



JAPFA VIETNAM FTEM DEPARTMENT

Environment Management Concept in Swine Farming

Leveraging Technology
for Productivity and Sustainability



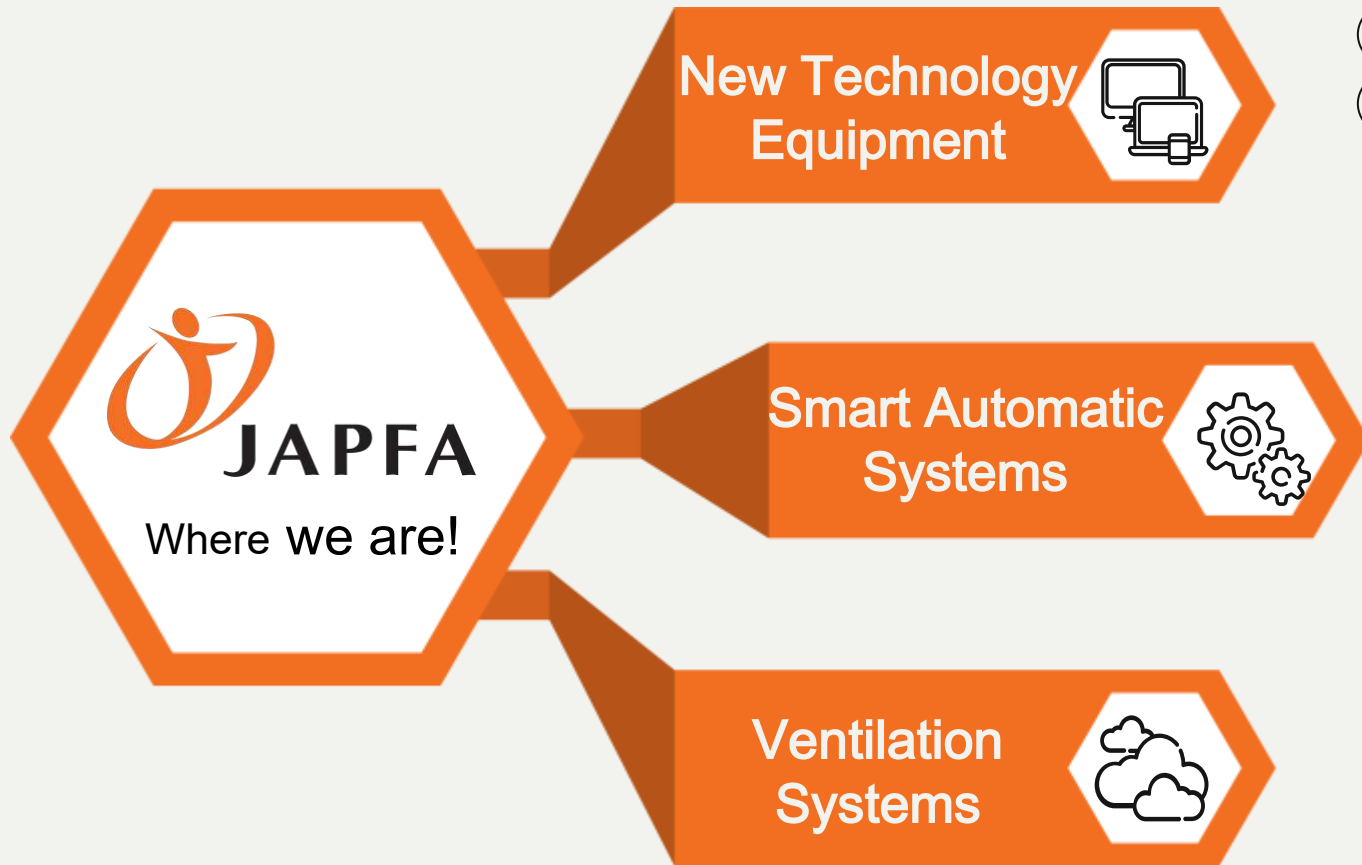
INTRODUCTION

WHO WE ARE!

**Farm Technology and Environment Management
(FTEM):**

- Optimize farm environment for genetics, welfare, efficiency, and energy savings.
- Focus on innovative solutions for swine farming.

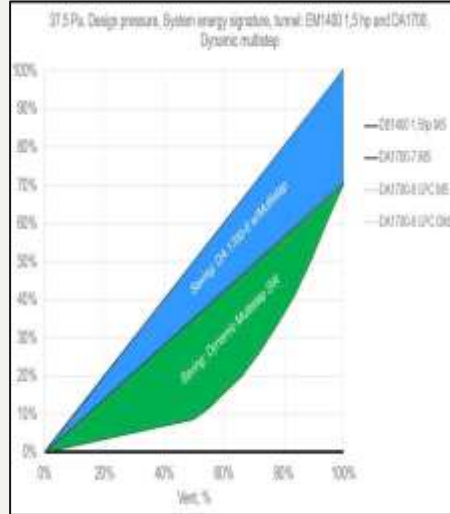
Goals: Enhance productivity, animal health, and environmental sustainability.



New Technology Equipment

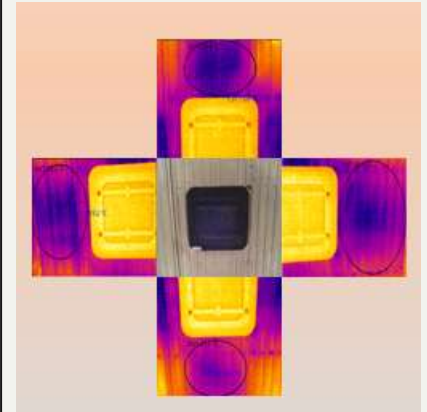
Variable Speed Exhaust Fan

Energy Savings and Precise Environment Control.

