

# CONCEPT OF EC BROILER FARM

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# EC FARM- ENVIRONMENT CONTROLLED FARM

## WHAT IS IDEAL ENVIRONMENT FOR BROILER-

- **Weather-** Temperature, Humidity, Air speed
- **Air Quality-**
- **Light** intensity & duration-
- **Litter-**

## IDEAL INPUTS ACCESS-

- **Water**
- **Feed**

# Temperature-

- Chicks weight/breeders age
- Stocking density
- Relative humidity

Temperature Guide based on Stocking Density		
Density kg/m <sup>2</sup>	Target Temp. Range (°C)	Target Temp. Range (°F)
28	22-24	72-75
30	21-23	70-73
32	20-22	68-72
34	19-21	66-70
36	18-20	64-68
38	17-19	63-66
40	16-18	61-64
42	15-17	59-63
42+	14-16	57-61

## Temperature guide

Age days	Relative humidity %	Temperature °C (°F) (for chicks from 30 week old parent flocks or younger)	Temperature °C (°F) (for chicks from 30 week old parent flocks or older)
0	30-50	34 (93.2)	33 (91.4)
7	40-60	31 (87.8)	30 (86.0)
14	40-60	27 (80.6)	27 (80.6)

Temperature Curve based on House Relative Humidity Guidelines					
Age (days)	30%	40%	50%	60%	70%
0	34°C	33°C	32°C	31°C	30°C
7	32°C	31°C	30°C	29°C	28°C
14	29°C	28°C	27°C	26°C	25°C
28kg/m <sup>2</sup>	25°C	24°C	23°C	22°C	21°C

## **Temperature Control-**

**Insulation- roof, ceiling, wall/curtain, floor**

### **High Temperature-**

- **Exhaust Fan- Wind Chill Effect**
- **Cooling Pad- Air Temperature drops**

### **Low Temperature-**

**Heating arrangement**

**Efficiency, Cost, effectiveness, user friendly,**

## **Relative Humidity-**

- **Birds are comfortable in between 50-70% Relative Humidity**
- **Wintertime- low RH**
- **Monsoon time- high RH**
- **Cooling pad**

# Air speed-

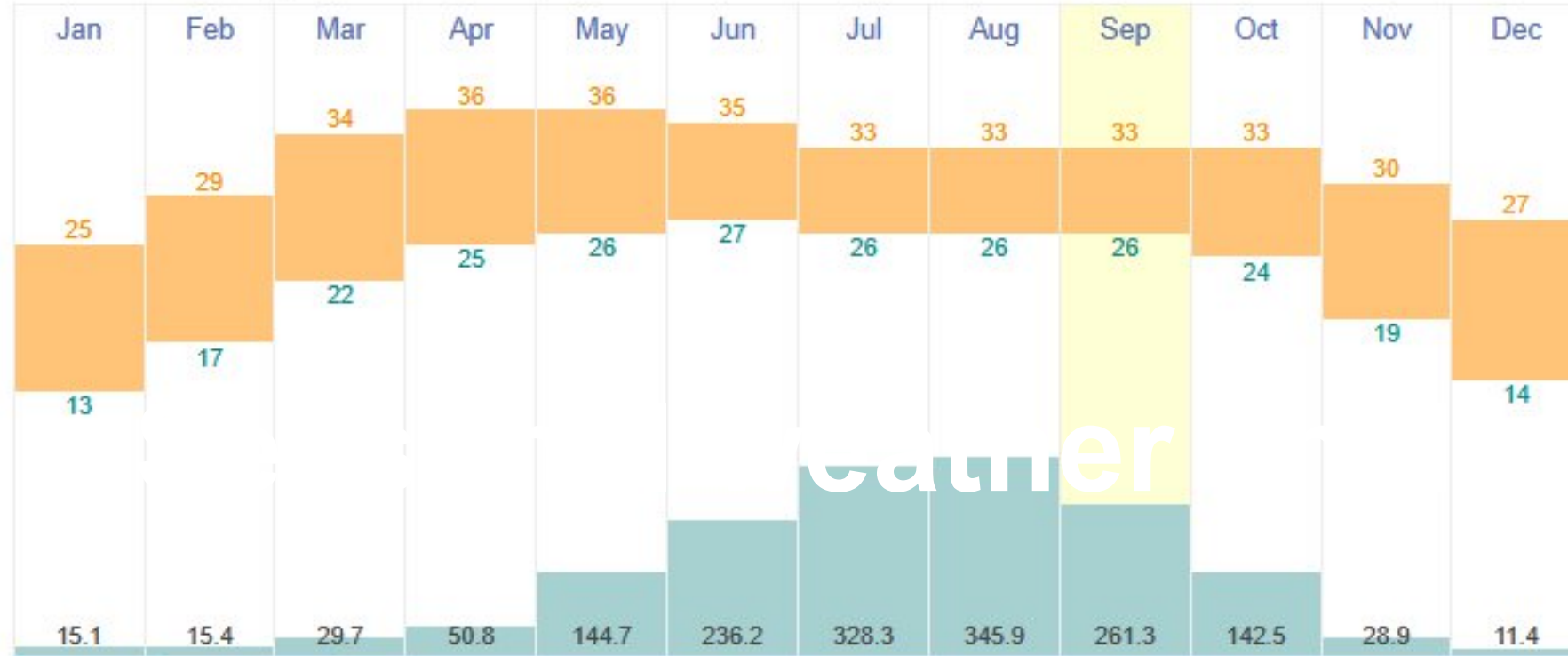
Maximum air speed across the bird based on age:

