36th Annual Swine Conference
Sept 1st, 2026

NEVER SETTLED

PRRS – What happened?

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WHAT HAPPENED?

The cost of PRRS keeps climbing

$664M

Annual U.S. industry loss
2006–2010

$1.2B

Annual U.S. industry loss
2016–2020 (+80%)

68%

Share of total losses now occurring in growing pigs (up from 55%)

Why it's not just market noise: market/price factors explain 20% of this increase. The remaining $428M reflects more herds getting infected and lower productivity once they are — and a growing share of that loss is now landing in nurseries and finishing barns, not just sow farms.

Source: Holtkamp et al., Iowa State University, 2024 (JSHAP, updated PRRS cost study).

Three questions for the next 20 minutes

What makes PRRSV different?

How has the virus itself been changing?

What are we doing?

Biosecurity and management.

What do we still need to learn?

Real-time disease and risk management.

Why is PRRSV different from other viruses?

Key biological and epidemiological features that make PRRSV hard to control

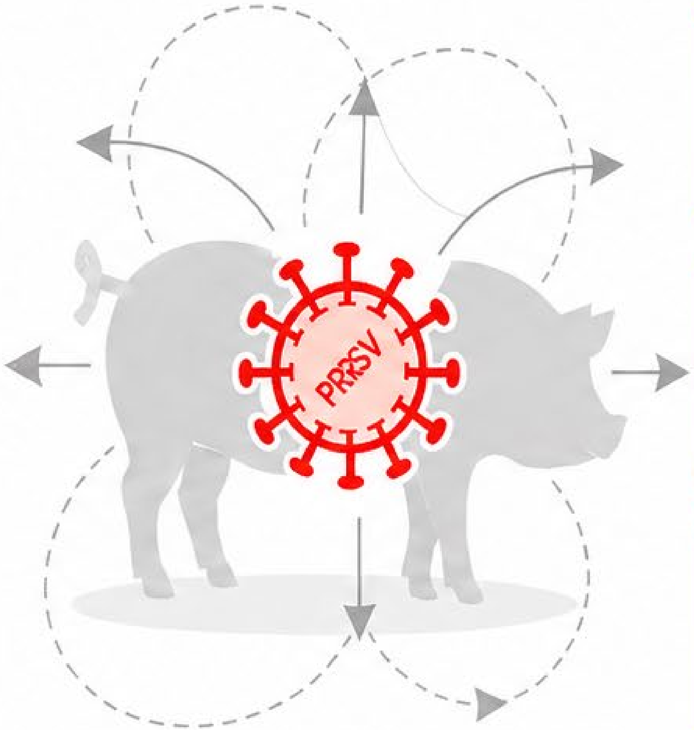
Why PRRSV is different

1. High strain diversity
Rapid evolution and many variants.

2. Multiple transmission routes
Direct contact, aerosols, fomites, and movement.

3. Can persist in pigs
Infected animals may keep shedding or remain carriers.

4. Survives longer in the cold
Environmental persistence increases at low temperatures.



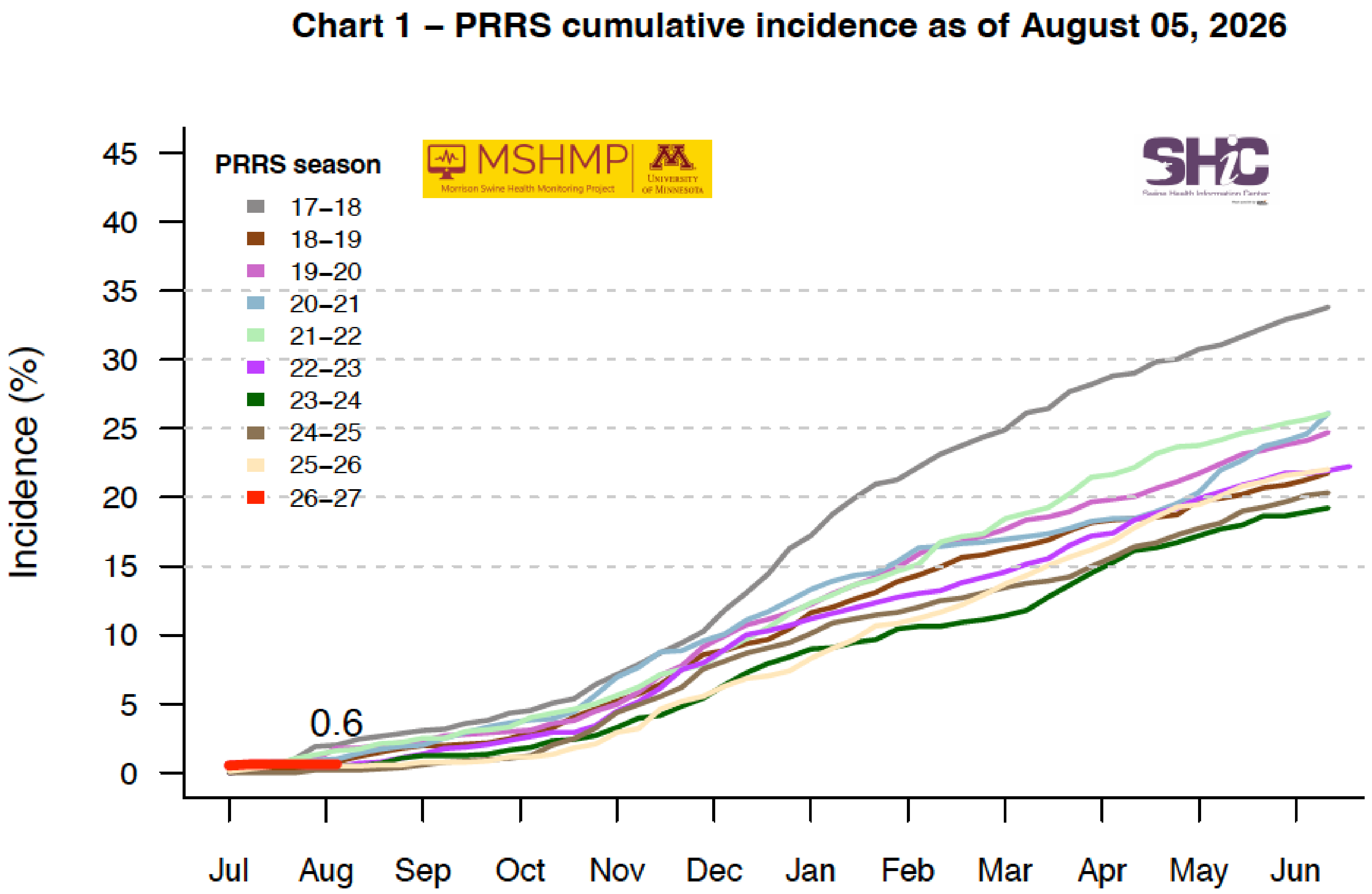
Why PRRSV is tricky

1. Clinical signs vary
From subclinical infection to severe reproductive and respiratory disease.

2. Control is not one-size-fits-all
Different strains and systems require different responses.

3. Farm connectivity amplifies spread
Pig flow, people, trailers, and supplies can link sites.

What does the monitoring data show us today?



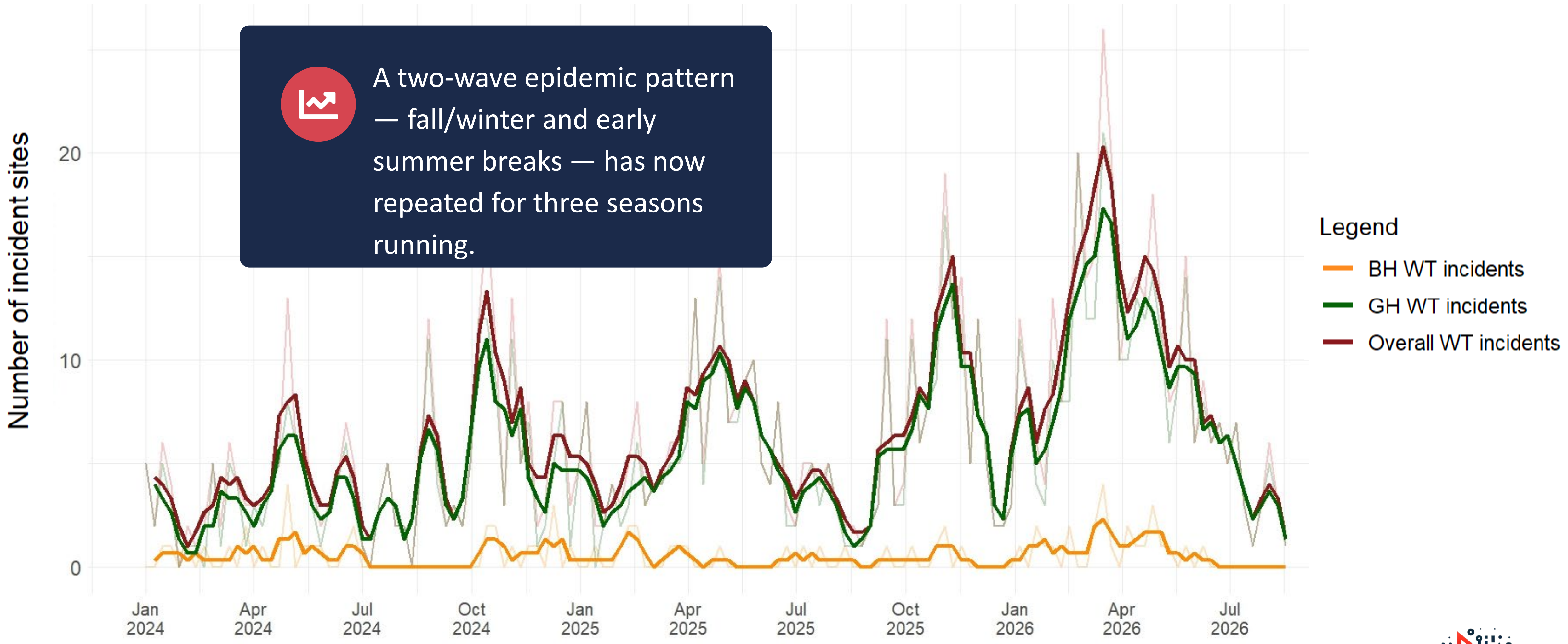
37.6%

of herds in the MSHMP network remain unstable (2024/25 season)

