



RSPCA Broiler Breed Welfare Assessment Protocol

To determine the welfare of broiler breeds

Version: May 2017

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1. Accepted breeds

- a. Breeds currently considered acceptable for use under the RSPCA Welfare Standards for Meat Chickens can be obtained from the RSPCA Farm Animals Department.
- b. Breeds accepted for use under the RSPCA Welfare Standards for Meat Chickens must be re-assessed according to this protocol - and the results presented to the RSPCA for re-evaluation of breed acceptability - at least by every eighth year following the last assessment, or sooner if there are reasonable grounds to suggest the welfare of the breed has deteriorated since its last assessment.

2. Decisions regarding breed acceptability

- a. The welfare of the trial breed will be compared to that of the Control breed to help inform a decision regarding its acceptability for use. In addition, threshold values that have been established for several parameters (see Appendix 2) may also be used to help guide this decision.
- b. In general, for a breed to be considered acceptable, the welfare of the trial breed must be at least comparable to that of the Control breed and its daily growth rate must not exceed the relevant threshold value specified in Appendix 2.

| |
|--|
| <p>Note: if the daily growth rate of a breed that is intended to be used in free-range systems exceeds the threshold value, but is otherwise considered acceptable, then consideration may be given to assessing the acceptability of the breed according to the RSPCA Free-Range Broiler Breed Welfare Assessment protocol.</p> |
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3. Protocol aim

- a. To determine the level of welfare of a breed at broiler level.
- b. The trial has been designed to enable the breed to grow to its genetic potential by providing it with optimal conditions and a freely available, non-limiting diet.
- c. Although, at this time, the welfare of broiler breeder's is not being assessed, breeder companies should give due consideration to the welfare of these birds, too.

4. Trials

- a. Trials are to be conducted at an RSPCA designated Welfare Assessment Centre.
- b. There must be a minimum of two trials with four pens per breed (see Section 8 d) in each trial. If the results are not clear after two trials then further trials may be required.

5. Control

- a. The Hubbard JA757 must be used as the Control breed in all trials.

6. Parent flocks

- a. The parent flock age for each breed should be 40 weeks and, in any case, must be between 35 and 50 weeks. NB chicks from young, i.e. less than 35 weeks old, breeder flocks tend to be smaller.

- b. The parent flock age for the breed under trial should be the same as the parent flock age for the Control breed and, in any case, must be within 4 weeks.

7. Hatching

- a. All birds used in the trial, including the Control breed, must be hatched at the Welfare Assessment Centre facilities, so that hatching and management conditions are the same for each breed.
- b. The Welfare Assessment Centre's Hatchery Protocol must be followed.

8. Buildings

- a. All trials are to be conducted in Controlled Environment Housing with a solid concrete floor.

9. Set-up and bird numbers

Note: some of the requirements listed under this Section have been developed according to facilities currently in place at an RSPCA designated Welfare Assessment Centre. These specifications may be amended if alternative facilities were also shown to provide statistically robust results.

- a. For each trial, the breed under trial and the Control breed must be reared in adjacent pens within the same building.
- b. Each pen must measure 5.92m², with the shorter sides of each pen measuring at least 1.8m.
- c. Pens are to be constructed from c.2.0m high wire, e.g. chicken wire with a wooden frame, to prevent birds entering adjacent pens.
- d. For each trial, 50 birds of the same breed must be placed in each of the four pens, i.e. 200 birds per breed per trial. This equates to a density of 8.5 birds/m².
- e. Where it is possible to sex the birds at day old using a non-harmful procedure, such as feather sexing, then an equal proportion of males and females must be placed in each pen, i.e. 25 of each sex. Where this is not possible, birds must be placed as-hatched. Vent sexing is considered harmful.
- f. In each pen, there must be:
 - One 1.3m perch
 - One bell drinker with a circumference of 1100mm (350mm diameter).
 - One bell/pan feeder with a circumference of 1320mm (420mm diameter – measured inside the lip).
 - Wood shavings litter to a depth of 5cm across the entire floor area (the same amount of litter must be placed in each pen at the start of the trial).
- g. The perch, drinker and feeder used within each pen must be of the same design and colour and occupy the same position within the pen.
- h. The perch must be constructed from lengths of rectangular, wooden baton that is 4 to 6cm in diameter and should have rounded edges. It must be positioned at a height to

allow birds easy access, which will typically be between 10 to 30cm above the floor, depending on the age and breed of bird.