Age of Birds	Meters per Second	Feet per Minute
0-14 days	0.3	60
15-21 days	0.5	100
22-28 days	0.875	175
28 days+	1.75 - 3.0	350 - 600

# Annual Weather Averages Near North 24 Parganas

Averages are for Calcutta / Dum Dum, which is 28 kilometers from North 24 Parganas.

Based on weather reports collected during 1992–2021.



## Quick Climate Info

Hottest Month	May (31 °C avg)
Coldest Month	January (19 °C avg)
Wettest Month	August (345.9 mm a
Windiest Month	May (17 km/h avg)
Annual precip.	1610.4 mm (per year)

Weather by CustomWeather, © 2025

Showing: September ▼

### September Climate & Weather Averages in North 24 Parganas

High Temp: 33 °C	Precipitation: 261.3 mm	Wind: 10 km/h
Low Temp: 26 °C		Pressure: 1005 mbar
Mean Temp:	Dew Point: 26 °C	Visibility: 3 km

Showing: March ▼

























### March Climate & Weather Averages in North 24 Parganas

High Temp: 34 °C	Precipitation: 29.7 mm	Wind: 10 km/h
Low Temp: 22 °C		Pressure: 1010 mbar
Mean Temp:	Dew Point: 19 °C	Visibility: 3 km

