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Technical specification for performance testing of egg-type chicken

蛋鸡生产性能测定技术规范

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1 Scope

This document specifies the basic conditions, the test items and the numbers to be tested for the performance testing of egg-type chickens, and describes the test methods and the verification method.

This document applies to the performance testing of breeder egg-type chickens and of commercial egg-type chickens.

3 Terms and definitions

The terms and definitions given in NY/T 823 and the following apply to this document.

3.1 egg-type chicken: chickens kept for the production of eggs for food, and their parent stock. Note: this includes bred varieties, the successive generations of a cross, and local breeds.

4 Basic conditions

4.1 Test farm. 4.1.1 Hygiene. 4.1.1.1 The quality of environmental hygiene shall comply with NY/T 388. 4.1.1.2 The treatment of sewage and waste shall comply with HJ/T 81.

4.1.2 Test house. 4.1.2.1 It shall be a closed poultry house. 4.1.2.2 It shall be fitted with control systems for temperature, humidity, ventilation and lighting; intelligent control of the house environment is preferred. 4.1.2.3 It shall have cages and equipment suitable for the performance testing of egg-type chickens.

4.1.3 The layout and the facilities of the hatchery shall meet the requirements of GB/T

40454.

4.2 Laboratory. The environmental conditions shall comply with GB/T 27404, and the instruments and equipment shall be able to meet the requirements of egg quality determination.

4.3 Personnel. Personnel shall have received professional training, shall have the corresponding skills and shall be able to undertake the testing work.

4.4 Samples. 4.4.1 The samples shall come from a flock that is managed to standard and is in good health, and the basic information shall be available, such as the place of production, the breed category, the age of the breeder flock in weeks and the immunization status. 4.4.2 The collection and the management of the hatching eggs shall meet the requirements of GB/T 40454, and the time from laying to setting should not exceed 7 d.

5 Test items

5.1 Breeder egg-type chickens. 5.1.1 Body type and appearance. 5.1.1.1 This shall include the colour of the down, the beak, the shank and the skin of the day-old chick, and the feathering rate type. 5.1.1.2 This shall include the body type of the adult bird and the characteristics of the plumage, the comb, the beak, the shank and the skin.

5.1.2 Body weight. Birth weight, body weight at 6 weeks of age, at 18 weeks of age, at the onset of lay, at 43 weeks of age and at 72 weeks of age shall be measured.

5.1.3 Body measurements at 43 weeks of age. Body slanting length, keel length, shank length and shank circumference shall be measured.

5.1.4 Laying performance. Age at the onset of lay, eggs per hen housed, eggs per hen-day, qualified hatching eggs per hen housed and qualified hatching eggs per hen-day shall be measured.

5.1.5 Quality of hatching eggs at 43 weeks of age. Egg weight, shell colour, egg shape index, shell thickness, shell strength and Haugh unit shall be measured.

5.1.6 Hatching performance of the hatching eggs at 43 weeks of age. Fertility, hatchability of fertile eggs, hatchability of set eggs and rate of healthy chicks shall be measured.

5.1.7 Viability. The survival rate during the brooding and rearing period and the survival rate during the laying period shall be measured.

5.1.8 Feed consumption. The feed consumed during the brooding and rearing period and the feed consumed during the laying period shall be measured.

5.2 Commercial egg-type chickens. 5.2.1 Body type and appearance, as for the breeder birds, covering the day-old chick and the adult bird. 5.2.2 Body weight: birth weight and body weight at 6 weeks, 18 weeks, the onset of lay, 43 weeks and 72 weeks of age. 5.2.3

Body measurements at 43 weeks of age: body slanting length, keel length, shank length and shank circumference. 5.2.4 Laying performance: age at the onset of lay, eggs per hen housed and eggs per hen-day. 5.2.5 Egg weight: egg weight at the onset of lay, at 43 weeks of age and at 72 weeks of age.

5.2.6 Egg quality at 43 weeks of age. Egg weight, shell colour, egg shape index, shell thickness, shell strength, Haugh unit, yolk ratio, yolk colour and the rate of blood and meat spots shall be measured.

5.2.7 Viability. The survival rate during the brooding and rearing period and the survival rate during the laying period shall be measured. 5.2.8 Feed consumption. The feed consumed during the brooding and rearing period and during the laying period shall be measured. 5.2.9 Feed conversion. The feed-to-egg ratio and the feed consumed per egg shall be measured.

