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# Literature search essentials

English version

March 2021

# Why scientific literature?

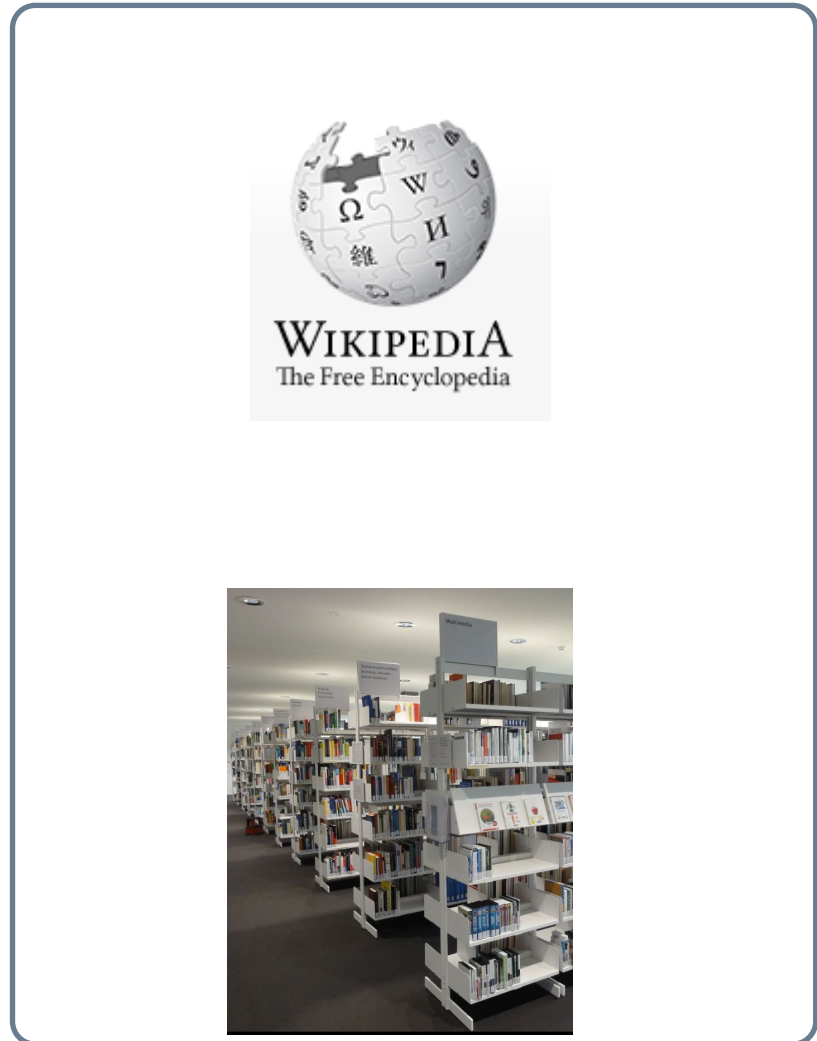
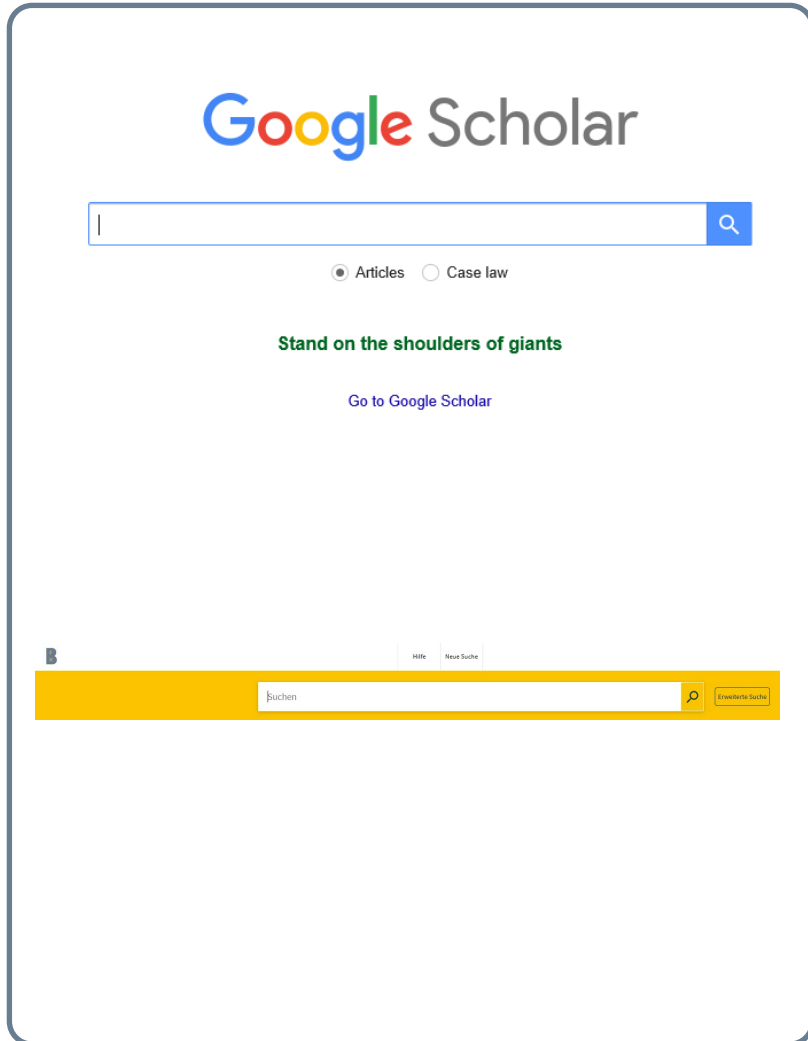
- ▶ Scientific findings are primarily recorded and passed on in text form.
- ▶ Scientific literature shows – in its entirety – the progressive development of human knowledge.
- ▶ The existing scientific literature on your topic reflects the current state of research.
- ▶ Ideally, your own scientific work contributes to the further development of knowledge.
- ▶ To a large extent, scientific work is work with scientific literature.
- ▶ Texts that do not refer to scientific literature are not scientific texts.

