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Molecular detection of hepatitis E Virus in Austrian pig farms

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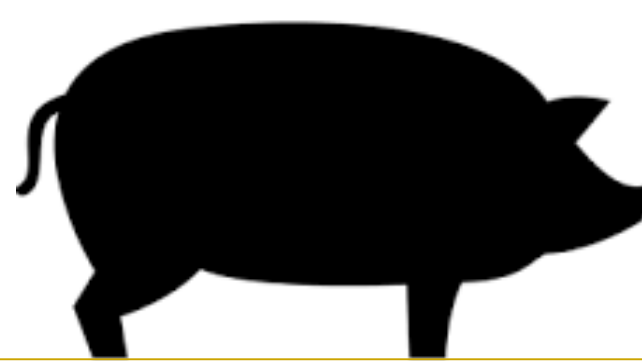
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Introduction

hepatitis E Virus (HEV) genotype 3 and 4 are zoonotic agents that can cause hepatitis in humans



Pork consumption per person in Austria is one of the highest in Europe.



Pigs are a reservoir for genotypes 3 and 4. The infection is mostly asymptomatic



Humans can get infected by consuming raw/undercooked pork or wild boar products or by direct contact with infected animals

AIM: to determine the presence of HEV RNA in commercial pig farms in different Austrian federal states.

Nearly 95% of the Austrian pig production is located in Upper Austria (2.785.587 pigs), Lower Austria (769.573 pigs), and Styria (732.655 pigs). With 109.935 pigs, Carinthia is the fourth highest populated pig region in Austria (<https://info.bml.gv.at/>).

Material & Methods



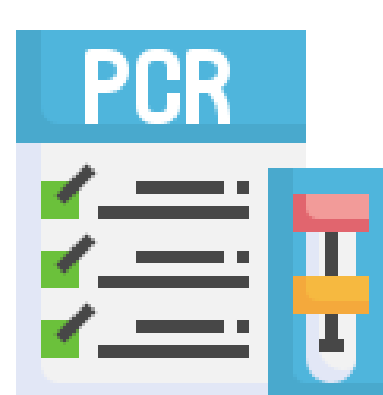
20 pig farms in 4 federal states

- 15 farrow-to-finish
- 3 breeding
- 2 fattening



400 pooled fecal samples

- 20 pooled fecal samples/farm
- From the stable's floor
- Dry sows, gilts and/or finishers
- One pool: 10 pinches of feces



Molecular analysis

- Broad range HEV real-time reverse transcription PCR, designed within the ORF3 gene
- Limit of detection was assessed
- Recovery rate of nucleic acid was determined
- Process control: MS2-bacteriophage

Conclusion

HEV RNA was detected in 35% of the sampled farms

HEV RNA was most frequently detected in **fattening** (100%) and **farrow-to-finish** (33.3%) farms



Most of the HEV-positive samples were obtained from **finishers** of 4 months of age or older (43/50)

