

PIG HOUSE VENTILATION SETTINGS

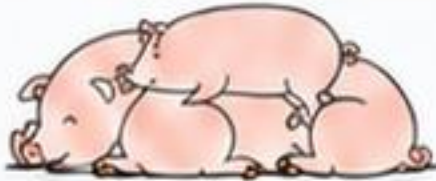
Practical targets for temperature, humidity, gas limits and airflow — measure at pig level and adjust to behaviour.



GROWING PIGS + SOWS

01 READ THE PIGS FIRST

Your quickest field check — even when sensors fail.



Piling on top of each other = **Too cold** [1]



Lying next to each other, breathing normally = **Comfortable** [1]



Lying apart, panting = **Too warm** [1]

02 TEMPERATURE AT PIG LEVEL

Target range by liveweight (growing pigs).

5–6 kg	6–8 kg	8–10 kg	10–12 kg	12–17 kg	17–25 kg	25–40 kg	40–60 kg	60–105+ kg
31–27°C	27–26°C	26–24°C	24–23°C	23–22°C	22–21°C	21–19°C	19–18°C	18–16°C

Warmer for light pigs

Cooler as pigs grow →

Wet floors can make pigs feel –5°C cooler. [2]

TWO-CLIMATE PEN

Under cover: 31–32°C
Room: 25–26°C
Floor heat on until 15 kg

Heat the pig, not the whole airspace. [6]

03 AIR QUALITY TARGETS



RELATIVE HUMIDITY
55–75%
ideal band [1]
PIC: keep below 65% [2]



CARBON DIOXIDE
< 3,000 ppm
[1] [2] [4] [6]
Multi-source consensus



AMMONIA
< 20 ppm
[1] [2] [4] [6] [7]
Multi-source consensus



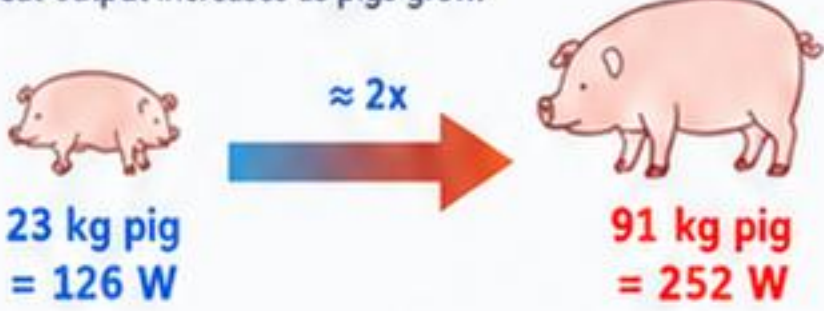
HYDROGEN SULFIDE
≤ 0.5 ppm [4] [6]
PIC and Hypor list 5 ppm [1][2].

Temperature alone is not air-quality control — minimum ventilation must still run in cold weather.

H₂S differs by source: SEGES/CIGR and DanBred use 0.5 ppm; PIC and Hypor list 5 ppm. Follow the stricter local requirement.

04 WHY THE RATE CLIMBS

Heat output increases as pigs grow.



As pigs grow, heat output roughly doubles — week-1 minimum ventilation becomes under-ventilation later. [5]

GROWING / GILT DEVELOPMENT

(Gilt rearing — GDU, Topigs Norsvin / Klimaatplatform Varkenshouderij) [7]

CATEGORY	MIN	MAX	START °C
Growing pig (23 kg)	6	40	25
Growing pig — day 5 GDU	8	40	22
Growing pig — day 50 GDU	14	80	20
Growing pig — day 100 GDU	17	80	19

Figures are gilt-rearing guidance; commercial finishers are broadly comparable — verify against your own system.

AHDB cross-check: 1.0 m³/h/kg for weaner-growers, 1.6 m³/h/kg for finishers — broadly consistent with the Dutch figures (–0.8–1.7 m³/h/kg). [3] [4]

SOW UNIT

(Topigs Norsvin / Klimaatplatform Varkenshouderij) [7]

CATEGORY	MIN	MAX	START °C
Empty sow	18	150	20
Pregnant sow	25	150	20
Pre-farrow sow	25	250	23
Lactating sow — day 7	35	250	20
Lactating sow — day 21	60	250	20