## 2 Week Extended Forecast in North 24 Parganas, West Bengal, India

Day	Conditions			Comfort			Precipitation		Sun		
	Temperature	Weather		Feels Like	Wind	Humidity	Chance	Amount	UV	Sunrise	Sunset
Fri 12 Sep	32 / 27 °C	Rain showers. Overcast.		37 °C	16 km/h ↘	77%	75%	10.8 mm	3 (Moderate)	05:20	17:41
Sat 13 Sep	33 / 27 °C	Thunderstorms. Overcast.		40 °C	17 km/h ↑	77%	76%	9.0 mm	3 (Moderate)	05:21	17:40
Sun 14 Sep	32 / 28 °C	Isolated tstorms. Overcast.		38 °C	19 km/h ↑	80%	76%	8.2 mm	3 (Moderate)	05:21	17:39
Mon 15 Sep	30 / 27 °C	Tons of rain. Overcast.		35 °C	12 km/h /	84%	96%	44.4 mm	3 (Moderate)	05:21	17:38
Tue 16 Sep	29 / 26 °C	Tons of rain. Overcast.		31 °C	14 km/h ↑	84%	94%	40.3 mm	3 (Moderate)	05:22	17:37
Wed 17 Sep	[Redacted] / [Redacted] °C	[Redacted] t.	[Redacted]	[Redacted] °C	11 km/h ↑	88%	94%	49.2 mm	3 (Moderate)	05:22	17:36
Thu 18 Sep	33 / 25 °C	A few tstorms. Overcast.		38 °C	16 km/h ↑	72%	57%	8.7 mm	3 (Moderate)	05:22	17:35
Fri 19 Sep	34 / 26 °C	Isolated tstorms. Overcast.		41 °C	13 km/h ↑	69%	52%	6.0 mm	3 (Moderate)	05:22	17:34
Sat 20 Sep	33 / 27 °C	Partly cloudy.		37 °C	9 km/h ↘	57%	6%	0.0 mm	5 (Moderate)	05:23	17:33
Sun 21 Sep	33 / 28 °C	A few tstorms. Overcast.		40 °C	11 km/h ↘	67%	83%	3.1 mm	3 (Moderate)	05:23	17:32
Mon 22 Sep	33 / 28 °C	A few tstorms. Cloudy.		44 °C	23 km/h ↙	78%	88%	6.1 mm	3 (Moderate)	05:23	17:31
Tue 23 Sep	34 / 28 °C	Thunderstorms. Cloudy.		42 °C	14 km/h ↙	74%	99%	13.6 mm	3 (Moderate)	05:24	17:30
Wed 24 Sep	34 / 28 °C	Thunderstorms. Overcast.		45 °C	20 km/h ↑	79%	99%	15.4 mm	3 (Moderate)	05:24	17:29
Thu 25 Sep	34 / 29 °C	Flash floods. Overcast.		52 °C	11 km/h ↘	92%	99%	76.3 mm	3 (Moderate)	05:24	17:28
Fri 26 Sep	[Redacted] / [Redacted] °C	Showery. Overcast.	[Redacted]	[Redacted] °C	17 km/h ↙	[Redacted]	82%	23.0 mm	3 (Moderate)	05:25	17:27

\* Updated Friday, 12 September 2025 14:53:55 North 24 Parganas time - Weather by CustomWeather, © 2025

