Livestock Welfare Research in South Africa: Brief overview

Prepared for the LWCC

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1. **Background**

On request of the LWCC a literature search was conducted using the available search engines from the Merensky library at the University of Pretoria. The overall aim was to investigate animal welfare as a topic or focus in research conducted among South African researchers. The following objectives were set:

1. To search research reports and or scientific publications where animal welfare was the primary topic of the research.
2. Search for connections among authors/researchers and institutions performing animal welfare research – at local and international level.
3. Asses the keywords with the highest frequency among the papers that relates to animal welfare topics.

This search was broad and there is room for refinement – a systematic review could be considered in future with refined keywords.

2. **Methodology**

A search was performed using available search engines (Scopus) using different combinations of keywords in association with animal welfare. All farm animal species were included with "animal welfare" and "South Africa". Additional keywords were added that relates to welfare of animals such as transport, slaughter practices, abattoirs etc.

Publications were downloaded and imported in Vosviewer (**www.vosviewer.com**) which is a free software developed by the University of Leiden for visualisation of scientific landscapes. Title, keywords and author information can be used to construct and apply bibliometrics to create visual networks.

3. **Results**

In table 1 the key words "animal welfare" and "South Africa" were used in various combinations with 141 articles found that covered general topics where animal welfare was mentioned, but in most of the articles, animal welfare was not the primary focus. In the combinations with specific species, animal welfare was mentioned as part of or an outcome of the production process, transporting of animals and handling/slaughtering at the abattoir.

Among all the authors for these publications a relatively low number published more than two papers on the topic with poor links among the authors.

No time limit was set and the oldest article found was published in 1966.

Table 1 Indicating the number of papers published, number of authors and number of connections between authors when using different keyword groupings.

Keywords	Total number of articles	Total number of authors	Authors with >2 publications	Number of connections between authors	Remarks	Timeframe
"SA" AND "animal welfare"	141	426	38	6	General papers	1981-2024
"SA" AND "animal welfare" OR "welfare AND "cattle" …all species included	51	165	7	0	Government related	1994-2024
"SA" AND "behaviour" AND "cattle"	3	12	0	5 (of the 12 authors)	Production, feeding, effect on milk yield discussed	2017-2023
"SA" AND "sheep" AND "tail docking"	1	Schalk Cloete	0	0		2021
"SA" AND "sheep" AND "welfare"	13	49	0	9 (of the 49 authors)		2001-2024
"SA" AND "cattle" OR "sheep" AND "transport" OR "abattoir"	124	397	62	42	No welfare focus	1966-2024

