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

GB/T 22101.2-2026

Replacing GB/T 22101.2-2009

**Technical specification for the evaluation of resistance to
diseases and insect pests in cotton - Part 2: Cotton aphid**

棉花抗病虫性评价技术规范 第2部分：棉蚜

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 2 of GB/T 22101, "Technical Specification for Evaluation of Cotton Disease and Pest Resistance". GB/T 22101 has already published the following... part.

1. The Cotton Bollworm;

3. Pink Bollworm;

5. Verticillium Wilt. This document replaces GB/T 22101.2-2009 "Technical Specification for Evaluation of Cotton Disease and Pest Resistance Part

2. Aphids", and is consistent with GB/T 22101.2- Compared to. 2009, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---The scope has been changed (see Chapter 1, Chapter 1 of the. 2009 edition);

---The definitions of the terms "seedling aphid," "summer aphid," and "standard aphid-susceptible cotton varieties" have been changed (see Chapter 3, Chapter 3 of the. 2009 edition);

---The section on "Tested cotton varieties (lines)" has been changed (see 4.1, 4.3 in the. 2009 edition);

---Added "Data Records" (see 4.2);

---The order of field aphid resistance testing has been changed. The new test is divided into "Sowing and Field Management," "Survey Methods," "Survey Records," and "Results

Calculation." (See Chapter 5, Chapter 4 of the.2009 edition);

---The evaluation criteria for cotton aphid resistance have been revised (see Appendix A, Appendix A of the.2009 edition);

---Added "Survey Form and Evaluation Result Recording Form for Field Resistance Test of Cotton to Cotton Aphids" (see Appendix B). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the Ministry of Agriculture and Rural Affairs of the People's Republic of China. This document was drafted by: Institute of Plant Protection, Chinese Academy of Agricultural Sciences; Xinjiang Academy of Agricultural Sciences; and the National Agricultural Technology Research and Development Center. Extension and Service Center, Institute of Plant Protection and Soil Fertilizer, Hubei Academy of Agricultural Sciences. The main drafters of this document are. Zhang Yongjun, Pan Hongsheng, Zhu Xiaoming, Wan Peng, Xu Dong, Yang Xianming, and Zhuo Fuyan. The release history of this document and the document it replaces is as follows:

1 Scope

GB/T 22101.2-2026 is the Chinese national standard covering testing a cotton variety against aphids - the infestation, the population counts and the damage scoring, on a pest that has become the main one in Chinese cotton now that the bollworm is controlled by the Bt trait. It replaces GB/T 22101.2-2009 and has been in force since 1 October 2026, completing the cotton resistance series of this batch. It was issued on 31 March 2026 and takes effect on 1 October 2026, replacing GB/T 22101.2-2009. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document defines the terminology and definitions for cotton aphid resistance evaluation techniques, specifies the content of field aphid resistance testing, and describes the verification... method. This document applies to the field identification and evaluation of cotton aphid resistance in both genetically modified and non-genetically modified cotton.

2 Cotton Aphids Published on 2026-03-

31 Implemented on October 1, 2026 State Administration for Market Regulation The State Administration for Standardization issued a statement.

4 Requirements

4.1 Tested cotton varieties (lines) The tested cotton varieties (lines), standard

aphid-susceptible cotton varieties, and transgenic aphid-resistant cotton varieties (lines) were included. Seed quality should meet the requirements of GB 4407.1. Require.

4.2 Data Recording

4.2.1 Experimental Site Data Record the name, specific location, latitude and longitude of the test site, and draw a schematic diagram of the area.

4.2.2 Soil Data Record soil type, soil fertility, irrigation and drainage conditions, and soil cover. Describe the planting situation in the experimental site over the past three years.

4.2.3 Ecological types surrounding the experimental site

4.2.3.1 Agricultural Ecosystem Types Record the main cultivated crops and other vegetation around the experimental site, as well as the names and risks of common diseases, pests, and weeds in local cotton fields. Harmful situation.

4.2.3.2 Natural Ecological Types Record the distance to agricultural ecological types and the surrounding vegetation.

4.2.4 Meteorological Data Record precipitation (precipitation type, daily precipitation) and temperature (daily average temperature, maximum and minimum temperature) data at the test site during the experiment. Record adverse weather factors that affected the experimental results throughout the entire experiment, such as severe drought and torrential rain.

5 Field test of aphid resistance

5.1 Sowing and Field Management Select fields with a history of severe cotton aphid infestations, and sow according to the local standard sowing time, method, and quantity. The plot area should be no less than [number missing]. 30 m², 3 replicates per variety, randomized block design. Cotton seeds were not treated with any aphid control agents during the aphid occurrence survey period. During this period, no pesticides targeting piercing-sucking pests are applied; otherwise, routine local field management practices are followed.

5.2 Survey Methodology The cotton aphid, naturally occurring in the field, was used as the insect source. Fifty plants were randomly surveyed in each plot. During the aphid infestation period, aphids were detected at the 3-leaf stage of the cotton plant. Surveys were conducted at the 5-leaf and 7-leaf stages, for a total of three surveys. The first survey was conducted during the peak aphid occurrence period (cotton flowering and boll-forming stage), and the second survey was conducted 7 days later. The investigation was conducted twice.

5.3 Survey Records The first two surveys during the seedling aphid stage used the leaves

most severely affected by the aphids as representative leaves. The third survey during the seedling aphid stage and the two surveys during the summer aphid stage... The surveys used the most severely damaged leaves from the top five leaves of the cotton plant as representative leaves. The classification criteria for cotton aphid infestation are based on Table A.1 in Appendix A. Determine and count the number of plants at each level (according to Table B.1 in Appendix B).

5.4 Result Calculation

5.4.1 The aphid index is calculated according to formula (1).

5.4.3 Statistical methods were used to calculate the mean ($\bar{y}$) and standard deviation (S) of the damage reduction rate for each cotton variety across three plots. Damage Reduction Rate Table The expression is $(\bar{y} \pm S)\%$. The calculation result is rounded to two decimal places.

6 Results Analysis and Presentation

6.1 Results Analysis The study compared the resistance differences of tested cotton varieties (lines), standard aphid-susceptible cotton varieties, and transgenic aphid-resistant cotton varieties (lines) to cotton aphids; based on the cotton... The average aphid infestation reduction rate of tested cotton varieties (lines) during the peak aphid occurrence period (based on survey data from the peak of the damage index), calculated as follows: Table A.2 Determines the level of aphid resistance.

6.2 Results Presentation The results are presented as follows:

7.Evaluation Form The results of the identification of cotton resistance to cotton aphids are recorded in Table B.2. GB/T 22101.2-2026. Technical Specification for Evaluation of Cotton Disease and Pest Resistance Part 2. Cotton Aphid ICS

15 National Standards of the People's Republic of China Replaces GB/T 22101.2-2009 Technical Specifications for Evaluating Cotton Disease and Pest Resistance Part