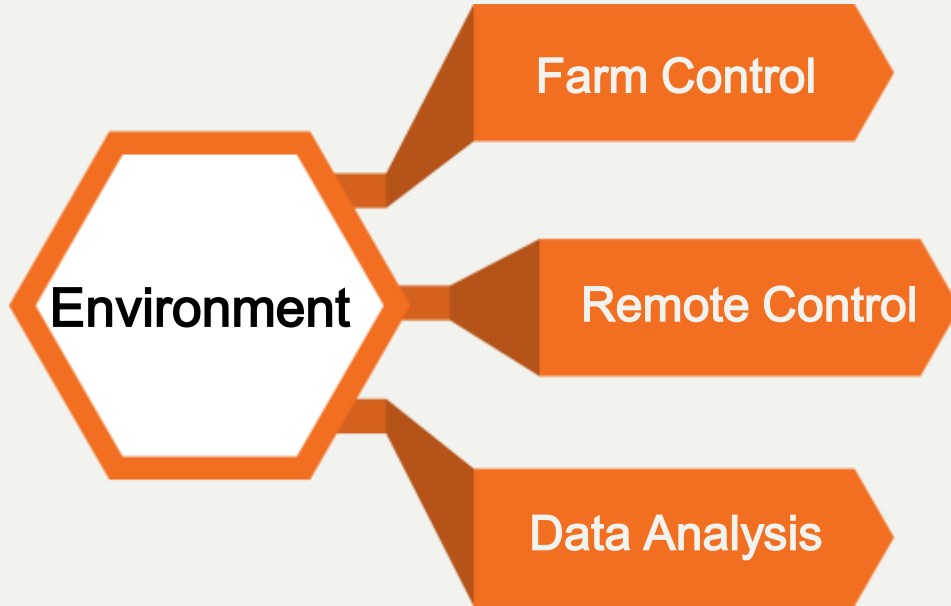
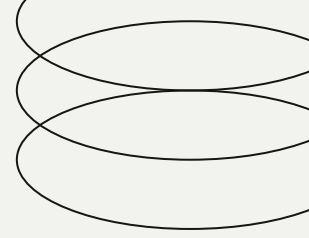


Attic Inlet

Smooth and better Air Distribution.



SMART CONTROLLERS



Smart Controller provides automated systems for livestock and greenhouse farms.

Improving performance and sustainability by efficiently managing environment (temperature, humidity, gases, feed, water).

Remote Control System

Using **real-time data** and **remote access** to boost performance, profitability, and sustainability.

Key Features:

- **History** access for ventilation solution
- **Real-time** monitoring
- **Remote** access
- Easy to use

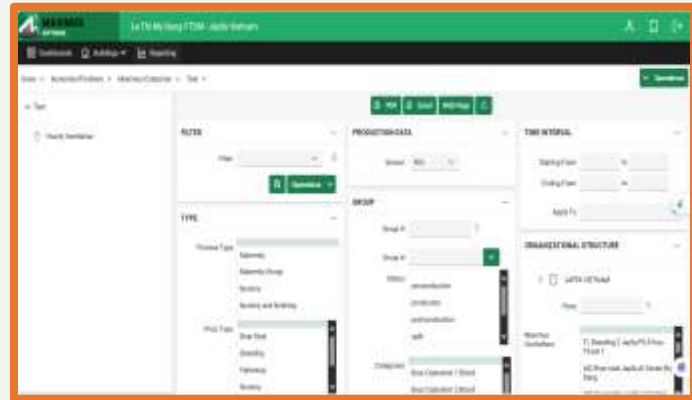
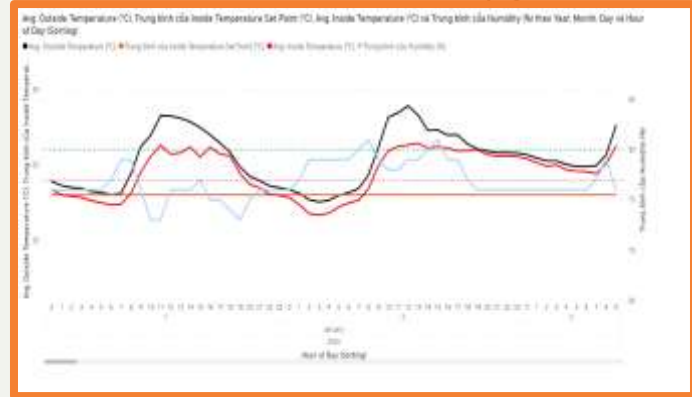


Data Analysis

MAXIMUS Software offers real-time data, mobile access, and synchronized reporting across sites.

Key Features:

- Real-time data access via **mobile app**
- **Centralized monitoring** across all sites
- **Custom reports** (by sow or group)
- Shared **dashboards** with stakeholders (vets, integrators, accountants)
- Performance optimization



Smart Automatic Feeder

Optimizes **feed intake** for lactating sows.

Improves **body condition** and **milk production**.

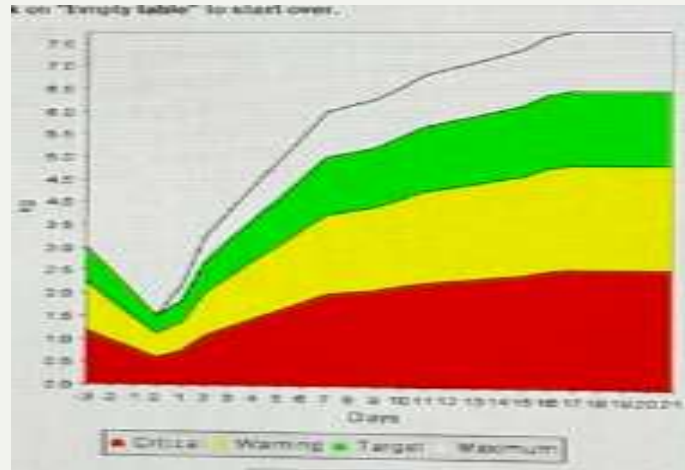
Reduces feed waste **by stimulating eating behavior**.