# Why literature searches?

- ▶ To ascertain the current state of research, you need the relevant (= topically most similar or most frequently cited) scientific literature on your topic.
- ▶ To find the relevant scientific literature, a systematic literature search is necessary:
  - ▶ Use specialised search tools that find the relevant scientific literature independent of language and publisher.
  - ▶ Reflect on and document your approach.
  - ▶ Critically evaluate what you have found.
- ▶ If the scientific literature on which you rely is incomplete, you may miss on important findings and information.

# Searching versus

# browsing



# Searching versus

# procuring full text

Web of Science InCites Journal Citation Reports Essential Science Indicators EndNote Publons Kopernio

## Web of Science

Search Search Results Tools Searches

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### Dynamic forecasting of individual cow milk yield in automatic milking systems

By: Jensen, DB (Jensen, Dan B.)<sup>[1]</sup>; van der Voort, M (van der Voort, Mariska)<sup>[1]</sup>; Hogeveen, H (Hogeveen, Henk)<sup>[1]</sup>

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#### Abstract

Accurate forecasting of dairy cow milk yield is useful to dairy farmers, both in relation to financial planning and for detection of deviating yield patterns, which can be an indicator of mastitis and other diseases. In this study we developed a dynamic linear model (DLM) designed to forecast milk yields of individual cows per milking, as they are milked in milking robots. The DLM implements a Wood's function to account for the expected total daily milk yield. It further implements a second-degree polynomial function to account for the effect of the time intervals between milkings on the proportion of the expected total daily milk yield. By combining these 2 functions in a dynamic framework, the DLM was able to continuously forecast the amount of milk to be produced in a given milking. Data from 169,774 milkings on 5 different farms in 2 different countries were used in this study. A separate farm-specific implementation of the DLM was made for each of the 5 farms. To determine which factors would influence the forecast accuracy, the standardized forecast errors of the DLM were described with a linear mixed effects model (lme). This lme included lactation stage (early, middle, or late), somatic cell count (SCC) level (nonelevated or elevated), and whether or not the proper farm-specific version of the DLM was used. The standardized forecast errors of the DLM were only affected by SCC level and interactions between SCC level and lactation stage. Therefore, we concluded that the implementation of Wood's function combined with a second-degree polynomial is useful for dynamic modeling of milk yield in milking robots, and that this model has potential to be used as part of a mastitis detection system.

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## Dynamic forecasting of individual cow milk yield in automatic milking systems

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#### ABSTRACT

Accurate forecasting of dairy cow milk yield is useful to dairy farmers, both in relation to financial planning and for detection of deviating yield patterns, which can be an indicator of mastitis and other diseases. In this study we developed a dynamic linear model (DLM) designed to forecast milk yields of individual cows per milking, as they are milked in milking robots. The DLM implements a Wood's function to account for the expected total daily milk yield. It further implements a second-degree polynomial function to account for the effect of the time intervals between milkings on the proportion of the expected total daily milk yield. By combining these 2 functions in a dynamic framework, the DLM was able to continuously forecast the amount of milk to be produced in a given milking. Data from 169,774 milkings on 5 different farms in 2 different countries were used in this study. A separate farm-specific implementation of the DLM was made for each of the 5 farms. To determine which factors would influence the forecast accuracy, the standardized forecast errors of the DLM were described with a linear mixed effects model (lme). This lme included lactation stage (early, middle, or late), somatic cell count (SCC) level (nonelevated or elevated), and whether or not the proper farm-specific version of the DLM was used. The standardized forecast errors of the DLM were only affected by SCC level and interactions between SCC level and lactation stage. Therefore, we concluded that the implementation of Wood's function combined with a second-degree polynomial is useful for dynamic modeling of milk yield in milking robots, and that this model has potential to be used as part of a mastitis detection system.