Time	Conditions			Comfort			Precipitation	
	Temp	Weather	Feels Like	Wind	Humidity	Chance	Amount	
22:00 Fri, 12 Sep	 28 °C	Passing showers. Overcast.	32 °C	11 km/h	↑ 86%	37%	0.0 mm (snow) 0.1 mm (rain)	
23:00	 28 °C	Passing showers. Overcast.	32 °C	9 km/h	↑ 86%	44%	0.0 mm (snow) 0.1 mm (rain)	
00:00 Sat, 13 Sep	 28 °C	Passing showers. Overcast.	32 °C	9 km/h	↑ 86%	37%	0.0 mm (snow) 0.1 mm (rain)	
01:00	 28 °C	Passing showers. Overcast.	32 °C	8 km/h	↑ 87%	28%	0.0 mm (snow) 0.1 mm (rain)	
02:00	 27 °C	Passing showers. Overcast.	32 °C	8 km/h	↑ 87%	22%	0.0 mm (snow) 0.1 mm (rain)	
03:00	 28 °C	Passing showers. Overcast.	32 °C	7 km/h	↑ 87%	23%	0.0 mm (snow) 0.1 mm (rain)	
04:00	 28 °C	Passing showers. Overcast.	32 °C	7 km/h	↑ 87%	21%	0.0 mm (snow) 0.1 mm (rain)	
05:00	 28 °C	Overcast.	32 °C	7 km/h	↘ 88%	10%	0.0 mm (snow) 0.0 mm (rain)	
06:00	 28 °C	Passing showers. Overcast.	33 °C	8 km/h	↘ 87%	30%	0.0 mm (snow) 0.1 mm (rain)	
07:00	 29 °C	Passing showers. Cloudy.	37 °C	10 km/h	↘ 83%	38%	0.0 mm (snow) 0.2 mm (rain)	
08:00	 30 °C	Passing showers. Cloudy.	39 °C	11 km/h	↘ 79%	27%	0.0 mm (snow) 0.3 mm (rain)	
09:00	 31 °C	Passing showers. Mostly cloudy.		12 km/h	↘ 76%	26%	0.0 mm (snow) 0.3 mm (rain)	
10:00	 32 °C	Passing showers. Cloudy.		14 km/h	↘ 73%	36%	0.0 mm (snow) 0.3 mm (rain)	
11:00	 33 °C	Passing showers. Overcast.		15 km/h	↘ 70%	47%	0.0 mm (snow) 0.3 mm (rain)	
12:00	 32 °C	A few tsormes. Cloudy.		15 km/h	↘ 71%	53%	0.0 mm (snow) 0.8 mm (rain)	
13:00	 32 °C	Thunderstorms. Cloudy.		16 km/h	↑ 72%	50%	0.0 mm (snow) 1.5 mm (rain)	
14:00	 32 °C	Thunderstorms. Cloudy.		16 km/h	↑ 75%	46%	0.0 mm (snow) 1.9 mm (rain)	
15:00	 31 °C	Rain showers. Overcast.		16 km/h	↑ 76%	45%	0.0 mm (snow) 1.6 mm (rain)	
16:00	 30 °C	Light showers. Overcast.	38 °C	16 km/h	↑ 79%	50%	0.0 mm (snow) 1.1 mm (rain)	
17:00	 30 °C	Light showers. Overcast.	38 °C	16 km/h	↑ 80%	53%	0.0 mm (snow) 0.8 mm (rain)	
18:00	 30 °C	A few showers. Overcast.	37 °C	15 km/h	↑ 82%	51%	0.0 mm (snow) 0.5 mm (rain)	
19:00	 29 °C	Passing showers. Overcast.	35 °C	15 km/h	↑ 86%	45%	0.0 mm (snow) 0.2 mm (rain)	
20:00	 29 °C	Passing showers. Overcast.	35 °C	14 km/h	↑ 86%	28%	0.0 mm (snow) 0.1 mm (rain)	
21:00	 29 °C	Passing showers. Overcast.	36 °C	13 km/h	↑ 85%	22%	0.0 mm (snow) 0.1 mm (rain)	

**April- Low humidity**

**September- High Humidity**

So, Tunnel Ventilation will work much better in April month than September month in North 24 Pargana.

### **What to be done during High Humidity-**

- **Thatching of the roof**
- **Multilayered (Shilpoulin) as side curtain**
- **Baffle – To increase air speed at bird's level as per birds age**
- **Protect cool pad from rainwater**
- **Don't use cool pad if outside RH is above 75% and above**

## **Cooling pad-**

- **After 25 days of age**
- **After 28-degree Celsius temperature**
- **All fan should be running (After attaining max air speed)**
- **1-degree C reduction of temp will increase 4.5% RH inside the shed**
- **Not to be used when RH when outside RH is above 80%**

## Air quality guidelines

Oxygen	> 19.6 %
Ammonia	< 10 ppm
Respirable Dust	< 3.4 mg/m <sup>3</sup>
Relative Humidity	< 65 %
Carbon Monoxide	< 10 ppm
Carbon Dioxide (CO <sub>2</sub> )	< 0.3 % / 3,000 ppm
Air exchange (with minimal air movement at chick level)	<0.30 m/s (60 fpm)

