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PEOPLE'S REPUBLIC OF CHINA**

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Grades and specifications of garlic

大蒜等级规格

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1 Scope

This document lays down the quality requirements, the inspection rules and the packaging, marking, transport and storage of garlic, and describes the inspection methods.

This document applies to the division of dried garlic into grades and size classes.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 garlic: a nearly spherical bulb made up of the cloves formed by the swelling of the leaf

sheaths of the lateral buds on a shortened stem plate. Source: GH/T 1194-2022, 3.1.

3.2 mildewy garlic: garlic attacked by mould fungi and showing mould spots.

3.3 rotten garlic: garlic attacked by pathogens and showing rotten cloves, whether dry rot or soft rot.

3.4 scalding and heat-damaged garlic: garlic whose clove flesh has turned yellow and soft through sun exposure, high temperature or the like. Note: commonly called sugar garlic.

3.5 worm-bitten garlic: garlic with one or more cloves bitten by insects.

3.6 germinating garlic: garlic in which the dormant bud inside one or more cloves has sprouted to a length reaching one third of the length of the clove. Source: GH/T 1194-2022, 3.2, modified.

3.7 wrinkled-clove and empty garlic: garlic in which one or more cloves have shrunk and formed an empty shell. Note: commonly called air garlic. Source: GH/T 1194-2022, 3.5, modified.

3.8 mummified garlic: garlic in which one or more cloves are shrivelled and shrunken through immaturity or loss of water. Source: GH/T 1194-2022, 3.3, modified.

3.9 remained pseudostem: the tubular stem-like part left on the garlic, formed by the base of the leaf sheaths or by the base of the leaf sheaths clasping the garlic scape.

3.10 transverse diameter: the largest diameter of the largest cross section of the garlic. Source: NY/T 1791-2009, 3.2, modified.

3.11 one-clove garlic: garlic that has not gone through vernalization and so forms without bolting and without dividing into cloves. Source: GH/T 1194-2022, 3.7, modified.

4 Quality requirements

4.1 Division into quality grades. Garlic is divided into the quality grades special, first and second; the requirements shall comply with Table 1. For sensory characteristics, Table 1 requires special grade garlic to be of the same variety, dry, mature, uniform in colour, regular in shape, uniform and even, firm and plump, whole, clean, free from root fibres and free from off-odour. First grade garlic is to be of the same variety, dry, mature, uniform in colour, fairly regular in shape, uniform and even, firm and plump, fairly whole, clean, free from root fibres and free from off-odour. Second grade garlic is to be of the same variety, dry, mature, uniform in colour, fairly regular in shape, fairly uniform and even, firm and plump, fairly whole, fairly clean and free from off-odour, a small quantity of root fibres being allowed. For special and first grade, no mildewy, rotten, scalded and heat-damaged, worm-bitten, germinating, wrinkled-clove and empty, mummified or frost-damaged garlic and no mechanical damage are allowed; for second grade, none of those defects and no obvious mechanical damage are allowed. The table further sets a moisture content of not

more than 70 percent, and a remained pseudostem of not more than 3.0 cm with a difference in pseudostem length within one and the same lot of not more than 1.0 cm.

4.2.1 Division of garlic into size classes, one-clove garlic excepted. The transverse diameter is the indicator by which the size class is fixed, and the classes are extra large, marked XL, large, marked L, medium, marked M, and small, marked S; the requirements shall comply with Table 2, and reference photographs of garlic of each size class, one-clove garlic excepted, are given in Table A.1 of Annex A. Table 2 sets, in centimetres, a transverse diameter of 6.0 or more for extra large, from 5.0 up to but not including 6.0 for large, from 4.0 up to but not including 5.0 for medium and from 2.0 up to but not including 4.0 for small.

4.2.2 Division of one-clove garlic into size classes. The transverse diameter is the indicator by which the size class is fixed, and the classes are extra large, large, medium and small; the requirements shall comply with Table 3, and reference photographs of one-clove garlic of each size class are given in Table A.2. Table 3 sets, in centimetres, a transverse diameter of 4.0 or more for extra large, from 3.0 up to but not including 4.0 for large, from 2.0 up to but not including 3.0 for medium and below 2.0 for small.

4.3.1 Tolerance on the quality grade. The tolerance on the quality grade of garlic, reckoned by mass, is as follows: a) special grade allows 3 percent of the product not to meet the requirements laid down for that grade, provided it meets the requirements for first grade; b) first grade allows 5 percent of the product not to meet the requirements laid down for that grade, provided it meets the requirements for second grade; c) second grade allows 8 percent of the product not to meet the requirements laid down for that grade.

4.3.2 Tolerance on the size class. The tolerance on the size class, reckoned by mass, allows 3 percent of the product in the extra large, large, medium and small classes not to meet the requirements of that class.

5 Inspection methods

5.1.1.1 Sensory inspection. Variety, dryness, maturity, colour, shape, evenness, plumpness, wholeness, cleanliness, odour, mould, rot, germination, pests and diseases, mechanical damage and the like are judged by eye and by smell; where the symptoms of mould, germination or pests and diseases are not obvious and there is doubt, the sample shall be cut open and examined.

5.1.1.2 Where a single garlic bulb carries several defects, only the one with the heavier effect on quality is recorded, and it is counted as the mass of one defective unit; garlic that does not meet the requirements of the corresponding quality grade is picked out and weighed.

5.1.2 Moisture is determined as set out in GB 5009.3.

5.1.3 The length of the remained pseudostem is measured with a rule or a tape measure, to

the nearest 0.1 cm.

5.2 Inspection of the size class. The transverse diameter of the garlic is measured with a garlic grading board or the like, and garlic that does not meet the requirements of the corresponding size class is picked out and weighed.

5.3 Calculation of the tolerance. The tolerance is calculated by Formula (1). The symbols in the formula have the following meanings. X is the tolerance, the calculated result being kept to three significant figures. The letter m is the mass of garlic that does not meet the requirements of the corresponding quality grade or size class, in grams. The letter M is the total mass of the inspection sample, in grams.

6 Inspection rules

6.1 Formation of lots. Garlic of the same variety, from the same place of production and of the same grade forms one inspection lot.

6.2.1 Samples shall be drawn at random from different positions and different layers of the whole consignment, and the samples drawn shall be representative.

6.2.2 The number of samples shall meet Table 4. Table 4 sets, against the number of packages of the same kind in the consignment, a number of packages to be sampled: 5 for 100 packages or fewer, 7 for 101 to 300, 9 for 301 to 500, 10 for 501 to 1 000 and 15 for more than 1 000. Where the consignment holds fewer than 5 packages, all of them are drawn.

6.3.1 Where all the inspection items comply with Clause 4, the lot is judged to be a conforming product.

6.3.2 Where any inspection item in the results fails to meet the quality grade or size class indicators of Clause 4, a double sample shall be drawn again from the same lot and inspected; where the re-inspected items still fail, the lot is judged to be a non-conforming product.

6.3.3 Where the tolerance does not meet the requirements of Clause 4 for the corresponding quality grade or size class, the garlic shall be downgraded or handled as an off-grade product.

7 Packaging, marking, transport and storage

7.1.1 Packaging requirements. Within one and the same package, the product shall be of the same grade and the same size class, and the visible part of the product in the package shall be representative of the whole package.

7.1.2 Packaging materials. Cartons, woven bags or plastic net bags may be used for packaging. The packaging material shall be clean, dry, strong, permeable to air, free from