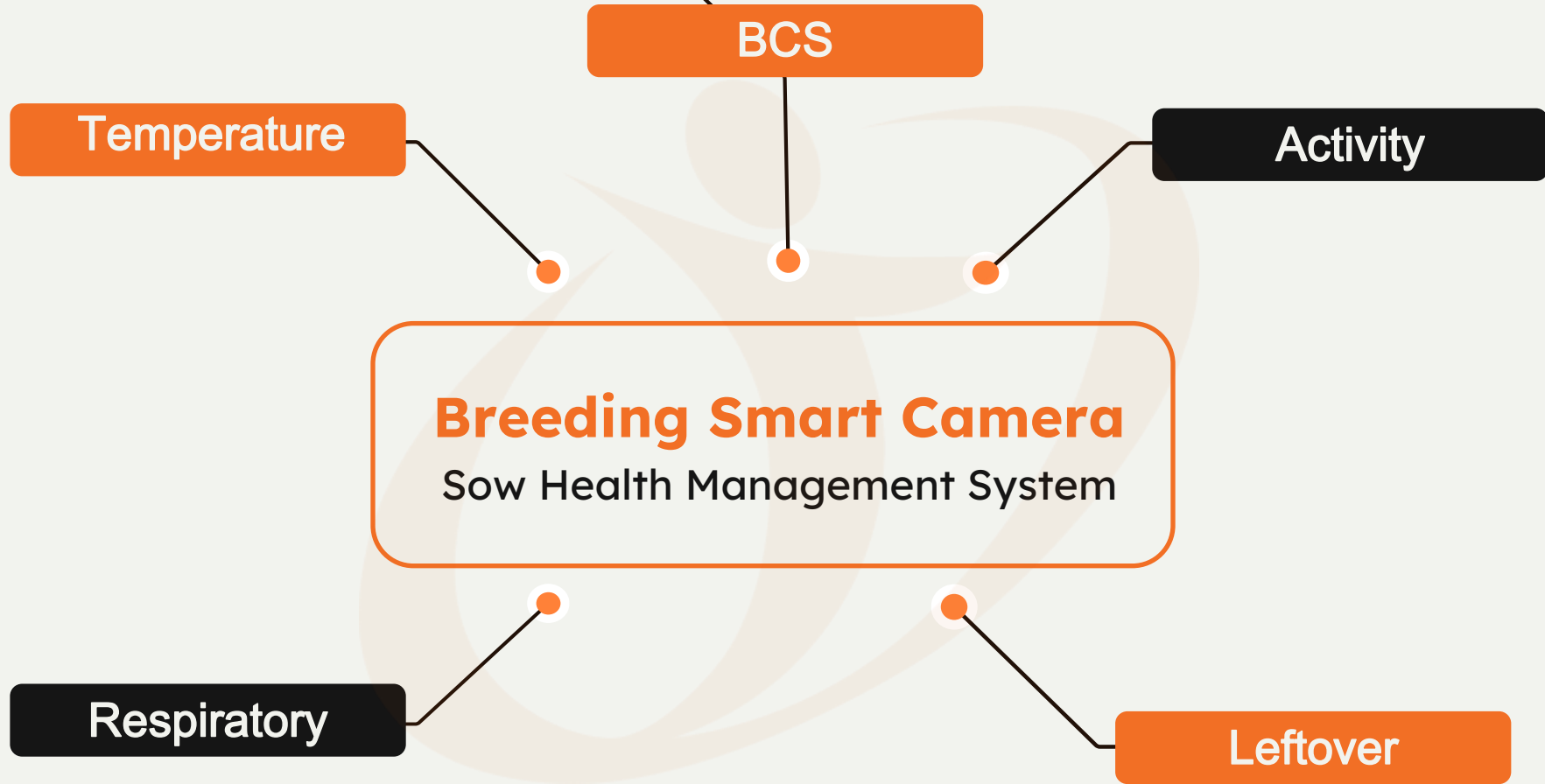


Smart Automatic Feeder

Flexible control panels.

Data collection and analysis for continuous improvement.



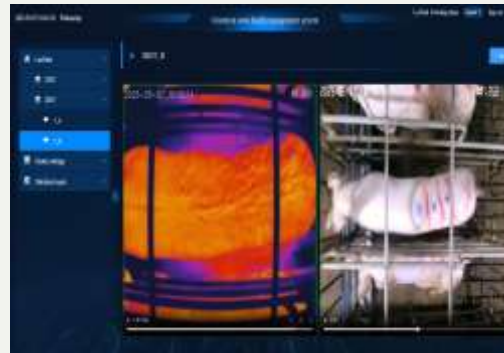


Breeding Smart Camera

Sow Health Management System



- Real-time health tracking.
- Early disease detection through behavioral analysis.
- Alerts for abnormal feeding patterns.
- **Timely interventions, improved sow health, and productivity.**