- i. The delivery of water must be automated.

10. Placement

- a. Placement of breeds into pens must follow a balanced design. Pens must be blocked to account for any known variation in environmental parameters, such as temperature, light level and humidity, between the pens, with the placement of breeds into pens randomised within each block.

11. Management

11.1 *Feed and water*

- a. Fresh, clean mains water must be available to all birds at all times.
- b. The same feed must be fed to all birds undergoing the trial.
- c. The feed must be pelleted and be available to all birds at all times.
- d. The feed provided must be of a high specification and non-limiting, with energy and protein levels being in excess of the amounts required for growth and, in any case, at least to the levels specified in Table 1.

Table 1 Feeding regime and protein and energy specification

| Ration | Days provided | Protein level (%) | ME (MJ/Kg) |
|----------|---------------|-------------------|------------|
| Starter | 0 – 10 | 22.25 | 13.15 |
| Grower | 11 – 28 | 21.27 | 13.10 |
| Finisher | 29 to kill | 18.20 | 13.35 |

11.2 *Lighting*

- a. From day old, natural light, via windows, must be provided at all times during the natural daylight period.
- b. Artificial lighting can also be provided.
- c. The light level in each pen must be at least 20 lux.
- d. The windows in the house must correspond to at least 3% of the total floor area of the house.
- e. As far as possible, an even distribution of light must be achieved across each pen.
- f. A two hour continuous dark period must be provided from the day of placement and increased by one hour per day from day 3 up to a total of 6 hours continuous dark per day from day 6 (Table 2).

Table 2 Lighting regime – dark period

| Day | Continuous hours of dark |
|---------------|--------------------------|
| 0 (Placement) | 2 |
| 1 | 2 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |

- g. The dark period must commence at the same time each day and take place during the natural period of darkness.

11.3 *Ventilation*

- a. The ventilation must be managed to ensure that all birds, at all times, have good air quality and are kept thermally comfortable.

11.4 *Litter*

- a. In each pen, the wood shaving litter is to be replenished as necessary to maintain it in a dry and friable condition.

11.5 *Culling*

- a. Birds in a poor state of health that are suffering and unlikely to benefit from treatment, including birds with a gait score of 4 and 5, must be humanely culled without delay by a competent stock-keeper.

12. Measures and assessment

12.1 *Environmental parameters*

- a. Temperature (minimum and maximum °C) and relative humidity must be recorded daily for each pen.
- b. Light levels (lux) in each pen must be recorded at the time of the welfare assessment (Section 11.5).

12.2 *Sex*

- a. Prior to assessment, all males and/or females within each pen must be identified and counted. This could be achieved by marking all the same sex birds with a spray marker.

12.3 *Production parameters*

- a. The following production parameters must be recorded daily for each pen:
- i. Feed provision (kg)
 - ii. Litter provision (kg)
 - iii. Number of deaths (where possible, with reason for death recorded, such as heart attack or ascites. If a bird was found dead on its back then this must be recorded)

- iv. Number of leg culls
- v. Number of runt culls
- vi. Number of other culls (with reason for culling recorded)

12.4 *Weighing*

- a. The birds must be bulk weighed at day old, and at 2, 4 and 5 weeks of age, and at kill, and the average weight for each breed calculated.
- b. Each bird in each pen must be weighed individually at the same time as conducting the welfare assessment (Section 11.5).

