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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Rules for agricultural seed testing - Part 12: Varietal quality -
GMO seed testing**

农作物种子检验规程 第12部分：品种质量 转基因种子测定

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 12 of GB/T 3543 "Regulations for the inspection of crop seeds". GB/T 3543 has been published in the following parts.

- Part 1: General;
- Part 2: Sampling;
- Part 3: Seeding quality and purity analysis;
- Part 4: Seeding quality germination test;
- Part 5: Variety quality and purity identification;
- Part 6: Determination of moisture content of sowing mass;
- Other items inspection;
- Part 8: Determination of sowing quality and thousand-grain weight;
- Part 9: Determination of sowing quality and viability;
- Part 10. Determination of seeding quality and vitality;
- Part 11. Variety quality and authenticity identification;

- Part 12.Determination of variety quality of genetically modified seeds.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the Ministry of Agriculture and Rural Affairs of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of Crop Seeds (SAC/TC37).

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Introduction

Seed quality has many verifiable cultivation values, forming the currently recognized sowing quality, variety quality and health quality.

Among them, sowing quality mainly reflects the impact of seed appearance quality on seed sowing, and is divided into physical Quality and physiological quality. The most commonly used physical quality is cleanliness, dryness, fullness, uniformity and other characteristics, such as water Physiological quality mainly reflects the vitality of seeds, especially under suitable environmental control conditions.

The structural function and developmental capacity of seedlings under most conditions, that is, the ability to normally germinate and grow into plants under most conditions. The main indicators of physiological quality are germination Seed variety quality (varietal quality) is also called genetic quality (genetic quality), which mainly reflects The genetic background characteristics and genetic background consistency characteristics of crop seeds. At present, the indicators for measuring seed variety quality include variety authenticity The health quality mainly reflects the health status of seeds, whether there are any Pathogens, such as fungi, bacteria and viruses, and animal pests, including nematodes and insects, may also be involved in physiological conditions, such as trace element deficiencies.

GB/T 3543 "Inspection Procedures for Crop Seeds" is the basic standard for seed

inspection methods, which consists of general principles, sampling, sowing quality, variety quality and It is composed of health quality and other parts, aiming to provide inspection basis for the quality requirements of the above three types of seeds, and is planned to be divided into the following 12 parts.

- Part 1: General. The purpose is to establish the general and overall requirements for each part of the inspection procedures for crop seeds and to govern the inspection procedures. Each part of the program.
- Part 2: Sampling. The purpose is to clarify the methods of sampling from seed batches, sub-sampling for testing and preservation of samples. program.
- Part 3: Seeding quality purity analysis. The purpose is to clarify the method for determining the net seed content in crop seed samples program.
- Part 4: Seeding quality germination test. The purpose is to clarify the test method and procedures for the germination of crop seed samples.
- Part 5: Variety quality and purity identification. The purpose is to determine the percentage of seeds of this variety in a seed sample. Methods and procedures.
- Part 6: Determination of moisture content in seeding mass. The purpose is to clarify the method and procedure for moisture content of crop seed samples.
- Part 7: Other items of inspection. The purpose is to clarify the method and procedures for seed sample health.
- Part 8: Determination of 1000-seed weight of sowing quality. The purpose is to clarify the method and procedure for determining the weight of 1000 seeds per seed sample.
- Part 9: Determination of sowing quality viability. The purpose is to clarify the method and procedure for determining the viability of seed samples.
- Part 10. Determination of seed quality vitality. The purpose is to clarify the method and procedure for determining the vitality of seed samples.
- Part 11. Variety quality and authenticity identification. The purpose is to clarify the identification methods and procedures for variety authenticity.
- Part 12. Determination of genetically modified seeds for variety quality. The purpose is to clarify the composition, genetic purity and gene authenticity of genetically modified seeds.

Procedure for determination of authenticity.

This document is the "GMO seed detection" part of variety quality. Considering the rapid development of GMO detection technology, this document The purpose is to emphasize the consistency of genetically modified seed test results rather than the consistency of the test methods.

Since transgenic seeds are derived from foreign genes and produce specific traits, and considering that there are threshold regulations for identifying transgenic seeds, According to the special situation of seeds, on the one hand, it is necessary to distinguish whether the observation unit itself is genetically modified seeds or whether it is in production, harvesting, processing, storage or marketing.

On the one hand, there is adventitious presence of GM seeds in the sales process (AP); on the other hand, since seeds are counted by grain number, it is necessary to Considering the special issues of trait purity (TP) determination of transgenic seeds, the focus of attention in the variety quality of transgenic seeds is on variety.

The authenticity of transgenic traits of varieties and the purity of transgenic traits of varieties, the determination of AP and TP are crucial to the development of the transgenic seed industry.

Crop Seed Inspection Procedures Part 12.Determination of genetically modified seeds for variety quality

1 Scope

This document specifies the requirements for the content of genetically modified seeds testing, design of testing plans, selection of testing techniques, presentation and reporting of results, etc.

This document applies to the inspection of crop seeds.

2 Normative references

GB/T 3543.1

GB/T 3543.2

3 Terms and definitions

The following terms and definitions apply to this document.

3.1.1 Transgene

Foreign genes from different species, or homologous genes from the same species, are introduced into an organism, and the organism expresses new traits and can The process of passing on to the next generation.

3.1.2 Genetically modified organism; GMO

Transgenic technology is used to introduce foreign genes to change the genome composition, obtain newborns with new genetic traits that can be passed on to their