The parameters for Vosviewer were set for authors with two or more papers and keyword co-occurrence was set at a minimum occurrence of five. Utilising VosViewer to evaluate co-authorship using the keywords "SA" AND "animal welfare" 38 authors published two or more papers, but only 6 were connected (Figure 1).
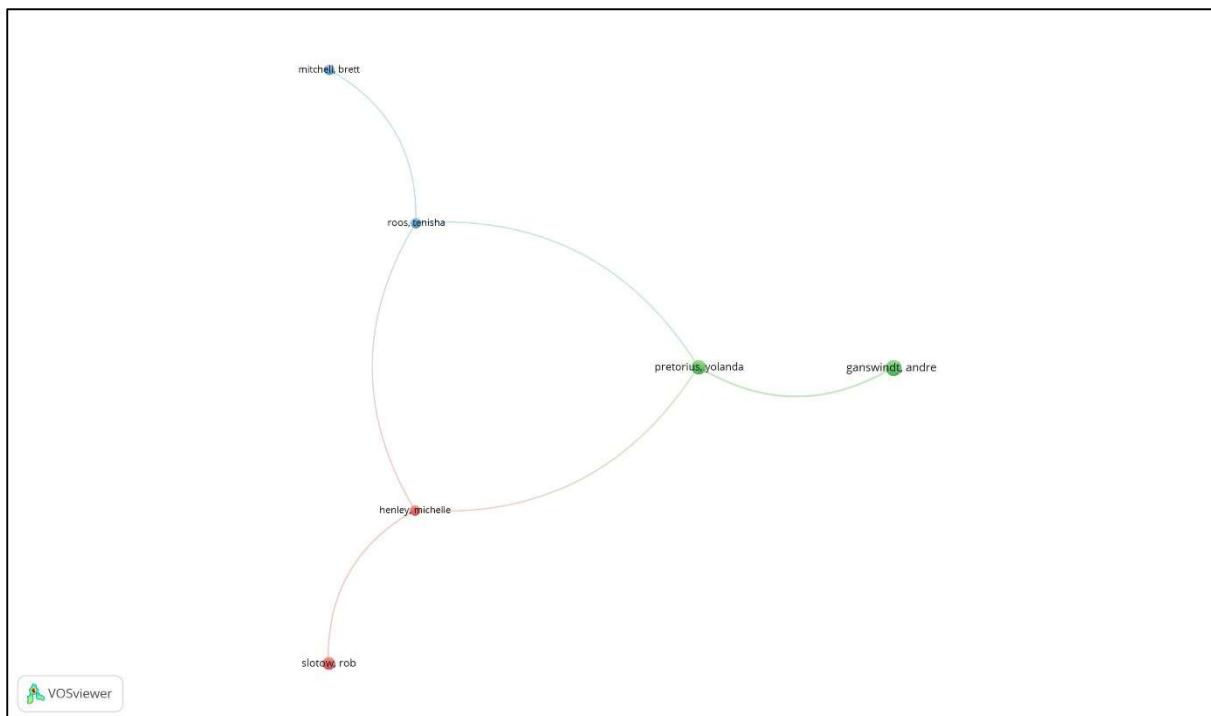
**Figure 1** The connected authors in South African animal welfare research.

VosViewer was used to evaluate co-authorship, using the keywords "SA" AND "animal welfare" OR "welfare" AND "cattle" OR "sheep" OR "goats" OR "pigs", the graphic created is below in Figure 2. Seven authors wrote at least two papers each, but there were no connections between them.
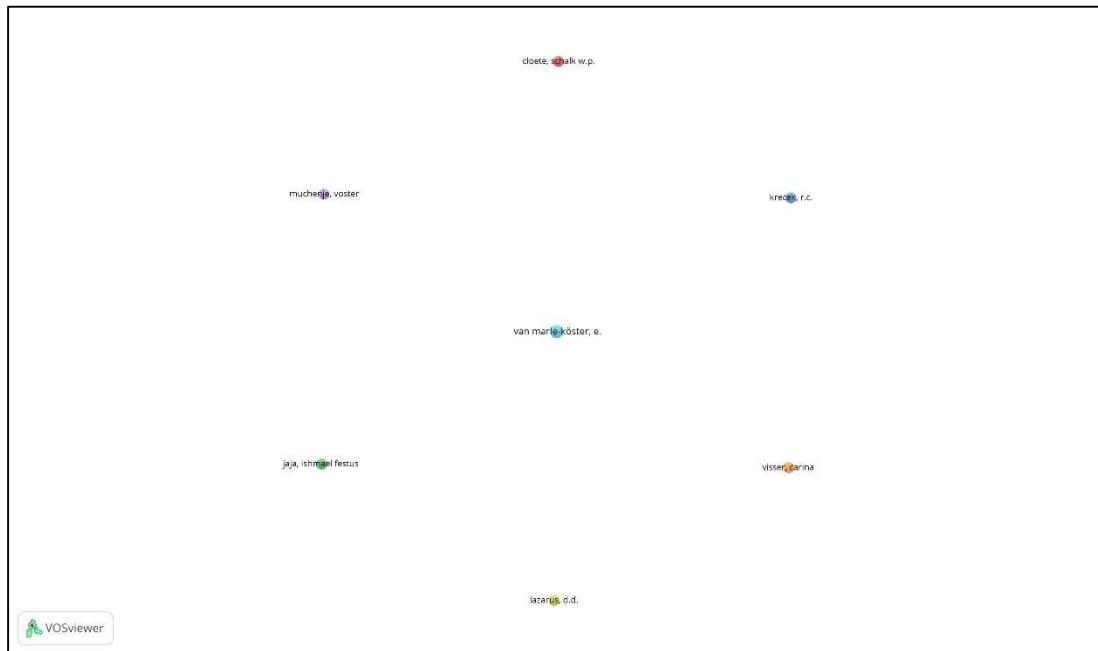
**Figure 2** The co-authorships in welfare research of all livestock species.