40.4%

of herds remain virus-free

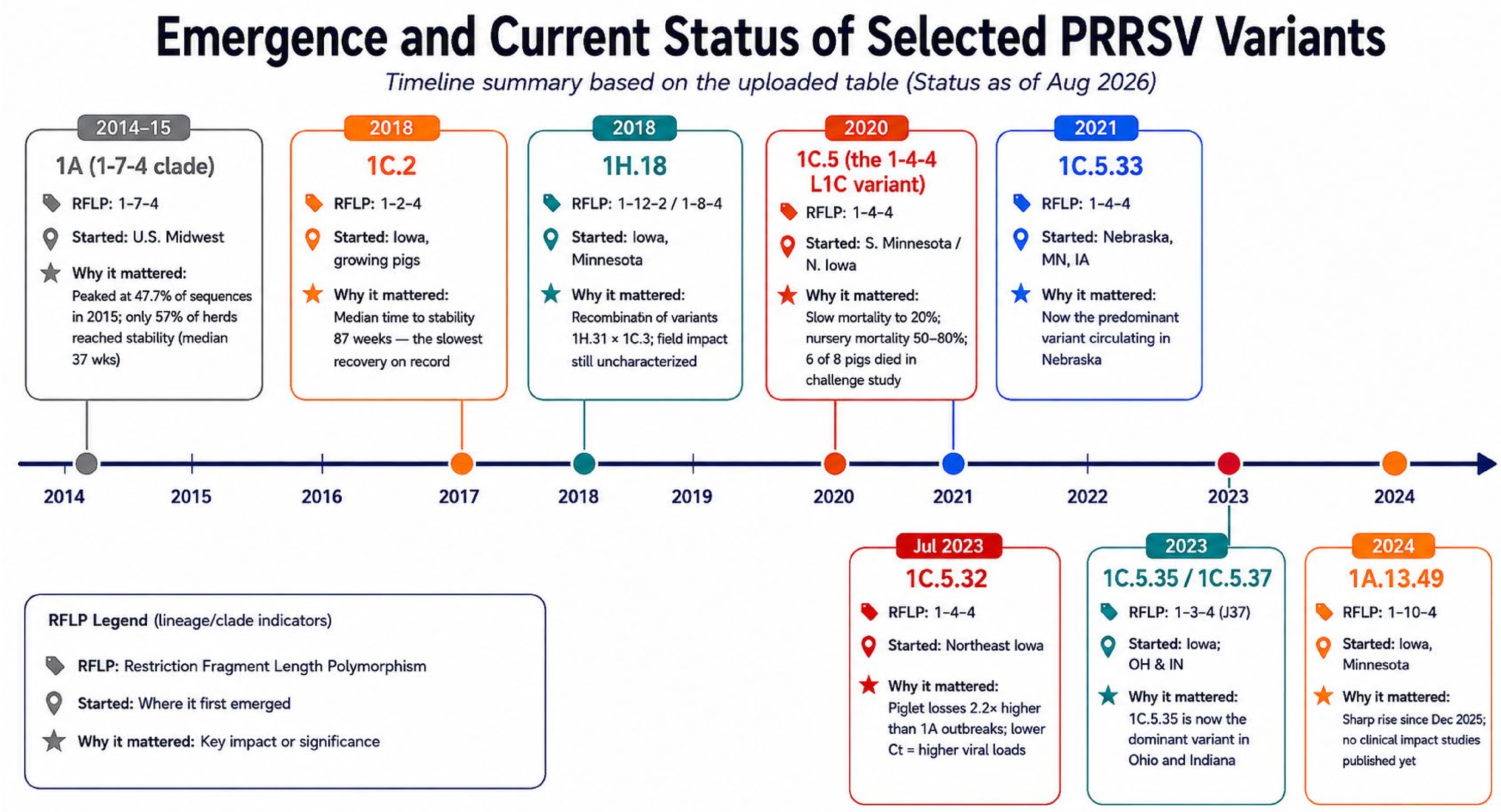
MPP PRIME PRRSV weekly site incidence (last 18 months)



Key take-home messages:

- In the **most recent weeks**, PRRS incidence has increased and is higher than in **previous years**.
- The **current rise is primarily driven by growing herds,** while breeding herds remain relatively low.

PRIME



Source: MSHMP Variants Under Monitoring situation reports (2025–26); Yim-im et al., Microbiol Spectr 2023; PRRS-Loom.

Clinical observations

- Pigs inoculated with 1-4-4 L1C variant strain or 1-7-4 L1A strain became **more lethargic** and were **off-feed faster** than other virus-inoculated groups

Picture at 6 DPI

The strains also had differences in **VIREMIA** and **viral SHEDDING**.

Source: Dr. Jianqiang (JQ) Zhang (ISU)

Not all PRRSV strains are equal

Some strains persist longer than others at warmer temperatures

All 10 strains survived at least 35 days at 4°C.

