

# THE ECONOMIC SUSTAINABILITY OF BIOSECURITY IN THE PIG SECTOR: A BIBLIOMETRIC AND NETWORK ANALYSIS

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## Introduction

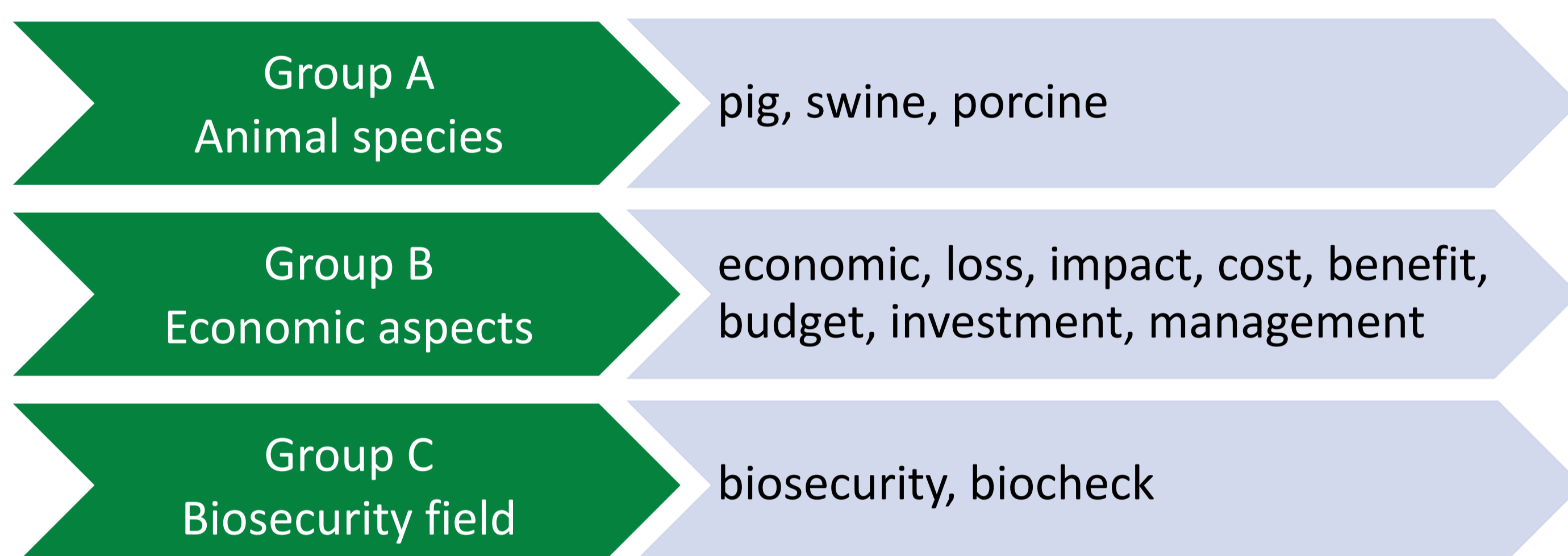
Infectious animal and zoonotic diseases represent a threat for farm productivity, product quality, and human health. Biosecurity measures adoption helps to prevent introduction and spread of diseases in farms but increases management and investment costs, potentially reducing profits.

This study is part of a multi-year PhD research project and is part of the ongoing European HE Project BIOSECURE.

The aim of this poster is to show the results of a bibliometric and network analysis focusing on the economic aspects of biosecurity in swine farms.

## Data collection

The extraction of published studies was run on 22 November 2023 from Scopus, PubMed and ISI-Web of Knowledge. Three groups of keywords were used:



The duplicate documents, the documents with incomplete information and off-topic were discarded.

586 documents were finally selected for the analysis.