The keyword co-occurrence was also analysed. It was found that the five keywords with the highest occurrence were South Africa, animal, animals, animal welfare and article. The graphic created from the analysis is in Figure 3 below.
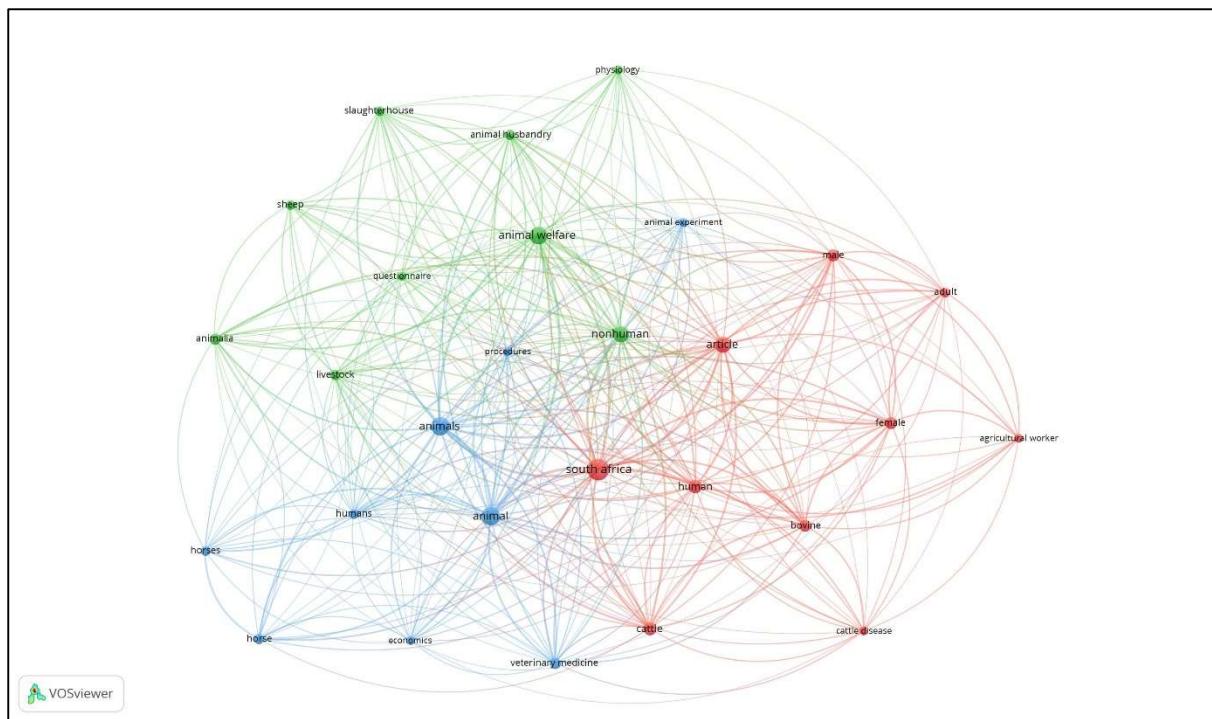
Figure 3 The keyword co-occurrence in SA welfare related articles for all livestock species.