Breeding Smart Camera

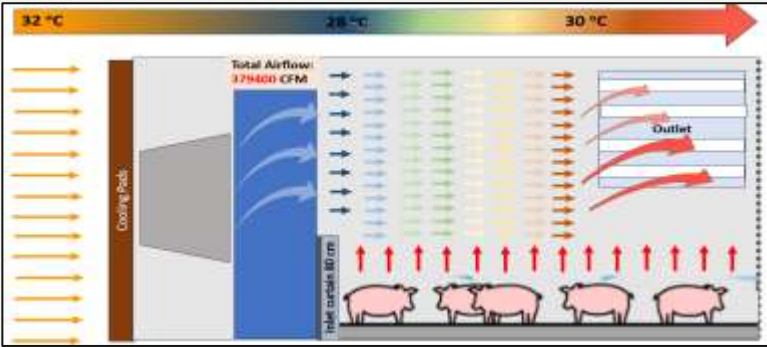
Body Condition Score



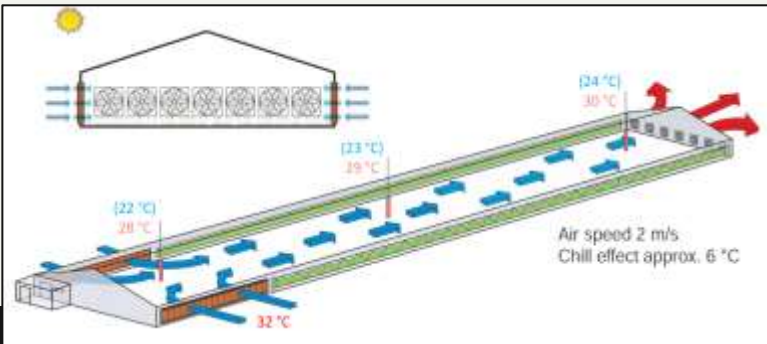
Concepts



Positive Pressure



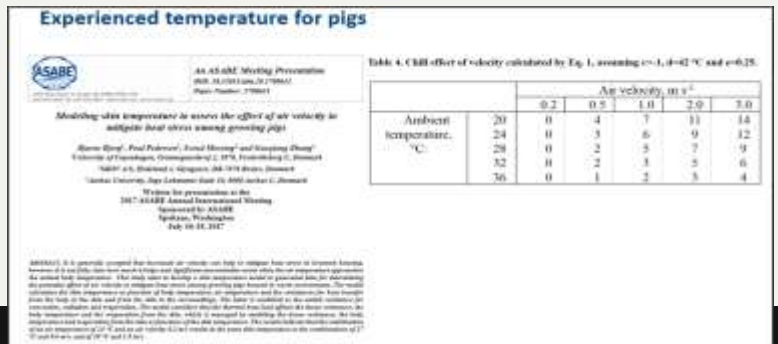
Negative Pressure



Environment Standard

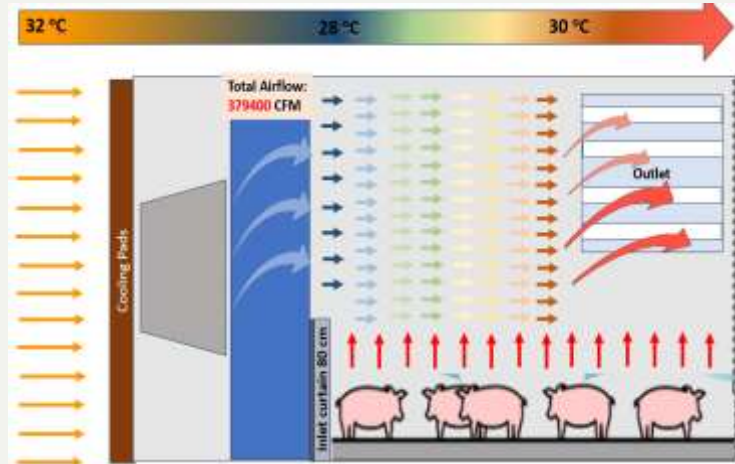
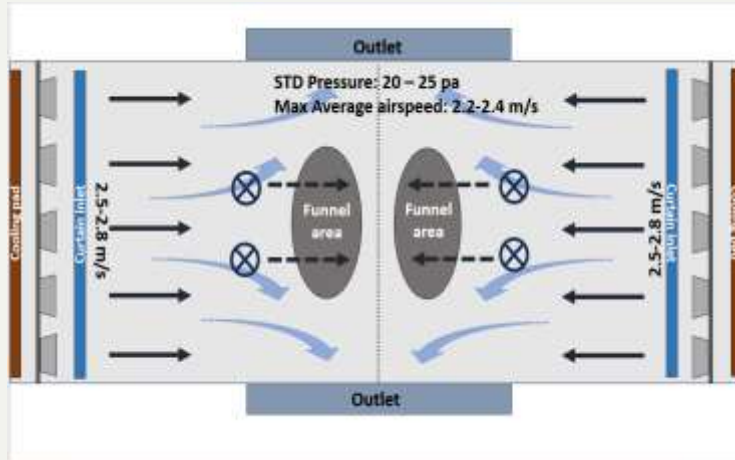
Purpose		Standard
Temperature	Sow	24 - 26°C
	Piglet	28 - 33°C
	Boar	22 - 24°C
Air speed	Minimum	1.4 - 1.6 m/s
	Maximum	2.2 - 2.4 m/s
Pressure		20 - 25 Pa
Humidity		< 65%
CO2		< 3000ppm
NH3		< 20ppm
Chlorine (ORD)		650 - 800mV or 2 - 3ppm
pH		6.8 - 7.8