Strain	Room temperature (~20–25°C) *Days of survival*	37°C *Days of survival*
1-8-4	7 days	3 days
1-4-4 MN	7 days	3 days
1-4-4 SD	3 days	3 days
Lelystad	3 days	3 days
VR-2332	3 days	1 day
1-4-2	1 day	1 day
1-26-2	1 day	1 day
ATP vaccine	1 day	1 day
2-5-2 vaccine	1 day	1 day
1-7-4	1 day	1 day

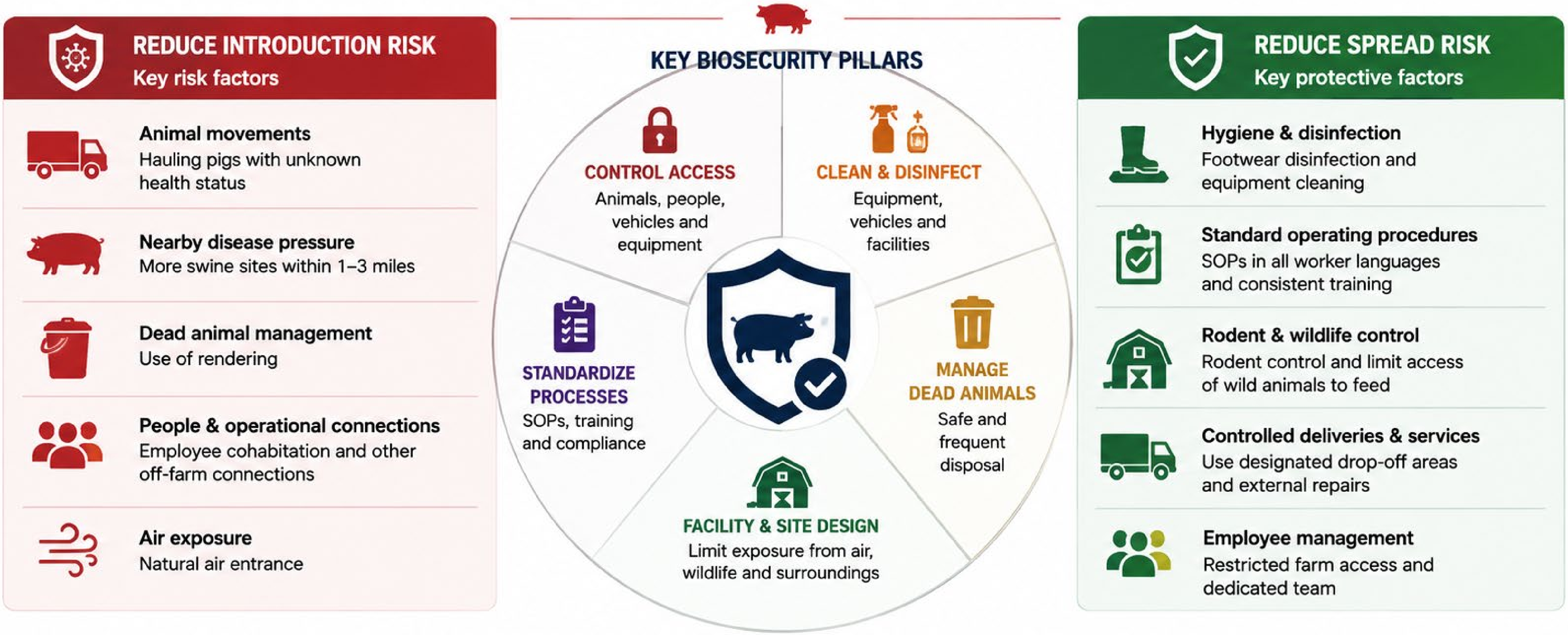
More environmentally stable

- 1-8-4
- 1-4-4 MN
- 1-4-4 SD
- Lelystad

Source: Lugo Mesa V et al. Survival of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) in the Environment. *Veterinary Sciences.* 2024;11:22. https://doi.org/10.3390/vetsci11010022

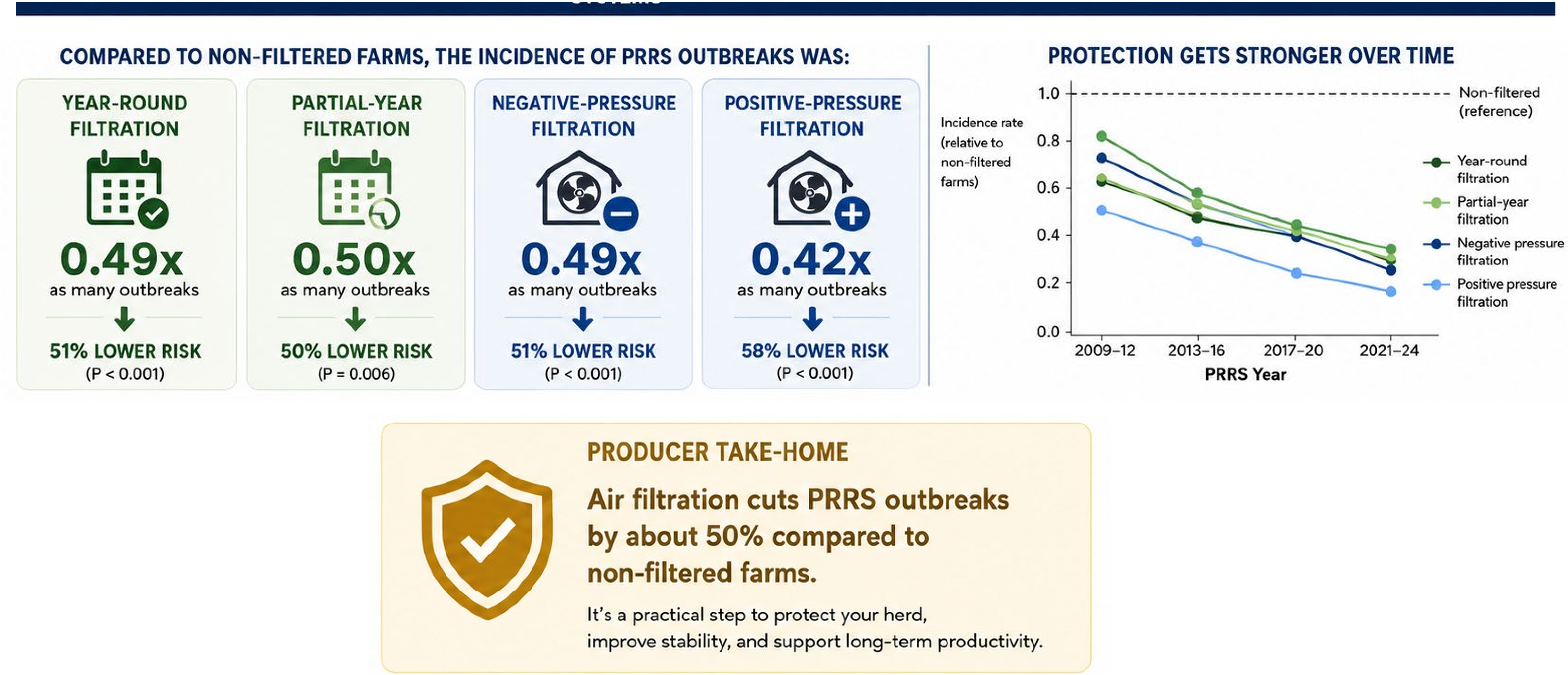
What we are doing?