Utilising the keywords "SA" AND "sheep" AND "welfare" it was found that of the 49 authors, none published two or more articles, and of the 49 authors nine were collaborators (Figure 4).
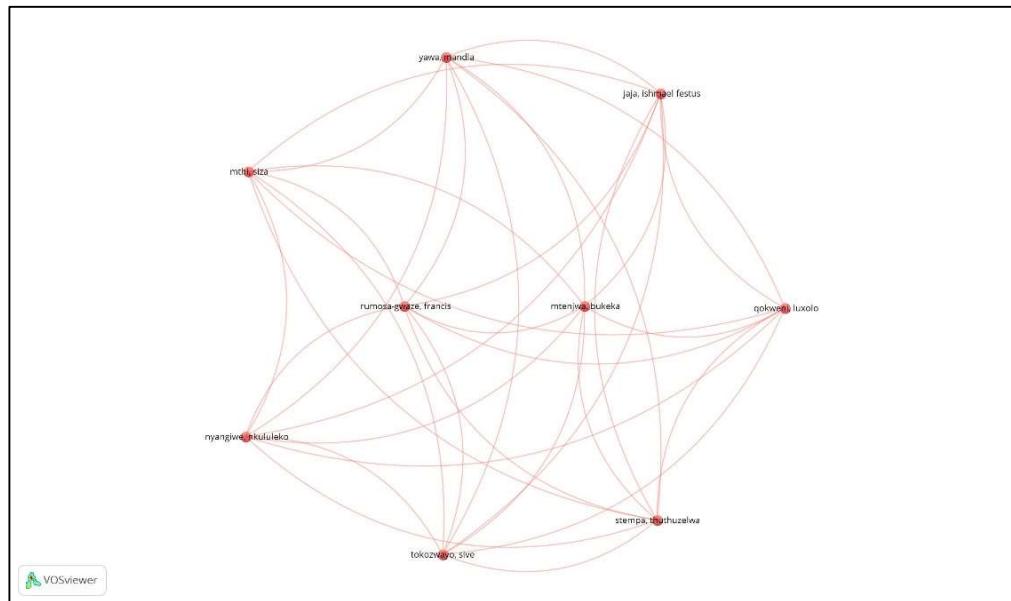
Figure 4 The co-authorship in SA welfare research focusing on sheep.

Furthermore, the keyword search "SA" AND "cattle" OR "sheep" AND "transport" OR "abattoir" saw that only 42 of the 62 authors that had published two or more papers, had collaborated (Figure 5).
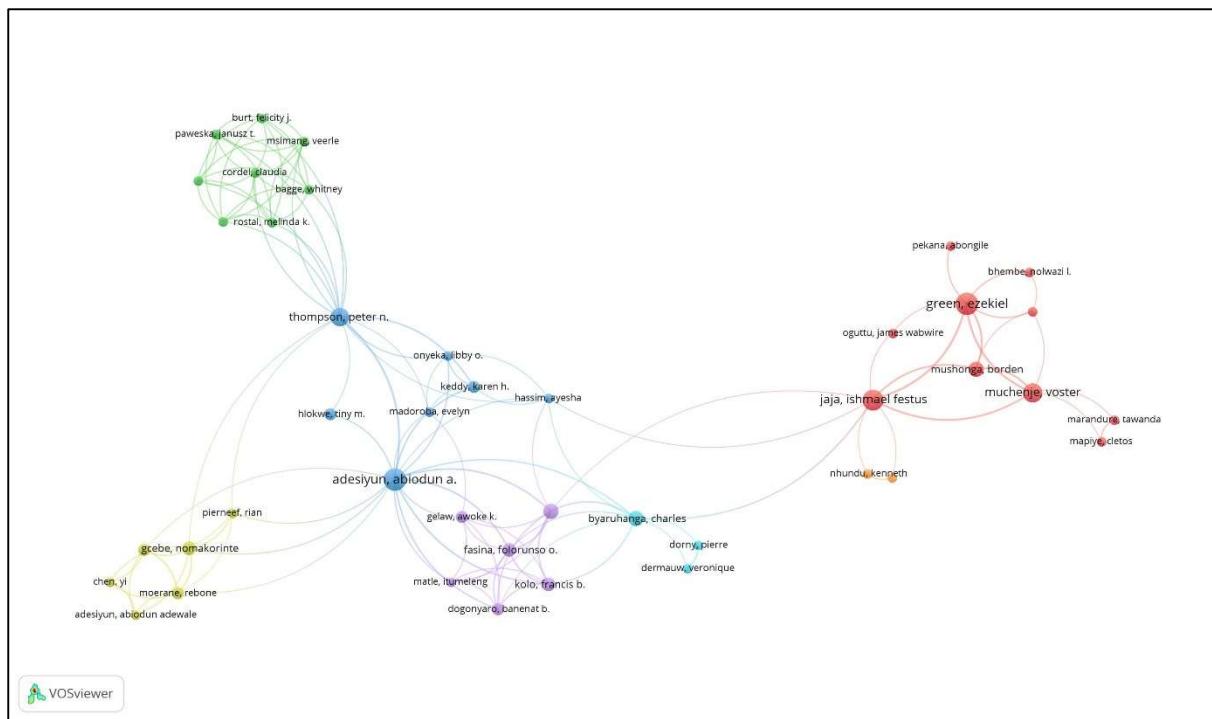
Figure 5 The co-authorship of welfare researchers focusing on cattle, sheep, transport and abattoirs.