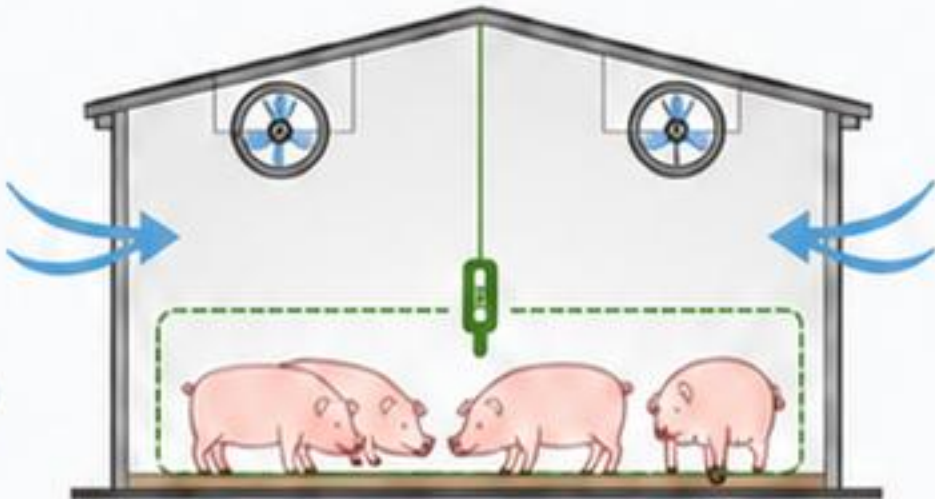
AHDB notes about a 5°C bandwidth between minimum and full ventilation. [3]

05 PUT THE SENSOR HERE

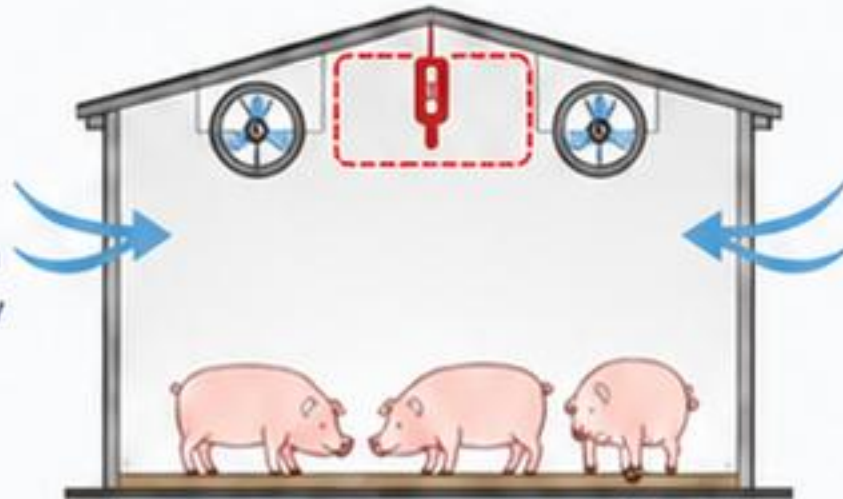
Measure where pigs actually live.



Correct — measures pig-level conditions [4]



Wrong — no heat production here, controller may under-ventilate the room [4]



SOURCES

- [1] Hypor, Wean to Finish Management Manual, p.12.
- [2] PIC, Wean to Finish Guidelines (2019), Environment section / appendix.
- [3] AHDB, Ventilating Pig Buildings.
- [4] SEGES, Guidelines for Growing Pigs H26 – Air Quality (2018).
- [5] NY/T, Livestock and Poultry House Ventilation System Technical Specification, Annex A.
- [6] DanBred Pig Finisher Manual, Production Facilities (web page).
- [7] Topigs Norsvin, TN70 Feed Manual (2023), Tables 12 and 24; figures credited to Klimaatplatform Varkenshouderij (2021).

Field reference only. Verify local legislation and fine-tune settings to pig behaviour, floor type, housing system and climate.

The gas ceilings

What the air must stay under — and who says so

SEGES H26 / CIGR (DK) · Topigs Norsvin (NL) · Hypor (NL) · DanBred (DK) · PIC (US)

LIMIT VALUES

CIGR standard

CO₂

3,000

ppm max
carbon dioxide

NH₃

20

ppm max
ammonia

H₂S

0.5

ppm max
hydrogen sulphide

Five independent chains, one ammonia limit

SEGES via CIGR (DK), Topigs Norsvin via Klimaatplatform (NL), Hypor (NL), DanBred (DK) and PIC (US) all publish 20 ppm — and all put CO₂ at 3,000 ppm. Five bodies, four countries, no shared commercial interest. Topigs Norsvin adds the condition: measure with the animals at rest.

Where they split — H₂S, by a factor of ten

The CIGR line — SEGES and DanBred — says 0.5 ppm. The genetics companies — PIC and Hypor — both say 5 ppm. Two against two. PIC attaches a warning to its own figures: these levels may exceed human tolerance at 8 hours a day, 40 hours a week. Publish the stricter 0.5 ppm.