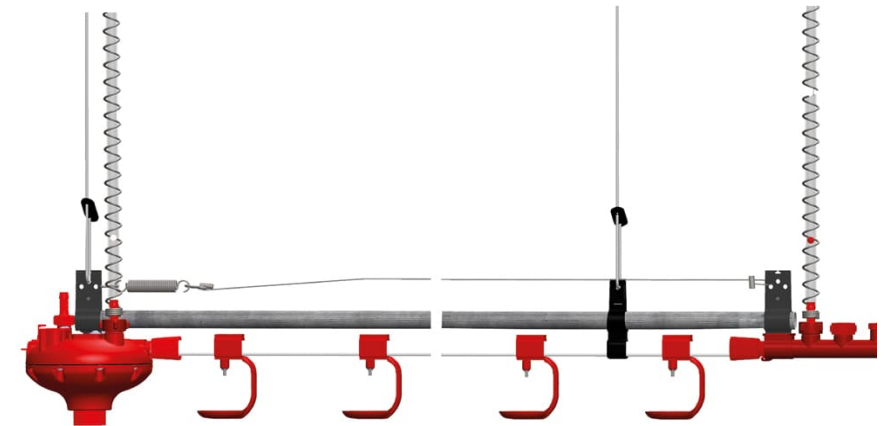
## **Litter- Litter Moisture-**

- **Litter moisture- 15-25%**
- **litter becomes wet beneath drinkers, water pressure and drinker height** should be evaluated.
- **Cooling pad**

# Water- drinking system-

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- **Drinking System-**
- **Always go for Nipple drinking system**
- **Head kit**
- **End kit**
- **Pressure regulator**
- **Proportionate Liquid Injecting Medicator**



# Sufficient water pressure/flow at nipple?

**Low/High Water Pressure = Reduced water intake = Reduced Feed Intake = Reduced Day gain**

**High Water Pressure = More water in spoon  
Wet litter**

**Solution-**

**Pressure pump**

**Header Tank at suitable height**

**Head kit**

Age	Flow per 30 seconds
0-7 days	20 ml
8-14 days	25 ml
15-21 days	30 ml
22-28 days	35 ml
29-35+ days	45 ml

# **Feed- Feeding system-**

**Auger feeding system-**

**Silo**

**Day bin**

Who will **Monitor** all these environmental/input parameters?

Who will **Control** all these environmental/input parameters?

