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# Increased piglet losses upon exudative epidermitis

# A CASE REPORT

11th ECPHM Resident Workshop  Heinrich Kreutzmann  10 May 2022

Pictures: University Clinic for Swine/Vetmeduni

**Farm characteristics**

Conventional German piglet-producing farm with 350 breeding sows

- The farm buildings are 30-years-old and in good structural condition; North Rhine-Westphalia.
- Danish genetics, gilts are produced on site.
- Two-week-batch farrowing interval with 21-days suckling period.
- Half of the piglets are sold with ~30 kg to a finishing farm; the others are fattened on site.
- Semen is obtained from a conventional high-health boar stud.


Pictures: Tierarztpraxis am Kapellhof

## Farm characteristics

Vaccination scheme and treatments during the suckling period

- *Mid-gestation:* **PPV1** *and* ***E. rhusiopathiae***
- *6/60:* **PRRSV1 MLV**
- *Every 4 months:* **Influenza A** (H1N1, H1N2 and H3N2)
- *Every 12 months:* **PCV2**

- Initial immunization in gilts (twice)

- 3-4 days after birth:
  **iron**; **PRRSV1 MLV**
- At weaning:
  ***M. hyopneumoniae*** and **PCV2**


Pictures: Tierarztpraxis am Kapellhof

## Production data

**2020**

- > 35 weaned piglets/sow/year
- < 8 % suckling piglet losses
  - 87 % within the first three days of life
- < 1 % nursery piglet losses

**Beginning of 2021**

- ~ 10 % of suckling piglets at the head and neck
  - Local reddened maculae with erosions/ulcerations and squamous areas
  - Blackish-squamous/encrusted skin lesions
  - Exudate
- Individual nursery piglets and sows were also affected

## Clinical observations (beginning of 2021)



**Table 17.1** Differential diagnosis of skin lesions by location.

| Location | Lesions and signs | Diseases |
|---|---|---|
| Head and neck | Macules, pustules, greasy exudate (seborrhea), crusts; in suckling pigs and weaners | Exudative epidermitis (*S. hyicus*) |
| | Pustules, crusts, and abscesses | Streptococcosis |
| | Plaques, pustules, crusts, alopecia with pruritus; ear pinnae common | Sarcoptic mange |
| | Pustules, erosions, necrosis, crusts below the eye, cheek, and lips in suckling piglets | Facial necrosis |
| | Edema: palpebral, forehead; in weaners and young growers | Edema disease (*E. coli*) |
| | Edema of the head and throat; injection site necrosis | Malignant edema (*Clostridium* sp.) |
| | Vesicles, pustules, erosions on the snout, lips, mouth, and tongue | Vesicular diseases; *Senecavirus A*; other viruses; idiopathic |
| | Multifocal vesicles, erosions, "spots" of black crusts | Swinepox; poxviruses |

Torrison and Cameron 2019

## Diagnostic observations – Cultivation and agar disk diffusion test

Swabs of moist, affected areas of skin taken after removing the overlying crust

| | Suckling piglet *Staphylococcus* spp. | Nursery piglet *Staphylococcus* spp. | Nursery piglet *Staphylococcus* spp. |
|---|---|---|---|
| Ampicillin/amoxicillin | S | S | S |
| Amoxicillin with clavulanic acid | S | S | S |
| Procaine penicillin with neomycin | S | S | S |
| Cefquinome | S | S | S |
| Enrofloxacin | R | R | S |
| Florfenicol | R | R | S |
| Gentamicin | S | S | S |
| Lincomycin with spectinomycin | R | R | R |
| Tetracyclin | R | R | R |
| Trimethoprim with sulfamethoxazole | S | S | R |
| Tulathromycin | R | R | R |

## Next weaning group

50% of nursery piglets affected
10% nursery piglet losses



## Pathological examination

- 3 nursery piglets

- Subacute to chronic exudative epidermitis with a massive generalized dermatitis