Biosecurity: key biosecurity aspect to Reduce PRRSV Risk



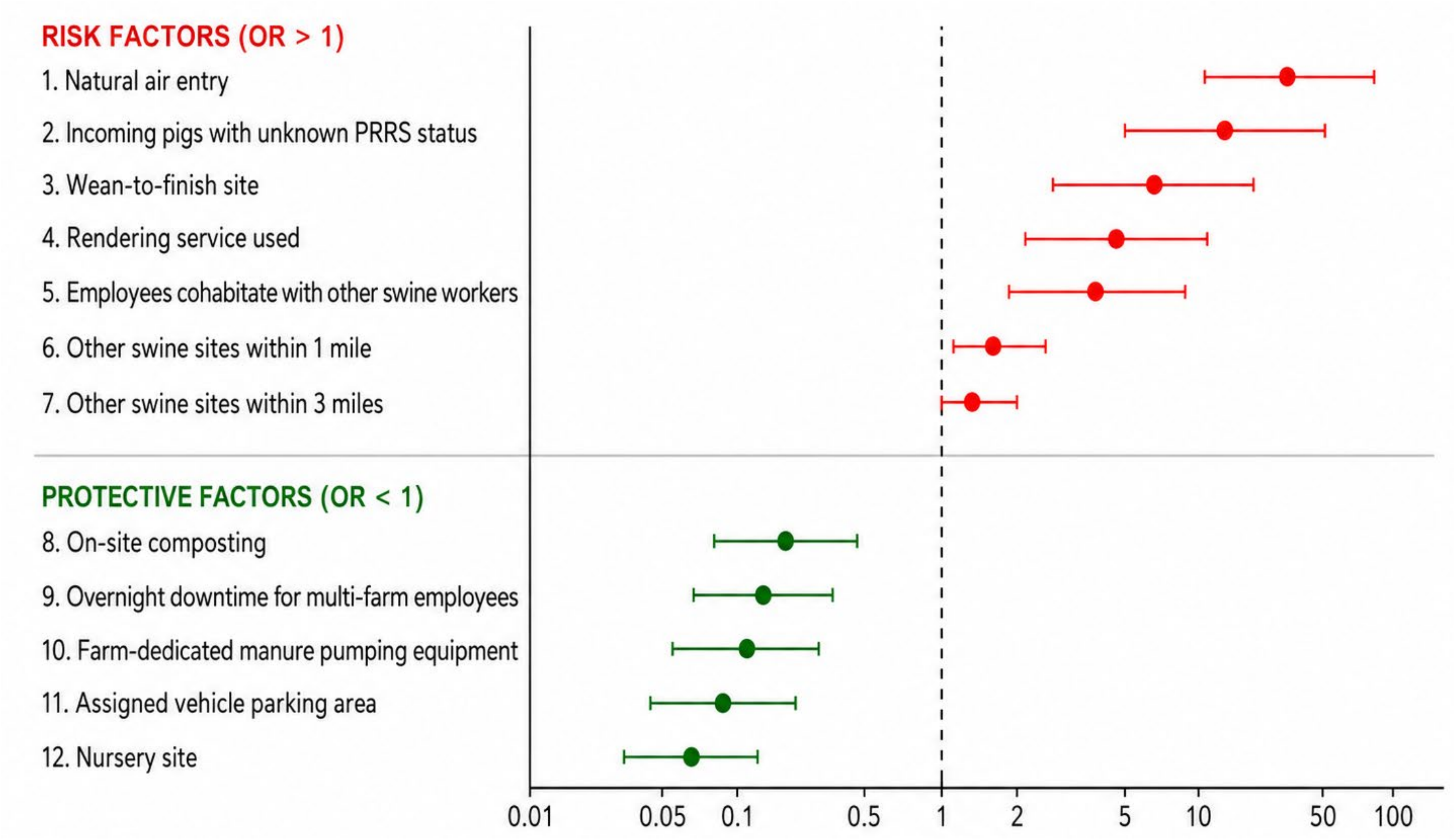
Source: Silva GS. Machine-learning algorithms to identify key biosecurity practices and factors associated with breeding herds reporting PRRS outbreak. Prev Vet Med. 2019 Nov 1;171:104749. doi: 10.1016/j.prevetmed.2019.104749.