And they split again on carbon monoxide

Hypor: CO under 10 ppm. PIC: CO under 30 ppm. SEGES does not list CO. Hypor adds methane under 1,000 ppm and 8 hours light per day at 40 lux. Humidity: Hypor 55–75%, PIC tighter at 65%.

Ceilings, not targets

If the lying area is sitting at 20 ppm ammonia, the pen is already under-ventilated. The number marks where damage starts — not where it becomes acceptable. Aim well below it.

How much air, by stage

Minimum and maximum ventilation per pig

Topigs Norsvin TN70, Tables 12 & 24 — per Klimaatplatform Varkenshouderij 2021 (NL)

GROWING PIGS & GILTS

m³/hour per pig

CATEGORY	MIN	MAX	START VENT
Growing pig, 23 kg	6	40	25 °C
Gilt, day 5 in GDU	8	40	22 °C
Gilt, day 50 in GDU	14	80	20 °C
Gilt, day 100 in GDU	17	80	19 °C

SOW UNIT

m³/hour per pig

CATEGORY	MIN	MAX	START VENT
Empty sow	18	150	20 °C
Pregnant sow	25	150	20 °C
Pre-farrowing sow	25	250	23 °C
Lactating sow, 7 days	35	250	20 °C
Lactating sow, 21 days	60	250	20 °C

With a microclimate in the farrowing room, room temperature can drop 2 °C.

A lactating sow needs ten times a weaner's air

60 m³/h against 6. Same building, same fans, same controller — and a tenfold difference in what the animals actually require. One ventilation setting cannot serve a whole site.

Cross-check — another country, another unit

AHDB (UK) sizes maximum ventilation per kg liveweight instead of per pig: 1.0 m³/h per kg for weaner-growers, 1.6 for finishers. Convert the Dutch maxima above and they land at roughly 0.8–1.7 per kg. Two methods, two countries, the same band.

The conditions that come with the numbers

Rates depend on the ventilation system, animal behaviour, health and feed intake. The climate system must be designed to avoid draught — every source says so. Ammonia stays under 20 ppm, measured with the animals at rest.

Room temperature

Two independent ladders, both measured at pig level

PIC Wean-to-Finish 2019, Table 4.1 (US) · Hypor Wean to Finish, Table 7 (NL)

PIC · DESIRED ROOM TEMPERATURE

dry slat, solid-sided, fully stocked

WEIGHT	DESIRED	WINTER SET	SUMMER SET
5.4 kg no brooder	29.4 °C	30.6 °C	29.4 °C
5.4 kg brooder + mats	23.3 °C	24.4 °C	23.3 °C
14.5 kg	23.9 °C	22.8 °C	22.8 °C
24 kg	21.1 °C	21.1 °C	20.0 °C
34 kg	19.4 °C	18.9 °C	17.8 °C
46 kg	17.8 °C	17.2 °C	16.1 °C
58 kg	16.7 °C	16.1 °C	15.0 °C
72 kg	16.1 °C	15.6 °C	15.0 °C
85 kg	15.0 °C	15.0 °C	14.4 °C
98 kg +	14.4 °C	14.4 °C	13.9 °C

Hypor's ladder, independently derived

5-6 kg: 31-27 °C · 8-10 kg: 26-24 °C · 12-17 kg: 23-22 °C
17-25 kg: 22-21 °C · 25-40 kg: 21-19 °C · 40-60 kg: 19-18 °C
60-105 kg: 18-16 °C
Close agreement through nursery and grower. At finish Hypor runs 1-2 °C warmer — treat the gap between the two as a band, not an error.

Brooders change the room, not just the pig

PIC drops desired room temperature from 29.4 °C to 23.3 °C at weaning when brooders and mats are used. A 6 °C difference in what the whole airspace costs to heat. DanBred goes further: 31-32 °C under the cover while the room sits at 25-26 °C, floor heat on until 15 kg. Heat the pig, not the building.

Humidity is the other half

PIC: keep humidity below 65% at all times. Hypor: 55-75%.
And a practical one — wet floors make pigs feel about 5 °C cooler at the same air temperature.

Why the demand climbs

Ventilation exists to carry heat and moisture out

NY/T draft standard (CN), Annex A Table A.1 · SEGES H26 (DK)

TOTAL HEAT PER PIG

watts, solid floor

ROOM TEMP	23 kg	45 kg	91 kg
4.4 °C	126 W	173 W	252 W
10.0 °C	111 W	150 W	217 W
15.6 °C	106 W	138 W	190 W
21.1 °C	100 W	126 W	176 W
26.7 °C	97 W	123 W	167 W

A finisher throws off twice a weaner's heat

252 W against 126 W in a cold room. Same pen, same fan setting — and the air is doing half the job it did at the start of the batch.

