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

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**Guidelines for the conduct of tests for distinctness, uniformity
and stability - Foxtail millet (*Setaria italica* (L.) Beauv.)**

植物品种特异性、一致性和稳定性测试指南 谷子

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Foreword

The following symbols apply to this document. MG. Group Measurement MS. Individual Measurement PQ. Pseudo-quality property QL. Quality Properties QN. quantitative traits VG. Group visual inspection *. The important traits required for the unification of variety descriptions by the International Union for the Protection of New Varieties of Plants (UPOV) are not limited by environmental conditions. The expression status of these traits cannot be tested; all UPOV members need to use these traits. __. Special

Note. Scope of Application for Test Traits

5 Requirements for breeding materials

- 5.1 Propagation material is provided in the form of seeds.
- 5.2 The quantity of conventional seeds and sterile lines submitted shall not be less than 500g, and the quantity of hybrid seeds shall not be less than 1000g; if necessary, additional hybrid seeds shall be submitted. 200g of seeds for each parent material.
- 5.3 Submitted seeds must be healthy in appearance, highly vigorous, and free from pests and diseases. Seed purity and moisture content must meet the quality requirements of GB 4404.1. Regulation.
- 5.4 Submitted seeds generally should not undergo any treatments that affect the normal expression of varietal traits (such as seed coating). If treatment has been performed, it must be submitted separately. Detailed instructions for processing.
- 5.5 The seeds submitted must comply with the relevant regulations of China's plant quarantine.

6 Testing Methods

6.1 Test Cycle It typically consists of two independent growth cycles.

6.2 Test Location Testing is typically conducted at one location. If certain traits are not adequately expressed at that location, it is advisable to conduct them at other suitable locations. Conduct observations.

6.3 Field Trials

6.3.1 Experimental Design Planting should be done using a row sowing method with a suitable spacing for local conditions, with no less than 300 plants per plot and 2 replicates. When necessary, the variety to be tested and similar varieties should be planted adjacent to each other.

6.3.2 Field Management The production management should be carried out in accordance with local practices. Field management in each plot should be strictly consistent, and the same management measures should be completed on the same day.

6.4 Trait Observation

6.4.1 Observation Period Trait observations should be conducted according to the reproductive stages listed in Tables A.1 and A.2 of Appendix A. Descriptions of reproductive stages should conform to those in Appendix B. Table B.1.

6.4.2 Observation Methods Trait observations should be conducted according to the observation methods (VG, MG, MS) specified in Tables A.1 and A.2. Some trait observation methods should conform to... B.2 and B.3.

6.4.3 Number of observations Unless otherwise stated, the sample size for individual measured traits (MS) is 20 plants, and each plant is sampled when observing organs or parts of the plant. The sampling quantity is

1. Population observation traits (VG, MG) require observation of the entire plot or a population of a specified size.

6.5 Additional Tests If necessary, additional tests should be performed according to the properties in Table A.2 or properties not listed in this document.

7 Determination of specificity, consistency, and stability of results

7.1 General Principles The determination of specificity, consistency and stability shall be carried out in accordance with the principles defined in GB/T 19557.1.

7.2 Determination of Specificity The variety to be tested must be clearly distinguishable from known varieties. During testing, the variety to be tested must be similar to the most closely related variety in at least one trait. When there are obvious and reproducible differences, the variety being tested is deemed to have specificity.

7.3 Consistency Determination For conventional varieties, using a 1% population standard and at least 95% acceptance probability, when the sample size is 263-329 plants, the most suitable method is... Up to 6 heterozygous strains are allowed; when the sample size is 545 to 618 strains, a maximum of 10 heterozygous strains are allowed. For sterile lines, a population standard of 2% and an acceptance probability of at least 95% are used when the sample size is 274 to 310 plants. When the sample size is 585 to 624 plants, a maximum of 10 heteromorphic plants are allowed; when the sample size is 585 to 624 plants, a maximum of 18 heteromorphic plants are allowed. For hybrid varieties, using a 3% population standard and at least 95% acceptance probability, when the sample size is 285-310 plants, the most... Up to 14 heterozygous strains are allowed; when the sample size is 583 to 610 strains, a maximum of 25 heterozygous strains are allowed.

7.4 Stability Determination If a variety exhibits consistency, it can be considered to have stability, and stability testing is generally not performed. If necessary, the next generation of this variety or another batch of seeds should be planted. If there is no significant change in phenotypic expression compared with the previously provided propagation material, if the change is observed, it can be determined that the variety possesses stability. In addition to directly testing the hybrid itself, the stability of hybrids should also be assessed by methods that evaluate the uniformity or stability of their parents. To make a judgment.

8 Characteristic Table

8.1 Overview Based on testing requirements, traits are divided into basic traits and optional traits. Basic traits are those required for testing, while optional traits are those used for further testing. Traits that can be selected for additional testing. Table A.1 lists the basic traits of millet, and Table A.2 lists the optional traits of millet. (Trace List) It includes the trait name, expression type, expression status and corresponding code, standard varieties, observation period and method, etc.

8.2 Expression Types Based on the way traits are expressed, traits are classified into three types. qualitative traits, pseudo-qualitative traits, and quantitative traits.

8.3 Expressing Status and Corresponding Code Each trait is divided into a series of expression states to facilitate the definition of the trait and the specification of its description; each expression state is assigned a corresponding number. Code to facilitate the recording, processing, and establishment and communication of variety descriptions.

8.4 Standard Varieties The trait table lists standard varieties for reference regarding the expression status of some traits, to help determine the different expression statuses of related traits. Correct for differences caused by environmental factors.

9. Grouping traits The varietal grouping traits are as follows:

a) *Leaf sheath. anthocyanin color intensity (Table A.1 Neutral phenotype 2);

- b) *Heading stage (Table A.1, trait 6);
- c) *Stem. Length (Table A.1 Neutral Trait 15);
- d) *Earring. Shape (Table A.1 Neutral trait 23);
- e) *Grain. Color (Table A.1 Neutral Trait 31);
- f) *Caryopsis. Color (Table A.1 Neutral trait 33).

10. Technical Questionnaire Applicants should complete the questionnaire on millet variety specificity, uniformity and stability testing technology in accordance with Appendix C.