

Composting of wild boar carcasses for the elimination of African swine fever virus in winter time



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Background or why should we wish to compost carcasses

- Wild boar carcasses constitute an important source of virus transmission for wild boar (and free/scavenging pigs)
- Safe disposal is of outmost importance and must be an integral part of control measures
- Best option: animal by-products processing plant (commercial rendering)
- Not all countries have such facilities and in some cases, locations are remote and/or difficult to reach, transport infrastructure difficult
- In these cases, other safe disposal options are needed
- Rendering, burning, and burial are considered safe options
- Burning and burial can have severe disadvantages, i.e. environmental concerns, problems with the habitat and/or climate
- Composting as option
- Was tried with success for other pathogens such as PRRSV and PEDV



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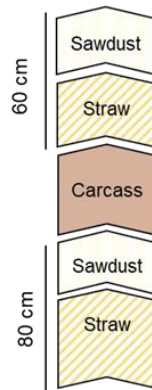
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Two studies conducted from November 2021 to February 2022

- 9 wild boar carcasses obtained by active search in ASF-affected regions, good preservation, ASFV positive
- Studies performed in Kaunas (Centre for Practical Training and Experimentation at the Lithuanian University of Health Sciences)
- Compost piles consisting of wheat straw piles in combination with sawdust



Study 1: 3 uncut carcasses, 2 piglets, 1 sow
Sampling in weekly intervals: bone marrow, kidney, spleen, abdominal fluid, matrix beneath the carcasses.

Trial ended day 112

Study 2: 6 wild boar carcasses, pre-cut into relevant pieces (cut at articulation level, organs cut into 7 pieces). Pieces were connected to cords to retrieve the samples. Sampling at days 1, 3, 8, 15, 22, and 29. Trial ended day 87 to 92).

Weather conditions and pile temperature were recorded.



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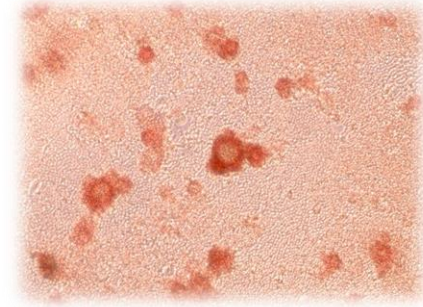
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Sample processing and testing:

PCR at the NRL for ASF in Lithuania

Virus isolation at the FLI with one blind passage in PBMCs following by read-out in hemadsorption tests.



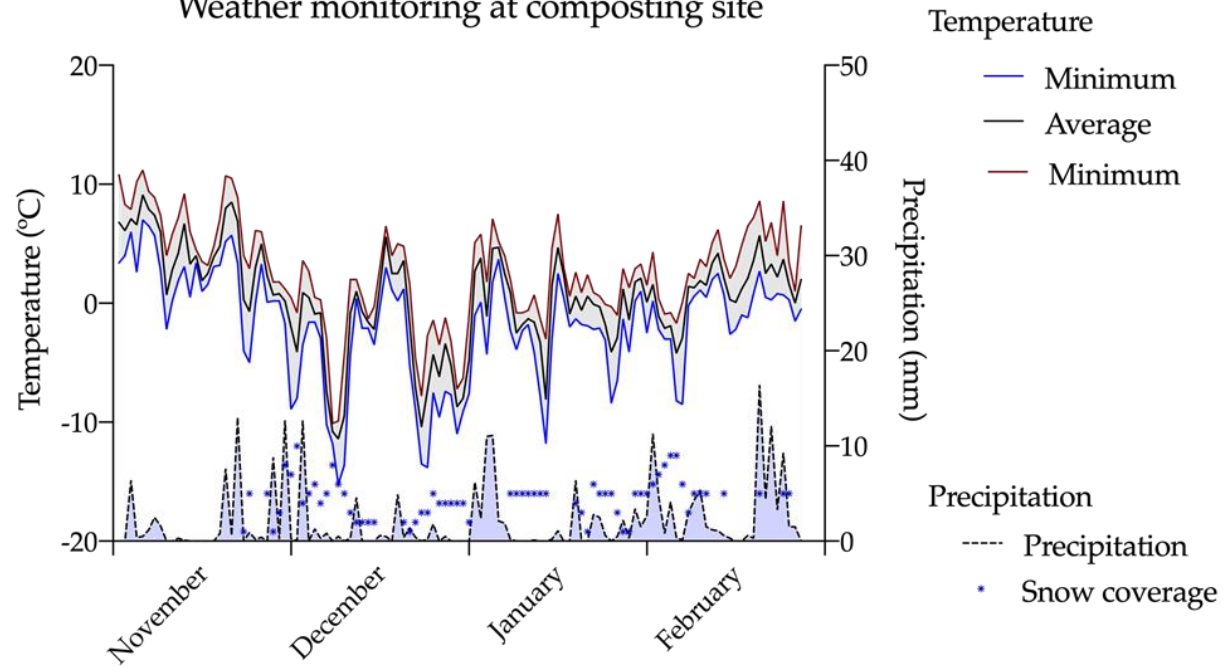
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Weather monitoring at composting site