Which is why minimum ventilation drifts wrong

It gets set once, early, when the pigs are small. Then the pigs grow. The setting that was correct in week one is under-ventilation by week eight, and nothing on the controller announces the change.

Heat has to come from somewhere

SEGES: weaner housing needs 20 W of heat supply per place unit, split between floor heat and room heat. Lower in finishers — but extra heat is always insurance. If ventilation cannot be raised in cold weather without chilling the pigs, the heat supply is the problem, not the ventilation rate.

How to check the air

The method, before any instrument

SEGES Guidelines for Growing Pigs, H26 (DK)

THE PEN TEST

Sit down at the back of the pen

The guideline is literal. Sit in the pigs' lying area and sense the air yourself. Standing in the inspection alley tells you about the alley.

Then measure — twice

Record ammonia in the lying area AND at the exhaust units.
The gap between those two readings is the part no controller shows you.

SENSOR PLACEMENT

- **Put the sensor in the pen**

As close to the pigs as possible. Never above the inspection alley, where there is no heat production.

- **A sensor over the alley reads cold**

So the controller concludes the room needs less ventilation than the pigs actually need. The room is wrong, not the reading.

- **Check the humidity controller**

Wet/dry types need water in the container and intact fluid.
A dry wick reports a house that does not exist.

Smoke finds what sensors miss

To detect pit ventilation, blow smoke down through the slats in the inspection alley or the dunging area. If it reappears in the lying area, pit air is being drawn up over your pigs.

Needs a smoke machine, or a smoke ampoule with a rubber ball.

Why pens get dirty

Fouling is a climate symptom, not a hygiene one

SEGES Guidelines for Growing Pigs, H26 (DK)

ROOT CAUSES

- **Temperature set too high**
Pigs lie apart and dung in the lying area to cool down.
- **Sensor above the inspection alley**
No heat production there, so the control reads the wrong room.
- **Closed pen partitions**
In diffuse-ventilated houses they hold a cushion of bad air over the lying area.
- **Draught in the lying area**
Along partitions, and from cold inlet air. Pigs move off the draught and foul wherever they land.
- **No or inadequate sprinkling**
Pigs with no way to cool will wet the floor themselves.

Opposite causes, identical symptom

SEGES notes fouling can come from cold draught AND from heat stress. The pen looks the same either way — which is why the fix so often gets applied in the wrong direction.

PIT VENTILATION

What it is

Heat from the pigs draws contaminated air up out of the slurry pit and into the lying area. Common in pens with drained or slatted floor under the cover.

- **Too little headroom**
Under radiant ventilation: less than 0.3 m per metre the air must travel into the room, from the top of the partitions.
- **Slats in the inspection alley**
Alleys should always be solid floor.
- **Fully slatted, no manure curtain**
Fit a curtain roughly 1.6 m into the pen.
- **Partitions off the manure wall**
Partitions not seated on the wall leak pit air.

Where seven sources agree

Different countries, different genetics, same conclusions

SEGES · Topigs Norsvin · PIC · AHDB · Hypor · DanBred · NY/T standard

1 Ammonia below 20 ppm

Five independent chains: SEGES/CIGR, Topigs Norsvin via Klimaatplatform, Hypor, DanBred and PIC. All on 3,000 ppm CO₂ too.

2 Humidity is the early warning

PIC keeps it under 65%, Hypor 55–75%, and SEGES makes the humidity controller a checkpoint in its own right.

3 Draught is a design failure

Not a weather problem. SEGES lists it as a cause of fouling; Topigs Norsvin requires the system be designed to prevent it.

4 Demand scales with the animal

6 to 60 m³/h per pig across stages, and the heat table explains why. The building does not change; the pigs do.

5 Measure where the animal is

SEGES says sit in the lying area. PIC and Hypor both set their temperatures at pig level, not room average.

And two places they split

H₂S: the CIGR line (SEGES, DanBred) says 0.5 ppm; the genetics companies (PIC, Hypor) say 5 ppm. CO: Hypor 10 ppm, PIC 30 ppm.

Publish the stricter figure in both cases. A reference that shows where its sources disagree is worth more than one that pretends they never do.

One check, tomorrow morning

Sit at the back of a pen for five minutes before the house warms up. If you would not want to stay there, neither do the pigs.