Work in progress



Sequencing of HEV-positive samples

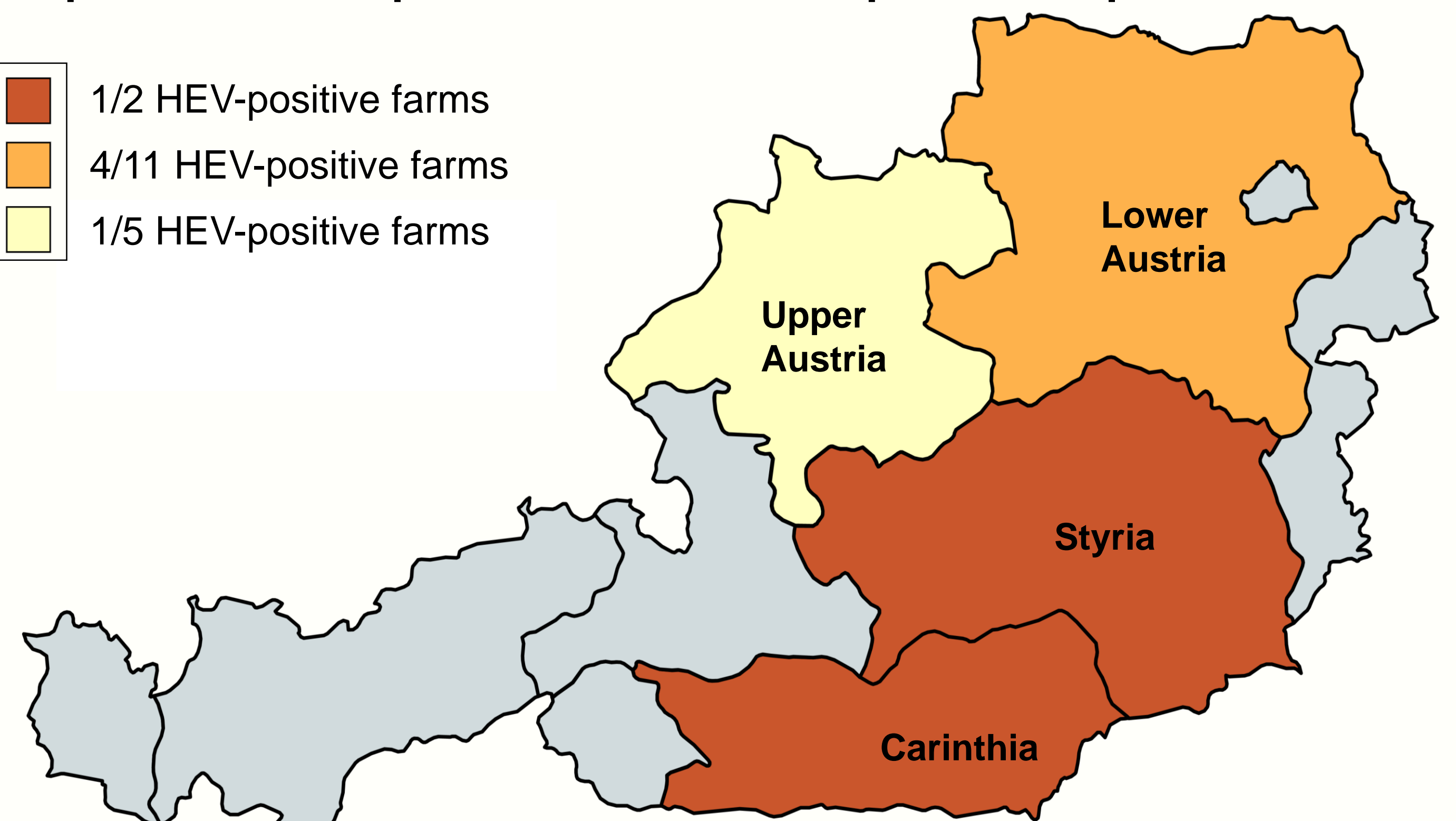


Upload HEV sequences to HEVnet

Generation of phylogenetic trees including other European sequences from the BIOPIGEE project

Proportion of HEV-positive farms on sampled farms per federal state

- 1/2 HEV-positive farms
- 4/11 HEV-positive farms
- 1/5 HEV-positive farms



Federal state	Total sampled farms (HEV-positive farms)	% of HEV-positive farms	Total tested samples (HEV-positive samples)	% of HEV-positive samples
Lower Austria	11 (4)	36.4	220 (44)	20
Upper Austria	5 (1)	20	100 (1)	1
Styria	2 (1)	50	40 (1)	2.5
Carinthia	2 (1)	50	40 (4)	10
Total	20 (7)	35	400 (50)	12.5

Type of farm	Total sampled farms (HEV-positive farms)	% of HEV-positive farms
Farrow-to-finish	15 (5)	33.3
Breeding	3 (0)	0
Fattening	2 (2)	100
Total	20 (7)	35

Production phase	Total samples/production phase (HEV-positive samples)	% of HEV-positive samples/production phase
Dry sows	158 (0)	0
Gilts	32 (3)	9.4
Finishers (4-6 months old)	190 (43)	22.6
Total	400 (50)	12.5

Funding and acknowledgements:

This work was supported by funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 773830: One Health European Joint Programme (Project BIOPIGEE)

We would like to thank all farmers, veterinarians and laboratory workers involved in this project. A special thank goes to René Renzhammer and the colleagues of the Vetmeduni Vienna, with whom we shared long trips and funny moments during the farm visits.