Presence of seronegative sows after routine vaccination against Porcine Reproductive and Respiratory Syndrome (PRRS)

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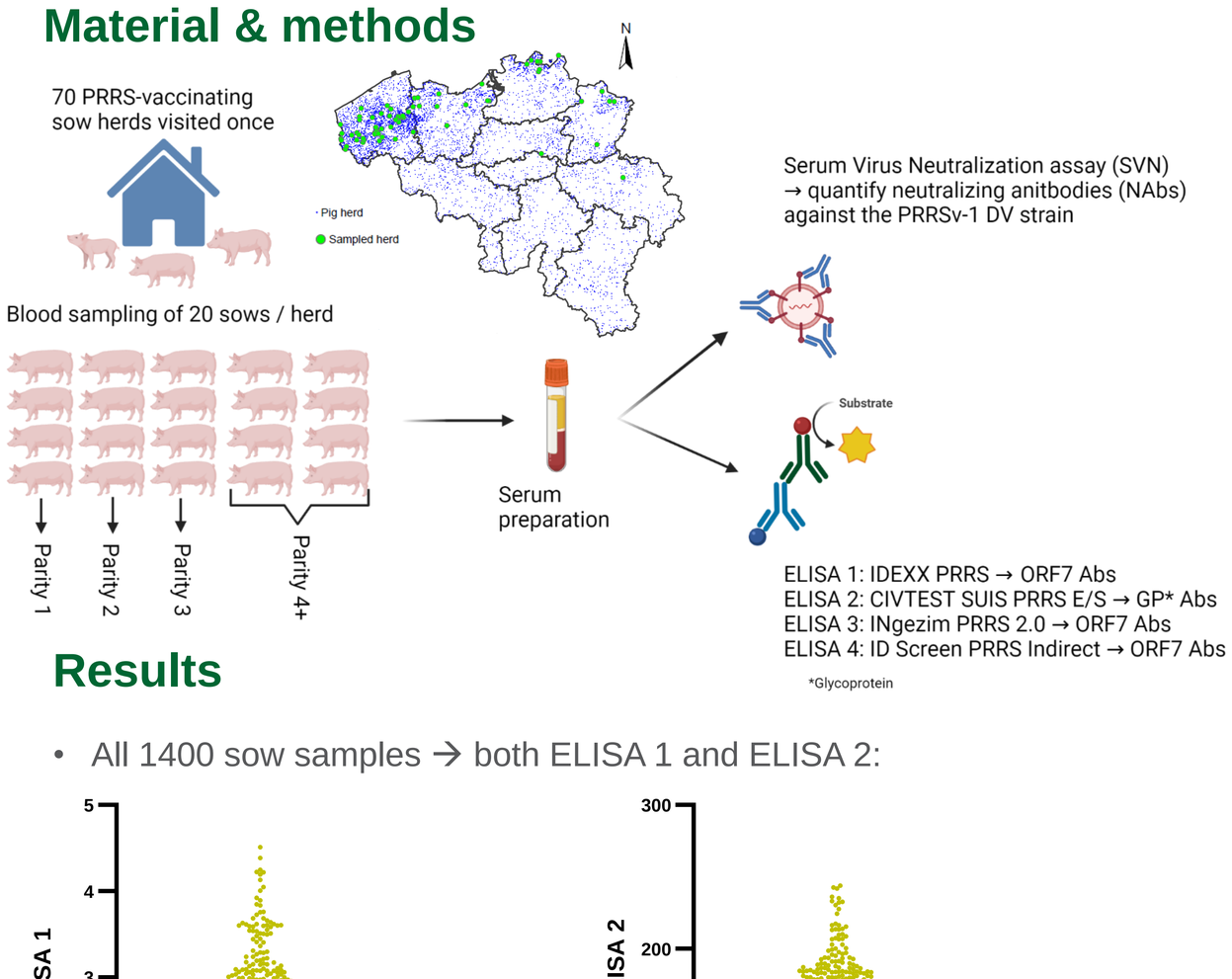
Introduction

- **Porcine Reproductive and Respiratory Syndrome (PRRS) causes major production and economic losses in the worldwide swine industry**
- **Sow and/or piglet vaccination against the PRRS-virus is widely used to prevent and control disease**
- **Vaccination effectiveness is suboptimal: disease outbreaks occur despite routine vaccination**

