, etc. ⑪ Domestic transport. Requirements for vehicle hygiene, transportation process supervision, packaging bedding materials and packaging material handling requirements, etc. ⑫ Isolation and quarantine release after entry. Specify the treatment methods for pigs after isolation and quarantine, and comply with biosafety treatment method standards, etc. ⑬ Follow-up supervision. If necessary, stipulate the subsequent quarantine and supervision requirements after the imported breeding pigs are released to the importer. ⑭ File management. Provisions on the management of documents for imported breeding pigs. ⑮ Principle of equivalence. Equivalent to New Zealand IHS provisions. (3) Specific requirements for swine diseases have been determined. It stipulates the control requirements for 10 diseases, including porcine treponemal dysentery and porcine brucellosis [10]. This clause may be combined with the veterinary certificate. (4) Veterinary certificate. A sample veterinary certificate in the style of the agreement, including pig information and health information, confirmation of the owner or exporter's declaration, etc.[10] (5) Normative appendix: Attachment 1 Isolation and quarantine standards before pig export; Attachment 2 Isolation and quarantine standards after pig entry.

#### 3.3.2.4 *Informative supplementary elements*

Such as informative appendices and reference method documents for testing tests.

### 3.4 Main Measures

#### 3.4.1 *Develop an animal IHS preparation plan*

Clarify the important meaning, guiding ideology, writing principles, specific content, preparation procedures and goals. Confirm the drafting unit, writers, completion time limit, etc. The IHS draft requires extensive consultation, especially from importers and relevant ministries. Sectors and associations, determine the final draft of the standard, and notify WTO/ International organizations such as SPS and OIE organize review, approval, release, implementation, review, and revision in a timely manner. Built to comply with OIE standards, The New Zealand IHS system is similar to the Chinese animal IHS system.

#### 3.4.2 *Develop IHS standards*

According to the standard framework and content requirements, the preparation includes basic, management and technical IHS, such as terms and definitions, classification of imported animals, abbreviation guidelines, China IHS development procedures, preparation requirements, etc.

#### 3.4.3 *Translate IHS standards*

Convert the currently effective isolation and quarantine site requirements, supervision and management regulations, and normative documents into IHS. Convert bilateral quarantine and health requirements protocols and identified veterinary certificate samples into IHS core content.

#### 3.4.4 *Integrate existing standards*

Collect and cite animal disease detection and diagnosis, vaccination, technical specifications, biosafety handling and other standards as the basic components of IHS.

### COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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