



MINIMUM VENTILATION RATES FOR TODAY'S BROILER

AVIAGEN MANAGEMENT ESSENTIALS



INTRODUCTION

The Broiler Handbook was last released in 2014 after an extensive update. Since then, genetic progress in broiler performance has continued. While, for the most part, the management advice included in the 2014 Broiler Handbook is believed to be on pace with improvements in broiler performance, there is one key area where current advice has fallen behind, and that is recommended minimum ventilation rates.

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.

UPDATED MINIMUM VENTILATION RATES

Live weight (kg)	Live weight (lbs)	Minimum ventilation rates (m ³ /hr)	Minimum ventilation rates (ft ³ /min)
0.050	0.11	0.076	0.045
0.100	0.22	0.128	0.076
0.200	0.44	0.215	0.127
0.300	0.66	0.292	0.172
0.400	0.88	0.362	0.214
0.500	1.10	0.428	0.253
0.600	1.32	0.491	0.290
0.700	1.54	0.551	0.325
0.800	1.76	0.609	0.359
0.900	1.98	0.665	0.393
1.000	2.20	0.720	0.425
1.200	2.65	0.826	0.487
1.400	3.09	0.927	0.547
1.600	3.53	1.024	0.604
1.800	3.97	1.119	0.660
2.000	4.41	1.211	0.714
2.200	4.85	1.301	0.767
2.400	5.29	1.388	0.819
2.600	5.73	1.474	0.870
2.800	6.17	1.558	0.920
3.000	6.61	1.641	0.968
3.200	7.05	1.723	1.016
3.400	7.50	1.803	1.064
3.600	7.94	1.882	1.110
3.800	8.38	1.960	1.156
4.000	8.82	2.036	1.202
4.200	9.26	2.112	1.246
4.400	9.70	2.187	1.291

The ventilation rates given in the table are for ambient temperatures between -1°C and 16°C. 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 behaviour 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 behaviour and bird biomass (total bird weight in the house).

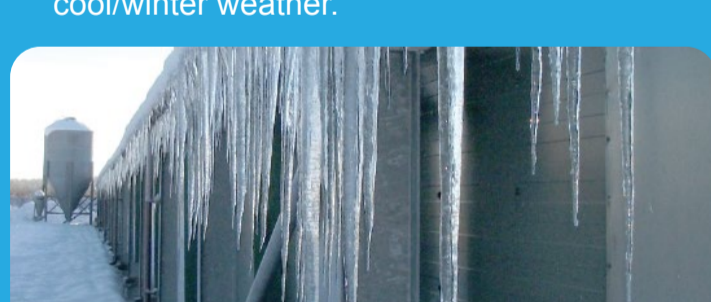
KEY POINTS FOR MINIMUM VENTILATION

- 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 towards the apex of the roof.
- Evaluating bird behaviour and house condition is the only real way to determine if minimum ventilation settings are correct.

WINTER VENTILATION FOR BROILERS

1. PURPOSE OF WINTER VENTILATION

- Ventilation for some minimum amount of time is required no matter what the outside weather is to:
 - maintain good air quality
 - remove excess moisture
- Minimum ventilation is recommended during cool/winter weather.



2. MINIMUM VENTILATION RATES

- Recommended minimum ventilation rates for winter ventilation are:

Minimum ventilation rates (20,000 bird house)		
Bird age (days)	Cubic meters/hour/bird	Total cubic meters/hour
1-7	0.16	3,200
8-14	0.42	8,400
15-21	0.59	11,800
22-28	0.84	16,800
29-35	0.93	18,600
36-42	1.18	23,600
43-49	1.35	27,000
50-56	1.52	30,400

3. ACHIEVE GOOD AIRFLOW & VOLUME

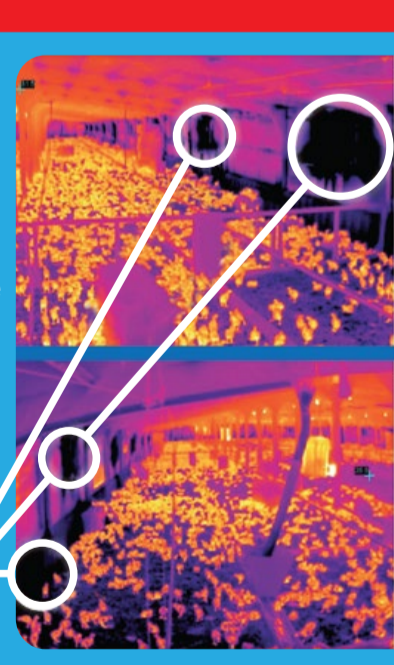
If incoming air flow speed and volume is too low:

- cold air will drop directly on to the birds/litter
- litter will become wet and birds may get chilled



4. ENSURE HOUSE IS TIGHTLY SEALED

- Ventilation only works effectively if the house is adequately sealed.
- This ensures the speed at which air enters the house is controlled.
- Avoid air leaks.



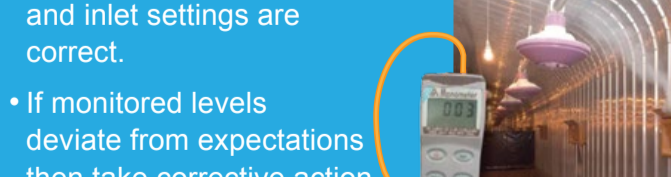
5. UNIFORM AIR INLET OPENINGS

- Open air inlets must be evenly distributed through the house and be opened equally.
- This will create uniform:
 - volume of air flow
 - direction of air flow
 - speed of air flow
 - distribution of air flow
- At lower ventilation rates close some inlets to force the same volume of air through fewer inlets.



6. MONITOR & EVALUATE REGULARLY

- Monitor house pressure & air speed:
 - pressure should be 30-40 Pa depending on house width
 - air speed around 4 m/s measured at air inlet
- Use smoke tests to confirm if air flow direction and inlet settings are correct.
- Monitor bird behavior and litter quality.
- Complete regular evaluation of:
 - air quality
 - relative humidity
 - signs of condensation
 - dust levels



WORLD'S NO.1 BROILER BRAND

T: +27 (0) 16 366 0249
www.rosspoultrybreeders.co.za



Block A, Techno Link Office Park,
63 Regency Drive, Route 21 Business Park, Irene.
Republic of South Africa

P.O.Box 297
Meyerton 1960
Republic of South Africa