Windchill Effect



Gestation and Breeding Operation Ventilation

Sow Division - Positive Pressure



Boar Operation Ventilation

Sow Division –DOAS system

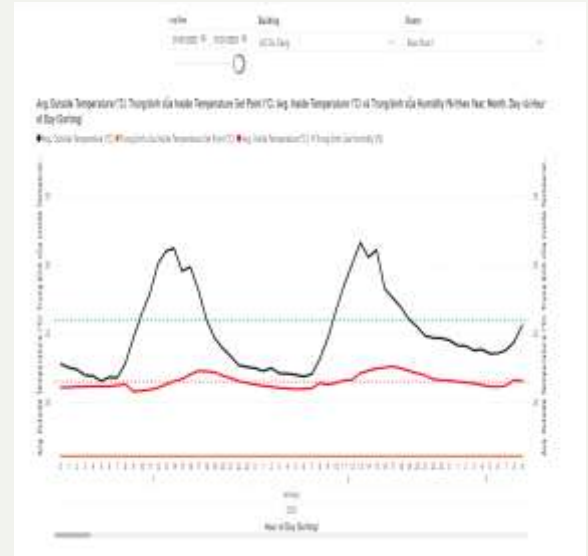
DOAS System



Remote Control



Precise Environment



Farrowing Ventilation

SOW OPERATION

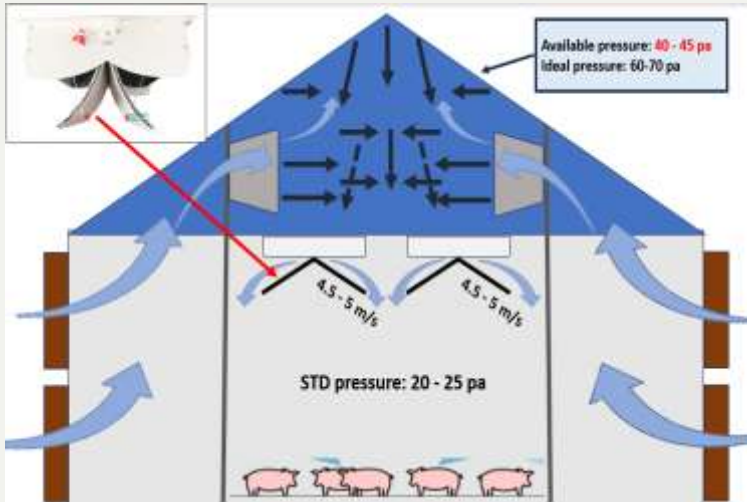
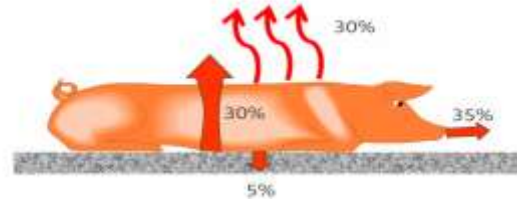


SOW
26°C



Heat mitigation from pigs

- Sensible heat
 - Conduction
 - Convection
 - Radiation
- Latent heat
 - Evaporation



Attic Pressure

Jet Air

Better Air
Distribution

Degree 0.5°C
Compare to NP



PIGLET
31-33°C



Bean zone or
Comfortable zone



Temperature Regulation

Stable temperature

Avoid Draft airflow

Comfort

Rest and reduces stress

Promoting better overall health

Energy Conservation

Maintain body temperature

Growth and development

Fattening Farms

Once the piglets are weaned, **the journey doesn't stop there.**

Next 4-5 months, pigs grow over 20 times their body weight and their environment must scale with them.

That's where negative pressure barns step in, transforming how we manage heat, gases, and airspeed in fattening farms.



Fattening Farms

Weaner



Brooding

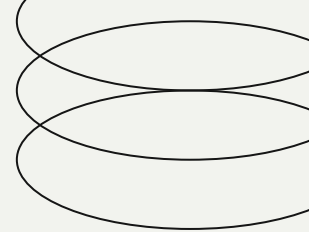


Growing



Finisher

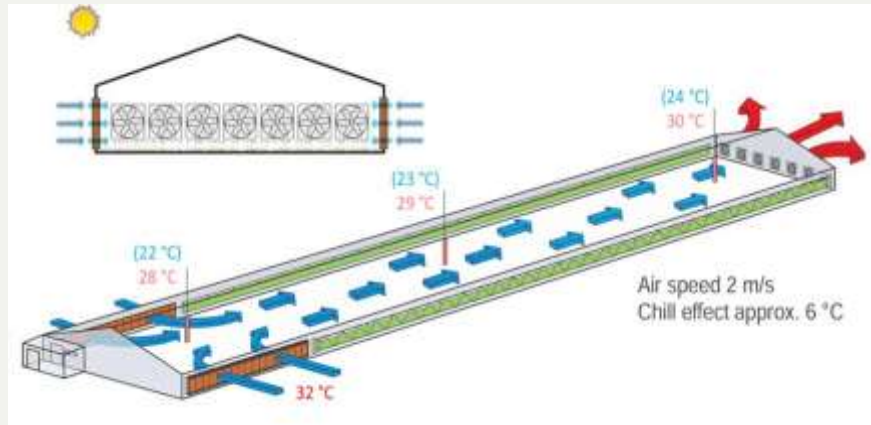




Environment Standard of Wean to Finished Pigs							
Phases		Temperature	Related Humidity	Air speed	CO2 (ppm)	NH3 (ppm)	Chlorine (mV or ppm)
Brooding	0-30 days	31-28°C	65-70%	0.3-1.0 m/s	<3000	<20	650-800mV or 2-3ppm
Growing	30-60 days	28-22°C	70-80%	1-1.8 m/s			
Finisher	60-150 days	22-18°C	60-75%	1.8-2.4 m/s			

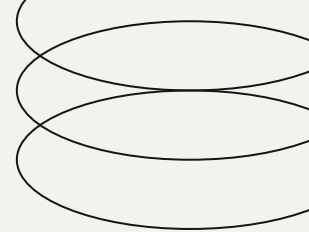


With smart controllers, we adjust fan, air inlets, cooling, and alarms in real time. That's the power of precision ventilation and it starts with “**Negative pressure Systems.**”



Negative Pressure is the foundation — but what make it truly effective is the automation and **Data Analysis** support.