In Figure 6 below the authors that have published the highest number of papers are shown. The total number of papers authored was determined through the sum of the papers authored in each keyword search. Note that these papers cover topics from production to disease - production aspects with animal welfare relationship or outcome.
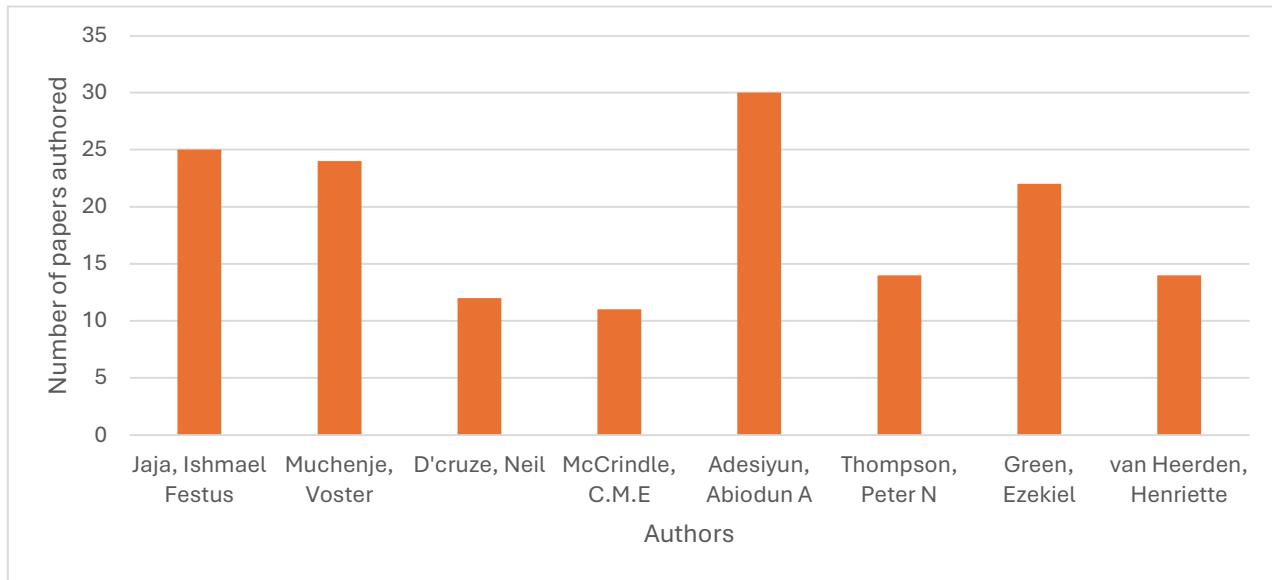
Figure 6 The authors with the highest number of papers published.

Concluding remarks

There seems to be a little focus on animal welfare as the primary topic in the research published among SA researchers, which include animal scientists and veterinarians. Individual research projects have focussed on tail docking, slaughter practises and quite a few diseases. There is

room for more collaboration and connection between animal scientists, veterinarians and other disciplines with an animal welfare interest. Animal welfare as a primary topic is slowly making its way to the forefront, and researchers realize the importance.

In SA context, animal welfare is highly complex, especially considering the dual agricultural system with highly intensive farming and smallholder or subsistence farming. Animal welfare research is costly, and the private industry is hesitant to provide funds if the outcomes are not economically positive.

Suggestions

Connecting animal welfare science with all interested parties through workshops.

Create awareness among scientists, industry and the public.

Endorse projects that support good animal husbandry practises.

Encourage larger animal welfare projects with local and international collaboration.