6 Number of birds tested

6.1 Size of the flock tested for breeder egg-type chickens. The minimum size of the flock used for the performance testing of breeder egg-type chickens shall comply with Table 1. Table 1 gives, for hatching eggs set, chicks housed and laying hens housed, the minimum numbers required both for a breed or line, separately for males and females, and for the parent generation of a cross, separately for the sire line and the dam line. A note to the table requires the number of replicate groups of chicks housed and of laying hens housed to be not fewer than three.

6.2 Size of the flock tested for commercial egg-type chickens. The minimum size of the flock shall comply with Table 2, which requires 1 200 hatching eggs set, 360 chicks housed and 300 laying hens housed, again with not fewer than three replicate groups.

6.3 Sampling numbers for the test items. The minimum sampling numbers for body type and appearance, body measurements, body weight and egg quality shall comply with Table 3, and the numbers for the other test items shall comply with Table 1 and Table 2. Table 3 requires 100 males and 100 females for body type and appearance, 30 males and 30 females for body weight, 15 males and 15 females for body measurements, and 30 eggs for egg quality.

7 Test methods

7.1.1 Body type and appearance. By visual inspection. Day-old chicks should be examined within 24 h of hatching and adult birds at 43 weeks of age, males and females being described separately.

7.1.2.1 Birth weight. Within 24 h after hatching, chicks are weighed individually, in grams (g); the calculated result is rounded in accordance with GB/T 8170 and reported to one decimal place.

7.1.2.2 Body weight at 6 weeks, 18 weeks, the onset of lay, 43 weeks and 72 weeks of age. At each of those ages the birds are weighed individually on an empty stomach, in grams (g), and the result is reported as a whole number, the rounding rule being that of 7.1.2.1.

7.1.3.1 Body slanting length. Measured along the body surface with a tape from the front upper joint of the clavicle to the ischial tuberosity on the same side, in centimetres (cm), to one decimal place.

7.1.3.2 Keel length. Measured along the body surface with a tape from the front end of the keel to the end of the keel, in centimetres (cm), to one decimal place.

7.1.3.3 Shank length. The straight-line distance from the upper joint of the metatarsus of the bird to the point between the third and fourth toes, measured with a vernier caliper, in centimetres (cm), to one decimal place.

7.1.3.4 Shank circumference. The circumference at the middle of the shank of the bird, measured with a tape, in centimetres (cm), to one decimal place.

7.1.4.1 Age at the onset of lay. Counted as the age in days (d) at which the daily laying rate of the flock first reaches 50 % or more.

7.1.4.2 Eggs per hen housed. The average number of eggs laid per hen housed during the statistical period, calculated by Formula (1) and reported to one decimal place. In the formula, HHE is the number of eggs per hen housed, in eggs per bird; Ai is the number of eggs laid on day i, in eggs; d is the number of days in the statistical period, in days (d); n is the number of hens housed, in birds.

7.1.4.3 Eggs per hen-day. The average number of eggs laid by the hens actually kept during the statistical period, calculated by Formula (2) and Formula (3) and reported to one decimal place. In the formulae, HDE is the number of eggs per hen-day, in eggs per bird; Ai is the number of eggs laid on day i, in eggs; Bi is the number of hens kept on day i, in birds; d is the number of days in the statistical period, in days (d); and the remaining symbol is the average daily number of hens kept during the statistical period, in birds.

7.1.4.4 Qualified hatching eggs per hen housed. The average number of qualified hatching eggs laid per breeder hen housed during the statistical period, calculated by Formula (4) and reported to one decimal place. In the formula, HHSE is the number of qualified hatching eggs per hen housed, in eggs per bird; Ci is the number of qualified eggs laid on day i, in eggs; d is the number of days in the statistical period, in days (d); n is the number of hens housed, in birds. Note: qualified hatching eggs are the eggs that remain after misshapen eggs (too long or too round), over-large and over-small eggs, glassy-shelled eggs, soft-shelled eggs, sandy-shelled eggs, cracked eggs and other eggs that cannot be set have been discarded.

7.1.4.5 Qualified hatching eggs per hen-day. The average number of qualified hatching eggs laid by the breeder hens actually kept during the statistical period, calculated by