	Air temperature (°C)			Precipitation (mm)	Snow coverage (cm)
	Mean	Maximum	Minimum	Mean	Mean
November	4.2	11.2	-8.9	2.0	2.3
December	-3.1	6.5	-15.2	1.2	4.0
January	0.0	7.5	-11.8	2.2	1.5
February	1.4	7.2	-8.5	3.0	3.5



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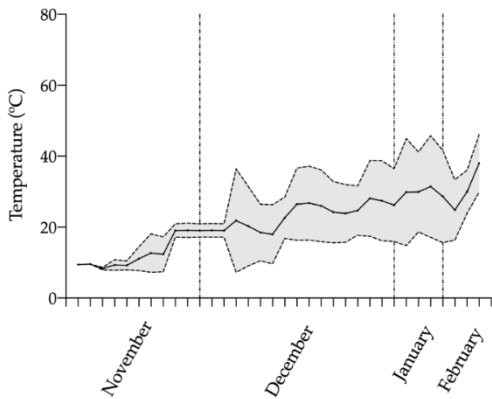
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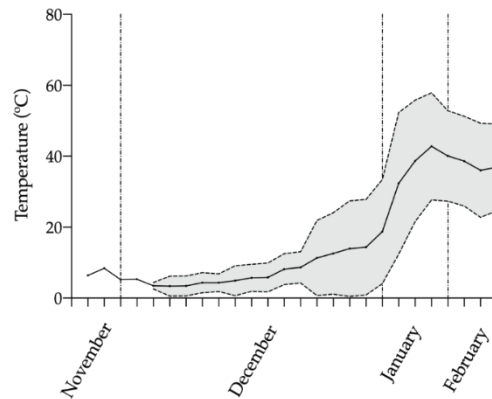
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Positive PCR results over the entire study period
 No positive virus isolations from day 42 (study 1) or 15 (study 2)
 → Inactivation takes place, even in wintertime!

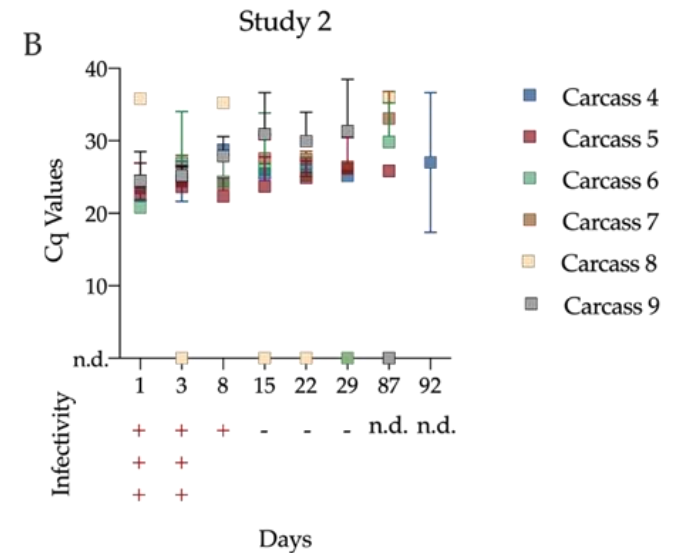
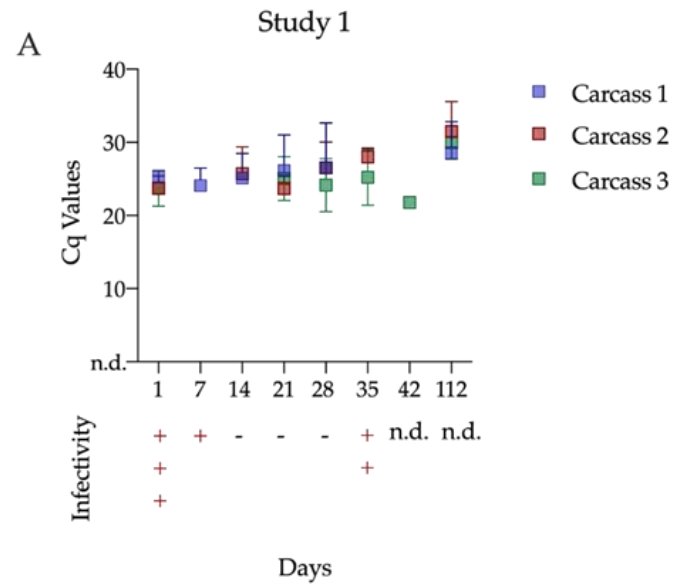
A Temperature monitoring in composting pile
Study 1



B Temperature monitoring in composting pile
Study 2



	Study 1			Study 2		
	Mean	Maximum	Minimum	Mean	Maximum	Minimum
November	13.0	21.0	8.0	6.3	8.4	5.2
December	23.0	40.0	9.3	8.2	42.0	0.6
January	30.0	47.0	17.0	38.0	59.0	11.0
February	31.0	44.0	17.0	37.0	54.0	22.0



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Conclusions and limitations

- Composting is an option to dispose of wild boar carcasses and can be added to the tool box of ASFV control measures
- There is a certain risk of pile destruction by scavengers and predators
- Mitigation by fencing
- Inclusion into the FAO manual?



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Article

Composting of Wild Boar Carcasses in Lithuania Leads to Inactivation of African Swine Fever Virus in Wintertime

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Thanks for your attention!



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