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NY

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

NY/T 2334-2013

**Determination of head rice yield, grain shape, chalky rice
percentage, chalkness degree and translucency - An image
analysis method**

(English Translation)

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1 Scope

This standard specifies the image analysis method for head rice yield, grain shape, chalky rice percentage, chalkiness degree and translucency.

This standard is applicable to the determination of head rice yield, grain shape, chalky rice percentage, chalkiness degree and translucency.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 1350 Paddy

GB 1354 Rice

GB/T 17891 High quality paddy

GB/T 21719 Determination of head rice yield of paddy

NY/T 593 Cooking rice variety quality

3 Terms and definitions

The terms and definitions defined in GB 1350, GB/T 17891, NY/T 593, as well as the following terms and definitions, apply to this document.

3.1

Milled rice recovery

The mass fraction of milled rice in a net rice specimen under specified processing accuracy.
projection area of the rice grain.

3.8

Chalkiness degree

The percentage of the total chalky area of chalky rice to the total area of head rice grains in the specimen.

Note: Rewrite GB/T 17891-1999, definition 3.6.

3.9

Translucency

The degree of transparency of whole head rice grains, which is expressed by the relative transmittance of whole head rice.

Note: Rewrite NY/T 593-2002, definition 3.12.

4 Principle

Using imaging technology and long target automatic segmentation technology, combined with manual guidance to identify whole rice and chalkiness degree, AND determine the head rice yield, grain shape, chalky rice percentage, chalkiness degree and translucency in one time.

5 Instruments and equipment

5.1

Experimental rice husking machine.

5.2

Experimental rice milling machine.

5.3

Sample divider.

5.4

Electronic balance. Sensitivity ± 0.01 g.

5.5

Grain screening machine.

5.6

Image scanner.

5.7

Computer with rice appearance quality analysis software.

6 Specimen preparation

Perform according to the provisions of GB/T 21719.

7.3.1 Analysis steps

The operation method is the same as 7.1.1. Automatically and randomly select no less than 100 complete head rice specimen images from the scanned image; manually remove the rice grain images that are mistakenly judged as chalky because the specimen skin or embryo is left; finally use the rice appearance quality analysis software to calculate the chalky rice percentage and chalkiness degree (see A.2 for images). Repeat the measurement of parallel specimens.

7.3.2.1 Chalky rice percentage

When the chalky rice percentage of the specimen is $< 50\%$, the absolute difference between the two independent test results obtained under repeatability conditions is less than 5%. When the chalky rice percentage of the sample is $\geq 50\%$, the absolute difference between the two independent test results obtained under repeatability conditions is less than 10%.

7.3.2.2 Chalkiness degree

When the chalkiness degree of the specimen is $< 10\%$, the absolute difference between the two independent test results obtained under repeatability conditions is less than

1.0%. When the chalkiness degree of the specimen is $\geq 10\%$, the absolute difference between the two independent test results obtained under repeatability conditions is less than 2.0%.

7.4.1 Analysis steps

The operation method is the same as 7.1.1. The transparency degree of the head rice specimen is automatically calculated using the rice appearance quality analysis software.

7.4.2 Precision

The absolute difference between the two independent test results, which are obtained under repeatability conditions, is less than 1.

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