**Key words:** dairy cow, dynamic linear model, milk yield, somatic cell count

#### INTRODUCTION

In the past, many automatic mastitis detection systems and models have been developed and tested to improve the detection of (sub)clinical mastitis in dairy cows (Hogeveen et al., 2010; Dominkak and Kristensen, 2017). Most studies have focused on assessing the sensors' ability to detect clinical mastitis, and were mostly based on the electrical conductivity measures of milk. Electrical conductivity measures can be combined with other sensor data, for example with milk yield measures, potentially resulting in better detection performance (Kamphuis et al., 2008a; Mollenhorst et al., 2010). Also, nonsensor data, such as lactation stage and mastitis history, can improve the detection performance of sensor-based systems (Steenveld et al., 2008). Even though changes in animal health can be detected with milk yield measures (Hybretsis et al., 2014; Jensen et al., 2017), not a lot is known about how milk yield, affected by the interval between milkings and milk production curves, can improve mastitis detection at the individual cow level. When milking robots are used, milking intervals are not fixed. Milking cows at an optimal milking interval has the potential to increase milk yield and improve udder health (Hogeveen et al., 2001; Hale et al., 2003; Dahl et al., 2004; Hevonen and Pyörälä, 2011). André et al. (2010) created a static linear model to describe the herd-level milk yield per milking given the time interval since the last milking. The study showed a significant quadratic effect of the interval, which is in accordance with the findings of Hogeveen et al. (2001). This means that the milk yield for a given milking is expected to peak at a certain interval of time since the last milking, after which the yield will decrease, resulting in the total daily milk yield being below the individual cow's potential. The effect of the interval on milk yield varies between herds as well as between individual cows (André et al., 2010). Knowing the deviation between expected and observed milk yields of individual cows is important in dairy cow management (Grzesiak et al., 2006; Grzesiak et al., 2016). To know the deviation between expected

