

## Minimum Ventilation Rates for Today's Broiler

### Introduction

The next broiler handbook is due to be released in 2018. With continuing genetic progress in broiler performance one of the main updates is that of recommended minimum ventilation rates which have been increased to allow for improvements in daily growth rate and overall higher biomasses at younger ages.

### Minimum Ventilation Rates for Today's Broiler

The table below gives a revised set of minimum ventilation rates for broilers. These have been updated to account for improvements in broiler performance in recent years and reflect the broilers need for higher ventilation rates as a result of this.

**Table 1:** Updated minimum ventilation rates.

Live weight (kg)	Live weight (lbs)	Minimum ventilation rates (m <sup>3</sup> /hr)	Minimum ventilation rates (ft <sup>3</sup> /min)
0.05	0.11	0.080	0.047
0.10	0.22	0.141	0.083
0.15	0.33	0.208	0.122
0.20	0.44	0.258	0.152
0.25	0.55	0.305	0.180
0.30	0.66	0.350	0.206
0.35	0.77	0.393	0.231
0.40	0.88	0.435	0.256
0.45	0.99	0.475	0.280
0.50	1.10	0.514	0.303
0.55	1.21	0.552	0.325
0.60	1.32	0.589	0.347
0.65	1.43	0.625	0.368
0.70	1.54	0.661	0.389
0.75	1.65	0.696	0.410
0.80	1.76	0.731	0.430
0.85	1.87	0.765	0.450
0.90	1.98	0.798	0.470
0.95	2.09	0.831	0.489
1.00	2.20	0.864	0.509
1.10	2.43	0.928	0.546
1.20	2.65	0.991	0.583
1.30	2.87	1.052	0.619
1.40	3.09	1.112	0.654
1.50	3.31	1.171	0.689
1.60	3.53	1.229	0.723
1.70	3.75	1.286	0.757
1.80	3.97	1.343	0.790
1.90	4.19	1.398	0.823

Live weight (kg)	Live weight (lbs)	Minimum ventilation rates (m <sup>3</sup> /hr)	Minimum ventilation rates (ft <sup>3</sup> /min)
2.00	4.41	1.453	0.855
2.20	4.85	1.561	0.919
2.40	5.29	1.666	0.981
2.60	5.73	1.769	1.041
2.80	6.17	1.870	1.101
3.00	6.61	1.969	1.159
3.20	7.05	2.067	1.217
3.40	7.50	2.163	1.273
3.60	7.94	2.258	1.329
3.80	8.38	2.352	1.384
4.00	8.82	2.444	1.438
4.20	9.26	2.535	1.492
4.40	9.70	2.625	1.545

The ventilation rates given in the table are for ambient temperatures between -1 and 16°C (30 and 61°F). Maximum levels of relative humidity, (60-70% for the first 3 days and 50-60% thereafter), carbon monoxide (< 10 ppm), carbon dioxide (< 3000 ppm) and ammonia (< 10 ppm) should never be exceeded. Bird behavior and distribution should be monitored as this can be an indicator of issues that need to be investigated. The table should be used as a guide only and actual rates may need to be adjusted according to environmental conditions, bird behavior, and bird biomass (total bird weight in the house).

### Key Points for Minimum Ventilation

- Some minimum amount of ventilation must be given at all times no matter what the external weather conditions are.
- Minimum ventilation is not adequate for cooling birds during high temperatures and will create very little air movement at bird level. For this reason, minimum ventilation is commonly used for young chicks during brooding, night time, or cool weather ventilation.
- Minimum ventilation is regulated by a timer. The fans operate according to a cycle timer and not according to temperature.
- It is critical to achieve the correct operating negative pressure to ensure incoming air is drawn at high speed up towards the apex of the roof.
- Evaluating bird behavior and house condition is the only real way to determine if minimum ventilation settings are correct.

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