Filtration doesn’t eliminate PRRS risk — but over the long term, filtered sow farms experienced roughly half the outbreak rate.



Source: Yue X et al. 2026. Sixteen-year longitudinal study assessing the effects of air filtration on the occurrence of porcine reproductive and respiratory syndrome in breeding herds. *Animal*. 20:101834.

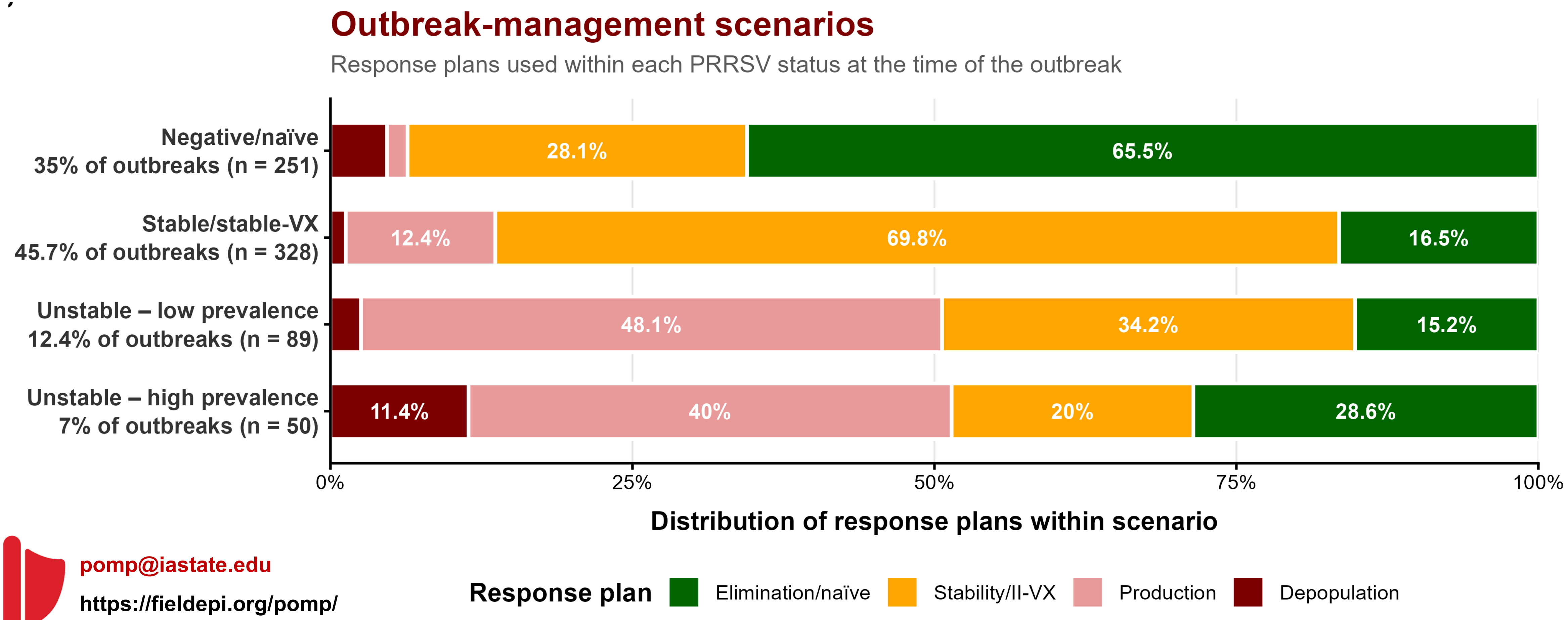
Biosecurity: grow-finish priorities



Source: Musskopf, M. et al. Assessment of the Relationship Between Bioexclusion Practices Applied in Wean-to-Harvest Sites and PRRS Outbreaks. *Vet. Sci.* **2025**, *12*, 1000. https://doi.org/10.3390/vetsci12101000

Outbreak Management in Breeding Herds

PRRSV outbreak management program: an ongoing epidemiological platform gathering data and providing insights related to the onset, response, and recovery from PRRSV outbreaks (n=733).



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Analyses of herd characteristics and interventions on the impact of time to stability and piglet losses