12.5 *Welfare assessment*

- a. All birds for a breed must be assessed on the same day for the same parameters by a trained and competent assessor.
- b. All birds for all the breeds must be assessed by the same assessor.
- c. All welfare parameters must be assessed when the average weight for the breed within each trial is 2.20kg.
- d. The following welfare parameters must be assessed in the following order and scored according to the guides set out under Appendix 1:
 - i. Walking ability
 - ii. Feather cover
 - iii. Breast plumage dirtiness
 - iv. Leg straightness (angular leg deviations)
 - v. Pododermatitis
 - vi. Hock burn
- e. All birds in each pen must be assessed for walking ability and this parameter must be assessed first.
- f. After assessing walking ability, a random sample of 25 birds per pen must be caught using a catching frame to assess all other welfare parameters. The number of birds caught must be counted and confirmed to be 25 or greater before assessments proceed. If less than 25 birds are caught, the frame must be lifted and the catching process repeated. If more than 25 birds are caught, all the birds must all be assessed.
- g. If it is not possible to assess all parameters on the same day, then walking ability can be assessed on the first day, with the other parameters assessed the following day.
- h. After assessing for feather cover, the bird is to be inverted (ventral side facing the assessor) and held by the legs with the assessor's thumbs placed just below the intertarsal joint, to assess the remaining parameters.
- i. The sex of each bird assessed must be recorded.
- j. Any medical treatments given to the birds must be recorded, with reasons for administration.
- k. Any kill data available, such as DOA's (%), factory rejects (%), downgrades (%), breast blisters (%), scratches (%), grade A's (%), must be included in the analyses.

- I. For each trial, video recordings of each breed, including the Control breed, must be taken to clearly show the general behaviour and activity of the birds. This can be achieved by initially filming the birds from the outside of the pen and then entering the pen and 'walking the birds' to encourage them to move. The footage must be representative of the breed in general and therefore it may be necessary film birds from several pens.

13. Data analyses

- a. For each breed, the average proportion of birds for each parameter, including each score where relevant, is to be provided and compared for any statistical difference with the Control. Average values, probability values and standard deviations are to be provided for each comparison.
- b. Temperature, relative humidity and light level must be examined to ensure any between-pen variation in these parameters has been successfully accounted for under Section 9a.
- c. For each welfare parameter assessed, any between sex differences for each breed must be reported.
- d. FCR is to be calculated when the birds are 2.20kg.
- e. The impact of any illness experienced by the birds during the trial must be reported.
- f. Appendix 2 (Welfare Assessment Results) must be completed for submission to the RSPCA Farm Animals Department along with relevant graphical representation of the data, e.g. box-and-whisker plots.

14. Publication

- a. The RSPCA reserves the right to make public the results for a breed. Any use of the results in this way will be discussed in advance with the breeding company.

Appendix 1: Scoring guides for welfare parameters

1. Walking ability¹

Birds must be observed walking for at least 10 paces before being scored.

| Score | Definition |
|-------|--|
| 0 | The bird displays smooth, fluid locomotion. Typically the foot is picked up and put down smoothly and each foot is brought under the bird's centre of gravity as it walks (rather than the bird swaying). Often, the toes are partially curled while the foot is in the air. |
| 1 | The bird has a slight defect in its gait that is difficult to define precisely. The bird may take unduly large strides, be unsteady or wobble when it walks, which produces an uneven gait, but the problem leg is unclear/cannot be easily identified. |
| 2 | The bird has a definite and identifiable gait abnormality, but this does not affect its ability to move. The bird may make short, quick, unsteady steps with one leg, but is not sufficiently lame to seriously compromise its ability to move, i.e. manoeuvre, accelerate and run. |
| 3 | The bird has an obvious gait defect that affects its ability to move. The bird may have a limp, jerky or unsteady strut, or splay one leg as it moves. The bird often prefers to squat when not coerced to move, and will not run. |
| 4 | The bird has a severe gait defect. The bird is capable of walking, but only with difficulty and when driven or strongly motivated. Otherwise it squats down at the first available opportunity. |
| 5 | The bird is incapable of sustained walking on its feet. Although it may be able to stand, the bird cannot walk except with the assistance of the wings or by crawling on the shanks. |

2. Feather cover²

| Score | Definition |
|-------|---|
| 0 | Feather cover is full and even over body and wings |
| 0.5 | Feather cover is slightly patchy on the sides OR back of the body OR on the wings |
| 1.0 | Feather cover is patchy to bare on sides OR back of body |
| 1.5 | Feather cover is bare on sides of body with a light covering on back |
| 2.0 | Body is bare of feathers and wings are patchy of feathers |

¹ Adapted from: Kestin, S.C., Knowles, T.G., Tinch, A.E. & Gregory, N.G. 1992. Prevalence of leg weakness in broiler chickens and its relationship with genotype. *Veterinary Record*, **131**:190-194.

