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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 3543.4-2025

Replacing GB/T 3543.4-1995

Rules for agricultural seed testing - Part 4: Sowing quality - Germination test

农作物种子检验规程 第4部分：播种质量 发芽试验

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Table of Contents

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 4 of GB/T 3543 "Inspection Procedure for 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.

This document replaces GB/T 3543.4-1995 "Germination test for crop seeds" and is consistent with GB/T 3543.4-1995.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Added the term and definition of "parallel test" (see 3.3);

- Deleted the term and definition of "fresh non-germinated seeds" (see 3.8 of the 1995 edition);

- Added a chapter "General Principles" (see Chapter 4);

- Changed the requirements for germination medium (see Chapter 5, Chapter 4 of the 1995 edition);

- Changed the relevant content of the test procedure (see Chapter 7, Chapter 6 of the 1995 edition);

- Changed the relevant contents of result calculation and presentation (see Chapter 8, Chapter 7 of the 1995 edition);

- Added technical requirements for germination tests of some seed species (see Appendix A);

- Changed the relevant content of seedling identification (see Appendix B, Appendix A of the 1995 edition).

- The tolerance table of germination test has been modified (see Appendix C, Tables 3 to 5 of the 1995 edition).

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).

This document was drafted by: National Agricultural Technology Extension Service Center, Shaanxi Provincial Seed Work Station, Hunan Provincial Seed Quality Inspection Center, Hubei Provincial Seed Administration Bureau, Shanxi Provincial Seed Industry Development Center, Henan Provincial Seed Industry Development Center, Shandong Provincial Seed Administration Center, Hainan Provincial Seed Administration Center Station, Inner Mongolia Autonomous Region Agricultural and Animal Husbandry Technology Promotion Center.

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The previous versions of this document and the documents it replaces are as follows.

- First issued in 1983 as GB 3543-1983;

- First revised in 1995 to GB/T 3543.4-1995;

- This is the second revision.

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 "Germination Test" part of the seeding quality inspection regulations for crop seeds. The germination rate test reflects the suitability of seeds under laboratory control.

The ability of a plant to grow into a normal plant under favorable conditions is an important indicator of seed quality commonly used in seed trade circulation.

The international seed inspection procedures are standardized, the methods and procedures of germination tests are standardized, and the seedling identification method is used to determine the seed germination rate index.

The tests are carried out under "controlled appropriate conditions", which facilitates standardization and makes it possible for global seed testing results to be comparable.

Crop seed inspection procedures Part 4: Seeding quality germination test

1 Scope

This document describes methods for germination testing of seeds of agricultural crops.