- Lymph node: PCV2 PCR negative
- Organpool: ASFV, CSFV, SHV1 PCR negative

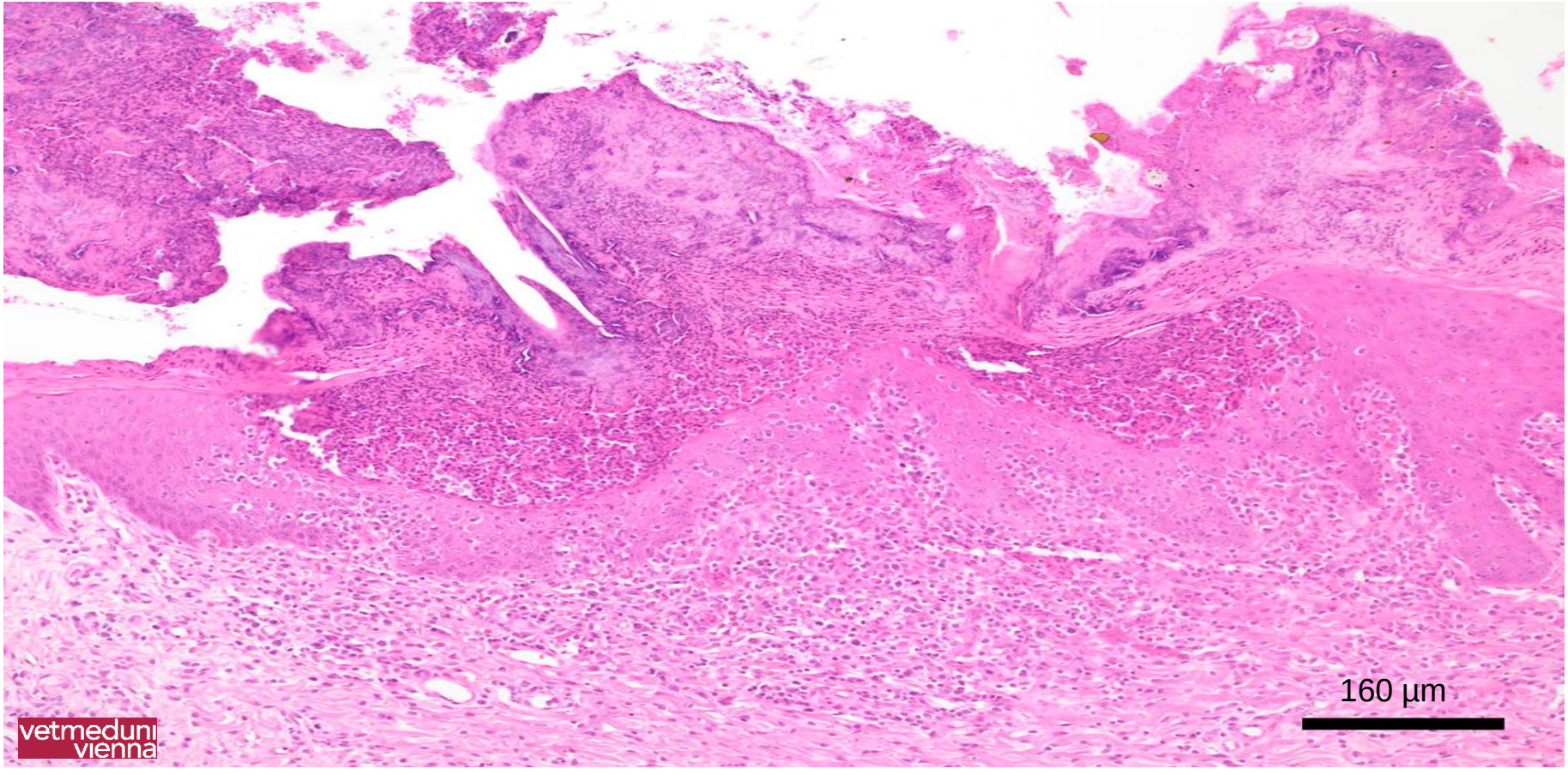
- Lung: PRRSV1 PCR of one piglet positive (Ct 29), ORF5:
  99 % nucleotide identity with vaccine strain

- *Staphylococcus hyicus* in all piglets
  Swabs of moist, affected areas of skin taken after removing the overlying crust

- *exhA*, *sheta* positive

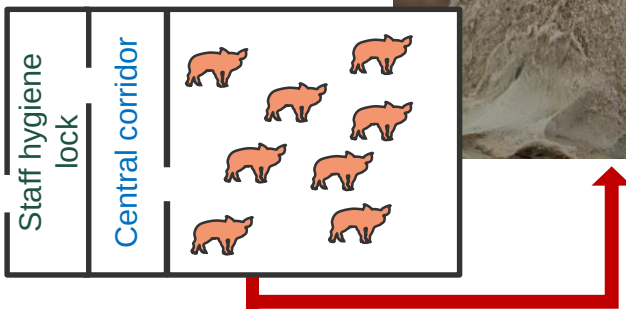
- MIC-testing: sensitive to
  - Amoxicillin with clavulanic acid
  - Ceftiofur
  - Tiamulin
  - Trimethoprim with sulfamethoxazole