² Dawkins, M. S., Donnelly, C. A. & Jones, T.A. 2004. Chicken welfare is influenced more by housing conditions than by stocking density. *Nature*, **427**:342-344.

3. Breast plumage dirtiness³

| Score | Definition |
|-------|--|
| 0 | Plumage is clean |
| 1 | Slightly dirty plumage |
| 2 | Large patches of dirty plumage on breast / breast is completely covered in dirty plumage |



Photos from: Welfare Quality[®]. 2009. *Welfare Quality[®] assessment protocol for poultry (broilers, laying hens)*. Welfare Quality[®] Consortium, Lelystad, Netherlands

4. Leg straightness (angular leg deviations)⁴

| Measure | Absent (No) | Present (Yes) |
|-------------|--|--|
| Angle – in | Legs straight | Inward bow at inter-tarsal joint so that the two legs meet $>22^\circ$ |
| Angle – out | Legs straight | Outward twist at inter-tarsal joint with $\approx 30^\circ$ between the legs |
| Twist | Legs straight | Twisted metatarsus |
| Rotation | Legs straight, pads facing away from handler | Rotation of the tibia shaft so that pads face each other $>15^\circ$ |

³ Adapted from Welfare Quality[®]. 2009. *Welfare Quality[®] assessment protocol for poultry (broilers, laying hens)*. Welfare Quality[®] Consortium, Lelystad, Netherlands.

⁴ Dawkins, M. S., Donnelly, C. A. & Jones, T.A. 2004. Chicken welfare is influenced more by housing conditions than by stocking density. *Nature*, **427**:342–344.

5. Pododermatitis⁵

| Score | Definition |
|-----------|---|
| 0 | No lesions present on the pads |
| 0 (P/S/H) | No lesions present on the pads, but the pad is pink (P) and/or swollen (S) and/or scarred (i.e. pads have a new, smooth skin covering – healed (H)) |
| 0.5 | <25% of the pad is covered with a lesion |
| 1.0 | Between 25 and 50% of the pad is covered with a lesion |
| 1.5 | Between 50 and 75% of the pad is covered with a lesion |
| 2.0 | More than 75% of the pad is covered with a lesion |

6. Hock burn⁶

| Score | Definition |
|---------|---|
| 0 | No discoloration or lesions present on hocks |
| 0 (P/S) | No discoloration or lesions present on hocks, but hock is pink and/or swollen |
| 0.5 | <25% of the hock is covered with a lesion |
| 1.0 | Between 25 and 50% of the hock is covered with a lesion |
| 1.5 | Between 50 and 75% of the hock is covered with a lesion |
| 2.0 | More than 75% of the hock is covered with a lesion |

⁵ Dawkins, M. S., Donnelly, C. A. & Jones, T.A. 2004. Chicken welfare is influenced more by housing conditions than by stocking density. *Nature* , **427**:342–344

⁶ Dawkins, M. S., Donnelly, C. A. & Jones, T.A. 2004. Chicken welfare is influenced more by housing conditions than by stocking density. *Nature* , **427**:342–344

Appendix 2: Welfare Assessment Results

Figures to represent the average proportion of birds affected by a condition, unless otherwise stated.
All threshold values are maximum values, unless otherwise stated.