**Integration with
environment,
water, feed
systems, lighting,
cooling pads...**

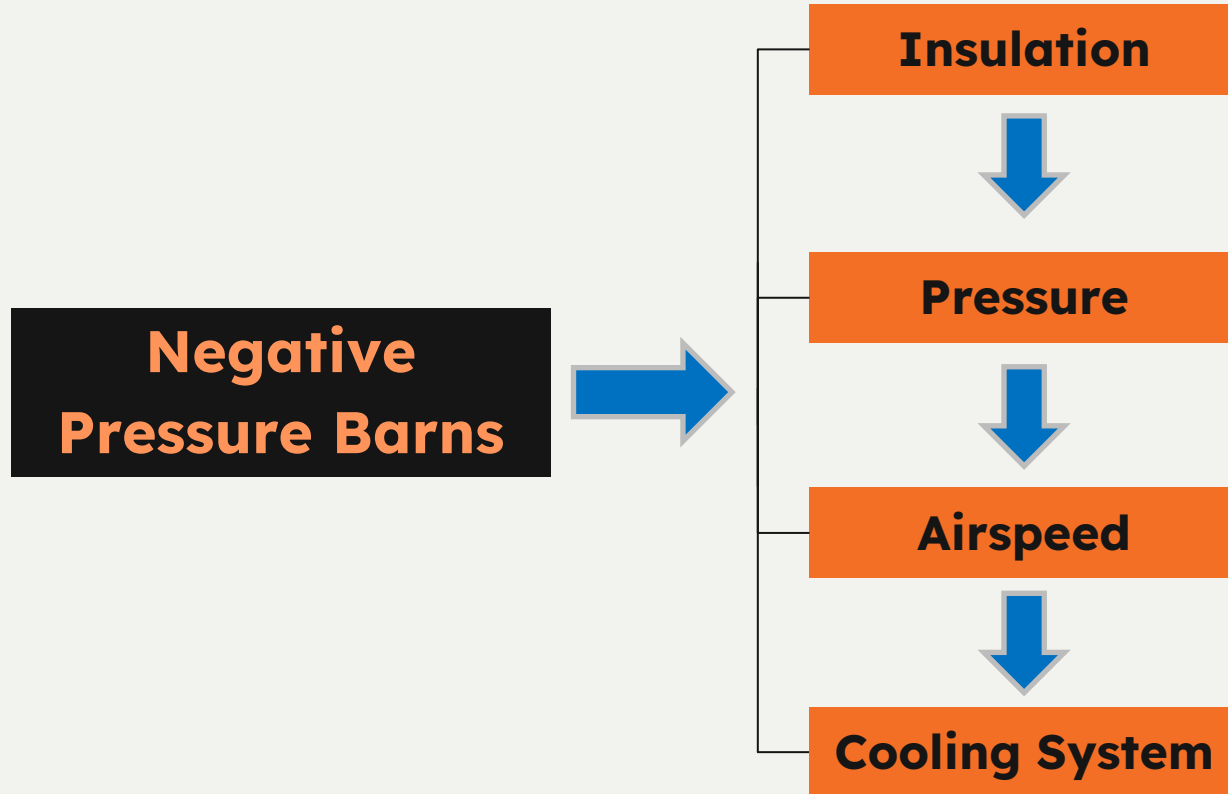
**Access Data
bank in real
time, you can
adjust your
barns operations
at any time**

**Year-to-Year
check back
the Data to
have any
adjustments**

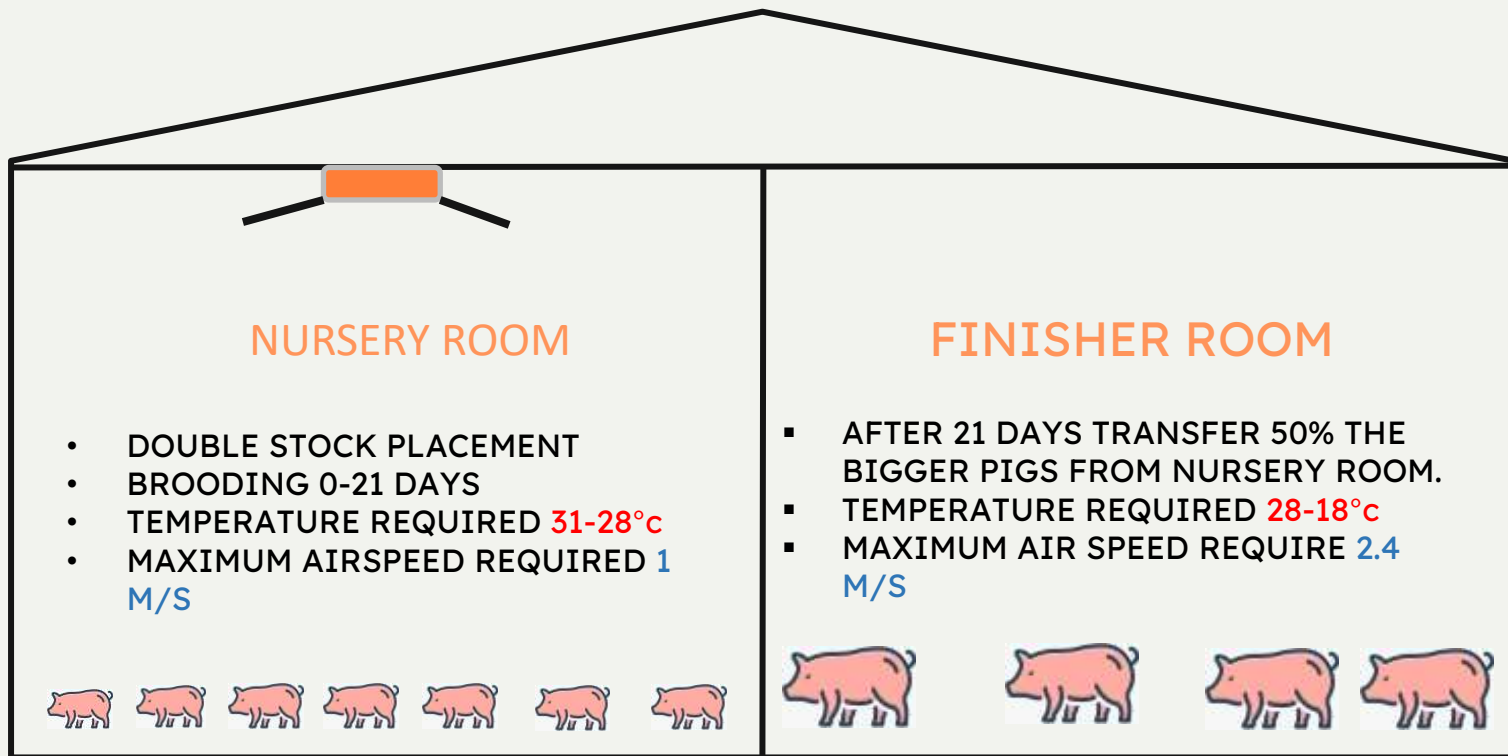
**Configure
automated control
programs based
on each fattening
stage, allowing the
system to operate
automatically**

**Remote
monitoring
and alerts**

Concept of Negative Pressure Systems



Current Barn Designs



1 barn has 2 room: nursery room & fattening room
Nursery room: attic inlet & heat lamp