**Perfectly**

**Zero error**

**Repetitive work**

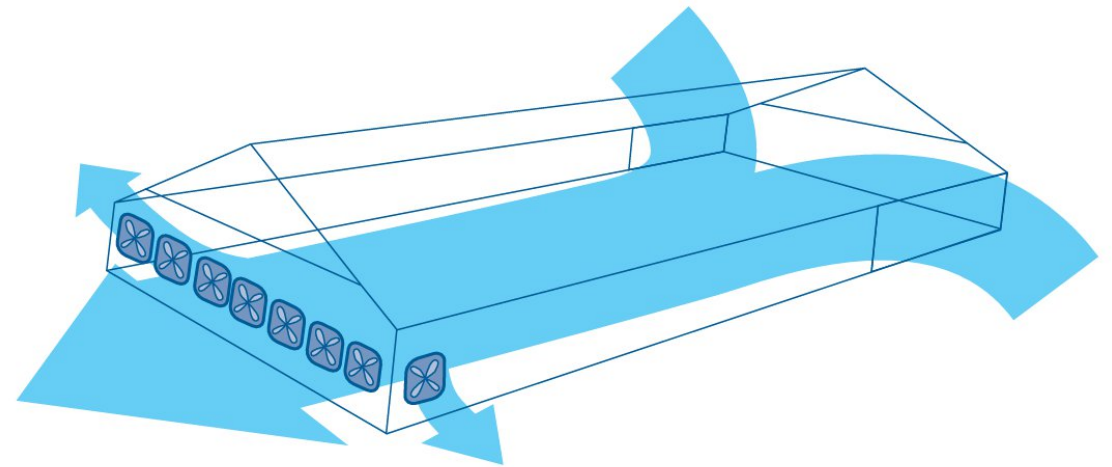
**CONTROL PANEL- LOGIC CONTROLLER**

**Sensor- Temperature, RH, CO2, CO etc**

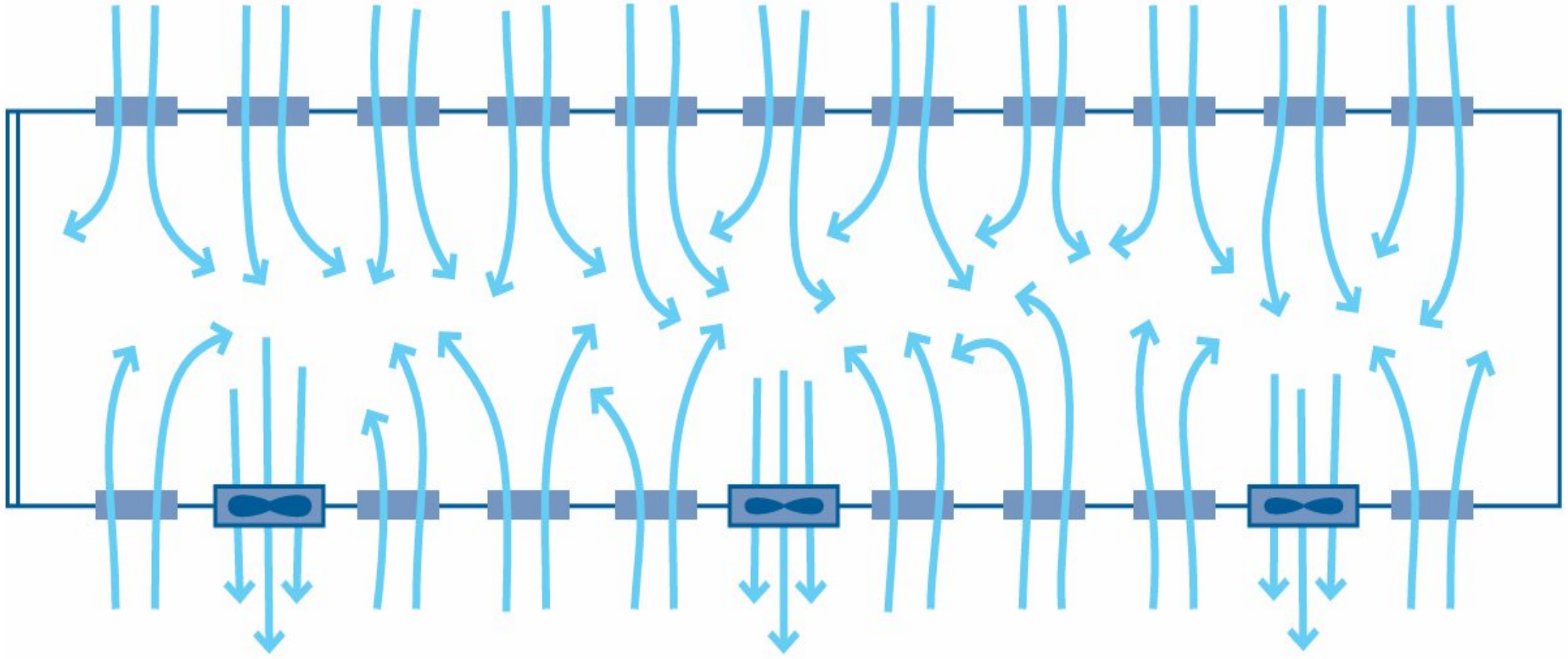
**Does my EC Farm have Capacity  
to Maintain/Control  
Environmental & Input  
parameters ?**

