

Data used in the LCA analysis by Cranfield University

Please note that some data are commercially sensitive and not publically available under the terms of the funding scheme. Most data are available below in tables or via links

The core LCA model is available from this link

<https://webapps2.cranfield.ac.uk/webforms/form.jsp?formId=12024>

Details of the diets used are in Leinonen, I, Williams, A. G., Wiseman, J., Guy, J., Kyriazakis, I (2012) Predicting the environmental impacts of chicken systems in the United Kingdom through a life cycle assessment: Egg production systems. Poultry Science, 91:26-40; DOI:10.3382/ps.2011-01635

The industry data used for typical free range performance are shown below and were derived from the Free Range Management Guide, May 2011, for breed B.

1. Average growth and feed data

| Age weeks | Target hen wt., kg | Feed Consumption g/day | Cumulative feed consumption, kg | Egg Mass Cum. kg. | Wt. feed per unit wt. egg (kg/kg) |
|-----------|--------------------|------------------------|---------------------------------|-------------------|-----------------------------------|
| 1 | 0.065 | 12 | 0.084 | | |
| 2 | 0.105 | 17 | 0.203 | | |
| 3 | 0.170 | 22 | 0.357 | | |
| 4 | 0.240 | 29 | 0.560 | | |
| 5 | 0.320 | 36 | 0.812 | | |
| 6 | 0.400 | 44 | 1.12 | | |
| 7 | 0.510 | 51 | 1.48 | | |
| 8 | 0.620 | 56 | 1.87 | | |
| 9 | 0.740 | 61 | 2.30 | | |
| 10 | 0.840 | 65 | 2.75 | | |
| 11 | 0.940 | 68 | 3.23 | | |
| 12 | 1.040 | 70 | 3.72 | | |
| 13 | 1.130 | 72 | 4.22 | | |
| 14 | 1.220 | 75 | 4.75 | | |
| 15 | 1.300 | 77 | 5.29 | | |
| 16 | 1.380 | 79 | 5.84 | | |
| 17 | 1.440 | 81 | 6.41 | | |
| 18 | 1.500 | 84 | 6.99 | | |
| 19 | 1.600 | 95 | 7.65 | | |
| 20 | 1.680 | 105 | 8.39 | 0.000 | |
| 21 | 1.730 | 110 | 9.16 | 0.200 | 45.80 |
| 22 | 1.760 | 112 | 9.94 | 0.500 | 19.89 |
| 23 | 1.780 | 115 | 10.75 | 0.800 | 13.44 |
| 24 | 1.800 | 117 | 11.57 | 1.200 | 9.64 |
| 25 | 1.810 | 120 | 12.41 | 1.500 | 8.27 |
| 26 | 1.820 | 122 | 13.26 | 1.900 | 6.98 |
| 27 | 1.830 | 125 | 14.14 | 2.300 | 6.15 |
| 28 | 1.840 | 127 | 15.03 | 2.700 | 5.57 |
| 29 | 1.850 | 130 | 15.94 | 3.100 | 5.14 |

| | | | | | |
|----|-------|-----|-------|-------|------|
| 30 | 1.860 | 132 | 16.86 | 3.500 | 4.82 |
| 32 | 1.880 | 134 | 17.80 | 3.900 | 4.56 |
| 34 | 1.900 | 135 | 18.74 | 4.300 | 4.36 |
| 36 | 1.920 | 135 | 19.69 | 4.700 | 4.19 |
| 38 | 1.940 | 135 | 20.63 | 5.100 | 4.05 |
| 40 | 1.950 | 135 | 21.58 | 5.500 | 3.92 |
| 42 | 1.950 | 135 | 22.52 | 5.900 | 3.82 |
| 44 | 1.950 | 135 | 23.47 | 6.300 | 3.73 |
| 46 | 1.950 | 135 | 24.41 | 6.700 | 3.64 |
| 48 | 1.950 | 135 | 25.36 | 7.100 | 3.57 |
| 50 | 1.950 | 135 | 26.30 | 7.500 | 3.51 |
| 52 | 1.950 | 135 | 27.25 | 7.900 | 3.45 |
| 54 | 1.950 | 135 | 28.19 | 8.300 | 3.40 |
| 56 | 1.940 | 135 | 29.14 | 8.700 | 3.35 |
| 58 | 1.940 | 135 | 30.08 | 9.100 | 3.31 |
| 60 | 1.930 | 135 | 31.03 | 9.500 | 3.27 |
| 62 | 1.920 | 135 | 31.97 | 9.900 | 3.23 |
| 64 | 1.920 | 135 | 32.92 | 10.30 | 3.20 |
| 66 | 1.910 | 135 | 33.86 | 10.70 | 3.16 |
| 68 | 1.910 | 135 | 34.81 | 11.10 | 3.14 |
| 70 | 1.900 | 135 | 35.75 | 11.50 | 3.11 |
| 72 | 1.900 | 135 | 36.70 | 11.90 | 3.08 |
| 74 | 1.890 | 135 | 37.64 | 12.30 | 3.06 |
| 76 | 1.890 | 135 | 38.59 | 12.70 | 3.04 |

2. Average mortality data

| Age weeks | Cumulative mortality (original) | CM refitted linearly to 9.6% at 72 weeks. |
|-----------|---------------------------------|---|
| 20 | 0.2 | 0.19 |
| 21 | 0.3 | 0.37 |
| 22 | 0.5 | 0.55 |
| 23 | 0.6 | 0.73 |
| 24 | 0.8 | 0.92 |
| 25 | 0.9 | 1.10 |
| 26 | 1.1 | 1.28 |
| 27 | 1.2 | 1.46 |
| 28 | 1.4 | 1.64 |
| 29 | 1.5 | 1.82 |
| 30 | 1.7 | 2.00 |
| 31 | 1.8 | 2.18 |
| 32 | 2 | 2.36 |
| 33 | 2.1 | 2.54 |
| 34 | 2.3 | 2.72 |
| 35 | 2.4 | 2.91 |
| 36 | 2.6 | 3.09 |

| | | |
|----|-----|------|
| 37 | 2.7 | 3.27 |
| 38 | 2.9 | 3.45 |
| 39 | 3 | 3.63 |
| 40 | 3.2 | 3.81 |
| 41 | 3.3 | 3.99 |
| 42 | 3.5 | 4.17 |
| 43 | 3.6 | 4.35 |
| 44 | 3.8 | 4.53 |
| 45 | 3.9 | 4.72 |
| 46 | 4.1 | 4.90 |
| 47 | 4.2 | 5.08 |
| 48 | 4.4 | 5.26 |
| 49 | 4.5 | 5.44 |
| 50 | 4.7 | 5.62 |
| 51 | 4.8 | 5.80 |
| 52 | 5 | 5.98 |
| 53 | 5.1 | 6.16 |
| 54 | 5.3 | 6.34 |
| 55 | 5.4 | 6.52 |
| 56 | 5.6 | 6.71 |
| 57 | 5.7 | 6.89 |
| 58 | 5.9 | 7.07 |
| 59 | 6 | 7.25 |
| 60 | 6.2 | 7.43 |
| 61 | 6.3 | 7.61 |
| 62 | 6.5 | 7.79 |
| 63 | 6.6 | 7.97 |
| 64 | 6.8 | 8.15 |
| 65 | 6.9 | 8.33 |
| 66 | 7.1 | 8.51 |
| 67 | 7.2 | 8.70 |
| 68 | 7.4 | 8.88 |
| 69 | 7.5 | 9.06 |
| 70 | 7.7 | 9.24 |
| 71 | 7.8 | 9.42 |
| 72 | 8 | 9.60 |