Objective

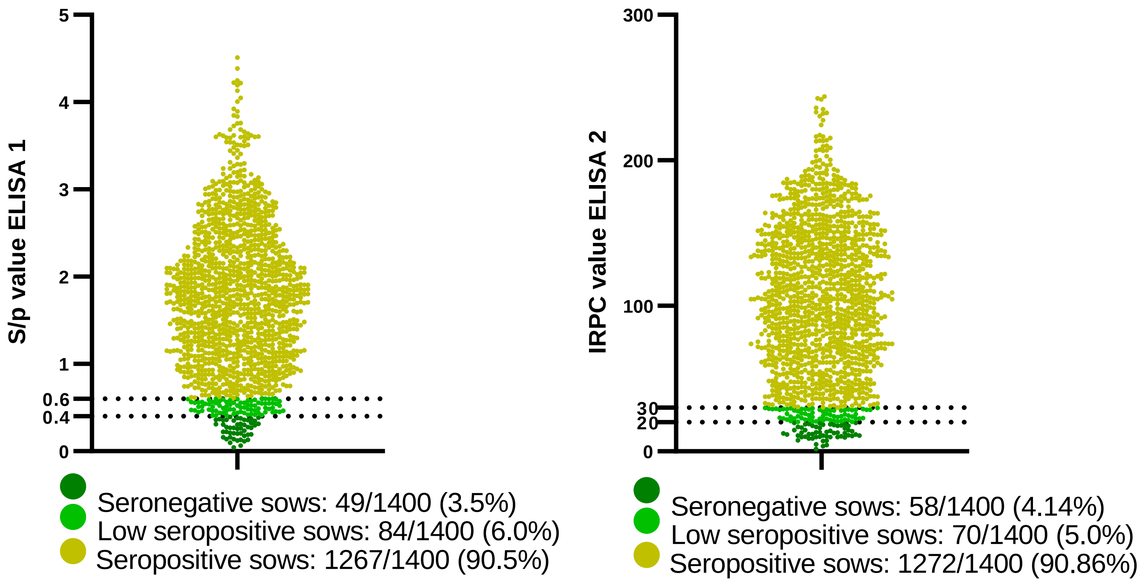
To assess the presence of non-responding sows: sows who remain PRRS-seronegative despite being routinely PRRS-vaccinated.

Material & methods



Results

- All 1400 sow samples → both ELISA 1 and ELISA 2:



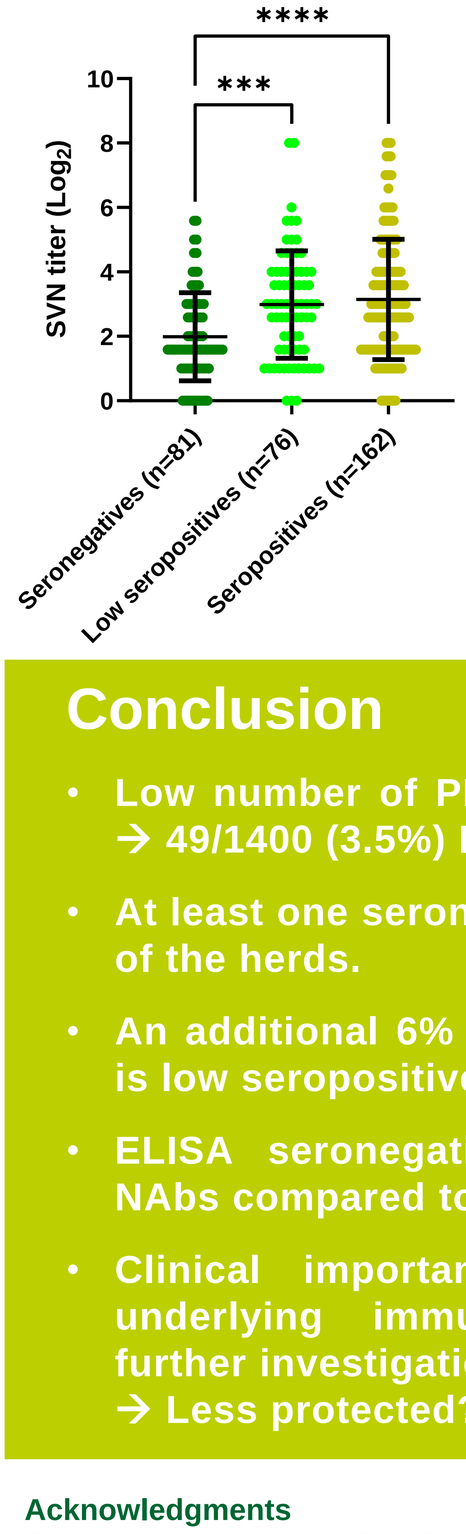
Seronegatives per herd: ELISA 1 → 1 to 4 ; ELISA 2 → 1 to 6
At least one seronegative sow in 28/70 (40%) of the herds.

- ELISA 1 and/or ELISA 2 seronegative sows → analysed on ELISA 3 and 4

	n	ELISA 3 seronegatives (%)	ELISA 4 seronegatives (%)
ELISA 1 (-) ELISA 2 (-)	23	22 (95.7)	21 (91.3)
ELISA 1 (-) ELISA 2 (+)	26	25 (96.1)	24 (92.3)
ELISA 1 (+) ELISA 2 (-)	35	30 (85.7)	27 (77.1)

- Selection of 319 samples → SVN testing.

Results shown as individual values with mean ± SD as error lines.



ELISA seronegative sows have significantly less NAbs (1.99 ± 1.37 Log_2) than ELISA low seropositive sows (2.99 ± 1.67 Log_2) and seropositive sows (3.15 ± 1.87 Log_2

Discrepancy between ELISA and SVN?
→ 43.2% of the ELISA seronegatives have SVN titers ≥ 2 Log_2.

***p-value<0.001
****p-value<0.0001

Conclusion

- **Low number of PRRS-vaccinated, seronegative sows → 49/1400 (3.5%) IDEXX and 58/1400 (4.14%) CIVTEST.**
- **At least one seronegative sow (on 20 sampled) in 40% of the herds.**
- **An additional 6% (IDEXX) and 5% (CIVTEST) of sows is low seropositive → values just above the cut-off.**
- **ELISA seronegative sows have significantly less NAbs compared to the ELISA (low) seropositive sows.**
- **Clinical importance of the non-responders and underlying immunological mechanisms warrants further investigation**
  → Less protected? Consequences for progeny?

Acknowledgments
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