

Effect of enrichment on broiler leg health

Table 3 Summary of research on the effect of stocking density on leg health in broilers (page 1 of 2)

Study	Population Age Sex Breed	Group size (N) ^{1/} replications per treatment	High stocking density (Comparator)	Low stocking density (Exposure)	Outcome and the effect of exposure indicated as (↓) ² ,(↑) ³ or (0) ⁴ .
Seet & Azizah 1990	1 day to 8 weeks Mixed Hubbard	100 to 150 /3	0.07 m2/bird	1) 0.09 m2/bird 2) 0.11 m2/bird	Occurrence of leg weakness (0)
Sorensen <i>et al</i> 2000	1 day to 49 days Mixed Ross 208	Experiment 1: 120/3 Experiment 2: 275/8	Experiment 1: 435 cm2/bird Experiment 2: 455 cm2/bird	Experiment 1: 1) 625 cm2/bird 2) 833 cm2/bird Experiment 2: 625 cm2/bird	Experiment 1: Gait score (↓) Experiment 2: Gait score (↓) TD score (0) Prevalence of hock and footpad burns (↓) Valgus and varus (0) Curvature of tibia (0)
Hall 2001	1 day to 40 days Mixed Ross 508 and Ross PM3	12600 to 17000/4	40kg/m2	34kg/m2	Culled due to leg problems (↓) Prevalence of hock burn (↓) Prevalence of leg bruises (0) Prevalence of leg breakage (0)
McLean <i>et al</i> 2002	1 day to 6 weeks Mixed Ross 308	130 to 208 /4	40 kg/m2	1) 34 kg/m2 2) 28 kg/m2	Contact dermatitis score of hock and foot (0) Gait score (0)
Tablante <i>et al</i> 2003	1 day to 42 days Mixed Avian	45 to 90/3	20 birds/m2	1) 15 birds/m2 2) 10 birds/m2	TD prevalence (0) Bone ash of tibiotarsus (0)
Thomas <i>et al</i> 2004	1 day - 5 weeks Males Not stated	13 to 50/6	20 birds/m2	1) 5 birds/m2 2) 15 birds/m2 3) 10 birds/m2	Footpad and hock burn score (↓) Gait score (↓)
Dozier <i>et al</i> 2006	1 day to 36 days Males Ross x Ross 708	75 to 120/8	40 kg/m2	1) 35 kg/m2 2) 30 kg/m2 3) 25 kg/m2	Footpad score (↓) Gait score (0)
Ravindran <i>et al</i> 2006	1 day to 35 days Males Ross	42-62/4	24 birds/m2	1) 20 birds/m2 2) 16 birds/m2	Footpad and hock burn score (0) Gait score (0)
Meluzzi <i>et al</i> 2008	1 day to 49 days Males Ross 508	66 to 84/8	14 birds/m2	11 birds/m2	Incidence of hock burns (↓)
Buijs <i>et al</i> 2009	1 day to 39 days Mixed Ross 308	8 to 72/4	1) 56 kg/m2 2) 47 kg/m2 3) 41 kg/m2 4) 35 kg/m2	1) 33 kg/m2 2) 23 kg/m2 3) 15 kg/m2 4) 6 kg/m2	LTL test (↑) Footpad and hock dermatitis score (↓)
Skrbic <i>et al</i> 2009	1 day to 42 days Mixed Hubbard	77 to 123/5	16 birds/m2	1) 13 birds/m2 2) 10 birds/m2	Gait score (0) Hock burn lesion score (0) Footpad lesion score (0)

1. Group size varies according to density

2. (↓) Low stocking density resulted in an significant decrease in the outcome. For all outcomes, except LTL, a decrease in the outcome signifies a positive effect of low stocking density on leg health.

3. (↑) Low stocking density resulted in an significant increase in the outcome.

4. (0) Low stocking density had no significant effect on the outcome.

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Table 3 Summary of research on the effect of stocking density on leg health in broilers (page 2 of 2)

Study	Population Age Sex Breed	Group size (N) ¹ / replications per treatment	High stocking density (Comparator)	Low stocking density (Exposure)	Outcome and the effect of exposure indicated as (↓) ² ,(↑) ³ or (0) ⁴ .
Ventura <i>et al</i> 2010	1 day to 9 weeks Mixed Ross 308	36 to 80/4	18 birds/m ²	1) 13 birds/m ² 2) 8 birds/m ²	Hock burn score (↓) Footpad dermatitis score (↓)
Skrbic <i>et al</i> 2011	1 day to 42 days Males Hubbard	Not stated (total of 1380)/4	20 birds/m ²	1) 15 birds/m ² 2) 10 birds/m ²	Gait score (0) Hock burn score (0) Footpad lesion score (↓)
Zuowei <i>et al</i> 2011	1 day to 42 days Mixed Ross 308	30 to 49/6	Males: 16 birds/m ² Females: 18 birds/m ²	Males: 10 birds/m ² Females: 12 birds/m ²	Gait score (↓) Footpad burn score (↓)
Buijs <i>et al</i> 2012	1 day to 39 days Mixed Ross 308	8 to 72/4	1) 13,6 birds/m ² 2) 15,5 birds/m ² 3) 18,5 birds/m ² 4) 21,8 birds/m ²	1) 12,1 birds/m ² 2) 8,8 birds/m ² 3) 5,8 birds/m ² 4) 2,4 birds/m ²	TD score (0) Tibia length (↑) Tibia strength (↑) Other tibia measures (0) Femur measures (0)
Knierum 2013	1 day - 40 days Mixed Lohmann	18 to 42/3	1) 40 kg/m ² 2) 35 kg/m ²	1) 25 kg/m ² 2) 18 kg/m ²	Gait score (↓) Footpad lesion score (↓)
Hongchao <i>et al</i> 2013	1 day to 5 weeks Mixed Arbor Acres	48 to 80/3 replicates per treatment	20 birds/m ²	1) 16 birds/m ² 2) 12 birds/m ²	Gait score (0) Hock burn score (↓) Footpad burn score (↓)
Das & Lacin 2014	1 day to 42 days Males Ross 308	Not stated (total of 480)/10	20 birds/m ²	12 birds/m ²	Gait score (0) TD score (0)

1. Group size varies according to density

2. (↓) Low stocking density resulted in an significant decrease in the outcome. For all outcomes, except LTL, a decrease in the outcome signifies a positive effect of low stocking density on leg health.

3. (↑) Low stocking density resulted in an significant increase in the outcome.

4. (0) Low stocking density had no significant effect on the outcome.