Brooding Phase

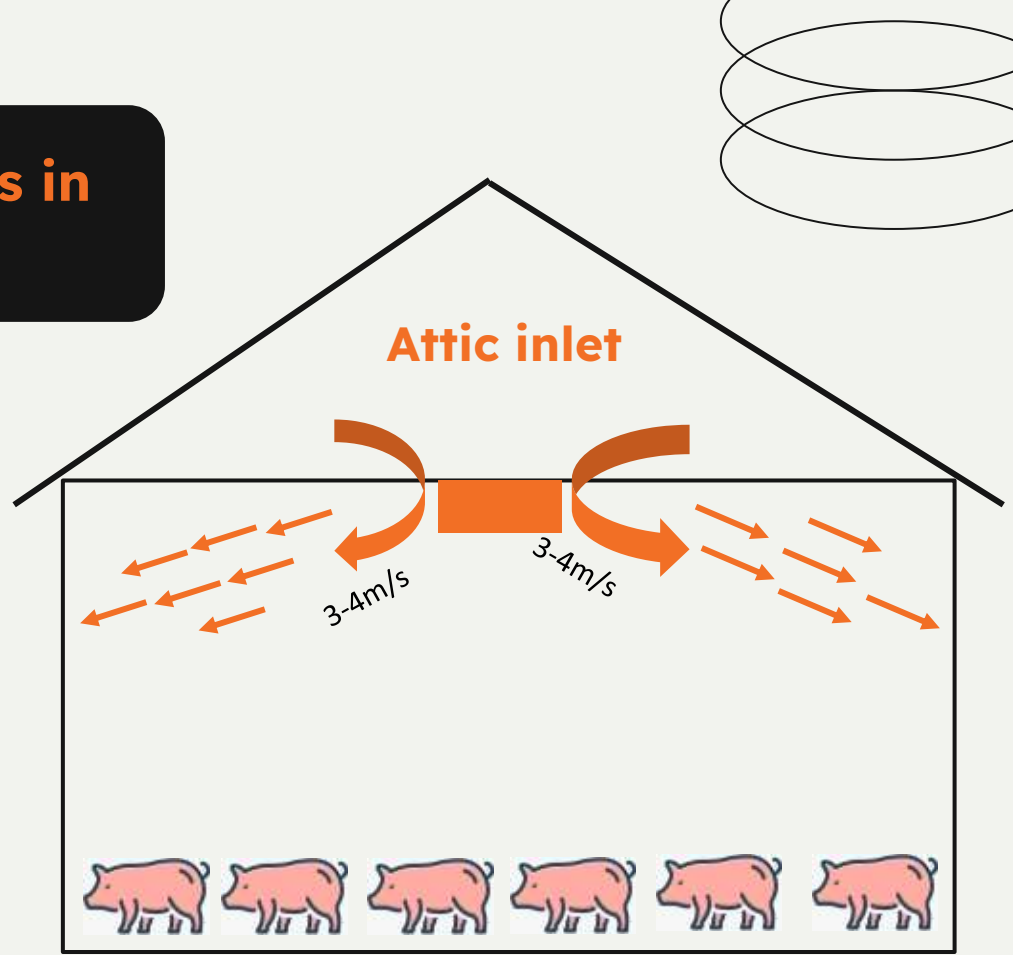
[Double stock in Nursery room]

Attic Inlet + Variable Exhaust Fans Management



Benefits of Using Attic Inlets in the Brooding Phase

- ✓ Air & Temperature Distribution
- ✓ Keep Warm Barn Closed To Desired Room Temp
- ✓ Avoid Draft To Animals
- ✓ Animals Welfare & Productivity



Brooding Phase

[Double stock in Nursery room]

Using a smoke test during the brooding phase in fattening pig barns to visualize airflow patterns.



7 Nov 2024 at 17:24:43

X. Vụ Bón

H. Krông Pắc

Krông Pắc

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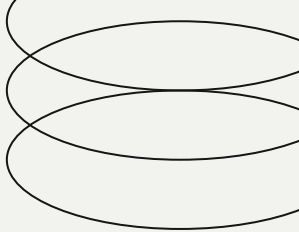
**Growing + Finisher
[Nursery room &
Fattening room]**



Curtain Inlet + Exhaust Fans

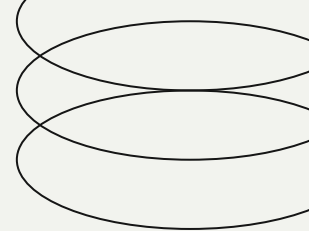
Goals Tunnel Ventilation

- ✓ Heat Stress Management
- ✓ Enhanced Air Quality and Gas Removal
- ✓ Uniform Environment Distribution
- ✓ Energy Efficiency
- ✓ Better Performance Monitoring and Automation
- ✓ Adaptability to Growth Stages



Smart controllers provides real- time data, alerts, and historical trends for ventilation.