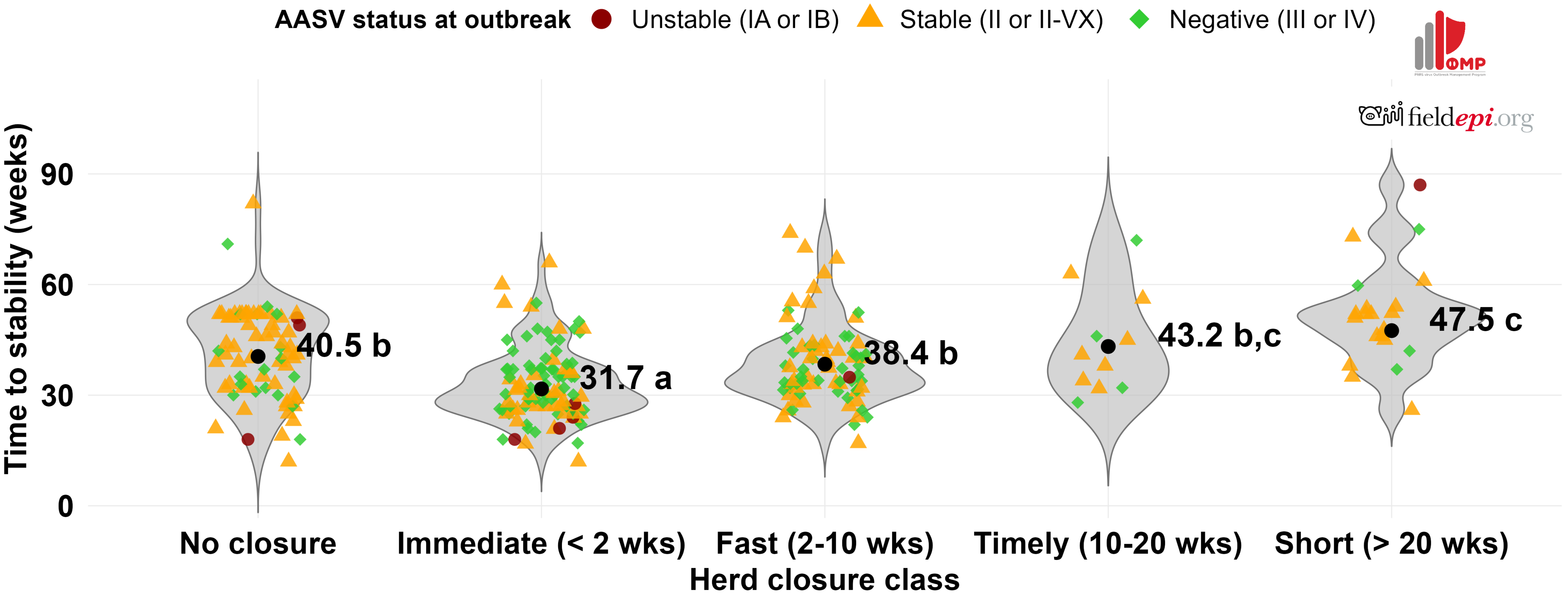
Time to stability

- Herd closure had **faster** TTS compared to not doing it (HR 2.52, 95% CI: 1.67–3.80, *p* = 0.001).
- LVI had **faster** TTS compared to MLV (HR 2.16, 95% CI: 1.41–3.32, *p* = 0.002)

Piglet Losses adjusted per 1,000 sows

- 1AB and 2/2VX had **lower** losses compared to 3/4
  - IAB (22% lower, 0.78, 95% CI: 0.62–0.99, *p* = 0.039)
  - 2/2VX (27% lower, 0.73, 95% CI0.62–0.87, *p* = 0.001)
- Lineage L1C.5 had **higher** losses compared to L1A (69% higher, 1.69, 95% CI: 1.28–2.24, *p* = 0.001)
- LVI had **higher** losses compared to MLV (32% higher, 1.32, 95% CI: 1.07–1.64, *p* = 0.010)

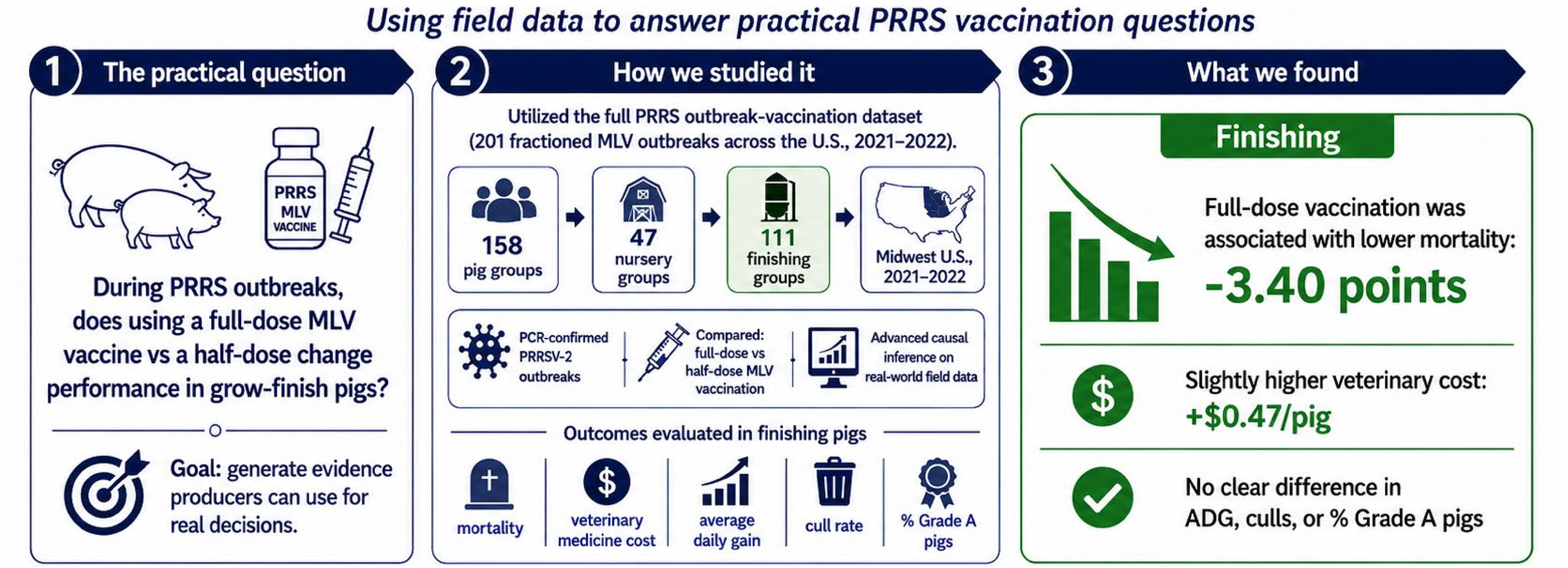
Impact on Time to Stability given Herd Closure:



