

# Commercial Broiler House Ventilation

Dr Sumanta Das (MVSc.)

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# Broiler production components

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We have seen continuous improvement in

1. Feed quality
2. Chick quality
3. Management
4. Technical knowledge

But the most crucial element of life i.e. **air** remains almost same. We cannot change it, but we can manage it



# ventilation

noun [U]

UK  /,ven.tɪ'leɪ.ʃən/ US  /,ven.tʃəl'eɪ.ʃən/

**ventilation** noun [U] (PROVIDING AIR)

Add to word list 

the movement of fresh air around a closed space, or the system that does this:

- Her room had **poor** ventilation and in summer it became unbearably **stuffy**.
- a ventilation **system**




# Why ventilation is required

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Fresh air that comes inside the poultry house changes its composition continuously.

Changes are...

- less oxygen
  - more carbon di oxide
  - more water vapour .
  - more dust particles .
  - more microorganisms
  - more ammonia .
  - more hot .
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**Table 1. Common gas levels in poultry houses**

<b>Gas</b>	<b>Symbol</b>	<b>Lethal</b>	<b>Desirable</b>
<b>Carbon Dioxide</b>	CO <sub>2</sub>	Above 30%	Below 1%
<b>Methane</b>	CH <sub>4</sub>	Above 5%	Below 1%
<b>Ammonia</b>	NH <sub>3</sub>	Above 500ppm	Below 40ppm
<b>Hydrogen Sulfide</b>	H <sub>2</sub> S	Above 500ppm	Below 40ppm
<b>Oxygen</b>	O <sub>2</sub>	Below 6%	Above 16%

Source: <https://www.thepoultrysite.com/articles/key-factors-for-poultry-house-ventilation>

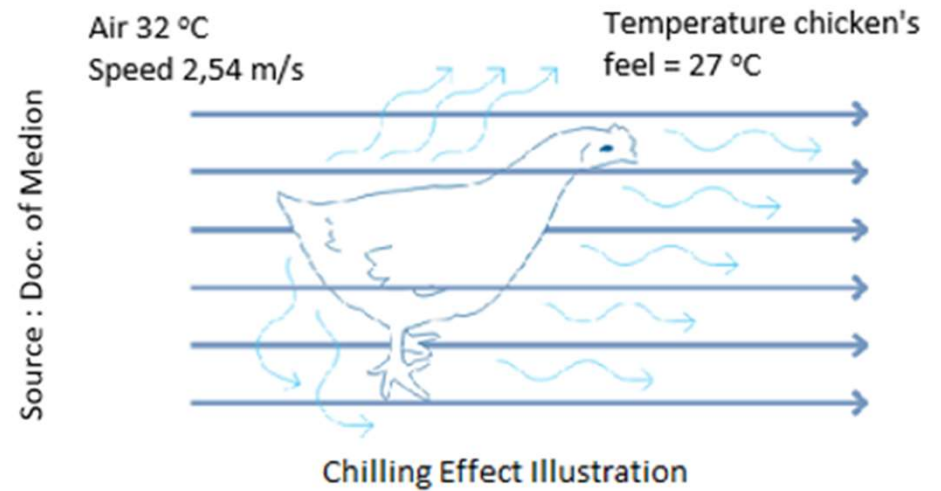
# Role of ventilation

Main purpose of ventilation

1. Air exchange
2. Air distribution

We can get additional two benefits with ventilation

1. Cooling effect
2. Chilling effect



# Types of ventilation


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1. Open shed ventilation
  - a) Natural
  - b) Mechanical
  
2. Close shed ventilation
  - a) Mechanical

# Natural Ventilation

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## Factors affecting natural ventilation

1. Floor height
  2. Litter guard height
  3. Cobweb in side net .
  4. Direction of farm
  5. Side net height
  6. Ridge opening
  7. Natural or man made wind barrier .
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# Close shed Ventilation