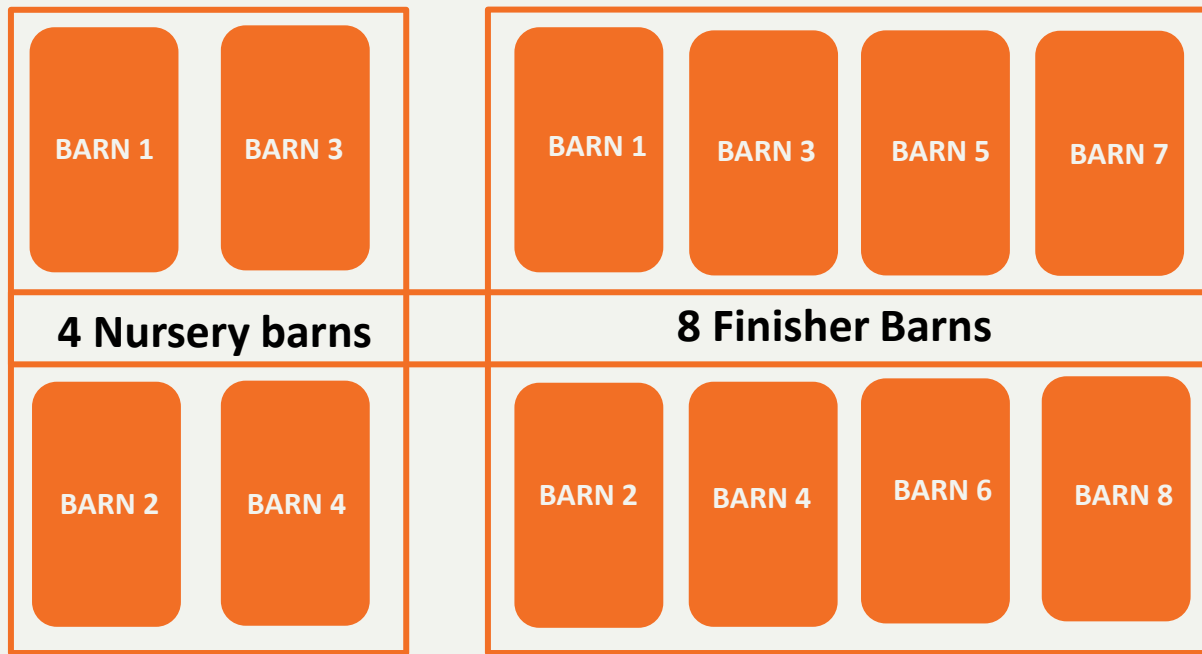
FARM DESIGN WITH “NURSERY BARNS”



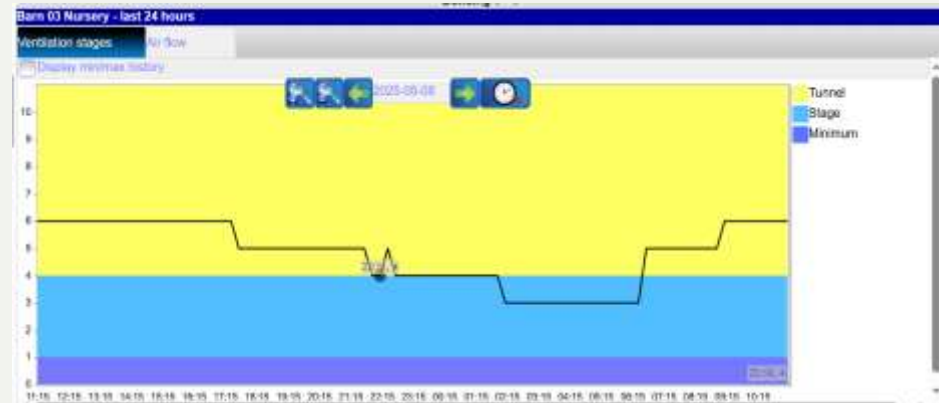
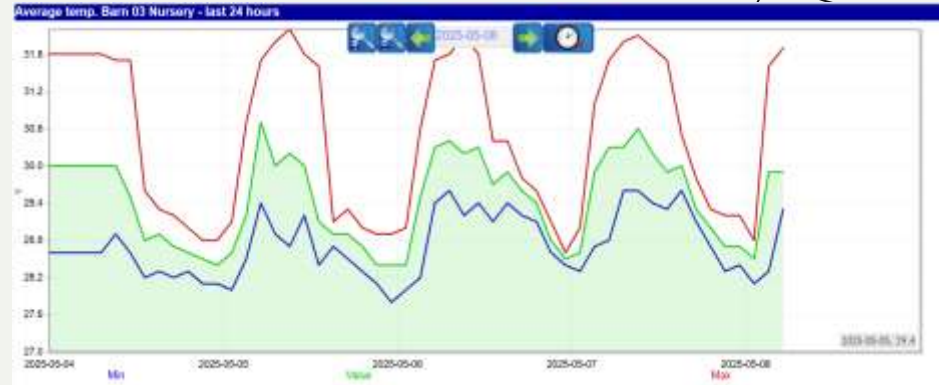
SEPARATE BROODING BARNS WITH
PROPER CARE

BROODING 3 WEEK IN NURSERY ROOM
THEN MOVE TO FATTENING ROOM

- ❖ New Controllers Technologies
- ❖ Optimal Microclimate for Young Piglets
- ❖ Energy Efficiency and Targeted Heating
- ❖ Better Growth and Feed Conversion in Early Stage (Comfortable thermal conditions promote early feed intake, strong immunity, and uniform growth).



REMOTE ACCESS JAPFA FARMS





🖨️ Japfa FAT Quang Phu 2 - Buildings 1-2-3-4

Hoang Nguyen ▾

Buildings 9-12

Japfa FAT Quang Phu 1

Buildings 1-4

Buildings 5-8

Buildings 9-12

Japfa FAT Quang Phu 2

Buildings 1-2-3-4

Buildings 10-12-14-16

Buildings 17-19-21-23

Buildings 18-20-22-24

Buildings 5-6-7-8

Buildings 9-11-13-15

Japfa GP.S Dak Nhou 2

DK 2 Breeding

DK 2 Farrowing 1-10

DK 2 Farrowing 11-20

DK 2 Farrowing attic

DK 2 GDU

New AI Development

Integration AI Camera with feeding system.

Integrate AI to:

- Learn environmental data patterns
- Monitoring pigs activities
- Pigs Inventory
- Smart feeding system
- Estimate Body weight & FCR live



Application of high technology in swine farming is important because:

Improve animals performances

- Ensures optimal environmental conditions (temperature, humidity, ventilation)

Improve Health Status (Immune system/Mortality)

- Stable microclimate and better air quality reduce stress, respiratory diseases, and the need for medication

Enhances Management Efficiency

- Real-time monitoring, automation, and remote control help reduce human errors and improve decision-making

Supports Sustainable Farming, Data-Driven Decisions

- Automatic data logging allows performance tracking, historical analysis, and early detection of issues.





THANK YOU
FOR WATCHING