1, 2018

**full text**

# Book versus

# journal article

didactic approach



degree of specialisation



currency

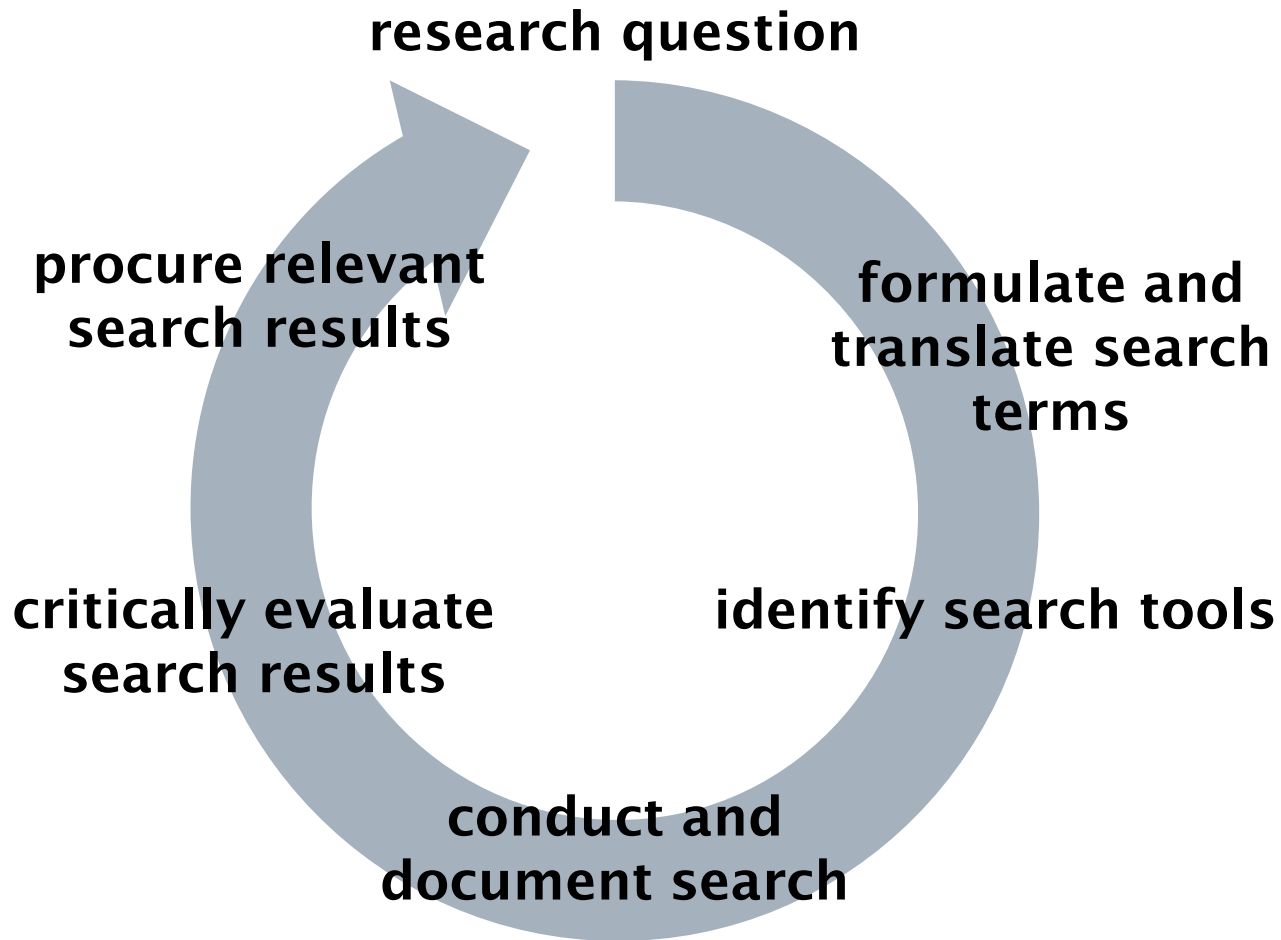


Discovery tool:  
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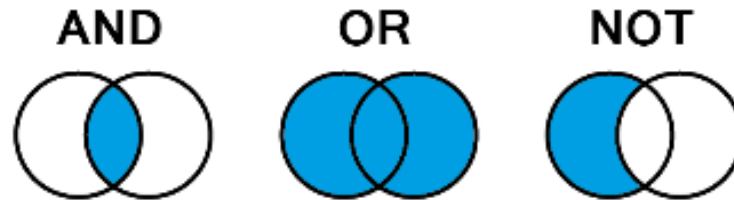
bibliographic databases:  
OvidSP, WoS ...

# Literature search as a cycle



# How to search?

## Boolean operators



## Truncation (\*)

	Results
horse.af.	64263
horses.af.	97011
horse*.af.	123996

## Phrase search (" ")

<b>606</b>	TOPIC: ("forest soil" degradation) <i>Indexes=SCI-EXPANDED, SSCI, A&amp;HCI, CPCI-S, CPCI-SSH, ESCI</i>
<b>595</b>	TOPIC: (forest "soil degradation") <i>Indexes=SCI-EXPANDED, SSCI, A&amp;HCI, CPCI-S, CPCI-SSH, ESCI</i>
<b>4,442</b>	TOPIC: (forest soil degradation) <i>Indexes=SCI-EXPANDED, SSCI, A&amp;HCI, CPCI-S, CPCI-SSH, ESCI</i>



# Why is Google Scholar not enough?

- ▶ Number of hits is hard to control: mostly tens, hundreds of thousands, millions of search results, of which only the first few are noted → questionable trust in relevance ranking of the search engine.
- ▶ Usually only yields results in the language of the search terms entered → relevant scientific literature in other languages may be missed
- ▶ Grey literature rarely found
- ▶ Limited search, filter and sorting options
- ▶ Suitable for initiating or supplementing systematic literature searches
- ▶ Still better than [google.ch/google.com](http://google.ch/google.com)

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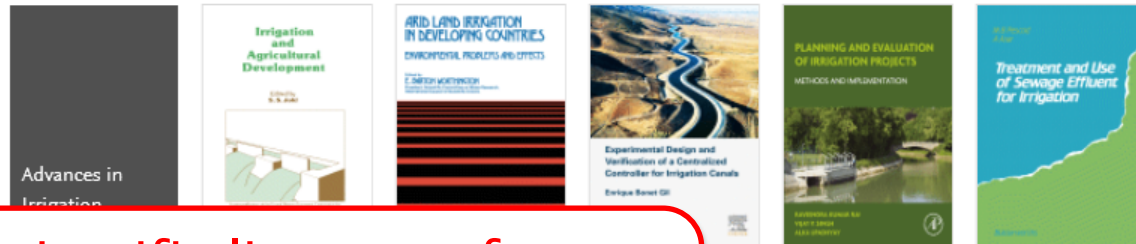
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Advanced search

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only scientific literature from a single – albeit large – scientific publisher

224,372 results

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Years

2019 (2,676)

2018 (14,887)

2017 (12,961)

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Model Development

Cultural Water Management, Volume 210, 30 November 2018, Pages 49-58

F. A. Lima, A. Martínez-Romero, J. M. Tarjuelo, J. I. Córcoles

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