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- Minimum ventilation (Cold temperature)
  - Transitional ventilation (Moderate temperature)
  - Tunnel ventilation (Hot temperature)
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# Role of Minimum Ventilation

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1. Fresh air exchange
2. Prevent draught over the chicks
3. Avoid additional heat cost

# Transitional ventilation

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This type of ventilation is required when day temperature is hot but night is cold

In night time Minimum ventilation

In day time Tunnel ventilation

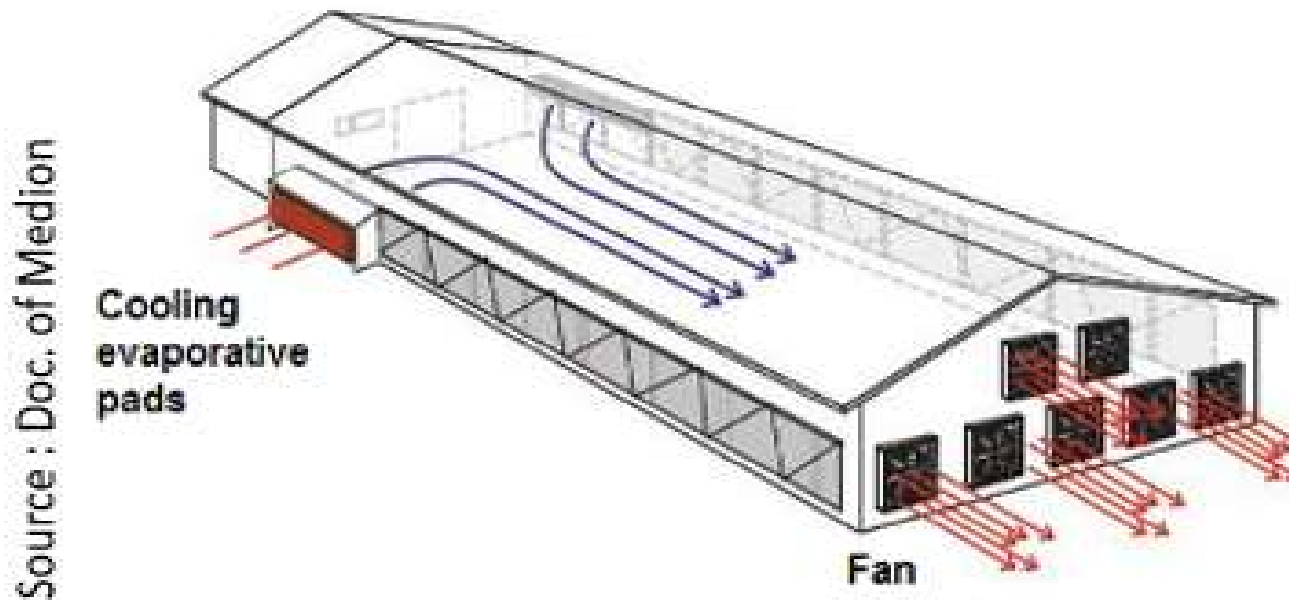
# Role of Transitional ventilation

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1. Fresh air exchange
2. Transitional ventilation fill gaps between hot weather and cold weather ventilation needs
3. Switching between minimum and tunnel ventilation to get wind chill when required in any part of the day and stopping when required

# Tunnel ventilation

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*Closed house tunnel type*




# Role of Tunnel ventilation

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1. Fresh air exchange
2. Main goal of Tunnel ventilation is cooling of birds
3. To obtain wind chill effect
4. To get rid of immense heat and moisture dissipated by birds
5. Maintain the minimum difference of temperature between cooling pad side and fan side

# Through proper ventilation we can achieve

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- ✓ improved feed conversion ratio
  - ✓ 10 % faster growth
  - ✓ less mortality %
  - ✓ higher uniformity
  - ✓ better litter condition
  - ✓ better temperature control
  - ✓ less disease occurrence
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THANK YOU FOR YOUR  
ATTENTION