Violin width represents the distribution density of the y-axis variable. Colored dots represent raw observations by AASV status at outbreak.
Herd closure class reflects the number of weeks after outbreak onset that closure was initiated.
a, b, c: different letters denote a significant difference (P < 0.05).
Adjusted means controlling for status at the break, lineage, immunological solution, and company.

WHAT WE'RE DOING?

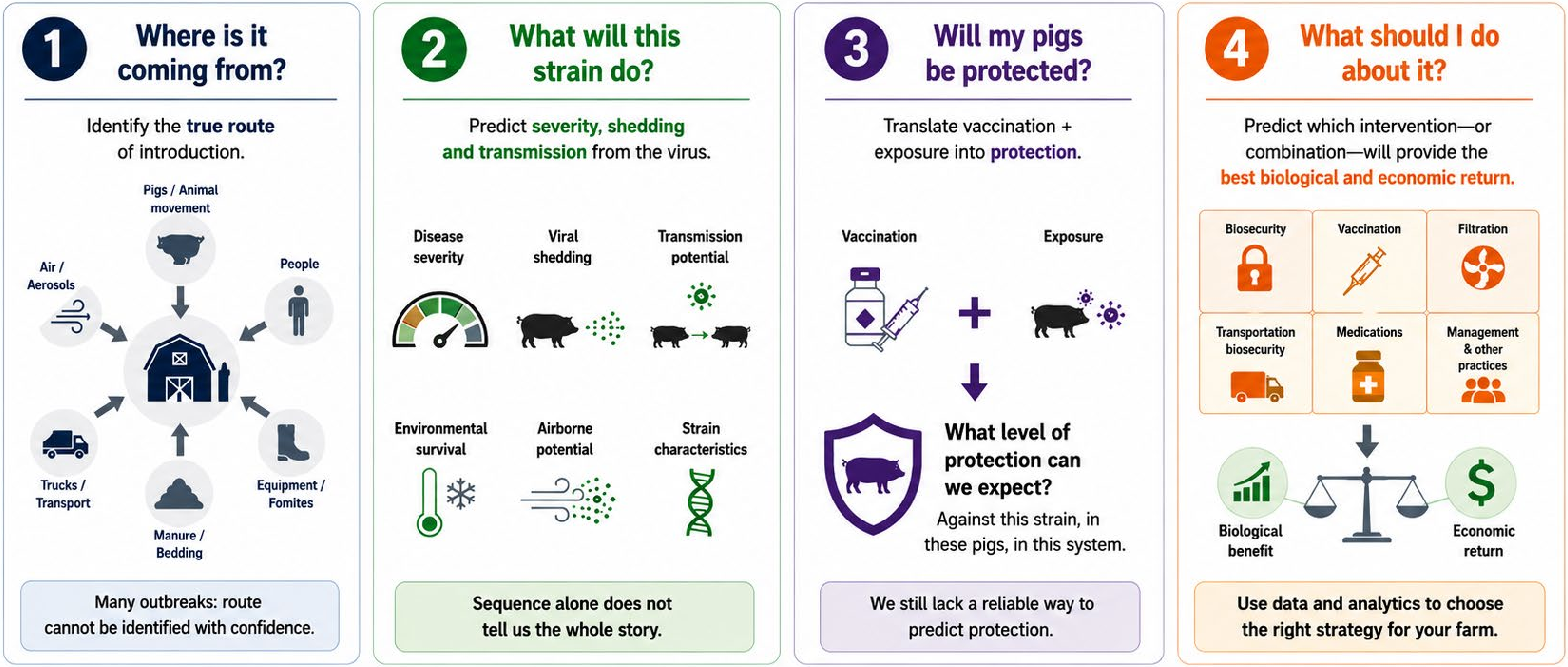
MLV use post-weaning in the face of lateral breaks



Source: Jayaraman et al (2025). Causal inference study of PRRSV-MLV vaccine dosing effects on wean-to-finish performance during outbreaks. *Frontiers in Veterinary Science, 12*, 1575029. https://doi.org/10.3389/fvets.2025.1575029

What do we still need to know?

What we still need to know about PRRSV



BRINGING IT TOGETHER

Take-home messages

New variants move fast — and reach good farms too

1C.5.32 spread like 2020-21's L1C.5 and penetrated high-biosecurity herds. Filtration still works, but only with rigorous, audited maintenance.

Grow-finish is now a first-class risk

Higher positivity, faster variant turnover — it needs sow-farm-level biosecurity discipline, not an afterthought.

Know what's in your acclimation material

Unscreened LVI can carry multiple PRRSV strains and other pathogens. Standardize it, screen it, or use MLV.

The future is proximity-aware and continuous

Tools like PRIME point toward real-time, neighborhood-level risk prediction — that's where we need to keep investing.

Thanks!

MPP
Modern Protein Partnerships

PRIME

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