Protocol version used:

Total number of trials:

Start & finish dates for each trial:

Name of breed under trial:

Name of breeding company for breed under trial:

| Parameter | JA757 result (mean ± SD) | Trial breed result (mean ± SD) | P-value | Guide threshold value | Notes |
|-------------------------------|-----------------------------|-----------------------------------|---------|--------------------------------------|---|
| Age at assessment (days) | | | | - | |
| Weight at assessment (g) | | | | - | |
| Daily growth rate (g per day) | | | | Indoor 60. Free-range 52. | To be calculated using the birds' age when 2.2kg. |
| FCR | | | | For information | |
| Parent flock age (wks) | | | | | Provide ages for each trial. |
| Male: Female ratio | | | | - | |

| Mortality | | | | | |
|---|--|--|--|---|--|
| Leg culls (%) | | | | - | |
| Heart attack (%) | | | | - | |
| Ascites (%) | | | | - | |
| Other dead (%) | | | | - | |
| Runts (%) | | | | - | |
| Other culls (%) | | | | - | |
| Total mortality for all parameters except runts & other culls (%) | | | | - | |

| Mortality ¹ | | | | | |
|--|--|--|--|-----------------|--|
| Leg culls (%) ¹ | | | | 1.0 | |
| Heart attack (%) ¹ | | | | 1.0 | |
| Ascites (%) ¹ | | | | 1.0 | |
| Other dead (%) ¹ | | | | 1.50 | |
| Runts (%) ¹ | | | | For information | |
| Other culls (%) ¹ | | | | For information | |
| Total mortality for all parameters except runts & other culls (%) ¹ | | | | 3.00 | |

¹Not including 1st week mortality.

| Walking ability | | | | | |
|------------------------------|--|--|--|-----------------|--|
| Average score | | | | For information | |
| Scores 0, 1 & 2 combined (%) | | | | Min. 95 | |
| Score 0 (%) | | | | 100.0 | |
| Score 1 (%) | | | | 100.0 | |
| Score 2 (%) | | | | 60.0 | |
| Score 3 (%) | | | | 5.0 | |
| Score 4 (%) | | | | 0.0 | |
| Score 5 (%) | | | | 0.0 | |

| Hock burn | | | | | |
|--|--|--|--|-----------------|--|
| Average score | | | | For information | |
| Scores 0 & 0.5 combined (%) ² | | | | Min. 80 | |
| Score 0 (%) | | | | 100.0 | |
| Score 0 but pink/swollen (%) | | | | 25.0 | |
| Score 0.5 (%) | | | | 10.0 | |
| Score 1.0 (%) | | | | 0.0 | |
| Score 1.5 (%) | | | | 0.0 | |
| Score 2.0 (%) | | | | 0.0 | |

²Not including pink/swollen figures.

| Pododermatitis | | | | | |
|--|--|--|--|-----------------|--|
| Average score | | | | For information | |
| Scores 0 & 0.5 combined (%) ² | | | | Min. 90 | |
| Score 0 (%) | | | | 100.0 | |
| Score 0 but pink/healed/swollen (%) | | | | 8.0 | |
| Score 0.5 (%) | | | | 1.0 | |
| Score 1.0 (%) | | | | 0.0 | |
| Score 1.5 (%) | | | | 0.0 | |
| Score 2.0 (%) | | | | 0.0 | |

²Not including pink/swollen figures.

| Breast plumage dirtiness | | | | | |
|---------------------------------|--|--|--|-----------------|--|
| Average score | | | | For information | |
| Score 0 (%) | | | | 100.0 | |
| Score 1 (%) | | | | 70.0 | |
| Score 2 (%) | | | | 50.0 | |

| Leg straightness | | | | | |
|--------------------------|--|--|--|-----------------|--|
| Total leg deviations (%) | | | | For information | |

| Feather cover | | | | | |
|-----------------------------|--|--|--|-----------------|--|
| Average score | | | | For information | |
| Scores 0 & 0.5 combined (%) | | | | Min. 70 | |
| Score 0 (%) | | | | 100.0 | |
| Score 0.5 (%) | | | | 50.0 | |
| Score 1.0 (%) | | | | 30.0 | |
| Score 1.5 (%) | | | | 0.0 | |
| Score 2.0 (%) | | | | 0.0 | |

| Litter | | | | | |
|---------------------------------------|--|--|--|-----------------|--|
| Amount of additional litter used (Kg) | | | | For information | |

Notes:

All results are averages from X trials, with four pens of 50 as-hatched birds per trial for each breed: 400 birds for each breed in total. 25 birds from each pen were assessed, i.e. XXX birds in total for each breed (1% = x.x birds).

Video footage to be provided on USB.

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