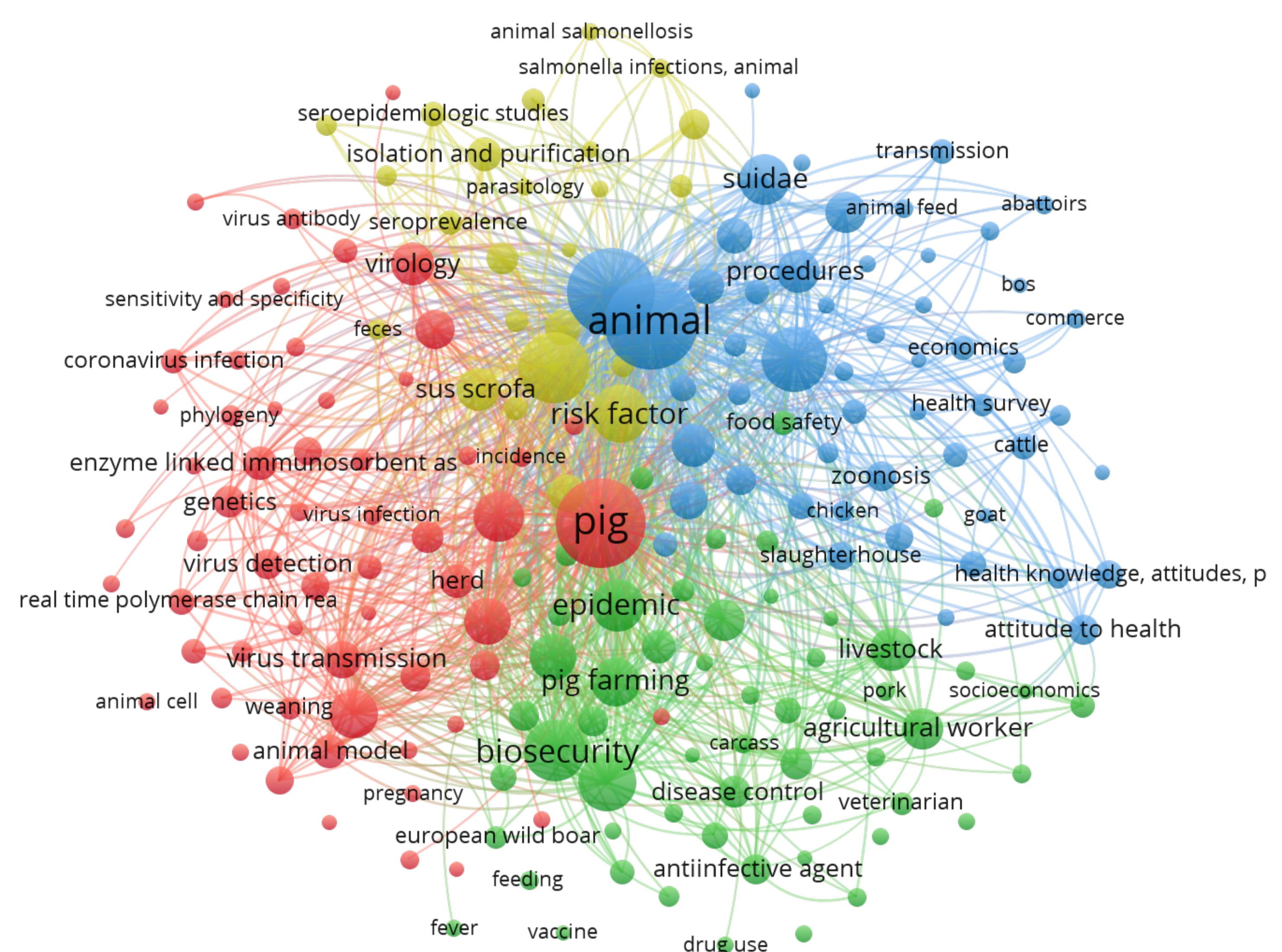
## Bibliometric analysis results

The selected documents were imported, in .csv format, into the R software to obtain a bibliographic data frame.

Main information data			
Documents		586	
Sources (Journals)		193	
Keywords Plus (ID)		3548	
Author's keywords (DE)		1511	
Timespan		1995 - 2023	
Average citations per document		20.75	
Authors		2679	
Author appearances		3609	
Documents per author		0.223	
Co-Authors per document		6.04	
International co-authorship		34.95%	
Annual percentual growth rate		13.89%	
Leading journal for number of published documents			
	Publisher	No. documents	Impact Factor
Preventive Veterinary Medicine	Elsevier	83	2.6
Frontiers in Veterinary Science	Frontiers	43	3.2
Transboundary and Emerging Diseases	Wiley	36	4.5
Top 3 most productive countries (documents and citations)			
	No. documents	MCP ratio	
United States	106	33.1%	
Australia	31	32.3%	
United Kingdom	31	38.7%	

## Network analysis results

The network analysis was performed by using VOSviewer 1.6.14 software. 3,548 total index keywords were chosen, and off-topic keywords were eliminated. The keywords with at least 10 occurrences were included.



Network visualization of keyword co-occurrence analysis

The network analysis points out four clusters of connected topics: swine health and virology (red), biosecurity and socioeconomic impact in swine farming (green), animal disease management (blue), epidemiology and disease studies (yellow).

## Next steps

Studies investigating the economic aspect of improving animal biosecurity are still quite rare. But the sustainability of these measures must be guaranteed also on the economic and social point of view.

There is not a specific journal specialized on the economics aspects of animal biosecurity underlining that the topic is not yet fully explored and investigated, but it emerges an increasing interest for the topic.

The network analysis highlight that the research focusses mainly on epidemiology, virology, diseases and swine health. A holistic approach in swine farms is required to consider also the biosecurity economic aspects.

As part of a multi-year Project, therefore no conclusive results have been reported.

The next steps of this research includes the creation of a content analysis with the main studies focused only on monetary costs of biosecurity.

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