# Tunnel Ventilation-

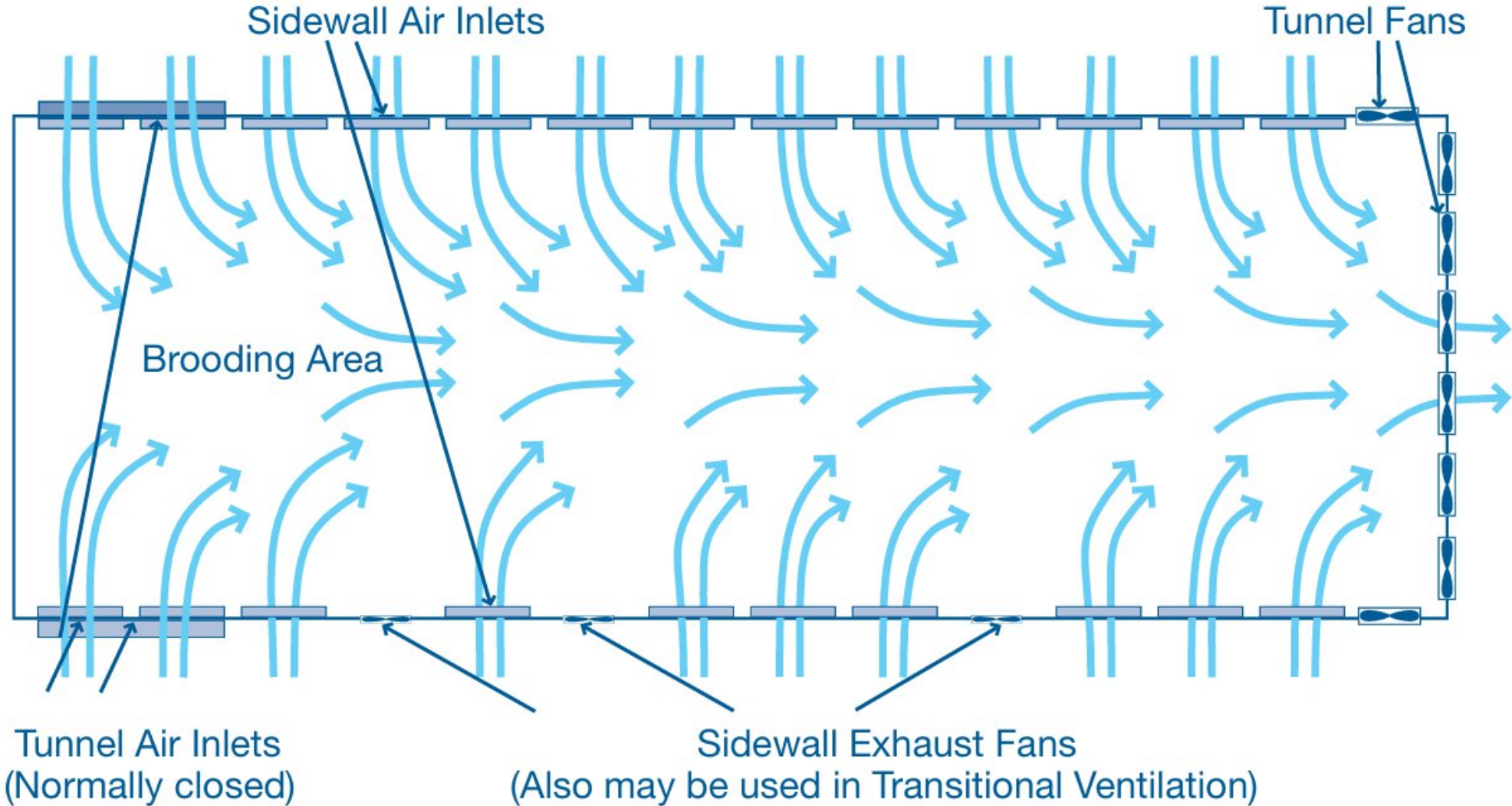
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## Typical air movement in Minimum ventilation (Air inlet)-



# Combi Tunnel Ventilation-



**Thank you for listening**