## Histological investigation (10 x; H&E)

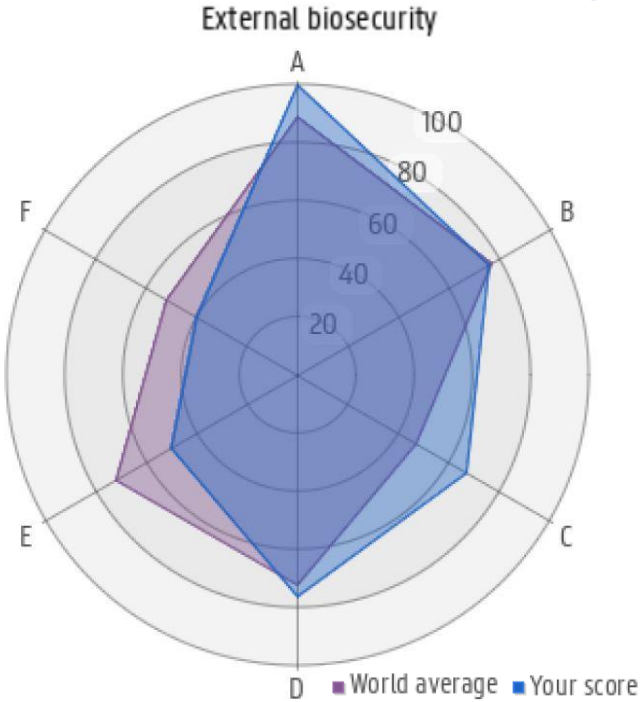


**Follow up I**
Evaluation of the external biosecurity

- A: Purchase of breeding pigs, piglets and semen
- B: Transport of animals, removal of carcasses and manure
- C: Feed, water and equipment supply
- D: Visitors and farmworkers
- E: Vermin and bird control
- F: Location of the farm



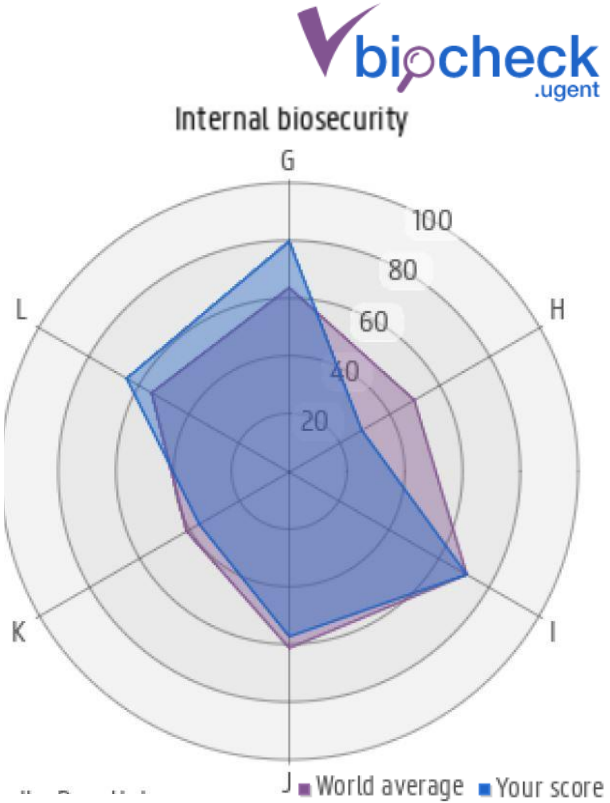



https://biocheck.ugent.be/en
Laanen et al. 2010; Filippitzi et al. 2018

**Follow up II**
Evaluation of the internal biosecurity

- G: Disease management
- H: Farrowing and suckling period
- I: Nursery unit
- J: Finishing unit
- K: Measures between compartments, working lines and use of equipment
- L: Cleaning and disinfection

X Cross-fostering over the whole suckling period.
X Materials for treatment are not regularly cleaned and disinfected between piglets.
X Minimum 3x piglet manipulation between birth and weaning
teeth grinding and iron injection
castration, tail docking and PRRSV1 MLV vaccination
*M. hyopneumoniae* and PCV2 vaccination




https://biocheck.ugent.be/en
Laanen et al. 2010

**Follow up III**
Autogenous vaccination to enhance immunity

- All gilts and sows of the farm were vaccinated twice at an interval of 3 weeks and boosted again 3 weeks before farrowing.

- In addition: adaptation of internal biosecurity in the farrowing and suckling period.

Performance data improved; achievement of levels prior to the disease outbreak within five months.

Arsenakis et al. 2018

## Discussion

- **Lesions in the stratum corneum** are predisposing factors for exsudative epidermitis. Frana and Hau 2019
  - Cross-fostering; intramuscular injections; tail docking, teeth grinding; castration.
- Evaluation using Bio-check.UGent™ revealed below-average vermin and bird control, so **mechanical vectors for introduction of new strains** cannot be ruled out. Filippitzi et al. 2018
- **Poor internal biosecurity** in the farrowing and suckling period may have lead to a spread of *Staph. hyicus.*
- The combination of **internal biosecurity measures** and administration of **an autogenous *Staph. hyicus* vaccine** to gilts and sows helped improve production data and reduce clinical signs of the disease over time. Arsenakis et al. 2018

## Literature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# Thank you!

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**The herd-attending veterinarian and the farmer for the excellent cooperation!**

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